

Behavioral Accounting & Financial and Nonfinancial Disclosure

Doctoral Thesis

submitted to

Department of Business Administration and Economics

Justus-Liebig-University Gießen

by

Julia Schneider, M.Sc.

Supervisors:

Prof. Dr. Corinna Ewelt-Knauer

Chair of Financial Accounting

Justus-Liebig-University Gießen

Prof. Dr. Arnt Wöhrmann

Chair of Managerial Accounting

Justus-Liebig-University Gießen

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Preliminary Notes

The “Doctorate Regulations of the Faculty of Economics and Business Studies of Justus-Liebig-University Giessen” of 14 March, 2010 contain all regulations for the conferment of the degree of Doctor of Economics and Business Studies (Doctor rerum politicarum, Dr. rer. pol.). According to Article 6 “Types of doctorate procedure”, doctoral candidates may choose from three types of doctorate procedure. I have chosen the completion of a course of doctoral studies (Article 8) without performance grades, together with a defense of the written doctoral thesis in a disputation (Article 16). The requirements for the written doctoral thesis are set out in Article 10. The written doctoral thesis can be either a monograph or a collection of at least three papers (cumulative doctoral thesis, Article 10 (3)).

This doctoral thesis represents the cumulative option and meets the formal requirements as outlined under Article 10 (3) a) to e). The following paragraph summarizes how this doctoral thesis meets the requirements. Detailed information on the fulfillment of these requirements can be found in the author contribution statements for each paper.

None of the papers submitted is a literature review (Article 10 (3) a)). For papers with co-authors, the relative share must, in general, be 1, divided by the number of authors. If all the authors issue a personal statement delimiting their own share in the respective work and wish to define the relative shares differently from the above-mentioned rule, the relative share is to be determined according to the personal statement (Article 10 (3) b)). If the shares in the papers of this doctoral thesis are defined other than 1 divided by the number of authors, the author contribution provided for each paper indicates the relative share. Each author has agreed to the relative author contribution in the form of a personal statement. The sum of the individual shares in all contributions must be at least 2 points (Article 10 (3) c)). Within the scope of this doctoral thesis the total sum of all obtained shares equals 6.33, and thus exceeds the required threshold of 2 points. Furthermore, at least one paper must successfully undergo an assessment procedure, i.e., either a peer-reviewed selection procedure for acceptance at a conference, or it must have reached at least the second round of the assessment procedure for publication in an economic journal (“revise and resubmit”) (Article 10 (3) d)). The set of papers included in this doctoral thesis meets these requirements. Finally, none of the papers was published, or accepted for publishing, more than five years ago (Article 10 (3) e)). Thus, the formal requirements of Article 10 (3) are fulfilled.

This doctoral thesis includes four research papers in the field of behavioral accounting that analyze management accounting, corporate governance and compliance issues (Chapter A) and seven research papers in the area of financial and nonfinancial disclosure (Chapter B). In Chapter A, research papers A1 and A3 examine how different control instruments and influencing factors in the work environment affect the extent to which an employee behaves (non)compliant, which is a central issue in research and practice. In detail, paper A1 asks whether the presence and structure of corporate giving constrain employees' excessive risk taking that was, for example, often cited as a root cause of the past global financial crisis. Contrary to widespread practice, our experimental evidence suggests that firms could constrain employees' excessive risk taking by linking existing contributions to project rather than corporate performance. Yet, too much personal involvement in a firm's prosocial initiatives causes excessive risk taking to rise again so that our paper highlights an inverted U-shape curve of effectiveness of getting employees involved. Paper A3 investigates whether control result transparency and detrimental effects on others can influence employees' noncompliance, particularly misreporting, and shows that both factors work as substitutes, not as complements. Removing employees' anonymity by notifying peers about the control result in a control procedure alleviates misreporting as long as there are no detrimental effects on others. However, once other individuals can suffer economic harm, control result transparency does not significantly reduce misreporting any further. Paper A3 thus covers a multi-hierarchical perspective and demonstrates that injunctive norms activated by the firm's management decision to make control results transparent and injunctive norms activated by social preferences for peers' welfare interact, and differentially influence misreporting. Both instruments are effective at crowding-in ethical considerations which were suppressed by the control procedure in an audit environment.

With a view to the quest for transparency in the management of firms, paper A2 analyzes the informal control instrument of mutual monitoring, i.e., the observability of employees' inputs (i.e., efforts, actions and work routines) and output (i.e., performance), in a multi-task environment. Consequently, mutual monitoring enables peer control by accessing richer, more accurate, more extensive, more disaggregated, and more real-time information on employees' effort allocation between easier and more difficult tasks. The paper shows that mutual monitoring of inputs and outputs incites impression management and facades of proficiency prompting employees to prioritize easy tasks over difficult ones. Since observability also provides the basis for many widely accepted practices in total quality

management implementations, the research also highlights the effect of the firm's error culture. The research results indicate a moderation such that an open (versus a blame) error culture only without mutual monitoring significantly lowers easy task prioritization suggesting that privacy is important in supporting self-focused experimentation and distraction avoidance. These results should inspire managers to critically reflect on modern facilities that often provide near-perfect observability of the actions and performance of every employee by leveraging technological advancements (e.g., communication of real-time information) and open-workspace design. Additional to these papers, paper A4 also focuses on lower hierarchies, but refers to another employee behavior and examines the effect of donation rankings on employee performance. The study identifies an important motivational spillover effect: prosocial incentives can spill over to employees' motivation to increase performance. While it is not surprising that being ranked on the task at hand matters to how employees perform this task, it is surprising that systems on unrelated, prosocial activities like workplace giving also matter.

Chapter B refers to research papers that rather focus on financial and nonfinancial disclosure topics at the management level or company level and therefore deal with questions on a company's investor relations system. Against this background, paper B1 asks whether corporate social responsibility (CSR) reporting is an appropriate means of attracting young talents. In order to answer this research question empirically, the annual and nonfinancial reports of publicly listed German firms are processed and analyzed using computer-linguistic methods. While more pronounced CSR disclosures on the aggregate benefit a firm in increasing its attractiveness as a potential employer, the study also reveals that a strategic fit between financial and nonfinancial information may be important to credibly communicate the firm's CSR endeavors and thereby to attract young talents. Paper B2 investigates the relation between different institutional and demographic characteristics and a firm's Internet-based disclosure practices using a two-period panel approach. The focus is first and foremost on the novel technological features of investor communication enabling the investor to self-select target-specific information and present information content in a user-friendly, timely and transparent way. More sophisticated and innovative investor communication practices tend to be associated with the presence of a Chief Information or Chief Sustainability Officer, lower management board turnover and an older (a younger) management board (Chief Executive Officer). Moreover, a Chief Digitalization Officer and a Digitalization committee tend to facilitate domain-specific innovative investor communication, e.g., concerning mobile applications or state-of-the-art share price information features on the firms' investor relations website. Paper

B3 examines the monetary valuation of environmental externalities on corporate level both normatively and empirically and proposes a valuation framework. While there are clear opportunities (e.g., the facilitation of comparisons between various impacts, the facilitation of communicating environmental externalities and the estimation of costs connected to potential internalizations), there are also central problems: possible ideological concerns of stakeholders as well as the subjectivity and uncertainty of the results. Overall, the controversial position of monetizing environmental externalities seems warranted. Paper B4 critically evaluates the recognition, measurement and disclosure requirements under IFRS 17. In particular, it discusses the new valuation model, the so-called building block approach which entails massive changes for the insurance industry. Paper B5 asks whether the women's quota creates transparency for investors by particularly considering the supervisory board committee level. Since the empirical findings reveal that firms provide very inhomogeneous and sometimes non-transparent and incomplete accounts of their objectives and the status quo of greater participation of women, the paper develops a "quota mirror". While paper B5 expressly addresses gender diversity, paper B6 likewise refers to a nonfinancial issue, but concentrates on sustainability reporting according to the standards of the Global Reporting Initiative and the Sustainability Accounting Standards Board covering the triple-bottom-line (economy, environment, society). Finally, paper B7 touches on both financial and nonfinancial issues by analyzing the remuneration transparency report according to §§ 21, 22 EntgTranspG. (Non-) collectively bargained firms can leverage the drafted template best practice as a guide for their next reporting season in 2021, or 2023 respectively, and remedy the disclosure deficiencies that have been apparent to date with regard to their measures to promote equality and achieve equal pay.

Chapter A: Essays on Behavioral Accounting

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A1 The gift that keeps on giving: Corporate giving and excessive risk taking

Study no.	1			
Title	The gift that keeps on giving: Corporate giving and excessive risk taking			
Authors	Colleen M. Boland, Corinna Ewelt-Knauer, Julia Schneider			
Author contribution		Boland	Ewelt-Knauer	Schneider
	Numeric share	0.25	0.25	0.5
	Conceptual development of research question		✓	✓
	Development of theory		✓	✓
	Methodology			✓
	Acquisition of data			✓
	Analysis/interpretation of data	✓	✓	✓
	Writing the manuscript	✓		✓
Publication status	Published (2021) <i>Journal of Business Economics</i> , https://doi.org/10.1007/s11573-021-01063-8 (VHB-Jourqual 3: B)			
Peer-reviewed conferences	2019	MBAA International Conference: Cultural Consciousness in Business (Boland)		
	2019	GMARS (Boland)		
	2019	AAA Annual Meeting (Schneider)		
	2019	7 th Annual Conference on Risk Governance (Schneider)		
Research approach	Experimental study			
Language	English			
Abstract	Corporations have recently started incorporating employees’ prosocial preferences into their incentive schemes, including charitable donations (corporate giving). These donations are mainly discussed in conjunction with the <i>external</i> effects of a firm’s CSR strategy. However, this experiment examines the effect of donations on <i>internal</i> firm operations. Specifically, we investigate <i>whether</i> the <i>presence</i> and <i>structure</i> of corporate giving influences employees’ excessive risk taking. Such prosocial activities may remediate misaligned incentives often cited as drivers for employees to take excessive risks. Contrary to widespread practice, our experimental evidence suggests that firms could constrain employees’ excessive risk taking by linking existing contributions to project rather than corporate performance, thus providing boundaries around an employee’s involvement in CSR initiatives. We identify project-level giving as an unexplored CSR benefit and infer that <i>personal responsibility</i> effectively changes an employee’s incentive package. Our findings suggest an inverted U-shape curve of effectiveness.			
Keywords	Incentive contract · Excessive risk taking · Corporate social responsibility · Corporate giving · Prosocial incentives · Experimental economics.			



The gift that keeps on giving: corporate giving and excessive risk-taking

Colleen M. Boland¹ · Corinna Ewelt-Knauer² · Julia Schneider² 

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Abstract

Corporations have recently started incorporating employees' prosocial preferences into their incentive schemes, including charitable donations (corporate giving). These donations are mainly discussed in conjunction with the *external* effects of a firm's CSR strategy. However, this experiment examines the effect of donations on *internal* firm operations. Specifically, we investigate *whether* the *presence* and *structure* of corporate giving influences employees' excessive risk-taking. Such prosocial activities may remediate misaligned incentives often cited as drivers for employees to take excessive risks. Contrary to widespread practice, our experimental evidence suggests that firms could constrain employees' excessive risk-taking by linking existing contributions to project rather than corporate performance, thus providing boundaries around an employee's involvement in CSR initiatives. We identify project-level giving as an unexplored CSR benefit and infer that *personal responsibility* effectively changes an employee's incentive package. Our findings suggest an inverted U-shape curve of effectiveness.

Keywords Incentive contract · Excessive risk-taking · Corporate social responsibility · Corporate giving · Prosocial incentives · Experimental economics

JEL Classification C91 · J30 · M14 · M41 · M52

IRB approval has been granted by the institution at which the experiment was conducted.

✉ Julia Schneider
Julia.Schneider@wirtschaft.uni-giessen.de

Colleen M. Boland
bolandc@uwm.edu

Corinna Ewelt-Knauer
Corinna.Ewelt-Knauer@wirtschaft.uni-giessen.de

¹ University of Wisconsin-Milwaukee, 3202 N. Maryland Ave., Milwaukee, WI 53211, USA

² Justus Liebig University Giessen, Licher Str. 62, 35394 Giessen, Germany

1 Introduction

Properly designed incentive contracts encourage managers to take appropriate levels of risk. However, misaligned incentives can trigger excessive risk-taking behavior, leading to potentially disastrous consequences. For instance, excessive risk-taking behavior is often cited as a root cause of the 2007–2009 global financial crisis (Kirkpatrick 2009). Notably, prior US Federal Reserve Chairman Ben Bernanke observed that during the global financial crisis “compensation practices at some banking organizations have led to misaligned incentives and excessive risk-taking, contributing to bank losses and financial instability” (Federal Reserve Press Release 2009). Through tournaments and other competitive schemes, firms may incite employees at *all* levels to exhibit excessively risky behavior (Acharya et al. 2016; Backes-Gellner and Pull 2013). In response to the risk-taking concerns, both regulators and firms have put forward demands for restrictive compensation measures (Jokivuolle et al. 2019). However, the regulations and restrictions enacted did not always prove useful in reducing risk, and they sometimes even precipitated unintended consequences. For example, Dittmann et al.’s (2011) analysis uncovers that the firm’s value can drop when the restriction forces firms to reject managerial talent or effort. This study examines one *non*-pecuniary incentive, an existing Corporate Social Responsibility (CSR)¹ initiative, to rein in excessive risk-taking.

Organization theory and business ethics research note the efficacy of a firm’s CSR efforts (e.g., Clarkson 1995; McWilliams and Siegel 2001; Swanson 1995, 1999). Firms develop CSR programs to establish legitimacy and balance stakeholders’ expectations, thus honoring economic and social agreements between the firm and its stakeholders and positioning the firm as a socially responsible (or morally based) entity. Valentine and Fleischman (2008) emphasize that regardless of the CSR program utilized, the firm’s motivations are, among others, to make its CSR efforts more salient to employees and improve ethical employee behavior.²

To date, accounting research addresses *where* taking additional risks is profitable (e.g., Sprinkle et al. 2008) and examines the *drivers* of excessive risk-taking behavior, most notably financial incentives (e.g., Brink et al. 2017) or tournament

¹ CSR involves discretionary actions that reach beyond traditional profit-making motives (Valentine and Fleischman 2008).

² Employees often have to choose one out of two opposing alternatives (Chen 2015): they can either continue with an established process or innovate. Similar trade-offs arise in other principal-agent relationships whenever the agent’s choice options differ in their risk content, and the agent is (partly) motivated by social concerns. For example, on behalf of their clients, attorneys often have to decide whether to settle (with known reward or punishment) or go to trial (whose outcome is uncertain). Doctors regularly choose between a safe treatment (e.g., a long-established drug regimen) and a risky one (e.g., a new off label use of an approved drug), and blue-collar workers may choose to search for process improvements (risky option) instead of running through the normal process (safe option). How will a firm’s prosocial cues influence the decision? Will employees act conservatively because the safe option prevents failure? Or will employees take too much risk, choosing the overly risky alternative in the hope of success? In the spirit of these examples, our setting has no middle ground and taking incremental risk is unprofitable. However, we acknowledge there are many settings that do not require a binary choice. Our results may not generalize to these settings.

competition (e.g., Eriksen and Kvaløy 2017; Schedlinsky et al. 2016). Brink et al. (2017) call for future research on how to *reduce* excessive risk-taking. Therefore, rather than revisiting compensation systems' effects, this study examines an alternative, non-pecuniary instrument to inhibit employees from taking excessive risks. Specifically, by holding compensation constant, we determine the impact of different corporate giving programs on employees' excessive risk-taking behavior. Employees increasingly expect their firm to promote socially responsible activities, and accordingly, they may search for signals that the firm is meeting their expectations.

Prior research hints at this, showing that firms might benefit from responding to social causes their employees' support (Valentine and Fleischman 2008). Perceptions of the firm are likely to depend on the CSR program's characteristics, including the program's implementation (i.e., corporate or project level); they determine an employee's responsibility in the firm's CSR initiatives (Corbett et al. 2018). Thus, a firm might fine-tune employees' risk-taking behavior by appealing to their social tastes and creating a sustainable risk culture (Lazear 2018). For example, a high proportion of performance-contingent pay attracts and retains a skilled workforce and motivates employees to provide additional effort, albeit at the cost of excessive risk-taking. Aligning incentives to employees' social preferences is worth considering for (based on performance) jobs with employees having a strong loyalty to their firm. In this experimental study, we test whether corporate giving in general and the level of employee empowerment specifically in corporate giving programs can successfully curb employees' excessive risk-taking behavior.

Our experiment first explores *whether* the presence of corporate giving, a popular CSR activity, influences employees' excessive risk-taking behavior. We assume that the anchor of corporate giving, where charitable giving is grounded in a firm's objectives and tied to overall firm performance (*corporate-level giving*), mitigates employees' excessive risk-taking behavior. Drawing on social norm activation theory (Bicchieri 2006), we contend that the "tone at the top's" (Collier and Esteban 2007; Schwartz 2013) charitable attitude and prosocial actions are strong enough to radiate throughout the organization, activating a social norm of employee other-regarding behavior. Next, we analyze whether employee empowerment has an incremental impact on risk-taking. In detail, we research whether project outcomes (i.e., when corporate donations relate to the success of an individual employee's specific projects) reduce excessive risk-taking compared to charitable contributions coupled with overall corporate performance but decoupled from the individual employee. In other words, what is the impact of individual employee responsibility (e.g., *corporate-level giving* vs. *project-level giving*)? Leveraging accountability theory (Lerner and Tetlock 1999), we expect that employee responsibility reins in excessive risk-taking. Finally, we maximize an employee's empowerment and explore whether the person who selects the charity (firm's senior management or employee) has a differential influence on employees' excessive risk-taking behavior.

Contrary to common practice, where corporate charitable giving is tied to overall firm profits, we fail to find any impact of corporate charitable giving on excessive risk-taking behavior. However, when giving is based on project-level performance, we observe a "cautious shift." Project-level based giving appears to mitigate employees' excessive risk-taking behavior. We attribute this result to the introduction of

self-accountability. Importantly, our results indicate that this effect does not fade over time. Finally, we show that when employees pick the charitable beneficiary, they experience a “risky shift.” That is, employees increase their excessive risk-taking behavior. We speculate that employees’ personal involvement drives this risky shift since selecting the charity may lead to motivated reasoning (Kunda 1990) and to seeking a bigger payoff for their charity. Employees engaged in motivated reasoning tend to process information consistent with their wishful outcome and overestimate the investment benefits (Slovic et al. 2007; Small 2011). Overall, our experiment points towards an inverted U-shape curve of effectiveness in that both too low and too high levels of employee empowerment in the firm’s CSR activities impair the contracting benefit of corporate giving (Balakrishnan et al. 2011) and are thus suboptimal in creating or maintaining firm value. Our results collectively indicate that specific characteristics of a firm’s CSR activities can be utilized as a risk governance instrument, reducing the reliance on pay incentives, lowering compensation payouts for the firm.

Additional analyses corroborate the main findings’ robustness. Average excessive risk-taking behavior is lowest in the project-level giving condition and higher in any other condition for the subsample of risk-averse and risk-neutral participants. The risk-reduction effect of the project-level giving program also extends to the risk-seeking subsample. Further, the main results hold for the subsample of prosocially-motivated participants, i.e., those to whom giving to charity is important. Here again, we document a U-shape relationship between corporate giving and excessive risk-taking behavior. An increase in employee empowerment in corporate philanthropy to a certain level reins in excessive risk-taking decisions, but after that level, excessive risk-taking slopes upward again.

Moreover, while post-experimental responses suggest that participants, on average, associate corporate giving with low- rather than high-risk investment activities, pairwise comparisons highlight the importance of considering the charity recipients. Participants who choose a charity providing food and medical care (e.g., American Red Cross) allocate much less to overly risky investment alternatives than any other charity type. Urgently needed aid and extreme poverty seem to motivate altruism and thus arouse more restrained risk-taking decisions.

Our study contributes to both theory and practice. CSR and employees’ empowerment in CSR activities have received much attention from academics and practitioners (Altenburger 2020; Groom 2018; Huang and Watson 2015; Moser and Martin 2012). Particularly corporate giving is a widespread activity that is realized in many forms and implemented at different organizational levels. In 2015, the top 20 most generous Fortune 500 companies granted \$3.5 billion in cash (Preston 2016) and Microsoft’s employee giving program encourages employees to directly connect with local initiatives in various projects involving monetary or time donations (Microsoft 2020). Corporate giving and excessive risk-taking behavior are costly for firms. Currently, most firms make such philanthropic decisions in isolation, tying

corporate giving to the overall firm profit,³ without considering if these donations can effectively be used to rein in employees' excessive risk-taking behavior, an unexplored benefit of CSR.

Second, the recently growing empirical literature using archival data generally documents a negative association between CSR and firm risk (Oikonomou et al. 2012) or a negative relation between CSR and deviations from optimal risk-taking (Harjoto and Laksmana 2018). Our laboratory experiment provides *causal* evidence documenting this negative association while removing many of the confounding factors present in the field (Hales et al. 2016).⁴ Third, there is literature showing that a firm's CSR practices affect employee behavior. For instance, some studies find that a firm's CSR commitment improves employees' organizational commitment, motivation, or performance (e.g., Balakrishnan et al. 2011; Peterson 2004)—desirable behavioral outcomes. However, there is only *little* evidence of whether and how a firm's CSR actions can be utilized to mitigate undesirable behavioral outcomes. In this vein, we show how different charitable giving structures affect employees' *excessive risk-taking decisions*—with such decisions being *undesirable* from an economic perspective as, by definition, they are detrimental to firm performance.

Examining employees' excessive risk-taking decisions is important for at least two reasons (Sprinkle et al. 2008). First, performance frequently is a function of *both* effort and risk-taking decisions (Bolton et al. 2015a). For example, investment managers are responsible for selecting projects that vary in risk (capital allocation decisions) and implementing selected projects. Second, a firm's CSR practices may differentially affect employees' effort and risk-taking decisions. A firm's CSR program features that induce high effort may differ from the features that encourage (excessive) risk-taking. Inducing employees to perform unappealing work tasks is fundamentally different from choosing between risky alternatives. Indeed, while prior research points to a positive relationship between a firm's CSR commitment and employees' willingness to provide effort (Charness et al. 2016; for a review, see Gond et al. 2017; Tonin and Vlassopoulos 2015), our results demonstrate the *boundaries* of increasing the level of employee empowerment. A high level of employee empowerment (i.e., personal involvement in choosing the charity) causes employees to engage in motivated reasoning (Kunda 1990), making them believe in the probability of receiving the highest possible payoffs.⁵ These findings illustrate the economic importance of disentangling performance into its fundamental

³ For further details see <https://givingusa.org/giving-usa-2017-total-charitable-donations-rise-to-new-high-of-390-05-billion/> (accessed on 21.01.2019).

⁴ Note that our experimental investment context concentrates on excessive risk-taking ignoring that some risk-taking is desirable or even necessary in practice, as is the case for investment options with a positive net present value. This design choice provides a clear decision rule (any further risk taken is detrimental for all parties involved), thus ensuring a high internal validity.

⁵ Likewise, Sprinkle et al. (2008) illustrate that, from an individual wealth maximization standpoint, a tradeoff exists between eliciting effort and encouraging profitable risk-taking decisions. Control and reward systems that motivate organizationally desirable behavior along one primary dimension of performance can simultaneously induce actions detrimental to the firm on another dimension of performance.

determinants, neither neglecting one performance dimension nor confounding the effort and (excessive) risk-taking decisions (Sprinkle et al. 2008).

Finally, we corroborate fieldwork which concludes that firms increasingly emphasize a management control system focused on the communication of values and social influence (Heinicke et al. 2016; Marginson 2009) and document under which circumstances “cultural control” occurs. Our conclusion that personal accountability and controllability (via personal involvement) are the key integrating control mechanisms for firms engaging in corporate giving extends the growing literature on cultural control (Heinicke et al. 2016; Kennedy and Widener 2019). We show that too low or high controllability impacts excessive risk-taking behavior. Our results may help firms design an appropriate social value incentive system to maintain or alter excessive risk-taking behavior patterns: too much freedom (e.g., choosing the charity) may be counter-effective.

The paper proceeds as follows: Sect. 2 reviews the literature and provides background information on charitable giving and excessive risk-taking. Section 3 develops our hypotheses. Section 4 outlines the experimental design. Section 5 presents the results, and Sect. 6 discusses and summarizes the results.

2 Theory and related literature

2.1 Excessive risk-taking

Employees’ excessive risk-taking, defined as the risk associated with business decisions exceeding levels in firm owners’ interests (Brink et al. 2017; Eriksen and Kvaløy 2017), can jeopardize firm sustainability. Exchanging a lower expected value for a greater variance puts a strain on the firm’s risk-bearing ability. Although there is always the chance of a big payoff, excessive risk-taking behavior also has a high potential for consequential loss and, on average, reduces wealth (speculative dealings with an expected value < 1 ; Lefebvre and Vieider 2013). Not only does excessive risk-taking run counter to a for-profit firm’s value-maximizing objectives, but it may also harm society at large. In particular, financial sector professionals have been accused of taking excessive risks on behalf of others (Andersson et al. 2016; Cohn et al. 2017). Tournaments, stock option plans, and other asymmetric rewards have been blamed for stimulating excessive risk-taking beyond the banking sector (Eriksen and Kvaløy 2017; Sanders and Hambrick 2007). Due to relatively high amounts of contingent pay (i.e., structural differences in their payoff functions), equity investors often have incentives to take excessive risks to increase their profits at the expense of debt holders and other stakeholders (e.g., through overinvestment). While these excessive risk-taking incentives have received extensive attention in regulatory reforms for executive compensation,⁶ they do not reflect the widespread

⁶ Such regulations are often predicated on the belief that decreasing the contingent portion of these monetary incentives (i.e., pay linked to earnings per share indicators) will reduce potential agency costs (Brink et al. 2017). In this terminology, our study explores a potential agency (i.e., contracting) benefit (Balakrishnan et al. 2011), that is a CSR instrument to diminish excessive risk-taking behavior.

use of *non*-executive risk-taking incentives in practice (Murphy 2013). More than half of U.S. corporations employ some tournament schemes, where all types of employees—ranging from production-line workers to salespersons to mutual fund managers—compete for promotions, bonuses, or prizes (e.g., “employee of the year” awards) (Backes-Gellner and Pull 2013). A malfunctioning reward system may create unsustainable norms, self-regarding beliefs, and maladaptive paradigms that encourage employees at all levels to make “high-variance” rather than “good” investments (Cohn et al. 2017; Conyon et al. 2011). This study incorporates other stakeholders into employees’ daily investment decisions and links risk-taking and responsibility for others to inhibit excessive employee risk-taking.

2.2 (Excessive) Risk-taking on behalf of others

An employee’s risk-taking choices affect others (Trautmann and Vieider 2012), including the firm’s stakeholders (e.g., firm owners, customers, and employees). For socially responsible firms, they also extend to the beneficiaries of that responsibility. In our setting, because the firm has corporate giving programs, the charity’s recipients are also firm stakeholders, and therefore an employee’s risk-taking decisions have implications for the charity.

A small but growing stream of research investigates how people take risks with “other” people’s money. These studies combine risk and responsibility to examine risk-taking behavior when decision-makers are accountable to another individual (e.g., Andersson et al. 2016; Pahlke et al. 2015) or group (e.g., Bolton et al. 2015b). Consistent with the saying “better safe than sorry,” the studies corroborate the notion that perceptions of social responsibility, or accountability, are associated with caution (Bolton et al. 2015b). Feeling responsible for other people’s money tends to motivate more careful investment strategies (Pollmann et al. 2014; Weigold and Schlenker 1991). A decision maker’s responsibility or care for other people’s fortune (Charness and Jackson 2009) appears to align risk behavior more closely to the beneficiaries’ interests (Lefebvre and Vieider 2013).

We build on this reasoning when researching whether *excessive* risk-taking can be reduced by linking an investment decision to a charity. A charity’s known financial needs heighten employees’ altruism preferences, feelings of social responsibility, and inequality aversion (Andreoni and Miller 2002; Fehr and Schmidt 1999). We argue that such social or other-regarding preferences (Cooper and Kagel 2016) are likely to offset a decision maker’s propensity for excessive risk-taking. Employees should have an incentive to protect and bolster their firm’s, their own, *and* a charity’s financial health: excessive risk-taking behavior is contrary to the idea of firm sustainability.

2.3 Beyond the principal-agent contract: an organizational setting with social norms

Grounded in economics, agency theory models the firm as a nexus of contracts between principals who delegate services and agents who perform them (Jensen and

Meckling 1976). As employees (i.e., agents) do not bear the full wealth effects of their decisions, employees' risk orientation may not be perfectly aligned with that of the firm owners (i.e., principals). For example, overinflated equity compensation practices and a one-sided emphasis on yield may cause employees to incur unsustainably high debt levels (i.e., creating a malfunctioning incentive contract), resulting in principal-agent conflicts (Jensen and Meckling 1976; Till and Yount 2019). Firms minimize these conflicts through corporate policy and risk governance. Risk governance aims to establish supervisory and incentive mechanisms that align employees' risk orientation with firm owners' interests. Identifying those motivators is central to addressing principal-agent conflicts and strengthening a sustainable firm risk culture.

The traditional "homo economicus" model which underlies the agency theory-based research in this field, relies on pecuniary incentive components. In its simplest form, agents are assumed to be purely self-interested and have private utility increasing in earnings (Rebitzer and Taylor 2011). They do not attach the same value to more socially sophisticated elements, such as social norms or desires for altruism and charitable activities unless these elements will somehow affect an employee's wealth.

Recent research is challenging the notion that employees are narrowly self-interested (Till and Yount 2019); instead, employees care for the proceeds generated for needy others, in addition to their own (Berg and Gigerenzer 2010). By sticking to social norms and displaying generally respected modes of conduct, people view themselves favorably: they are altruistic, generous, and helpful (Tonin and Vlassopoulos 2013). Individuals derive private value from the act of helping (Imas 2014; Rotemberg 2006); that is, they experience an emotional reward, the feeling of a "warm glow." Firms can leverage individuals' taste for altruism in several ways. For example, they can connect a work task to a meaningful outcome (Ariely et al. 2008) or emphasize the impact of tasks (Grant 2008) through corporate giving.

To investigate how firms may capitalize on employees' social or other-regarding preferences (Cooper and Kagel 2016), especially their taste for altruism, Sitkin and Pablo (1992) identify three elements explaining employees' risk behavior within a firm: individual characteristics, problem-related characteristics, and organizational characteristics. Their risk framework refines traditional principal-agent theory which is generally silent concerning the potential for social norms of other-regarding behavior to emerge in employees. For social norms to matter to an employee's utility, they have to be efficacious—and to be efficacious, they must be salient. Essentially, situational cues lead an employee to interpret the decision context as one to which a given norm applies, pay attention to the norm, and conform to it (Bicchieri 2006, 2008). Positive motivational effects can be obtained by linking what employees value—or want to avoid—to measured outcomes (Nelson 2012). Beyond cash, firms use social incentives and integrate them into employees' total reward and compensation package to guide their risk-taking (Nelson 2012; Sprinkle and Maines 2010).

Whereas some CSR incentive programs personally involve employees, making the *individual employee* accountable, other programs and program features more indirectly influence individual responses to work and dealing with risk (e.g.,

employees' beliefs or perceptions concerning a *firm's* involvement in CSR). As such, the firm's incentive structure (economic incentives vs. economic *and* social incentives) communicates its objectives and sets its core values (profit-orientated goals vs. profit-orientated *and* social goals).

While “the role of ‘value systems’⁷ as a mechanism of management control” (Marginson 2009, 7) and the need for “an accountability-oriented control system” (Merchant and Otley 2006, 792) are generally acknowledged, the role of CSR and an employee's personal accountability and empowerment in CSR play in the system is still open to debate. Burbano (2016) documents that employees respond to a socially responsible message about an employment situation with lower wage claims. Firms engaged in prosocial programs are viewed as more likable and more trustworthy (Burbano 2016; Fehrler and Przepiorka 2016). Employees reciprocate such prosocial signals with desirable, norm-compliant behavior (Kajackaite and Sliwka 2017). Hence, the mere presence of corporate giving changes the way decision-makers mentally frame the situation, causing them to perceive the firm as one that “does good.” As such, CSR actions likely foster the relational contract between employees and the firm (Valentine and Fleischman 2008).

Similarly, Durden (2008, 671) notes that “informal [or relational] control [is a] key aspect in developing a management control system that incorporates social responsibility considerations” and thus is central to risky organizational decision-making. Management control systems shape employees' practices and support strategy. If used appropriately, these systems push employees toward socially sustainable business decisions (Gond et al. 2012). Based on these findings, we expect that a firm's CSR activities, such as charitable contributions, will spill over to *internal* firm dealings (e.g., an employee's investment decisions), resulting in less excessive risk-taking behavior and a higher firm value.

3 Hypotheses development

3.1 Effect of charitable giving tied to overall firm profits on excessive risk-taking

Senior management's corporate strategy and mission statements incorporate CSR initiatives. Contributions (i.e., corporate giving programs) are often based on firm-wide performance. This message from the top conveys a signal to employees that the firm is socially responsible (“pro-CSR tone”) and sets a norm as to what is appropriate (Church et al. 2019). A firm that supports and engages in a prosocial activity tends to refrain from irresponsible, unsound, potentially harmful business decisions (e.g., excessive risk-taking). Rather, responsible and sustainable decision-making

⁷ In management control terminology, value systems are “the explicit set of organizational definitions that senior managers communicate formally and reinforce systematically to provide basic values, purpose, and direction for the organization” (Simons 1995, 34). Value systems serve to inspire, guide, and motivate behavior through the use of broad value-laden concepts (Simons 2000; Mundy 2010) allowing employees to engage in responsive actions (Heinicke et al. 2016).

is preferred (Benabou and Tirole 2010; Bowles and Polanía-Reyes 2012; Joshi and Li 2016). Social norm activation theory (Bicchieri 2006) posits that an individual's perceptions of expected behavior trigger concerns about complying with the norm (i.e., the expected behavior). Costly prosocial activities like corporate giving are likely to be a salient aspect of the employment setting, thus activating a norm of employee other-regarding behavior (Douthit et al. 2019). Because employees derive utility, or a “warm glow” feeling (Andreoni 1990), from helping others (i.e., the firm and/or charity), we assert that this social norm-based influence from the top will restrain employees from taking excessive risk. Employees will reciprocate the firm's socially responsible message with norm-compliant behavior (Kajackaite and Sliwka 2017; Noreen 1988).

Our conceptual mediation model (Fig. 1) illustrates how the presence of *corporate-level giving* affects employees' perceptions of the firm's prosocial business practices, a signal of senior management's expectations of employees' risk-taking behavior. Corporate giving communicates to employees that excessive risk-taking on behalf of the firm is unwelcome because excessive risk-taking behavior can endanger the firm's financial viability and its prosocial direction. We expect employees' decision problems to be framed in terms of other-regarding and society-serving objectives when a portion of overall firm earnings is donated to charity: overly risky behavior would not comply with the firm's norm of other-regarding behavior. All else equal, the presence of corporate-level giving should lead employees to mentally frame the firm as one that “does good”⁸ and also induces employees to employ “healthy” risk levels that serve the firm's prosocial practices.

However, due to their indirect and broad nature, corporate-level donations are not directly tied to individual employees' daily work, and thus an employee's contribution is not transparent. Firm-based performance measures aggregate the relationship between specific activities (e.g., risk-taking decisions) and their consequences. Therefore, such obscure measures are inadequate for understanding the impacts of an employee's excessive risk-taking decisions. Rather, corporate-level giving may be best imagined as a portfolio of projects—some of which have positive impacts, others with negative impacts and still others with small or no net prosocial impacts (Corbett et al. 2018). Consequently, donations at the corporate level are remote from the employee and bring about controllability problems (Merchant and van der Stede

⁸ An alternative explanation is that managers may engage in philanthropic impression management and opportunistic window dressing. Especially firms with legitimacy concerns are likely to engage in such activities to conform to expected social behavior and stakeholder demands and, in turn, to obtain, protect or restore their social license to operate (Aguilera et al. 2007; Chen et al. 2008; Du and Vieira 2012; Filatotchev and Nakajima 2014). For example, Gond et al. (2012) observe that many firms hide behind sustainability rhetoric in their mission statements to reconstruct an eroded legitimacy. Taking a behavioral perspective, Cassar and Meier (2017) show that the functioning of prosocial incentives depends on how employees perceive the firm's intentions for using those incentives and not just the direct effect of the incentives for the good cause. If prosocial incentives are seen as being used strategically, i.e., the firm's perceived intention is to benefit from the prosocial incentives, employees view the firm as less prosocial and react unfavorably to the incentives. Corporate-level giving, if used strategically, can backfire, i.e., create a negative signaling value of the firm's type that possibly outweighs its intended (excessive risk-reduction) effect.

2017). These donations precipitate a “diffusion of responsibility” (Charness and Jackson 2009; Latané and Nida 1981) since only a few top senior managers in the firm, i.e., those who can make strategic decisions, significantly influence them. They say little about the performance and excessive risk-taking decisions of individuals lower in the firm’s hierarchy. As a result, because corporate-level giving is outside an employee’s purview and control (and sometimes awareness), it may lose any individual employee’s value or incentive effect.

Since there has been little prior research as to whether corporate-level giving is salient enough to prime or activate a norm of other-regarding behavior, our first hypothesis is as follows, stated in the null:

H1 Relative to *no giving* at the corporate level, the norm activation effect of *corporate-level giving* is not associated with an employee’s excessive risk-taking behavior.

3.2 Effect of charitable giving tied to project-level performance on excessive risk-taking

In deriving our second hypothesis, we add to senior management’s “pro-CSR tone” (i.e., giving to charity) with *perceived* accountability. Pirson and Turnbull (2016) argue that decentralized corporate governance structures handle CSR complexity better than centralized structures. Church et al. (2019) observe that large corporations often decentralize CSR decision-making to facilitate CSR implementation and promote morale. In these corporations, after senior management has determined the overall CSR strategy, middle managers’ and rank-and-file-employees’ investment decisions are linked to CSR (e.g., using project-level performance as the measurement basis for decision-making). In this case, *project-level* performance *directly* determines the amount of charitable giving which the individual employees achieve—unlike a corporate giving program established at the top of the firm that socially influences or primes the individual employees lower in the hierarchy with its prosocial signals radiating to them (H1).

In this setting, the amount the firm donates to charity is tied to the success of an individual employee’s specific projects (*project-level giving*) rather than overall firm success. The project setting is employee-centered and reduces the “diffusion of responsibility” inherent in *corporate-level giving* programs focusing on senior management’s CSR policy. Employees move from being *influenced* (H1) to being *personally responsible* (H2) as they perceive control over and feel personally accountable for the project outcome. Following accountability theory (Lerner and Tetlock 1999), the perceived importance or salience of excessive risk-taking consequences will be greater than when corporate-level decision-making conceals an individual contribution (Merchant and van der Stede 2017). Linking project-level performance to charitable giving makes harming the welfare of “others,” i.e., the potential loss to the charity, *more* transparent to employees and has a greater effect than when giving is based on overall corporate performance. Employees “should be able to see more clearly how the design

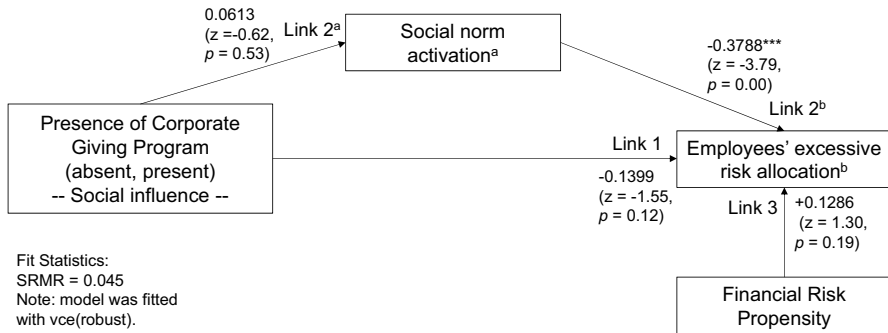


Fig. 1 Theoretical mediation model for H1. *, **, *** significant at the 0.10, 0.05, and 0.01 levels, respectively. It shows the standardized path coefficients for the model that uses the presence of the corporate giving program (vs. *no-giving*) as independent variable to test H1 ($n = 99$). ^a*Social norm activation* represents answers provided on an eleven-point-Likert scale (1 = very untrue of me; 11 = very true of me) for the following item: Senior management's stated goals affected my investment decisions in the way that I allocated more points to investment alternative A. ^b*Employees' excessive risk allocation* is the mean excessive risk allocation over all ten rounds, comparing the *no-giving* with the *corporate-level giving*, *project-level giving* and *charity selection* conditions

of social projects affects specific social and economic outcomes for the [charitable recipients] and how they benefit the organization along the same outcome dimensions" (Salazar et al. 2012, 176).

Employees thoroughly evaluate the investment problem and the available options to choose the option most clearly defensible due to feelings of controllability and personal accountability (Simonson and Nye 1992). Decision-makers attach weight to the loss-probability of excessive risk allocations and view such an investment as overly loss-prone. Employees dislike feeling accountable for relatively probable negative outcomes, and personal accountability deters harming others (Hall et al. 2007). For employees in charge of the investment project, excessive risk-avoiding behavior becomes relatively more important. They understand their responsibility for a poor outcome to the firm and, by extension, to the charity and anticipate guilt, regret, or dissatisfaction (Pham 2007). *Ceteris paribus*, as shown in Fig. 2, we expect that the positive (i.e., excessive risk-diminishing) effect between the corporate giving program and excessive risk-taking is mediated through the impact of employees' perceived accountability for charitable contributions.

To summarize, because the investment outcome is within their scope of responsibility, employees perceive personal accountability to decide in the firm's and the charity's best interests, i.e., engage in less overly risky behaviors. Thus, we expect the project-level giving contract to encourage a more conservative approach (i.e., a cautious shift) and align risk-taking decisions with corporate economic goals. Formally, our second hypothesis is in the alternate form:

H2 Relative to *corporate-level giving*, the personal responsibility effect of *project-level giving* decreases employees' excessive risk-taking behavior.

3.3 Employee involvement in charity selection and its impact on excessive risk-taking

Next, we explore the effect of employees' participation in selecting the charity as the project's payoff beneficiary. The employee's empowerment shifts from *personal responsibility* (H2) to *personal involvement* (H3). Since the employee chooses the charity, the firm's prosocial mission likely matches employees' individual needs and beliefs (Koppel and Regner 2014; Smith 2016). Employee involvement in charity selection provides a better mission match with the charity type and purpose, leading to higher emotional proximity. Recently, Resh et al. (2018) propose that "mission match" and identification with the organization's mission are more significant than broad-based, other-regarding, or societal orientations which persistently increase employees' prosocial effort. But theory and research leave it open whether this finding can also be generalized to excessive risk-taking behavior.

If project specificity, personal connection, and emotional proximity were the mechanisms for excessive risk-taking mitigation, we would expect *charity selection* to have the lowest level of excessive risk allocations. The idea is that employees sympathize more strongly with the charity and its objectives (Akerlof and Kranton 2005; Small and Simonsohn 2008) when selecting the charitable cause than when the firm's senior management holistically selects on behalf of the firm. Given this sympathy, employees may be more motivated to decide in the best interests of their chosen charity (Charness and Gneezy 2008; Montinari and Rancan 2018). We expect employees to make more careful and conservative decisions for a socially close charity to provide the highest expected payout.

However, active engagement and empowerment in a firm's CSR issues could lead to irresponsible decision-making due to motivated reasoning (Kunda 1990). Motivated reasoning means that individuals tend to access and interpret available information consistent with their preferences and expectations, especially when they have a strong emotional stake in the decision. *Personal involvement* in the *charity selection* process creates an emotional stake that may make an employee engage in motivated reasoning—based on what the employee *wants* to believe. *Charity selection* may shift employee motivation from being "an appropriate investment allocation" (accuracy goal) to "reaching a desired investment outcome" (directional goal) for the selected charity. This new focus causes employees to emphasize the favorable project outcome and ignore the possibility of a loss (Hales 2007). Such an emotional or irrational response may arise since customized charitable contributions stem from the heart (Small 2011), and affective responses to vivid objects tend to be more extreme than reason-based assessments (Pham 2007).

Further research highlights that pleasant emotions such as enthusiasm trigger generally optimistic risk assessments (Druckman and McDermott 2008 and the references cited here). People judge risk by what they think and how they feel about it (Slovic and Peters 2006). Given that employees feel favorable towards the selected charity, they are more likely to judge the risks (benefits) of a risky option as low (high) (affect heuristic; Slovic et al. 2007). Although the odds of a large gain are extremely low, a risky decision *could* lead to a large gain and enhance the charity's welfare more than the less risky option. As employees become more personally

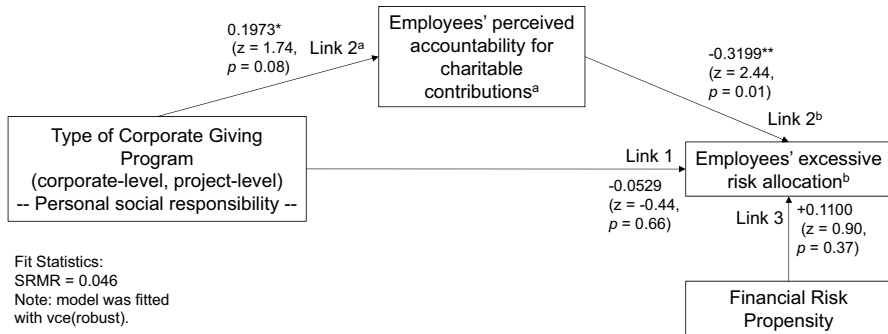


Fig. 2 Theoretical mediation model for H2. *, **, *** significant at the 0.10, 0.05, and 0.01 levels, respectively. Figure 2 shows the standardized path coefficients for the model that uses the type of the corporate giving program (corporate-level vs. project-level) as independent variable to test H2 ($n = 70$). ^aEmployees' perceived accountability for charitable contributions, a two-item principal factor (eigenvalue = 1.33, explained variance = 1.16), is derived by using factor analysis. It represents answers provided on an eleven-point-Likert scale (1 = very untrue of me; 11 = very true of me) for the following items: (i) Senior management's stated goals affected my investment decisions in the way that I allocated more points to investment alternative A, and (ii) The fact that a given percentage of my investment decisions' payoff is donated to charity, influenced my investment decisions in the way that I allocated more points to investment alternative A. ^bEmployees' excessive risk allocation is the mean excessive risk allocation over all ten rounds, comparing the corporate-level giving condition with the project-level giving and charity selection conditions

involved in CSR decision-making, they will likely experience unpleasant emotions related to the prospect of not taking the risky option. Specifically, they will anticipate regretting having waived the favorable investment outcome. Employees' attention moves from the security potential of investments (i.e., where they focus on the worst possible outcomes and weigh them heavily in decision-making) to aspiration (Luft and Shields 2009; March and Shapira 1992). Their impact on their chosen charity in mind may drive employees to emphasize the best possible outcomes and weigh these outcomes more heavily in risky decision-making. Consequently, they are willing to undertake high-risk, high-return projects.

Since theory and extant literature are relatively unambiguous as to which of the competing forces prevails, we posit the following hypothesis:

H3 Personal involvement in designating the recipient charity increases employees' excessive risk-taking when giving is tied to project-level performance.

4 Method

4.1 Experiment design, manipulated variables, and task description

To test our hypotheses, we conduct a $1 \times 4 \times 10$ mixed-design laboratory experiment. We vary between subjects, the presence and type of the corporate giving program among four treatment conditions: *no giving*, *corporate-level giving*, *project-level*

giving, and *charity selection*.⁹ To rule out one-time effects and detect end-game strategies (Schedlinsky et al. 2018), we conduct ten independent rounds with the same performance-based compensation scheme across all rounds and conditions.

Participants make ten identical investment decisions that influence either overall firm earnings (*no giving* and *corporate-level giving*) or individual project performance (*project-level giving* and *charity selection*). In our *baseline* condition, *no giving*, overall firm profit is distributed to the shareholders, an anonymous group of investment decision beneficiaries. Before making investment decisions, participants assigned to the *corporate-level giving* condition learn that 10%¹⁰ of the overall firm profit donations, including their investment decisions' payoff, are donated to senior management's chosen charity, the American Red Cross. Participants assigned to the *project-level giving (charity selection)* condition learn that 10% of their investment project's payoff is *directly*, i.e., independent of overall firm performance, sent to senior management's identified charity, the American Red Cross (the individual participant's chosen charity). The amount that goes to the charity is calculated similarly across the giving treatments. Any distinction between these treatments is due to employee empowerment and, because prosocial norms are highly context-sensitive (Bicchieri 2008), the framing of the charitable contribution.¹¹ Table 1, Panel A, depicts the experiment material's exact wording of the firm's senior management's stated strategic goals.

We use z-Tree software to conduct our experimental risk-taking task that involves the investment decisions (Fischbacher 2007). Based on an adapted version of Gneezy and Potters' (1997) risky lottery, participants receive an endowment of 100 points to allocate between two investment options. These investment options are labeled investment alternatives A and B to avoid framing language effects.¹² As long as the 100 points remain fully invested, the allocation of the 100-point endowment

⁹ We list all the variables we have manipulated and measured for testing our hypotheses within the supplemental data (see Table 1, Panel B). This list also specifies which are the dependent, independent, and covariate variables.

¹⁰ While 10 percent may be very high and might not reflect the average business context, corporate giving varies from sector to sector and from firm to firm, and is highly responsive to changes in corporate pre-tax dollars as well as GDP. The report, Giving in Numbers: 2018 Edition, found that the top quartile of firms collectively donated at least \$55.3 million, or 1.8 percent of their pre-tax profit, up from \$53 million and 1.7 percent in 2016 with the health care sector firms donating 7.8 (6.0) percent in 2017 (2016). Moreover, experiments test directional predictions (here, the effect of corporate giving on excessive risk-taking), rather than point estimates. Consequently, the fixed percentage value may influence the strength, rather than the direction, of the effect.

¹¹ We thank an anonymous reviewer for this interpretation. "Context-sensitive" or "context-dependent" means that different social norms will be activated, or appear appropriate, depending on how a situation is understood. Even a small change of the decision frame context may elicit different, even opposite, preferences (Bicchieri 2006).

¹² Alternative A has no risk but also no (zero) return. It guarantees a safe repayment of the amount invested. By contrast, alternative B has a dyadic payoff structure, resulting in a win of 2.5 times the investment or a loss of the entire allocated amount as emphasized with a screen that popped up after each investment decision with a "WIN" or "LOSE" message. The investment alternatives A and B are explained in more detail in the supplemental data. Figure 1 in the supplemental data illustrates the payoff structure resulting from the two alternatives and Table 1 (also enclosed in the supplemental data) depicts the expected value calculation of the alternatives.

is at the participant's discretion.¹³ The amount invested in alternative B, our primary dependent variable, is our proxy for excessive risk-taking. Economically, each marginal increment invested in investment B means accepting excessive risk and, due to its inferior expected value (ratio of 0.83 to 1), is detrimental to the firm.

The widely used Gneezy and Potters' (1997) risk elicitation method supports loss aversion in financial decisions of both students and professionals (see Charness et al. 2013 for a review). We chose the Gneezy and Potters' (1997) risky lottery because it requires participants to choose between no risk (and no chance of increasing their money through investment) and excessive risk (a chance of increasing their money through investment, but at a lower expected value). To obtain a clear decision rule, we concentrate on *excessive* risk-taking as the only risk option (Brink et al. 2017; Schedlinsky et al. 2016). Taking the additional risk has harmful effects on the employee, the shareholders, and the charity. If we had broadened our focus and added a third positive net present value investment alternative (i.e., with an expected value above one) covering (profitable) risk, taking on more risk would have been desirable depending on the participant's risk-taking propensity. Our experimental approach was to construct a situation where the optimal strategy was to take no risk, regardless of the individual participant's risk-taking propensity (Eriksen and Kvaløy 2017) and then vary the charitable giving frame.¹⁴ Although the task does not distinguish between risk-neutral and risk-averse behavior, controlling for attitude toward risk, the amount allotted to alternative B provides a fairly good metric for capturing treatment effects in excessive risk-taking behavior (Charness et al. 2013). Individuals choose among risky prospects by balancing the value of the possible consequences, comparing all available options and possible outcomes, and incorporating factors of the business environment (Mellers 2000; Simonson 1989). In our simplified decision-making environment, by construction, the less employees invest in alternative B, the less they destroy firm value and the more they act in their firm's best interests. The investment outcome of the most recent investment decision (total investment payoff) and the allocation to the participants and to charity, respectively, are reported at the end of each round (of the experiment).

4.2 Participants

The participants were recruited from a large Midwestern US university. In total, 129 students took part in the experiment. Students who answered at least one out of three manipulation check (MC) questions incorrectly (30) were excluded from

¹³ A calculation formula and an understanding check expressly indicate that an allocation of zero to either alternative is valid. Across all rounds 12.22 percent of the participants made no allocation (i.e., invested zero points) to the risky option (alternative B).

¹⁴ A post-experimental question asks about the riskiness of investment alternative B (eleven-point-Likert scale: 1 – not at all risky; 11 – extremely risky). Participants' mean responses of 8.51 are significantly above the scale's midpoint ($t=13.03$; $p<0.001$), with no significant differences between conditions ($F=0.48$, $p=0.6950$).

Table 1 Extracts from the experimental materials and variables

Panel A: experimental conditions

<i>No giving</i>	“the firm’s senior management’s stated goal is to make profits (i.e., generate a return on investment).” “financial gain is <i>the only criterion</i> used to determine the choices made by the firm’s senior management.”
<i>Corporate-level giving</i>	“the firm’s senior management’s stated goals are to make profits (i.e., generate a return on investment) <i>and to be charitable</i> (i.e., tying <i>overall firm profit</i> to charitable giving).” “besides financial gain, <i>charitable criteria</i> are used to determine the choices made by the firm’s senior management.”
<i>Project-level giving</i>	“the firm’s senior management’s stated goals are to make profits (i.e., generate a return on investment) and to be charitable (i.e., tying <i>your specific investment project profits</i> to charitable giving).” “besides financial gain, <i>charitable criteria</i> are used to determine the choices made by the firm’s senior management.”
<i>Charity selection</i>	“the firm’s senior management’s stated goals are to make profits (i.e., generate a return on investment) and to be charitable (i.e., tying <i>your specific investment project profits</i> to charitable giving).” “besides financial gain, <i>charitable criteria</i> are used to determine the choices made by the firm’s senior management.”

Panel B: list of variables

Dependent variable	
Excessive Risk-taking	<i>Excessive risk allocation</i> as the number of points allocated to investment alternative B.
Independent variables	
Corporate Giving Program	The presence and type of the corporate giving program. This between-subjects variable is manipulated at four levels: no giving, corporate-level giving, project-level giving and charity selection.
Round	A within-subjects factor. In total, apart from the two trial rounds, ten rounds of the experiment are conducted.
Covariates	
Financial Risk Propensity Factor	The measure for participants’ risk propensity in the financial risk decision domain. This principal factor is derived through factor analysis using six items placed in the pre-experimental questionnaire (see Table 3, Panel A). <i>Financial Risk Propensity</i> , a persistent but not stable trait, is the reported level of an individual’s financial risk-taking tendency.
Altruism Factor	The measure for participants’ prosocial disposition. This principal factor is derived through factor analysis using six items placed in the post-experimental questionnaire (see Table 3, Panel B).

Panel A shows the experimental instruction’s precise wording of our manipulated variable, i.e., the presence and type of the corporate giving program. Differences between conditions are highlighted. Panel B describes the manipulated and measured variables of our RM-ANCOVA (see Table 4, Panel A)

the statistical analysis.¹⁵ The resulting population consisted of 99 participants (MC sample), 48 females (48.48%) and 51 males (51.52%).¹⁶ Their mean (median) age was 22.45 (21) years, with 90% between 19 and 27. Most participants reported their major as accounting (44.44%), finance (27.27%), or marketing (18.18%), and they were primarily enrolled in undergraduate-level courses (84.85%); the remaining ones were graduate students. Nearly all participants (95%) had attended at least one college-level math class. There are no significant differences across our four conditions in terms of gender, age, lab experience, current year of study, current grade status, current overall grade, and attendance of business ethics, finance, and math classes (all $p > 0.10$).¹⁷ Our experiment considers students a representative population since work experience or specialized knowledge is not needed to test our proposed causal relationship between charitable giving and excessive risk-taking. Experiments on social preferences conducted with students typically set the lower bound for prosocial behavior (Belot et al. 2015; Cooper and Kagel 2016), especially when economics students participate in experiments (Cappelen et al. 2015).

4.3 Experimental procedures

Upon arrival, the participants were randomly assigned to one of the four conditions. The participants first read instructions that provided general information about the experiment, outlined the session's procedures, and then answered questions designed to measure their risk propensity from the Domain-Specific Risk-Taking (DOSPERT) scale (Blais and Weber 2006). We selected twelve questions covering decision situations in the financial and social risk domain. The question sheet differentiates between the main risk propensity scale (1=extremely unlikely; 11=extremely likely) and a risk perception subscale (1=not at all risky; 11=extremely risky). A high (low) risk propensity (risk perception) score indicates a high probability of being risk-seeking in domain-specific decision situations.¹⁸ While we collected risk propensity data at the outset of the experiment, the four-item risk perception

¹⁵ The three MC questions were (i) What is your share in the payoff of your investment decisions? (MC 1: *Personal share*), (ii) Who chose the beneficiary charity of your investment decisions? (MC 2: *Method of charity selection*) and (iii) To what is charitable giving primarily or directly linked? (MC 3: *Charitable giving link*). 122 out of 129 (94.57 percent) answered MC 1 correctly. MC 2 and MC 3 had only been part of the giving treatments and 91, respectively 79 students out of 99 (91.92 respectively 79.80 percent) answered these questions correctly. We can speculate why this many students failed to answer all MC questions correctly. Since the initial comprehension quiz was quite detailed, and the instrument was long, we conjecture that students failed to answer all MC questions correctly due to fatigue. The instrument was long.

¹⁶ As outlined later, the initial comprehension quiz indicated that all participants had entirely understood the experimental instructions. For comparison, while we report the results based primarily on the smaller sample ($n = 99$), we reran all the analyses, including the 30 participants who failed the MC. Importantly, the results with the full sample of 129 participants are inferentially identical.

¹⁷ Unless stated otherwise, all p -values are reported on a two-tailed basis.

¹⁸ There is considerable variance in the estimation of risk: the same set of circumstances is evaluated differently among individuals. To ensure that organizational characteristics, i.e., the presence of *corporate-level giving*, rather than the individual risk profile are driving our results, we measure both individual risk propensity and risk perception and integrate the former as a covariate into our analysis.

scores were gathered after the investment task had been completed. Thus, we can determine if our framed charitable giving manipulation was strong enough to alter the participants' risk perceptions relative to their initial risk propensity (Blais and Weber 2006; Sitkin and Pablo 1992). Moreover, eliciting risk preferences *ex ante* allows for an undistorted measure of individual risk propensity (Brink et al. 2017; Schedlinsky et al. 2016).¹⁹

Next, the participants read the second set of experimental instructions and completed a comprehension quiz on the experimental instructions. Participants were required to answer all understanding check questions correctly before the session continued.²⁰ Participants in the giving treatments reviewed fact sheets about the American Red Cross (*corporate-* and *project-level giving*) and the other charities (*charity selection*). Participants in the charity selection treatment-group (*charity selection*) selected their charity.²¹

After two practice rounds and ten rounds of the investment task, participants completed a post-experimental questionnaire. In addition to process-related data and the DOSPERT scale mentioned above, the *post*-experimental questionnaire covers other personality-related influences. Specifically, we control for participants' prosocial disposition using a reduced version of the self-reported altruism scale (Rushton et al. 1981) and select suitable dimensions from the Revised NEO Personality Inventory (Costa and McCrae 1992). Finally, the post-experimental questionnaire includes MCs and demographics. Because all the data was recorded without personal identifiers, our procedures guaranteed participant anonymity. Figure 2 of the supplemental data illustrates the experiment's steps in chronological order.

¹⁹ It is common in accounting experiments to measure participants' risk preferences upfront (e.g., Brink et al. 2017; Kreilkamp et al. 2020). We acknowledge that participants could have connected the measurement of their personality with the task in the experiment. However, since the risk propensity elicitation instrument was constant across treatments, it does not take away from the observed differences.

²⁰ A sample question was "How many investment alternatives are you given in each round? Please indicate the number of investment alternatives given." On average, it took the participants 12.75 s for a true/false-statement, 17.25 s to specify the correct input for an open question with free text responses, and 37.25 s for a single-choice question respectively.

²¹ There are tradeoffs as to the number of charities used in the experiment. A high number of total charities makes it more likely for a participant to find a charity that he prefers to support. However, too high a number may cause choice overload, meaning that the participants are overwhelmed by the choices in the experiment. Similar to topically related experiments (e.g., Brown et al. 2017), participants must select one charity from a menu of ten charities which included brief descriptions of the charities' activities. We do not believe choice overload is a serious issue here, as the charities and their principal work were concisely listed on one screen. A survey item placed after the participant has selected the charity reveals a significant mission match with Likert-scale responses significantly greater than the scale midpoint ($t=15.84, p<0.001$). It took the average participant slightly more than one minute to choose the charity and only few participants took more than two minutes for making their decisions.

4.4 Monetary compensation and prosocial incentives

During the experiment, all earnings and profits are measured in points, our experimental currency. After converting points to US dollars, each participant earned their variable payment in addition to a \$4.80 appearance fee and a flat payment for answering pre- and post-experimental questions (\$8.52 to \$9.84).²² The variable payment was based on both luck (random draw) and participants' investment decisions and could range from \$0 to \$10. To allow for comparison, participants across all treatments earned 10% of the payoff from their investment choices. We held the percentage of individual variable pay constant to rule out that self-serving beliefs or self-regarding (vs. other-regarding) behavior would bias our results (c.f. Haisley and Weber 2010). That is, there is evidence that compensation contracts and certain features thereof (i.e., levels of incentive pay) affect employees' (excessive) risk-taking behavior (e.g., Brink et al. 2017; Dittmann et al. 2011; Kreilkamp et al. 2019). Since our study discusses prosocial features of the firm's incentive system rather than "appropriate" compensation structures, we kept the participants' variable compensation structure constant across conditions. We used a variable compensation scheme to prime participants to think carefully about their investment decisions and reveal their "true" risk-taking behavior (i.e., to ensure incentive compatibility in individual decision behavior).²³

On average, participants earned \$17.82 for approximately 100 minutes of participation.²⁴ The maximum (minimum) compensation was \$21.17 (\$14.86). Like the participants' payments, the charitable organizations' points were converted to US dollars at the end of each session. On average, participants earned \$3.57 on behalf of the charity. The maximum (minimum) donation per participant was \$6.77 (\$0.60).

5 Experimental results

5.1 Validation of the experimental design

To verify internal design validity and rule out the possibility of personality-related traits distorting our results, we check for potential sources of overconfidence (Pikulina et al. 2017) and excessive risk-taking (e.g., Nicholson et al. 2005). We observe that both anxiety ($F=10.35$, $p=0.002$) and seeking excitement ($F=22.09$, $p<0.001$) explain participants' risk propensity. However, neither personality-related trait significantly differs across treatments, nor do narcissism and striving

²² Participants were paid a piece rate of 3 points or \$0.12 US dollars per question. The reported range results from a differing number of questions across treatments.

²³ To re-examine how a personal stake in the investment outcome impacts excessive risk-taking behavior, another control group would be necessary where only a fixed wage is paid.

²⁴ We present the means for the full sample (129 participants). The average compensation in the MC sample aggregated to \$17.70, with a maximum (minimum) compensation of \$20.16 (\$14.86). Individual remunerations differed similarly from the full sample (baseline \$16.78; giving treatments \$18.08, $p<0.001$).

for achievement (all $p > 0.479$). Consequently, randomization appears successful: idiosyncratic influences should not interfere with our conclusions.

Using post-experimental questions, we confirm that the level of employee empowerment continuously rises, starting from a *social norm-based influence* on corporate level (H1) to *personal responsibility* on project level (H2), and ending with *personal involvement*, when employees pick the charity (H3). The first question asked participants to indicate agreement with the statement that they felt the firm empowers its employees. Participants' mean responses on a scale ranging from one (*strongly disagree*) to 11 (*strongly agree*) increase from 7.93, for *no giving*, to 9.16, for *charity selection* and differ significantly across treatments ($F=2.29$, $p=0.084$). Notably, the *no-giving* condition participants' answers differ significantly from those in the three giving treatments ($t=-2.31$, $p=0.023$), with answers significantly higher under the *project-level giving* and *charity selection* conditions ($t=-2.40$, $p=0.019$). The second Likert scale-item asked participants to indicate to what extent they felt they played a part in the firm's goals and activities (one=*very untrue of me*; 11=*very true of me*). Participants' mean response of 7.86 (9.00), when giving is absent (present) ($t=-2.98$, $p=0.004$) and ANOVA statistics ($F=3.03$, $p=0.033$) provide corroborating evidence of distinct levels of perceived organizational commitment and employee empowerment across conditions.

Prior research shows that employees who are primarily motivated by a "mission" or attach meaning or purpose to their job are happier, exert more effort, and accept lower wages (Pratt and Ashforth 2003; Prendergast 2007). Therefore, for our manipulation to be successful, it is crucial that participants consider the charity's mission and work worthwhile and attach meaning to their decisions on risky prospects (Carpenter and Gong 2016). Indeed, we find that participants in the *corporate-* and *project-level giving* conditions (*charity selection* condition) expressed the deservingness of the American Red Cross (their chosen charity). They rated the charity's mission and work positively, as suggested by the mean response of 9.09 (9.92) which is significantly greater than the scale midpoint ($t=11.02$ ($t=13.09$), both $p < 0.001$). We conclude that our manipulation was successful and induced meaningfulness at work.

5.2 Descriptive statistics and hypotheses tests

Our primary dependent variable, excessive risk allocation, is measured as the proportion invested in investment alternative B (risky lottery). Table 2 reports the number of participants per treatment, the means, and standard deviations for all four treatments. Figure 3 illustrates the mean excessive risk allocation for our four treatments and all rounds graphically. Over the ten rounds, the average excessive risk allocation is lowest under the *project-level giving* program (36.25 points), higher under *charity selection* (42.04 points). It is highest under *no-giving* (47.23 points) and the *corporate-level giving* program (48.71 points).

Beyond these between-treatment effects, we also observe marked round effects. Comparing the first and last rounds, participants become more risk-seeking over time across all conditions (rounds one to five, 41.77 points; rounds six to ten, 45.37 points, $t=-1.78$, $p=0.075$). Additionally, a relatively strong risky shift emerges in the *corporate-level giving* (rounds one to five, 46.51 points; rounds six to ten,

Table 2 Descriptive statistics per round and treatment (mean [standard deviation])

Excessive risk allocation ^a						
	No giving		Giving		Total	
		Corporate-level giving	Project-level giving			
	(<i>n</i> = 29)	(<i>n</i> = 21)	Charity specification (<i>n</i> = 24)	Charity selection (<i>n</i> = 25)	Total (<i>n</i> = 49)	(<i>n</i> = 70)
						(<i>n</i> = 99 ^b)
First half (round 1 to round 5)	42.80 [28.99]	46.51 [31.19]	37.59 [27.12]	40.58 [30.85]	39.12 [29.06]	41.34 [29.87]
Second half (round 6 to round 10)	51.66 [34.36]	50.90 [30.09]	34.91 [31.69]	43.49 [35.97]	39.29 [34.14]	42.77 [33.37]
Total rounds	47.23 [32.05]	48.71 [30.65]	36.25 [29.47]	42.04 [33.47]	39.20 [31.67]	42.05 [31.65]
						43.57 [31.84]

^a *Excessive risk allocation*, our proxy for excessive risk-taking, represents the stake allocated to investment alternative B

^b MC sample (students who successfully passed the manipulation checks, *n* = 99) descriptive statistics are reported

50.90 points, $t = -1.04$, $p = 0.301$) and the *no-giving* treatment (rounds one to five, 42.80 points; rounds six to ten, 51.66 points, $t = -2.37$, $p = 0.018$). In contrast, the excessive risk allocation for participants in the *project-level giving* treatment, where the firm's senior management determines the charity, remains comparatively low (rounds one to five, 37.59 points; rounds six to ten, 34.91 points, $t = 0.70$, $p = 0.482$). Participants who *select their charity* of choice are moderately willing to take more excessive risks over time (rounds one to five, 40.58 points; rounds six to ten, 43.49 points, $t = -0.69$, $p = 0.494$). Preliminary indications suggest that relative to the other treatments, *project-level giving* appears to be the most effective design for reducing excessive risk-taking, both in the short and long term.

To test our hypotheses, we performed a repeated-measures analysis of covariance (RM-ANCOVA), with the number of points invested in investment alternative B (the risky lottery) as our dependent variable. Our first independent variable is corporate giving, measured in four ways: (i) *no giving*, (ii) *corporate-level giving*, (iii) *project-level giving*, and (iv) *charity selection*. The second independent variable, *round*, is our within-subject factor. The analysis includes the ex-ante (ex-post) measured financial risk propensity (level of altruism). Specifically, we use factor analysis to aggregate six items measuring participants' financial risk propensity into a single financial risk-propensity factor (eigenvalue=2.35; explained variance=0.80). Our measure of individual altruism is derived from Rushton et al.'s (1981) self-reported altruism scale, focusing on those items most related to charitable donations and prosocial behavior. The original self-report altruism scale (Rushton et al. 1981) is an instrument designed to elicit previous prosocial behavior, including donating money to charity. We calculate Cronbach's alpha to assess the inter-item covariance for all the item pairs and determine the constructed scale's reliability.²⁵ Next, we use factor analysis to combine the six items into a single altruism factor (eigenvalue=1.78; explained variance=1.20). Table 3 presents the computed principal factors for financial risk propensity and altruism.

Table 3, Panels A to D, shows the RM-ANCOVA results from our hypotheses tests. We find both financial risk propensity and the level of altruism, our covariates, to be significantly related to the excessive risk-taking decision (financial risk propensity, $F = 11.87$, $p < 0.01$; altruism, $F = 4.48$, $p = 0.03$). Furthermore, the effects of the presence and type of the corporate giving program ("*giving*") on participants' excessive risk allocations are statistically significant $F = 8.14$, $p < 0.01$).²⁶ We employ contrast coding as a post-estimation

²⁵ While we identify ten items, the highest alpha value is obtained if four items with factor loadings below 0.4 are dropped step by step (ten items, $\alpha = 0.6823$; six items, $\alpha = 0.7214$). The resulting altruism factor consists of the following six items: 1) "I have given money to a charity.", 2) "I have given money to a stranger who needed it (or asked me for it).", 3) "I have donated goods or clothes to a charity.", 4) "I have done volunteer work for a charity.", 5) "I have bought 'charity' Christmas cards deliberately because I knew it was a good cause.", and 6) "I have offered my seat on a bus or train to a stranger who was standing." For all items, a higher 11-point Likert score response represents a greater frequency of having carried out the altruistic acts. Since one established motive for charitable contributions is pure altruism, we control for individual altruism. Altruistic or prosocial behavioral intentions reflect a person's readiness to improve the well-being of others, most notably of charitable recipients deserving of funding (Bekkers and Ottoni-Wilhelm 2016).

²⁶ The main effect of the presence and type of the corporate giving program ("*giving*") is also significant ($F = 3.62$, $p = 0.01$) in an RM-ANCOVA post-estimation test of the full sample. Moreover, the main effect for *round* becomes significant ($F = 2.07$, $p = 0.03$) for the full sample (vs. $F = 1.23$, $p = 0.28$ in the MC sample).

test to examine the predicted treatment and time effects. Hypothesis H1 is stated in the null and posits that, relative to *no giving*, excessive risk-taking is not lower if *corporate-level giving* is present. While we find “*giving*” to have a significant impact on excessive risk-taking ($F=8.14$, $p<0.01$, Panel A), we fail to find evidence to support that *corporate-level giving* decreases excessive risk-taking ($F=0.15$, $p=0.69$, Panel B). Charitable giving at the overall corporate level—a widespread practice—emphasizes senior management’s CSR objectives. However, these objectives may not be salient for employees, and they may be too far removed to spill over to their investment decision-making. We further employ the method of orthogonal polynomial contrasts to test for a linear trend. As reported in Panel C, the interaction effect between *corporate-level giving vs. no giving* and *round* is insignificant ($F=1.19$, $p=0.28$). Hence, participants’ excessive risk allocation is not significantly different over time between the *no giving* and the *corporate-level giving* treatment (i.e., no systematic different linear time trends). Collectively, H1 is not validated (i.e., cannot be rejected) by the experiment.

Recall that our second hypothesis predicts lower excessive risk-taking when charitable giving is directly linked to individual project performance rather than overall firm profit. As depicted in Table 4, Panel B, the contrast analysis indicates a significant main effect of *project-level giving* ($F=17.38$, $p<0.001$).²⁷ The insignificant interaction between *project-level giving vs. corporate-level giving* and *round* (Panel C) indicates that this is not a one-time effect ($F=0.56$, $p=0.46$), thus providing full support for H2. Participants’ excessive risk allocations in the *project-level giving* design remain consistently below *corporate-level giving* design participants. We conclude that *project-level giving* is effective and persistent in moderating excessive risk-taking behavior. The project-level incentive contract remains salient to the employee, and we do not observe a diffusion of personal responsibility in the short or long term. The perceived accountability effect of *project-level giving* appears to be long-lasting.

When developing H1, we argue that senior management’s decision to implement a *corporate-level giving* program creates a social influence and activates a social norm of other-regarding behavior in employees. The mediation model in Fig. 1 investigates the effect of the presence of a corporate giving program on excessive risk allocations mediated by social norm activation. While we find that social norm activation significantly diminishes employees’ excessive risk allocations (Link 2b: $p<0.001$), both the direct (Link 1: $p=0.12$) and indirect effect of the presence of a corporate giving program on social norm activation (Link 2a: $p=0.53$) are insignificant. Importantly, when we replace social norm activation with employees’ perceived accountability (Fig. 2), the indirect effect of the type of the corporate giving program on employees’ excessive risk allocations is significant (Link 2a×Link 2b; $p=0.08\times0.01$), while the direct effect is still insignificant (Link 1; $p=0.66$). We

²⁷ This result remains significant ($F=7.22$, $p=0.01$) in an RM-ANCOVA post-estimation test of the full sample.

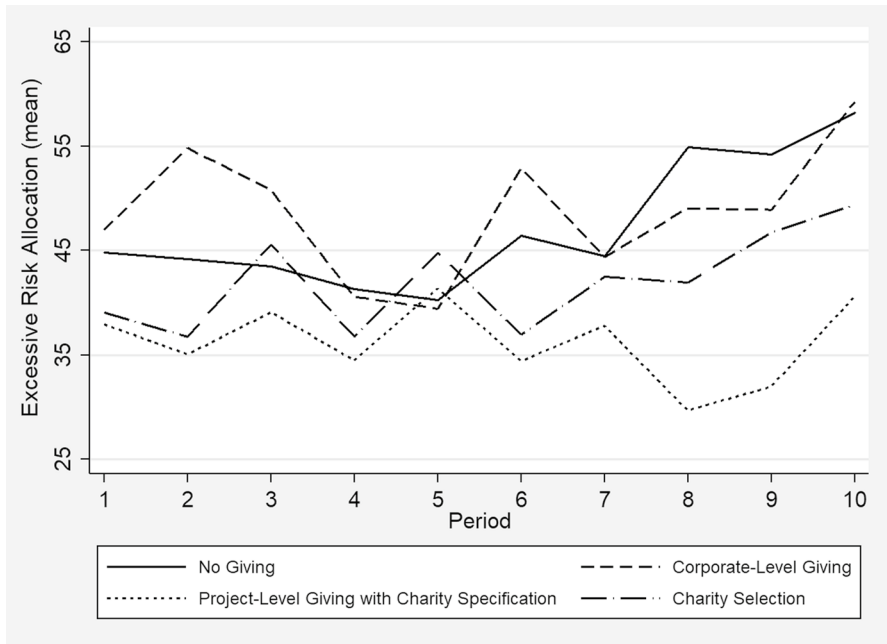


Fig. 3 Descriptive statistics per round and treatment (mean). It illustrates the means of the *Excessive risk allocation* (i.e., the stake allocated to investment alternative B) per round and treatment of the MC sample ($n=99$)

infer full mediation. These results are entirely congruent with the statistical support of H2.

Our third hypothesis addresses whether employees' excessive risk decisions are influenced by who selects the charity as the project's payoff beneficiary (the firm vs. the employee). Table 4, Panels A to C, presents the RM-ANCOVA results. Consistent with our initial descriptive analysis and our reasoning, participants make larger excessive risk allocations when selecting their charity relative to when senior management selects the beneficiary charity. We observe a marginal statistically significant shift ($F=2.87$, $p=0.09$, Panel B).²⁸ This effect does not vanish over time, as indicated by the insignificant interaction *charity selection vs. project-level giving* $\times$ *round* ($F=1.43$, $p=0.23$, Panel C). When employees are empowered to choose the benefiting charity, we find that firms are more likely to suffer from excessive risk-taking behavior. We conclude an inverted U-shaped curve of effectiveness so that employee selection of the beneficiary may negate *project-level giving* benefits. Hence, we identify a potential drawback of corporate giving programs that employees actively participate in, as outlined in current charitable giving reports (e.g., Giving USA FoundationTM 2017). This result is notable as it implies that personal

²⁸ This result remains significant only on a one-tailed basis ($F=2.01$, $p=7.85$, one tailed) in an RM-ANCOVA post-estimation test of the full sample.

Table 3 Aggregate responses to pre- and post-experimental items (mean [standard deviation])

	No giving	Giving		Total		
		Corporate-level giving	Project-level giving		Total	
	(n = 29)	(n = 21)	Charity specification (n = 24)	Charity selection (n = 25)	Total (n = 49)	(n = 70) (n = 99)
<i>Panel A: Domain-specific risk factor (n = 99)</i>						
<i>Financial risk propensity, calculated</i>	−0.16 [0.74]	0.04 [0.92]	0.04 [0.98]	0.12 [1.02]	0.08 [0.99]	0.07 [0.97] 0.00 [0.91]
<i>Panel B: Self-reported altruism factor (n = 99)</i>						
<i>Altruism, calculated</i>	0.07 [0.79]	−0.10 [0.81]	−0.12 [0.84]	0.12 [0.94]	0.00 [0.89]	−0.03 [0.86] 0.00 [0.84]

Panel A reports participants' financial risk propensity, a synthesis of six items from the DOSPERT scale (financial risk domain) and included in the *pre*-experimental questionnaire. The answers are provided on an eleven-point Likert scale, with a high score representing a greater tendency to take risks. The (z-standardized) variable *Financial Risk Propensity* is calculated using principal factor analysis (eigenvalue = 2.35; explained variance = 0.80)

Panel B reports participants' level of altruism, a synthesis of six items taken from the self-reported altruism scale and included in the post-experimental questionnaire. The answers are provided on an eleven-point Likert scale, with a high score representing a higher frequency of altruistic behavior (1 = never; 11 = every time). The (z-standardized) variable *Altruism* is calculated using principal factor analysis (eigenvalue = 1.78; explained variance = 1.20)

involvement in designating the recipient charity ("employee CSR-empowerment") may encourage employees to engage in risk-seeking behaviors in the hope of a low-probability but high payoff.

5.3 Additional analyses

5.3.1 The subsample of risk-averse and risk-neutral participants

This section replicates our tests for risk-averse and risk-neutral participants to further substantiate the theory backing our results. Risk aversion is a fundamental premise of the principal-agent theory and a core element in standard theories of lottery choice, asset valuation, or contracts (Holt and Laury 2002). However, the ex-ante classification of risk-averse and risk-neutral versus risk-seeking individuals is not uniquely dichotomous. As a general rule, individuals are expected to be risk-averse; there is no universal approach to measure an individual's risk aversion (Kreilkamp et al. 2020).

We classify participants as risk-averse based on our measure for financial risk propensity. Recall, our measure for a participant's financial risk propensity is an aggregated factor of six survey items taken from the DOSPERT scale (Blais and

Table 4 Hypotheses tests

Source of variation	df	Mean squared	F-statistic	p-Value	
Panel A: Repeated-measures ANCOVA results. Dependent variable: excessive risk allocation ^c (n = 99)					
Between subjects					
Giving ^a	3	8,038.30	8.14	< 0.001***	
Financial risk propensity ^b	1	11,732.40	11.87	< 0.001***	
Altruism ^c	1	4,423.11	4.48	0.0346**	
Within subjects					
Round ^d	9	1,211.10	1.23	0.2751	
Giving × round	27	512.47	0.52	0.9804	
Residual	487	960.52			
R ² = 0.0657, Adjusted R ² = 0.0253					
Contrasts of marginal linear predictions: Giving		df	F-Statistic	p-Value	
Panel B: Adjacent contrast comparison for Excessive Risk Allocation (n = 99)					
Effect of corporate-level giving vs. no giving		1	0.15	0.6939	
Effect of project-level giving vs. corporate-level giving		1	17.38	< 0.001***	
Effect of charity selection vs. project-level giving		1	2.87	0.0905*	
Denominator		948			
Contrasts of marginal linear predictions: Round			df	F-Statistic	p-Value
Panel C: Polynomial orthogonal contrasts test for a linear trend (n = 99)					
Effect of round (i.e., linear trend)			1	4.00	0.0459
Interaction effect of corporate-level giving vs. no giving × round (i.e., linear trend)			1	1.19	0.2764
Interaction effect of project-level giving vs. corporate-level giving × round (i.e., linear trend)			1	0.56	0.4559
Interaction effect of charity selection vs. project-level giving × round (i.e., linear trend)			1	1.43	0.2317
Interaction effect giving × round (i.e., linear trend)			3	1.31	0.2709
Denominator			948		
Contrasts of marginal linear predictions		df	F-Statistic	p-Value	
Panel D: Simple effects—polynomial orthogonal contrasts test for a linear trend (n = 99)					
Effect of round (i.e., linear trend) within no giving		1	6.20	0.0130	
Effect of round (i.e., linear trend) within corporate-level giving		1	0.43	0.4915	
Effect of round (i.e., linear trend) within project-level giving		1	0.13	0.7219	
Effect of round (i.e., linear trend) within charity selection		1	1.81	0.1784	
Joint		4	2.15	0.0725	
Denominator		948			

*, **, and *** indicate significance at the 0.10, 0.05, and 0.01 levels, respectively (two-tailed)

^aGiving is the presence and type of the corporate giving program and is manipulated between subjects. In Condition 1, our baseline, there is no charitable giving. Overall firm profit is distributed to an anonymous group of investment decision beneficiaries. In condition 2, *corporate-level giving*, 10% of firm earnings are donated to the American Red Cross. In condition 3, *project-level giving*, 10% of each participant's project outcome is donated to the American Red Cross. In Condition 4, participants select a charity from a list of 10 to which 10% of individual project outcome is donated

Table 4 (continued)

^b*Financial Risk Propensity*, our measure for participants' risk propensity in the financial decision domain, is derived through principal factor analysis. One strong factor is retained (see Table 3, Panel A)

^c*Altruism*, our measure for participants' prosocial disposition, is derived through principal factor analysis. One strong factor is retained (see Table 3, Panel B)

^d*Round* is a within-subjects factor. Two trials and ten rounds of the experiment are conducted

^e*Excessive Risk Allocation*, our dependent variable and proxy for excessive risk-taking, is the number of points allocated to investment alternative B

Weber 2006) that participants had responded to at the experiment's outset, i.e., before they experienced the experimental manipulation. We recode this continuous factor that ranges from minus one to one into groups (i.e., p -percentile) and set it at the 75% percentile to differentiate between risk-averse or risk-neutral and risk-seeking participants. Consequently, 74 participants form the risk-averse and risk-neutral subsample, while this sample split categorizes the remaining participants as risk-seeking.

On average, the subsample of risk-averse and risk-neutral participants allocated 41.28 points to investment alternative B. Depending on the corporate giving program, there are significant differences as revealed by an RM-ANCOVA ($F=6.78$, $p<0.001$). Consistent with our main analysis, a risk-averse and risk-neutral participant's average excessive risk-taking behavior is lowest in the *project-level giving* condition (32.29 points) and higher in any other condition (*no giving*: 45.48 points, *corporate-level giving*: 45.13 points, *charity selection*: 42.40 points). To validate the robustness of our main results, we perform a contrast analysis as a post-estimation test (H1: $F=0.11$, $p=0.744$; H2: $F=14.57$, $p<0.001$; H3: $F=8.39$, $p=0.004$). We next subdivide the MC sample by the 90% percentile such that the upper 10% bound of risk-seekers are excluded and replicate the tests. Our results are inferentially identical with the *project-level giving* effect statistically more significant (H1: $F=1.95$, $p=0.163$; H2: $F=25.46$, $p<0.001$; H3: $F=7.19$, $p<0.008$).²⁹

5.3.2 The subsample of risk-seeking participants

To better understand the *project-level giving* program's effectiveness in constraining excessive risk-taking, we investigate whether giving at the project level reduces excessive risk-taking of risk-seeking individuals or whether this risk-reduction effect materializes only for already risk-averse or risk-neutral individuals. Recall, *project-level giving* introduces perceptions of accountability such that the individual feels personally responsible for the project payoff. Prior literature on accountability already provides evidence that the requirement to justify one's decision (i.e., external accountability) is a prevalent risk management technique (Lefebvre and Vieider

²⁹ If we replace the factor for financial risk propensity by the simple average of the corresponding six DOSPERT scale items, the conclusions as shown in this section remain robust. Essentially, as the factor for financial risk propensity is formed based on these scale items, both measures are highly positively correlated ($r=0.9929$).

2013; Schedlinsky et al. 2018). If held accountable for their choices, the idea is that decision-makers choose the options easiest to justify towards themselves and others. However, individuals who prefer high-risk options may have a more robust return focus and are less likely to shrink from an excessive risk investment (Kreilkamp et al. 2020). They may interpret justification as a weaker signal to reduce risk under a *project-level giving* contract. Thus, whether the risk-reduction effect revealed by our RM-ANCOVA also extends to the risk-seeking subsample is not apparent.

At each p -percentile of our measure for financial risk propensity, untabulated predictive margins steadily estimate the average excessive risk allocation to be lower in the *project-level giving* condition than in any other condition.³⁰ The estimated excessive risk allocation increases continuously with higher financial risk propensity over all conditions. However, the pattern for each percentile of financial risk propensity remains stable, with project-level giving always lowest and corporate-level giving always highest. Like our RM-ANCOVA results, the predictive margins suggest that effective risk-seeking behavior mitigation requires giving by the individual employee, occurring at project level (lower organizational level). Giving at the overall corporate-level does not appear to impact an employee's excessive risk-taking decisions.

5.3.3 Ex-ante financial risk propensity vs. excessive risk-taking behavior

Of those participants in our risk-averse or risk-neutral subsample, 14 exhibit an excessive risk-seeking behavior in the main task and are among the riskiest participants in the investment task (i.e., in the top 25% percentile)—despite their dispositional risk aversion or neutrality. The literature provides two explanations for this incongruity. First, individuals are usually not identically classified by different risk-elicitation methods (Lönnqvist et al. 2015). Second, an individual's financial risk propensity does not necessarily translate into actual excessive risk-taking behavior. One part of an individual's financial risk propensity is dispositional, whereas the other part is adaptable to the situation (i.e., affected while performing the investment task). To rule out the possibility that these participants bias our results and to provide a conservative test for our theory, we eliminated these 14 observations and re-performed the test of H2. This procedure precludes the possibility that the risk-reduction effect observed for the *project-level giving* program results from (non-risk-seeking) participants in the corporate-level giving treatment taking extraordinarily high levels of risk. While this helps to isolate the psychological explanation from alternative explanations, we also find inferentially identical results when these

³⁰ For example, if the average participant falls into the 90 percent percentile, we estimate an excessive risk allocation of 40.46 points for *project-level giving*, whereas the estimated excessive risk allocation rises to 45.30 points for *charity selection* and amounts to 52.84 points (51.72 points) for *corporate-level giving (no giving)*.

participants are removed, and the adjacent contrast comparison for H2 (untabulated) turns even more significant ($F=23.82$, $p<0.001$).

5.3.4 Participants' assessment of a risky decision situation

Sitkin and Pablo (1992) postulate that, in addition to framing, the organizational risk culture and leader risk orientation can shift an individual's risk perception relative to his initial risk propensity. We assume and find that corporate giving frames the decision-making situation such that participants become more risk-averse relative to the *no-giving* condition. The three giving treatment conditions exhibit a significant cautious shift (risk propensity score (ex ante): mean=6.02; risk perception score (ex post): mean=4.70; $t=5.13$, $p<0.001$).³¹ That is, participants reported perceiving larger losses than before the experiment. This cautious shift in participants' risk perceptions is notable since it indicates that CSR, as operationalized by corporate giving, is associated more with low- than high-risk investment activities. Answers to post-experimental questionnaire items corroborate this conclusion. Specifically, participants' mean response to the question of whether they thought that charitable giving could alter one's risk attitude on an 11-point Likert scale (one=very unlikely; 11=very likely) of 8.42 differs significantly from the midpoint of six ($t=11.85$, $p<0.001$). Second, the participants responded to the question whether charitable giving should be oriented more toward low-risk than high-risk decisions with a mean of 8.16 on an 11-point Likert scale ranging from one (strongly disagree) to 11 (strongly agree). Again, agreement to this question is significantly higher than the midpoint of six ($t=8.20$, $p<0.001$), which further substantiates our assumption that exercising risk-aversion when deciding on behalf of a charitable cause is generally accepted behavior (e.g., the social norm).³² The significant shift in participants' risk perceptions and their post-experimental responses support the argument that charitable giving makes a contextual difference in how employees *perceive* risk when making decisions, thereby altering their incentive package.

5.3.5 The subsample of prosocially-motivated participants

Prosocial incentives can be first and foremost motivating for prosocially-motivated employees. Henceforth, we classify a participant as "prosocially motivated" if he derives direct utility from the charitable giving program's impact, independent of any signaling properties (Besley and Ghatak 2005; Cassar and Meier 2017). It follows that it would be interesting to see whether employees to whom giving to charity is important respond differently to corporate giving-practices than employees

³¹ To compare participants' risk propensity (ex ante) with their risk perception (ex post) the scale items for determining the cautious shift are identical for both personality variables. The items are (cf. Blais and Weber 2006) 1) "Disagreeing with an authority figure on a major issue", 2) "Betting a day's income at a high-stake poker game", 3) "Investing ten percent of your annual income in a new business venture", and 4) "Choosing a career that you truly enjoy over a more secure one."

³² In addition, there are no significant differences between treatments ($F=0.36$, $p=0.78$; $F=1.19$, $p=0.32$).

who do not consider charitable giving important. The idea is that since prosocially-motivated employees care about a charitable cause directly, they work harder (Fehrler and Kosfeld 2014) or lower their reservation wages (Burbano 2016) to support the mission of that cause. Therefore, it is logical to assume that a charitable giving program also influences the excessive risk-taking behavior of those employees to whom giving to charity is important.

An 11-point Likert-scale item placed in the post-experimental questionnaire in the *corporate-* and *project-level giving* conditions (*charity selection* condition) asks about the extent to which the recipients of donations to the American Red Cross (their chosen charity) are deserving of support (one = *strongly disagree*; 11 = *strongly agree*). We rate participants with responses greater than or equal to ten as socially responsible. We create an indicator variable equal to one for prosocially-motivated participants and zero otherwise. The results are inferentially identical when we include this variable in the RM-ANCOVA and subsequent post-estimation tests for substantiating H2 and H3. In detail, the adjacent contrast comparisons for H2 ($F = 13.25$, $p < 0.001$) and for H3 ($F = 3.42$, $p = 0.065$) (both untabulated) still yield significant effects regarding the type of the charitable giving program.

To better understand the H3 results, it is helpful to know the type of charities that the employees choose, as this choice could impact the results, given that the charities have diverse missions and scope. Specifically, charities differ in location (local vs. national vs. global) and/or in type (e.g., food security, special needs). From this it follows that it would be insightful to understand whether employees with preferences for the American Red Cross (and charities similar in scope) respond differently to corporate giving practices in terms of excessive risk-taking behavior than employees with preferences for other charities.³³ Consequently, this additional analysis refers to the *charity selection* condition. We recognize that the results may reflect the excessive risk-taking behavior of the individual's characteristics who selects the charity. Different responses could also be explained by the notion that the personal benefits of prosociality depend on the context, i.e., the characteristics of the recipient (Brown et al. 2017; List 2007).

Table 5, Panel A shows the charities chosen by those participants assigned to the *charity selection* condition, and Table 5, Panel B displays the results of a two-sample t-test. We formed groups based on the charity type (health and food security vs. animal welfare and youth development). The pairwise comparison of these groups shows significant differences in excessive risk-taking behavior. Participants who choose a charity providing food and medical care (e.g., disaster relief) like the American Red Cross allocated much less to the investment alternative B over all rounds. Participants choosing a charity promoting animal welfare or educational services exhibit significantly more excessive risk-taking behavior. These findings should be interpreted in the light of the observation that urgently needed aid and extreme poverty motivate altruism and more general welfare criteria (Brañas-Garza

³³ Note that the choice of charity is endogenous only in the *charity selection* condition, while the charity (i.e., American Red Cross) in the *corporate-level giving* and *project-level giving* conditions is senior management-specified.

Table 5 Descriptive statistics and comparison of means by charities chosen

Name of charity	Charity location	Charity type ^b	Times selected	Percent
Panel A: Summary—donations to charities				
American Cancer Society	Non-Local	Health	0	0
American Red Cross	Non-Local	Health	2	8
Big Brothers Big Sisters	Non-Local	Youth Development	3	12
Doctors Without Borders	Non-Local	Health	5	20
Feed The Children	Non-Local	Food Security	1	4
Next Door Foundation	Local	Youth Development	2	8
Oxfam Americal	Non-Local	Food Security	2	8
Sierra Club	Non-Local	Animal welfare	2	8
Wisconsin Humane Society	Local	Animal welfare	7	28
YMCA (the Y)	Non-Local	Youth Development	1	4
Total			25	100
Charity type ^b	n	Mean [standard deviation]	Standard error	<i>t</i> -statistic [<i>p</i> -value ^c]
Panel B: <i>t</i> -Test by the charity type. Dependent variable: mean excessive risk allocation ^a (<i>n</i> = 25)				
Health/food security	15	50.62 [22.41]	5.79	
Youth development/animal welfare	10	29.16 [20.49]	6.48	
Difference		21.46	8.85	2.42 [0.012]

Degrees of freedom = 23

^aMean excessive risk allocation is the average number of points that a participant allocates to investment alternative B, the excessive risk option, over all ten experimental rounds. The number of points allocated to investment alternative B is our measure for excessive risk-taking

^bCharity type refers to the charitable organizations' mission and scope of work. We identified four distinct types of charities, i.e., health, food security, youth development and animal welfare. An indicator variable equals 1 if a charity's mission focuses on health or food security, and 0 otherwise. We watch out for including both local and national as well as global charities with varying missions to fully match the interests and preferences of the participants. There is some evidence to suggest that participants' choice of charity is impacted by its geographical proximity, its familiarity as well as its mission and its goals (e.g., Brown et al. 2017)

^c*p*-values are reported two-tailed

2006)—appealing to an employee's sense of responsibility and thus eliciting more restrained risk-taking decisions. For example, participants in laboratory dictator games give nearly three times more when the recipient is the American Red Cross (i.e., "a recipient generally agreed to be 'deserving'") than an anonymous recipient (Eckel and Grossman 1996).

Finally, these results highlight the importance of considering the recipients on behalf of whom excessive risk is taken and of differentiating between the primary performance components of risk and effort. While Altenburger (2020) and others (e.g., Tonin and Vlassopoulos 2010, 2015) show that participative corporate giving

or incentive structure choice increases employee performance (via effort), our study suggests that too much participation may backfire and crowd-in motivated reasoning, which could potentially trigger excessive risk-taking behavior. However, if the social cause supports a mission in urgent need of financial help to provide for shelter, food and first aid, and other disaster relief services (i.e., as soon as essentials are at risk), excessive risk-taking stakes decline significantly. Our results conform to those of the prior research which generally advocates more choice and employee participation in corporate giving practices.

6 Discussion and conclusion

6.1 General discussion

Incentive contracts are crafted to align the interests of principals and agents (Luft and Shields 2009). While tournament and short-term incentive contracts have been used extensively, both suffer from creating excess risk-taking incentives. We argue that CSR initiatives, like corporate giving programs, can be an effective component in an incentive contract in that they provide a remedy for excessive risk-taking. Salazar et al. (2012, 176) argue that “approaches to firm-level social performance evaluation hide the real relationships between the social activity and its consequences for firm economic performance and social impacts.” Our results suggest that individual compensation plans that link *project* outcomes to corporate giving programs reveal this real relationship and thus appear promising. Charitable contributions at the project level diminish employees’ excessive risk-taking, and importantly, this effect persists over time. We show that employees are relatively riskier in the short and long term when a global metric (i.e., not the individual employee) is emphasized; the corporate giving policy is perceived as the senior management’s responsibility. Indeed, our mediation model identifies employees’ perceived accountability as the mechanism through which the structure of a corporate giving program constrains excessive risk-taking. Making employees personally responsible for charitable giving enhances the perceived responsibility for and the impact of helping, thereby reducing excessive risk-taking in the long term. By contrast, corporate-level cues are too subtle or remote from the decision-maker to achieve the desired behavioral responses in our setting. We speculate that when employees are responsible for the charity’s payoff, the charitable beneficiary becomes more salient and identifiable for them, sticking in employees’ memories.

While our setting is charitable giving, our results generalize and highlight that the feeling of controllability is likely to be important (per se) when designing incentives. Employees have a minimal impact on the donation when charitable giving is tied to firm performance. Employee controllability and responses increase when tied to individual projects (Merchant and van der Stede 2017). In the broadest terms, our findings corroborate the view that “CSR is integral to management control systems” (Costas and Kärreman 2013, 395; see also Lueg and Radlach 2016) and influence internal dynamics. Nevertheless, for CSR corporate discourses and practices to be a form of management control “that ties employees’ aspirational identities and ethical

conscience to the organization” (Costas and Kärreman 2013, 394), employees must see themselves as meaningful agents within their area of responsibility. Consistent with the idea that “all motivation starts with the individual” (Nelson 2018, 14), the firm’s incentive system appears to need employees’ perceived accountability for other-regarding behavior (and controllability over the outcome) to “cue” or trigger that social norm of other-regarding behavior (Bicchieri 2006). Communicating the firm’s objectives via employees’ incentive structure (of which charitable donations may be only one part) tends to be insufficient to activate the norm and make employees allocate the firm’s resources in its best interests. The firm may have the best corporate-level CSR activities, but if its employees are not motivated by those activities, they will not inform employees’ decision-making and, accordingly, not help the firm.

At the same time, care should be taken since too much freedom and empowerment (e.g., choosing the charity) may be counter-effective and “crowd out” reasonable risk-taking behavior. Our data points towards an inverted U-shape curve of effectiveness such that both too little and too much employee empowerment may negate the desirable incentive mechanism (e.g., *personal responsibility*) of project-level giving.

6.2 Further theoretical and practical implications

In a related study, Balakrishnan et al. (2011) report that corporate giving motivates employees to contribute to organizational endeavors so that corporate giving pays off financially. Our results extend this finding to the context of excessive risk-taking, where the rational strategy is to take no risk. Our data resonates with Balakrishnan et al.’s (2011) reasoning that senior management should consider both external and internal stakeholder groups when designing prosocial giving programs and their behavioral consequences on excessive risk-taking within the firm. Specifically, our study highlights the effectiveness of more creative solutions than a firm-wide corporate giving program and recommends an alternative possibility for firms to implement CSR initiatives. We suggest that project-level giving serves as a powerful contracting benefit that firms can harness to keep employees from taking excessive risk and encourage them to create shared value. Our experiment expands Bicchieri’s (2006) idea that norms influence behavior only when they are salient or focal for the individual at the time of behavior. Because project-level giving is employee-centered—highlighting personal responsibility and individual, rather than a firm-wide agency—this design feature triggers norm-compliant behavior (i.e., taking less excessive risk in a decision also affecting a charitable beneficiary). The firm’s corporate giving program seems to require personal responsibility that leads employees to interpret the environment as one to which the norm of other-regarding behavior applies, focus on the norm, and act accordingly. Hence, our study advances the literature exploring the mechanisms via which CSR curbs excessive risk-taking and thus increases firm value (e.g., Harjoto and Laksmana 2018). Following this, our results underline the conventional wisdom that the feeling of controllability is important when designing incentives to produce desired outcomes. Standard

employee engagement practice takes a passive management control approach, which causes employees to think of what is being done *to them* rather than what they are doing *for themselves* is mutually beneficial for others (Nelson 2018). Our investigation addresses the role of controllability and individual agency to influence business activities (that might not necessarily relate to CSR), an important part of moving from aspirations to actions (Corbett et al. 2018; Wolframm et al. 2015).

We also contribute to the growing literature stream on risk-taking on others' behalf (Bolton et al. 2015b). Although the traditional economic theory is silent on how risk is taken on another's behalf, we observe less risk-seeking behavior when the risk is taken on behalf of those in need. This finding supports the widely held view that individuals exhibit social preferences when paired with perceived personal responsibility. We present both corporate giving programs that attenuate excessive risk-taking persistently (*project-level giving*) and others that incentivize greater risk-taking (*corporate-level giving or charity selection*).

Finally, while our experiment examines the effect of different corporate giving programs on excessive risk-taking, the theory on which our predictions are based should extend to a broader set of CSR contracts (with other social welfare or environmental criteria, e.g., emission reduction targets) that tie the pay of employees to project-level performance as well. Our findings may also apply to other forms of dysfunctional decision-making or undesirable employee behavior. For example, the literature on other-regarding preferences indicates that employees abstain from socially-oriented misreporting, cheating, or other fraudulent behavior when the decision benefits a social mission (e.g., Hobson et al. 2019).

6.3 Limitations and future research

Our study's limitations provide fruitful avenues for future research. First, the experimental setting used in the current study expects charitable incentives to create a positive signal about the firm's benevolence and trustworthiness. However, both anecdotal and empirical evidence indicate that managers use charitable donations for self-serving interests at the expense of firm value. Brown et al. (2006, 856), for instance, claim that "the [corporate philanthropy] literature is intertwined with the 'social responsibility of business' debate," and Masulis and Reza (2015) document that CEOs misuse firm resources by supporting their preferred charities (i.e., CEO's "pet" projects) through corporate donations. On a related note, Cassar and Meier (2017) find that some prosocial incentives backfire. While these incentives are employed instrumentally to benefit the firm (or the firm's senior management) rather than the charity, future research might explore the mechanisms that lead to a negative signaling value and integrate intentions for doing good or the authenticity of the firm's CSR program into the experimental design (McShane and Cunningham 2012).

Second, our approach proposes that employees' internal motivation is the mechanism to decrease their excessive risk-taking behavior. Since H1 is not validated and H2 is, we surmise that employees' decrease of excessive risk behavior is a function of their reputation gained from having a more positive net present value project.

However, since impression management requires an actor and a target audience (Bolino et al. 2016), we do not include the firm's senior management as a "real person" in the experimental setup. To mitigate such impression management or related forms of self-interest or reputational considerations alike, our approach differs from other accounting experiments with employee-employer-groups (e.g., Christ and Vance 2018). Future experiments may use more realistic settings to investigate the firm's senior management role in creating impression management tactics.

Third, to examine time effects (e.g., habituation, fading, or end-round strategies), the outcomes and probabilities of winning the risky investment alternative remain constant over all rounds. Future research could alter the risky investment option's payoff structure to test whether, as postulated by prospect theory, employees' investment behavior turns riskier in the low-probability, high-outcome (high-gain) domain (Pahlke et al. 2015). Further, with the only options of no risk or bad risk, this study ignores the notion that firms will reasonably expect some risk-taking. Additional research could look at risky decision-making with an acceptable expected value above one, yielding a positive net present value project.

Fourth, adding employees' compensation scheme to examine the interplay between the corporate giving design and monetary incentives could provide additional insight into the value employees place on prosocial incentives. In particular, asymmetrical payment structures may prove fruitful, with personal losses limited and employees shielded from their decisions' full negative repercussions (Brink et al. 2017). Finally, cash donations to charity are only one manifestation of a giving program in the workplace. Non-cash workplace giving designs, such as time off to volunteer, have been increasingly popular in practice. Thus, it would be worthwhile analyzing the impact of other workplace giving forms, most notably non-cash ones, on excessive risk-taking behavior.

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SUPPLEMENTAL DATA

Description of the investment task of the experiment

The main part of the experiment is the investment task which consists of two investment alternatives: A and B.¹ Investment alternative A is the safe investment option: each point allocated to this option is returned, but with zero interest. As a result, the return is 100 percent of the amount invested. Investment alternative B is the risky investment option and has a dyadic payoff structure: it either returns 250 percent of the amount invested with a probability of one third or it returns zero percent of the amount invested with a probability of two thirds. Consequently, the expected value of investment alternative B is $0.8\bar{3}$, i.e., below 100 percent of the sum of points invested ($0.33 \cdot 2.5 + 0.67 \cdot 0$). Note that 100 percent is the expected value for investment alternative A. Perfectly rational decision-makers would always allocate the full 100 points to the safe investment alternative regardless of the presence and type of the corporate giving program. Each unit of risk taken is excessive, so that the number of points allocated to investment alternative B is our measure for excessive risk-taking. Examining excessive risk-taking only allows unambiguous conclusions: taking less risk is better, taking no risk is optimal in terms of expected value maximization.

We conduct ten independent rounds in which investment alternatives A and B remain the same, to investigate excessive risk allocations over time. In each round participants are endowed with 100 points and must decide how much of their endowment to invest in the safe versus the risky investment option. There is no carry-over of points from one period to the next. Participants can choose to invest the full amount either to the safe or to the risky investment alternative or split the endowment. However, the 100 points must be fully allocated.

Our investment task is illustrated in Figure 1 and resembles that of Gneezy and Potters (1997), Schedlinsky et al. (2016), Schedlinsky et al. (2018), Eriksen and Kvaløy (2017) and

¹ In experiments using risky choice framing tasks, participants usually choose between safe and risky options. For example, similar to our approach, in Martino et al. (2006) participants are endowed with an initial sum of money and then must select between a guaranteed safe option and a risky gamble option.

others. Charness et al. (2013) highlight the relative simplicity of the method which makes it substantially easier for participants to understand and thus is a useful instrument to elicit risk preferences and to capture treatment effects.

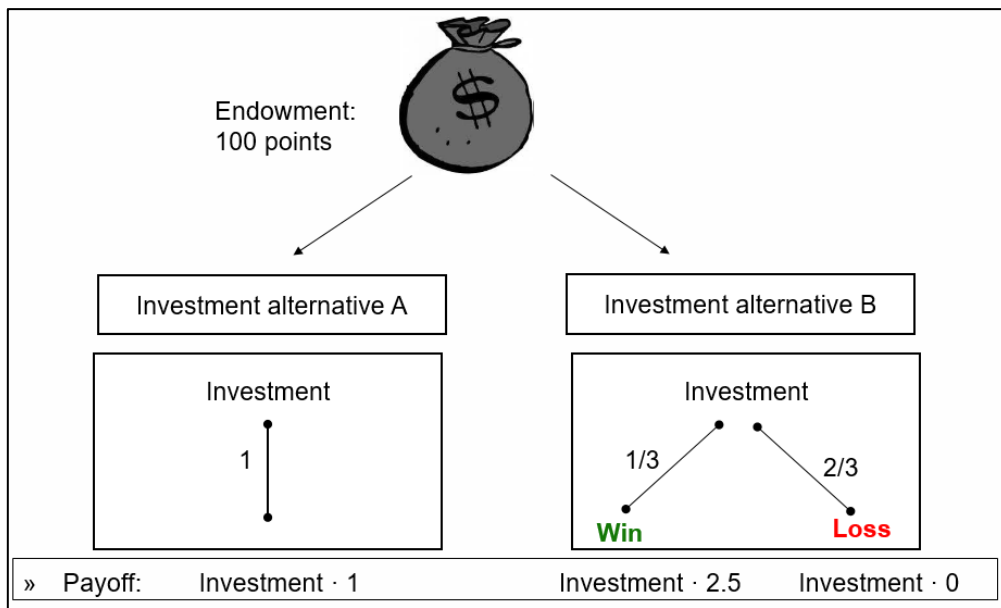


Fig. 1 Experimental investment task

TABLE 1
Expected value of the investment alternatives

Expected value of investment alternatives A and B		
	Expected value of investment alternative:	
	A	B
Payoff drawn condition 1 (probability 33.33 percent)	./.	250
Payoff drawn condition 2 (probability 66.67 percent)	./.	0
Expected value	100	83. $\bar{3}$

Note: Table 1 depicts the expected value calculation of the investment alternatives A and B. The payoff structure, as illustrated in the right column, ensues if the participant allocates 100 points (i.e., the full endowment) to the risky option and the drawn condition yields a win.

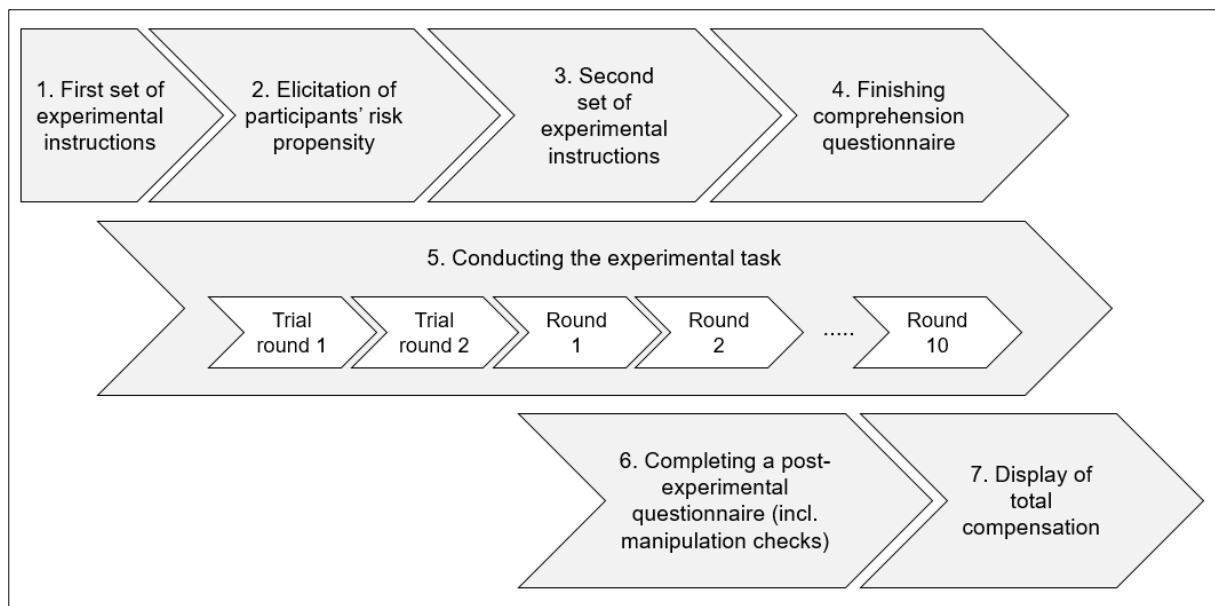


Fig. 2 Experimental procedure

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A2 Feeling watched at work: The effect of mutual monitoring on effort allocation

Study no.	2					
Title	Feeling watched at work: The effect of mutual monitoring on effort allocation					
Authors	Corinna Ewelt-Knauer, Sascha Matanovic, Julia Schneider, Sandra Winkelmann, Arnt Wöhrmann					
Author contribution		Ewelt-Knauer	Matanovic	Schneider	Winkelmann	Wöhrmann
	Numeric share	0.1	0.1	0.6	0.1	0.1
	Conceptual development of research question	✓	✓	✓		✓
	Development of theory		✓	✓		✓
	Methodology		✓	✓		
	Acquisition of data			✓	✓	
	Analysis/interpretation of data	✓		✓	✓	✓
	Writing the manuscript			✓	✓	
Publication status	Working Paper					
Peer-reviewed conferences	2021	EAA Annual Congress Doctoral Colloquium (Schneider)				
Research approach	Experimental study					
Language	English					
Abstract	This study investigates whether the benefit firms can extract from their error cultures is affected by differences in the type of mutual monitoring information available to employees. We predict and find that effort allocations to difficult versus easy tasks are <i>not</i> impaired when employees can observe only each others' effort (input). Yet, when not only input but also output is observable, employees work less on difficult and more on easy tasks. The intuition behind these results is that the type of mutual monitoring creates different control environments with output information putting pressure on employees. Such external pressure changes the nature of personal output levels. As they fear failure (social-image threat), employees switch to easy tasks that they feel more confident with and where productive outputs become apparent quickly. Practical implications for job designs are discussed.					
Keywords	Peer incentives · mutual monitoring · team member communication · image concerns · error culture.					

Feeling Watched at Work: The Effect of Mutual Monitoring on Effort Allocation

Corinna Ewelt-Knauer
Giessen University (Germany)
Corinna.Ewelt-Knauer@wirtschaft.uni-giessen.de
Licher Str. 62, 35394 Giessen, Germany

Sascha Matanovic
Giessen University (Germany)
Sascha.Matanovic@wirtschaft.uni-giessen.de
Licher Str. 62, 35394 Giessen, Germany

Julia Schneider
Giessen University (Germany)
Julia.Schneider@wirtschaft.uni-giessen.de
Licher Str. 62, 35394 Giessen, Germany

Sandra Winkelmann
Giessen University (Germany)
Sandra.Winkelmann@wirtschaft.uni-giessen.de
Licher Str. 62, 35394 Giessen, Germany

Arnt Wöhrmann
Giessen University (Germany)
Arnt.Woehrmann@wirtschaft.uni-giessen.de
Licher Str. 62, 35394 Giessen, Germany
(corresponding author)

Abstract

This study investigates whether the benefit firms can extract from their error cultures is affected by differences in the type of mutual monitoring information available to employees. We predict and find that effort allocations to difficult versus easy tasks are *not* impaired when employees can observe only each others' effort (input). Yet, when not only input but also output is observable, employees work less on difficult and more on easy tasks. The intuition behind these results is that the type of mutual monitoring creates different control environments with output information putting pressure on employees. Such external pressure changes the nature of personal output levels. As they fear failure (social-image threat), employees switch to easy tasks that they feel more confident with and where productive outputs become apparent quickly. Practical implications for job designs are discussed.

Keywords: *Peer incentives; mutual monitoring; team member communication; image concerns; error culture.*

JEL: M12; M14; M41; M50.

I. INTRODUCTION

Most jobs are multi-dimensional, requiring employees to perform multiple tasks (Ichniowski & Shaw, 2003; Laux, 2001; Holmstrom & Milgrom, 1991; Lindbeck & Snower, 1996; Langfred & Moye, 2004). Hence, employees have to allocate effort across multiple tasks, which characterizes a multitask environment (Hannan et al., 2013a). While some tasks are usually perceived as easier (e.g., responding to e-mail), others are more challenging (e.g., preparing a report).

The asymmetric distribution of information in organizations prevents employers from perfectly monitoring whether employees allocate sufficient effort to both easy and challenging tasks (Baiman, 1990; Indjejikian, 1999; Holmstrom, 1979). Further, employees have different preferences and might (mis-)allocate effort between more and less effort-intensive tasks (Langfred & Moye, 2004). Under fixed compensation, conventional economic theory predicts that easy and less demanding tasks are preferred (Baiman, 1990), which results in misallocation of effort. Non-performance-based pay is prevalent in practice (U.S. Bureau of Labor Statistics, 2021). Firms, however, expect their employees to conduct both – easy and difficult tasks – since both of them are indispensable for firm success (Boyes, 2018; Ashford & Northcraft, 2003). Therefore, firms need to establish management control systems that incentivize employees accordingly, so that employees do not put easy tasks before difficult ones. The question how this can be achieved while still paying employees a fixed wage, is what this paper intends to answer. Doing so, our study contributes to behavioral research arguing that employees are not *per se* work-averse, but also strive for challenging tasks, thus fulfilling their need for demonstrating competence and obtaining self-esteem (Bolino et al., 2016; Bolino & Turnley, 1999; Black & Deci, 2000; Deci, 1971; Deci & Ryan, 2012).

The management control system, encompassing formal and informal controls, is an important driver for effort allocation (Merchant & van der Stede, 2017). Contemporary managers have wider spans of control and steer hierarchies, while bureaucracies have been

replaced with empowered employees. In these modern environments, shared organizational values and attitudes have become an increasingly essential tool for ensuring that employees act in the firm's best interests (Loughry, 2010). With the trend towards leaner and flatter organizations, informal – or soft – controls have become a more important management tool. These informal controls are designed to help employees understand how they are expected to behave even in the absence of a specific rule. Some organizations, such as technology firms in Silicon Valley, have set up cultures with open office arrangements and social codes that deliver messages about the significance of innovation (Merchant & van der Stede, 2017). Others, like the large software and business intelligence systems SAS Institute, provide their headquarters employees with a usual array of perks including flexible 35-hour-weeks and private offices for everyone (Schellhardt, 1998; Cain, 2017). These informal control arrangements are typically implemented to encourage self-or peer-verification of apt behavior. One informal (peer-based) control mechanism is *mutual monitoring* describing the ability of employees to observe each others' contributions. Dependent on the monitoring environment, either no mutual monitoring is possible, only inputs are observed, or inputs and outputs.¹ In detail, mutual monitoring enables employees to obtain private information about their peers, which is not available for the supervisor (Hannan et al., 2013b; Arnold et al., 2016). For instance, white-collar workers often work in an open-plan office where they can easily observe their peers.

When observing their peers, employees will also realize their peers' errors and failures. How these are perceived depends on a firm's *error culture* (Gold et al., 2014), another relevant

¹ While this study's practical application scope is already relatively broad and subject to diverse settings, the primary focus is on what we call peer-based control, which involves the ability of employees to observe the actions and/or effort of other employees. Opposed to this is the (relative) performance literature that addresses the effect of learning how well an employee's performance (i.e., output) compares to the output of others. The distinction implies that the information obtained via mutual monitoring is more informative of actions and/or effort. Thus, monitoring can be conducted by peers but not by firm managers (Hannan et al., 2013b). This is also consistent with the agency theory-based notion of mutual monitoring that agents hold information about each other that is not available to the principal. Since this study aims at deriving optimal contracts for exploiting this information we do not include an output mutual monitoring condition. Anyway, if output information is available, firm managers can measure, evaluate and monitor individual performance (i.e., results control) to produce the behavioral outcomes the firm wants (Merchant & van der Stede, 2017).

informal control mechanism (Kachelmeier et al., 2016). Specifically, cultural controls are designed to promote mutual monitoring (Merchant & van der Stede, 2017). A firm's error culture, a specific facet of an organizational culture, is defined as "the set of values, beliefs and social norms which [...] influence[s] thoughts and actions" (Malmi & Brown, 2008: 294) regarding the acceptance and management of errors. Many firms use an open error management culture to promote organizational innovation and learning, and thus advocate trial-and-error-learning (Frese & Keith, 2015). In contrast, other firms mandate error-free operations, often resulting in a blame culture where errors are not tolerated (Kriegesmann et al., 2007). We seek to identify how both control systems, mutual monitoring and a firm's error culture, affect easy task prioritization.

When employees decide how to allocate effort between different types of tasks, they consider how this decision affects their self-image (i.e., how *they* perceive their own actions) and/or their social-image (i.e., how *others* perceive their actions) (Baumeister, 1986; Baumeister & Hutton, 1987). When employees are not able to observe others (no-mutual monitoring), they only consider how their actions affect their self-image. In this situation, effort allocation is driven by intrinsic, autonomous motivation (Deci & Ryan, 1985; Deci & Ryan, 2012). To improve their self-image, employees might put more weight on difficult tasks to signal a high work commitment to themselves – irrespective of whether they are able to perform well at these tasks. By comparison, when they observe their peers' effort allocation (input-mutual monitoring), also their social-image becomes important as employees desire to impress their peers (Bolino et al., 2016; Deci & Ryan, 1985). If only inputs (but not outputs) can be observed, the motivation to focus on difficult tasks is unchanged. This leads to our first prediction (H1a) that effort allocation to difficult tasks does not differ between no- and input-mutual monitoring.

When also output, i.e., performance, is observed (input-output-mutual monitoring), the risk of failing and leaving a negative impression becomes more relevant. Due to social-image

concerns, employees' willingness to work on difficult tasks is expected to decrease in this environment.

The error management climate determines the perception of errors and failure. A blame culture draws employees' attention to the risk of failing (i.e., making conceptual errors on difficult tasks), so that difficult task prioritization triggers self-image and social-image concerns. Opposed to this is an open error culture. Here employees can excel at difficult tasks with ease and without thinking twice (i.e., committing errors is regarded as inevitable) – *either* to acquire self-esteem and improve their self-image (no-mutual monitoring) *or* to attain a favorable peer impression and improve their social-image (input-mutual monitoring). Consequently, we expect this effect to be particularly pronounced under no-mutual monitoring and input-mutual monitoring where employees are self-focused. By contrast, as soon as output information is available, the firm's job design chokes employees under public "performance pressure" (Heaton & Sigall, 1991) that evokes the need for impression management, renders an open error culture implausible and discourages employees from allocating their effort to difficult tasks.

In an open error culture the risk of failure is perceived as lower, which is beneficial to difficult task prioritization. In a blame culture, employees' focus is expected to shift from signaling high willingness for effort to signaling high performance. While this shift will occur under no-mutual monitoring and input-mutual monitoring, it will not materialize under input-output-mutual monitoring, as a blame culture already prompts employees to focus on monitoring each others' performance and therefore consider the danger of failing.

To test our predictions we conduct an online experiment with 192 student participants. We manipulate mutual monitoring (no; input; input-output) and error culture (blame; open) using a 3 x 2 between-subject design. In a multi-period setting, participants taking the role of employees have discretion how to allocate their time (i.e., effort) between an easy and a difficult task. Both tasks involve solving number series that are framed as sales forecasts, but vary in

difficulty. While participants in all conditions receive a fixed wage, they are informed that the firm appreciates solving both the easy and the difficult tasks. We measure effort allocation via the share of total time available allocated to the difficult and easy tasks.

Consistent with our prediction for H1a, we find similar effort allocations when either no- or input-mutual monitoring is present. In support of H1b we find that effort allocations to the difficult task drop significantly if not only input but also output mutual monitoring is possible. Our findings also show that the effect of mutual monitoring on employees' effort allocation depends on the firm's error culture. As expected in H2, we find that in an open (but not in a blame) error culture no- and input-mutual monitoring motivate employees to perform difficult tasks. Employees' effort allocation to difficult tasks is highest in the *no-mutual monitoring* $\times$ *open error culture* condition, supporting our assumption of self-image enhancement and competence signaling of challenging tasks. Yet, input-output-mutual monitoring discourages employees from spending their time on difficult tasks, bringing their effort allocation to difficult tasks down to the same level as a blame culture does.

Our study contributes to accounting theory and practice in at least two important ways. First, prior research examines the role of mutual monitoring in a variety of incentive contexts (Hannan et al., 2013b; Towry, 2003; Arya et al., 1997), and has viewed mutual monitoring as a control mechanism that can be used to induce effort intensity. We extend prior literature on mutual monitoring by showing that the effects of mutual monitoring depend on what information (input, or input and output) is observable. We do so in a multitask context where employees are free to allocate effort to easy and to difficult tasks. Our results suggest that effort and performance information influences the way employees manage their self- and social-image and therefore their effort allocation decision. Whereas the firm's error culture can further affect this decision when peers cannot observe each other or can only watch each others' effort, the effect of the error culture is overridden when also performance is observable. Since such performance information negates the effects of an error culture, this study highlights the

potential drawbacks of complementing peer-based controls (i.e., output mutual monitoring) with cultural controls (i.e., the firm's error culture).

Second, our study contributes to the stream of research investigating effort allocations in a multitask environment (Brüggen & Moers, 2007; Hannan et al., 2013a, 2019; Holmstrom & Milgrom, 1991; Christ et al., 2016; Hecht et al., 2012). Our findings are particularly important given the prevalence of multidimensional tasks and job responsibilities within firms. Nowadays, employees are facing increasingly varied and competing tasks, in part because economic downturns have caused firms to downsize and give more job responsibilities to the remaining workforce (Frauenheim, 2014, 2011). Firms ought to understand how to motivate employees to balance and channel their resources into different tasks that are important for a firm's success requiring heterogeneous skills (Christ et al., 2016).

Finally, we investigate a job design feature of importance in almost all firms: mutual monitoring (Arnold et al., 2019; Hafermalz, 2020). Our findings provide firms with valuable advice for implementing tools that render an employee's task inputs and/or outputs transparent. In particular, the corona epidemic has spurred the widespread use of digital collaboration technologies which are often perceived as intrusive by employees.

The remainder of this paper is organized as follows. The next section describes the research setting, Section 3 develops the hypotheses. Section 4 gives a description of our experiment and section 5 presents the results. Section 6 concludes.

II. RESEARCH SETTING AND THEORETICAL BACKGROUND

Multitask Setting

In a multitask environment, employees work on easy and on difficult tasks. Both economic theory and prior research suggest that employees are work-averse (Baiman, 1990),²

² The precise firm-preferred effort allocation for individual employees may depend on their ability.

i.e., there is the risk that they allocate insufficient effort to difficult tasks. At the same time, motivational theories argue that employees strive for responsible and challenging activities as well as demanding work content – helping to fulfill their need for competence and self-esteem (Elliot & Dweck, 2005).

Task difficulty refers to the amount of attentional capacity or mental processing required when conducting a task (Bonner, 1994).³ Typically, difficult tasks are more challenging, involving in-depth thinking and more ability, requiring more effort to accomplish them. By comparison, easier tasks are straightforward and involve lower amounts of cognition and mental processing, and therefore require less effort. Importantly, effort expended toward one task cannot be simultaneously expended toward another.

Generally, monetary incentives alone do not fully explain what motivates employees to exert effort. In many jobs, career prospects are limited and compensation is insensitive to performance (Ikäheimo et al., 2018; U.S. Bureau of Labor Statistics, 2021; Baker et al., 1988; Zhang, 2018). We choose such a fixed-wage setting to illuminate differences in behavior that are *purely* the result of organizational control systems.

Behavioral Effects under Mutual monitoring systems

To direct employees' effort, firms can use (1) formal control systems that enforce qualitative standards (Christ et al., 2012), and (2) informal control systems that exert social pressure by communicating organizational values even if there are no explicit measures to enforce them (Berry et al., 2009). The type of mutual monitoring differs across firms. When mutual monitoring is inhibited, e.g., in closed or single office spaces, employees are self-focused. Based on self-awareness theory (Duval & Wicklund, 1972; Duval et al., 2001), we argue that employees then engage in self-evaluation and match their self-image to their ideals

³ Bedny et al. (2012) considered the concept of task difficulty as a functional mechanism of activity and behavior regulation and thought this concept involves motivational and emotional activities.

to maintain a favorable self-image. Discrepancies between actual and desired self-image generate negative emotions (Duval et al., 2001; Silvia & Duval, 2001) and initiate self-regulatory processes aimed at discrepancy-reduction (Carver & Scheier, 1998, 1981). This process prompts employees to change their behavior. To improve their self-image they try, for instance, to signal a high willingness and readiness to work on a task to themselves or want to prove to themselves that they are highly competent and committed to their work (Black & Deci, 2000).

By contrast, behavioral effects change when employees can observe their peers' input and, eventually even their output, which is, for example, the case in open-plan offices. When there is a possibility to observe peers' actions and employees are also observed by their peers (input- or input-output-mutual monitoring), employees' attention shifts from their self- to their social-image (Deci et al., 1981). That means, they no longer primarily focus on themselves, but are other-directed and care about others' evaluations. They alter their behavior to manage such evaluations, which is also postulated by theory and research on impression management (Bolino & Turnley, 1999; Bolino et al., 2016). In detail, such self-presentational motivations that influence the social-image are activated by the evaluative presence of others that observe effort and performance (Baumeister & Hutton, 1987). As a result, employees try to match their social-image to their peers' preferences and expectations to leave a positive impression on them, which helps to maintain and improve their social-image (Hannan et al., 2006; Schlenker, 1980; Leary, 1996). Against this background, we examine how different types of mutual monitoring (no, input, input-output) influence employees' effort allocations.

Behavioral Effects in different Error Cultures

One informal control system firms use besides the respective mutual monitoring system, is their error culture which describes the organizational attitude towards errors. It refers to the set of shared beliefs, norms, and common practices regarding discovered errors in an

organization (van Dyck et al., 2005). In an open error culture, the general belief is that whenever employees carry out tasks, errors are likely to occur, which is seen as an opportunity to learn from, while errors are despised in a blame error culture (Gold et al., 2014). In such a blame culture there is a zero-tolerance of failure, which amplifies error-adverse effects (e.g., image loss; Zhao & Olivera, 2006). Besides personal tastes and beliefs, the firm's error culture is an important behavioral benchmark for the employee (Kachelmeier et al., 2016). Generally, employees are likely to devote their attention to what is communicated and enacted within their firm, reflecting their behavior against the expectations and values conveyed by the firm's error culture. It is important for a positive self-image and social-image that no discrepancies occur between the actual behavior and the expectations of what behavior is appreciated. Making mistakes in an open error culture likely does not have a significant effect on behavior, because errors are seen as inevitable and as an opportunity for learning (Gold et al., 2014). By contrast, in a blame culture, mistakes threaten the employee's self- and social-image since mistakes are an important evaluation criterion and seen as a sign of incompetence. This results in a discrepancy between one's actual and one's desired image. Hence, a firm's error culture influences employees' effort allocation on easy versus difficult tasks, which is why we also investigate how an error culture moderates the effect of a mutual monitoring system.

III. HYPOTHESES DEVELOPMENT

Effects of mutual monitoring information on effort allocation

We base our hypotheses on the effect of different mutual monitoring systems (no, input, input-output) on the theories of self-awareness (Duval & Wicklund, 1972; Duval et al., 2001) and self-presentation (Baumeister & Hutton, 1987; Jones & Pittman, 1982) that are central to impression management research (Bolino et al., 2016; Bolino et al., 2008; Bolino & Turnley,

1999). We argue that managers can leverage mutual monitoring to integrate it into the firm's job design to direct an employee's effort allocation between easy and difficult tasks.

Duval & Wicklund (1972) propose that employees can either focus attention on the self or the external, social environment leading to considerations about their self- and/or their social-image. Accordingly, high states of self-awareness induce self-evaluation processes in the way that employees try to fulfill their need for competence to maintain a favorable self-image, whereas a stronger other-direction induces the desire to meet peers' expectations to maintain and improve their social-image, i.e., the way peers perceive their actions.

When there is *no-mutual monitoring*, employees are only aware of their own and not their peers' effort and performance. Since the level of peer control is low, employees can self-select their preferred effort allocation without being influenced by their peers. They focus on and identify with their effort allocation decisions and defined performance goals and are autonomously motivated when working on their selected tasks. With autonomous motivation, employees personally value their effort and accept its importance for their self-image (Black & Deci, 2000).

Research shows that individuals with a high self-focus try particularly hard at difficult tasks (Gendolla et al., 2008, Study 2). By doing so, they are able to signal a high readiness to themselves and, if they perform successfully, they perceive themselves as competent and capable, which improves their self-image. Consistent with this notion, Merchant & Manzoni (1989) report that one of the reasons why profit center managers in their field study tended to set challenging budget targets was that attaining their targets made them feel like "winners." Likewise, Deci (1971) finds that experiencing mastery on a difficult task enhances people's intrinsic motivation driven by their need for showing competence and obtaining self-affirmation. Therefore, we expect employees to put more emphasis on the difficult tasks to

signal readiness and competence to themselves to improve their self-image when no-mutual monitoring is present.⁴

When *input-mutual monitoring* is present, employees know their own effort and performance, but can also observe their peers' effort allocation (not their peers' performance). The effect of input-mutual monitoring on employees' behavior and effort allocation is twofold.

First, as peer control increases, the autonomous motivation for doing a task decreases since employees no longer completely identify with their self-defined performance goals (Gagné & Deci, 2005). Only with autonomous motivation employees personally value their effort and accept its importance for their self-image (Black & Deci, 2000). Because behavior is also initiated and maintained by external contingencies, employees *per se* assign a lower value to their self-selected effort.

Second, as peers can observe their effort allocation, employees consider how they appear to others (social-image) and feel pressurized to behave as expected and appreciated by their peers (Bolino & Turnley, 1999; Deci, 1971). As a result, they act out of the desire to induce social-image rewards and, accordingly, to avoid social-image losses (Jones & Pittman, 1982). Especially, they want to impress and be seen by their peers in a positive light since this improves their social-image (Bolino et al., 2016). Again, employees can achieve these improvements by allocating more effort to difficult tasks to signal their high readiness and competence. Therefore, allocating effort to a difficult task should become not only decisive for one's self-image, but also for one's social-image. Although effort allocation to difficult tasks is similar under an input-mutual monitoring system compared to under a no-mutual monitoring system, the behavioral drivers for the effort allocation are different, based on the shift from solely self- to also social-image concerns. Importantly, in this setting, employees cannot observe peers'

⁴ In this regard we challenge economic theory which predicts that given a choice most effort-averse employees will allocate effort to the easy task in the absence of differential rewards for the tasks.

performance such that failing in (difficult) tasks could only threaten the self-image, but not the social-image. This leads to our first (null) hypothesis.

H1a: *Effort allocations to difficult tasks do not differ between no-mutual monitoring and input-mutual monitoring.*

When *input-output-mutual monitoring* is present, also performance becomes observable. This makes employees more strongly other-directed. They feel monitored by their peers rather than self-controlled and self-determined (Pelletier et al., 2001). The shift to stronger peer control is likely to push self-image concerns in the background, and autonomous motivation required for difficult tasks decreases (Deci et al., 1981). This is in line with Deci et al. (1991) who explain that as soon as an autonomy-supportive environment vanishes, the self-image enhancing effect of feeling capable will also vanish. As a result, motivation and commitment to do a difficult task will drop.

Importantly, in a setting where not only effort but also performance is visible, peers can also evaluate whether the employee solves difficult tasks successfully or not. Hence, on the one hand, working on and solving difficult tasks signals competence, skill, and ability to peers. On the other hand, the risk of errors being observed harms the social-image. Therefore, employees fear these negative consequences for their social-image and, as a result, feel “choked under pressure” when performing difficult tasks (DeCaro et al., 2011; Heaton & Sigall, 1991). This is consistent with field evidence from Merchant & Manzoni (1989) reporting that managers only derived a positive social-image when *successfully* attaining their targets. Similarly, Tesser & Moore (1986) point out that if a difficult goal is set but not achieved, this leads to negative attributions for one’s social-image.

Employees view easy tasks as more controllable than difficult ones that involve a high risk of failure (Arnold et al., 2019). The easier the task, the more reliably and perfectly effort can be mapped to performance (Chan et al., 2020; Das & Teng, 2001). Consequently, the

dominant tactic available to employees in this environment is signaling “good news” to their peers if they succeed in coping with their selected easy tasks and earning the related social-image “reward” by mobilizing less energy to difficult tasks and more to easy tasks.

The salience of peers stimulates a social comparison process (Festinger, 1954) which, in turn, increases competition on the easy task at which employees feel productive and a ratcheting up of outputs is likely. Empirical evidence of peer effects also shows productivity spillovers from the engagement of highly productive peers caused by social pressure in the workplace (Mas & Moretti, 2009). Based on this argumentation, we formally state our next hypothesis as follows:

H1b: Effort allocations to difficult tasks are lower if input-output-mutual monitoring instead of only input-mutual monitoring is present.

Interaction Effects of mutual monitoring information and error culture on effort allocation

Next, we discuss how each level of mutual monitoring (no, input, input-output) interacts with error culture. When there is *no-mutual monitoring*, employees are self-focused. To improve their self-image, they perform difficult tasks to signal a high willingness to work and self-commitment. The firm’s error culture will alter this effort allocation. In an open error culture, making mistakes does not harm the employee’s self-image since errors are perceived as acceptable. In a blame culture, however, mistakes endanger the employee’s self-image. In this situation, the employee thinks more about performance and is concerned about her or his self-image in the case of poor performance. Thus, employees will focus more on easy tasks as these are less error-prone.

Under *input-mutual monitoring*, effort allocations are visible for all, but performance is not. Again, employees are rather self-focused, but also consider how peers perceive their effort allocation. Doing so, both the self- and the social-image are triggered (Deci & Ryan, 1985). Employees can signal their proficiency, initiative, and energy for more demanding duties by working on difficult tasks not primarily to themselves (self-image), but also to their peers

(social-image). If an error culture signals how errors are perceived within a firm, employees use these values as a normative standard of behavior. Again, we expect no significant effects on employees' effort allocation in an open error culture. However, in a blame error culture, mistakes represent a threat to one's self-image. To avoid any damages, we expect employees to focus more on easy tasks. The negative effect on the self-image when making mistakes, which is more likely when working on difficult tasks, is expected to outweigh the potential reputational benefits of solving them. As a consequence, employees will tend to perform easy instead of difficult tasks, since they may anticipate less detriment to their self that is usually associated with errors under a blame error culture.

When *input-output-mutual monitoring* is present, the impression an employee makes on peers comes to the foreground, while self-image concerns recede into the background. The social-image, not the self-image, is of high priority. Therefore, an error culture unlikely affects behavior in this environment. The communicated error norm only creates possible self-image threats employees have for doing what they perceive as inappropriate. Beyond that, errors are generally conceptualized as negative effects, shifting the focus on error prevention and avoiding erroneous actions whenever possible (van Dyck et al., 2005). Hence, if employees can notice each others' effort and performance, making errors is *per se* – independent of the error culture – perceived as costly by job design. Since errors on difficult tasks are more likely to occur and peers may attribute related conceptual errors to employees' personal incompetence threatening their social-image (Gold et al., 2014), we expect employees basically to allocate more effort to easy tasks, as discussed next.

An open error culture, considered in isolation, promotes dealing with difficult tasks, which may involve committing errors. However, in an externally controlled environment characterized by peer scrutiny of each others' performance, an open error culture is unlikely to be actually realized. The desire for self-presentation interferes with employees' desire to work at their own pace; instead, they feel pressurized into achieving as much high-quality output and

thus performance as possible – to leave a favorable impression and improve their social-image (as a diligent and competent employee). Gold et al. (2014) argue that firms may unintentionally create a blame error culture, even if their formal policies support an open one, given the need for a consistent application of a set of beliefs, norms, and practices to support an open work climate. The input-output-mutual monitoring system renders an open error culture untrustworthy. Therefore, we still expect employees to allocate more effort to easy tasks to avoid social-image threats that would occur when solving difficult tasks unsuccessfully, which is not mitigated by an open error culture.

Similarly, in a blame error culture, employees are likely to allocate their effort towards easy tasks and away from difficult tasks. Difficult tasks do not only demand cognitive knowledge, making the occurrence of errors on these tasks more likely. With the difficult tasks, peers may attribute mistakes to an employee's personal incompetence, while errors on easy tasks are more due to carelessness (Gold et al., 2014). As a consequence, errors on difficult tasks involve serious costs, such as damaged reputations, additional mental effort, poor peer relationships, as well as negative emotions – they are a “negative, humiliating experience” (Stefaniak & Robertson, 2010: 48). On aggregate, easy task prioritization in this environment is not primarily driven by the blame culture, but by the general circumstance that errors (which especially occur when performing difficult tasks) are a negative experience and a strong social-image threat, when performance is made public (Stefaniak & Robertson, 2010).

To sum up: the effect of the mutual monitoring system on the employee's effort allocation decision is moderated by a firm's error culture under no- and input-mutual monitoring, but not under input-output-mutual monitoring. Thus, we predict the following interaction:

H2: Error culture moderates the effect of mutual monitoring on effort allocation so that a blame error culture mitigates effort allocations to the difficult task under no- and under input-mutual monitoring but not under input-output-mutual monitoring.

IV. EXPERIMENTAL METHOD

Experimental manipulations

We test our hypotheses via a computer-based online experiment using a 3×2 full factorial design employing SoPHIE software (Hendriks, 2012). Participants were randomly assigned to teams of four and acted as fictitious firm employees. They had to prepare sales forecasts by completing easy and difficult number series as used in assessment centers or for testing intelligence.

We manipulate mutual monitoring at three (*no* vs. *input* vs. *input-output*) and error culture at two levels (*blame* vs. *open*) between subjects. Depending on the mutual monitoring condition, participants receive no team members' information (*no*), information about each others' time allocations (*input*), or the information about each others' time allocations *and* real-time performance, including correct solutions and errors (*input-output*).

[Insert Figure 1 about here.]

Following a description of a fictitious firm that participants work for, they are informed about its error culture. In the case of an *open error culture* participants learn that errors are seen as a natural part of learning and self-improvement. In the case of a *blame error culture* participants are informed that errors are seen as signs of incompetence and negligence.⁵

Experimental task

To test our hypotheses, participants have 3 rounds à 6 minutes to solve difficult and/or easy number series. These number series follow a logical rule based on elementary arithmetic, with the last number missing. Participants are asked to find out the logic to deduce the missing

⁵ In particular, in an open culture participants had to read the following statement by firm management: "We regard errors in sales forecasts as a natural part of learning and self-improvement. Therefore, such errors are acceptable and occur in everyday work. Each employee who makes mistakes has the chance to learn from them and drive firm innovation." In a blame culture the management statement reads as follows: "We regard errors in sales forecasts as a sign of incompetence and negligence. Therefore, such errors should be avoided at all costs. Any employee who makes mistakes runs the risk of losing his or her reputation and damaging firm reputation. An erroneous sales forecast has a negative impact on the reputation and on the annual performance evaluation of the respective employee."

number. The level of difficulty is determined by the amount of cognitive processing required for the logical task (Newman et al., 2020). Easy number series are based on one operator, i.e., participants must calculate the given values of the number series continuously via addition or multiplication with a specific number. Difficult number series are based on one or more operators, i.e., participants must calculate the given values of the number series via alternating addition/subtraction/multiplication/division with different numbers. Participants can switch between easy and difficult number series at any time. We create a business case and introduce a fictitious firm, such that the number series are framed as sales forecasts. Specifically, participants are informed that easy sales forecasts have a shorter forecasting horizon than difficult sales forecasts.

Our primary dependent variable is effort allocation (i.e., the number of seconds used for working on each task). In every round participants decide how much time they spend on each task (solving easy or difficult number series) and how often they switch between tasks. It is noteworthy that employees can control their inputs, whereas outputs particularly depend on abilities that are randomly distributed. Since participants receive a fixed wage, they learn that the firm values performance on both difficulty levels.

Participants and Procedure

In total, 192 business students participated in the experiment, randomly assigned to one of the six treatment conditions. On average, participants were 24 years old, and 50% were male. There were no significant differences between our experimental conditions in terms of age ($F = 0.85$, $p = 0.52$), gender ($F = 0.21$, $p = 0.96$), academic degree ($F = 0.96$, $p = 0.44$) or nationality ($F = 1.23$, $p = 0.29$). Additionally, we asked participants how (1 = very good; 6 = insufficient) they rate their mathematical skills. 126 of 192 participants (65.63 %) assessed their math skills at least as good, with no significant differences between conditions ($F = 1.16$, $p = 0.33$). Hence, we conclude that randomization was successful.

At the start of the experiment, team members logged on to a video conferencing software⁶ with cameras and microphones switched on. Participants introduced themselves by stating their name,⁷ course of study, favorite travel destination, as well as their favorite food.⁸ Next, participants were asked to log off from the video conferencing software and to log on to a website programmed with SoPHIE software (Hendriks, 2012). Participants had ten minutes to read the written instructions and then completed a 3-minute-practice round on easy and difficult numerical series. The practice round is intended to capture variance in ex-ante ability given that our findings could be sensitive to team composition, in particular heterogeneity in ability (Chan et al., 2020; Arnold et al., 2019). This practice round is also intended to familiarize participants with the task and to measure their capacity of logical reasoning. After that, participants took a quiz to confirm their understanding of the instructions. Next, participants completed three rounds lasting six minutes each, with interim feedback on their task performance.⁹ After the experimental task participants had to answer a set of questions and attend a goodbye meeting. Participants earned a fixed payment (15 euros) for taking part in the experiment.

⁶ With the lack of access to laboratories and on-campus students as participants during the COVID-19 pandemic, we had to substitute a laboratory for an online experiment.

⁷ To preserve participants' confidentiality, but to establish some identifiability, participants introduced themselves using a "coded" name composed of their first name, the day and month of their date of birth.

⁸ This brief introduction is intended to remove the physical distance and create personal proximity that is experienced in laboratory experiments within a virtual sphere. For instance, prior experiments used such an introduction to remove rank anonymity or inspire team identity, bringing participants closer together (Hannan et al., 2013a; Towry, 2003). Culture is a real-life, no virtual, construct: physical presence shapes organizational culture (norms, values and beliefs). With this in mind, our online variant's experimental findings are the very lower bound, suggesting stronger effects in a lab.

⁹ Specifically, after the end of each round, an overview of participants' personal period result is displayed for 60 seconds, including the number of successfully processed (number of errors in the) easy and difficult sales forecasts. This information appears in the signal colors red and green (without color highlighting) for a blame (open) error culture.

V. EXPERIMENTAL RESULTS

Descriptive Statistics

Table 1 and Figure 2 show the descriptive statistics by cell for our main dependent variable, i.e., *time spent*. This variable represents the percentage of the 6 minutes available in each round spent on difficult number series.

[Insert Table 1 and Figure 2 about here.]

The descriptive analysis reveals that participants who worked in a mutual monitoring environment with input and output information available spent the least time on difficult number series. Further, time spent is lower in the blame compared to the open error culture condition for all treatments. Thus, participants in the input-output mutual monitoring $\times$ blame culture condition spent the least time on difficult number series. More precisely, participants in this condition spent 42.47 percent of their time on difficult number series, compared to 47.21 (no/blame), 48.08 (input/blame), 49.47 (output/open), 57.76 (input/open), 60.50 (no/open) percent in the other conditions. This pattern is in line with our hypotheses.

Although not the focus of our study, Table 1 also presents data on performance, i.e., the number of correctly solved difficult and easy number series. On average, participants solved 6.84 (34.42) difficult (easy) number series correctly.

Hypotheses Test

To formally test our hypotheses, we use an ANOVA and simple effect tests with *total time spent* as the dependent variable and *mutual monitoring* and *error culture* as the main independent variables (Table 2). H1a is stated in the null form and predicts that there is no difference between *no mutual monitoring* and *input mutual monitoring*. To formally test H1a we rely on a simple effect test. As presented in Table 2, Panel B, we find that *total time spent* does not differ between *no* and *input mutual monitoring* ($F = 0.05, p = 0.82^{10}$). In line with our

¹⁰ All p -values are reported two-tailed unless stated otherwise.

prediction for H1a, we conclude that if input information is available effort allocation is unaffected.

H1b predicts that total time spent is lower when *input-output mutual monitoring* rather than when *input mutual monitoring* is present. The simple effect test in Table 2, Panel B, is marginally significant ($F = 2.70, p = 0.10$), indicating that the availability of performance information matters.

H2 predicts that the effect of error culture on *total time spent* is lower when *input mutual monitoring* and lowest when *input-output mutual monitoring* is present. The simple effect comparisons in Table 2, Panel C, show significant interaction effects of *error culture* and the *mutual monitoring* conditions. When *no* and *input mutual monitoring* is present, an open error culture significantly increases total time spent ($F = 4.95, p = 0.03$, ($F = 2.62, p = 0.11$)), but an open error culture has no impact on total time spent when *input-output mutual monitoring* is present ($F = 1.37, p = 0.24$). These findings support H2.

[Insert Table 2 about here.]

When developing our hypotheses, we refrained from predicting performance effects because we have specified neither an explicit (Brüggen & Moers, 2007) nor an implicit effort allocation optimum (Hannan et al., 2013a, 2019; Farrell et al., 2012; Kachelmeier et al., 2016). On the one hand, in a multitask setting, performance is a function of the time an employee spends on each task. Without differential rewards on the tasks, most effort-averse employees will allocate effort toward the tasks they feel more capable of doing, which are the easy tasks. On the other hand, employees have the need to work on difficult tasks that they intrinsically experience as meaningful to boost their ego and to feel competent, self-affirming their skills and talents (Hackman & Oldham, 1975). Predicting performance impacts for the error culture is no straightforward undertaking either. While an open error culture may encourage employees to work on difficult tasks, it also induces more trial-and-error-strategies resulting in more incorrect responses (Frese & Keith, 2015).

Additional analyses

This section consists of three parts. Initially, we validate the experimental setting. Second, we provide further support for our theory. Third, we extend our statistical tests to performance effects. Refer to Table 3, Panels A and B, for all theoretical constructs and related variables that will be discussed in these additional analyses.

Validation of the experimental setting

First, we verify the experimental setting and probe that employees must choose between easy and difficult tasks which have to be perceived as such. Therefore, we presented participants two number series and they had to decide which one was an easy compared to a difficult one. The results show that all but one participant correctly identified the difficulty level correctly. Further, it is important for our reasoning that participants associate difficult tasks with higher problem-solving abilities. Therefore, participants must agree that someone who has correctly processed many difficult sales forecasts has outstanding (problem-solving) abilities on a nine-point-Likert scale (1= do not agree, 9 = fully agree) (*skill*). The results show a mean value of 5.80 which is significantly greater than the scale midpoint of 5, with $t = 4.79$ and $p < 0.001$ and no significant differences between conditions ($F = 1.79$, $p = 0.117$). Further, a question in the pre-experimental quiz ensures that all participants were aware that working on both – easy and difficult tasks – was appreciated.

While we objectively manipulated the firm's error culture, we need to test that this manipulation made the participants subjectively discern and internalize different attitudes towards errors. To verify whether our manipulation was successful, we asked participants to indicate on four nine-point-Likert scale questions (1= do not agree, 9 = fully agree) whether making mistakes on sales forecasts was acceptable to *Paint & Varnish* employees (*error culture*

assessment).¹¹ Pairwise *t*-tests substantiate that when the firm's error culture is blame, the row mean of *error culture assessment* is 7.93 which is significantly above the scale-midpoint of 5 ($t = 25.87, p < 0.001$), while this variable's value is significantly below the scale-midpoint in the case of an open error culture ($t = -8.27, p < 0.001$). Hence, we conclude that our manipulation of the firm's error culture was successful.

To further substantiate our results, we investigate participants' basic readiness to perform. In the post-experimental questionnaire participants had to indicate on the same Likert scale used above if forecasting sales correctly was important to them (*performance orientation*). Mean responses to this question are 7.91 and thus significantly above the scale midpoint of five ($t = 27.82, p < 0.001$) with no significant differences between conditions ($F = 0.20, p = 0.963$).

Theoretical reasoning for H1a, H1b and H2.

Now we use participants' answers to the post-experimental questionnaire to first shed light on the effects of the mutual monitoring system (H1a and H1b), and second to refer to the influence of the firm's error culture (H2).

To underline our reasoning in H1a and H1b we first asked participants in our questionnaire to indicate whether they felt observed (*feeling observed*) and controlled (*feeling controlled*) by the other participants using a 9-point Likert scale ranging from '1' (strongly disagree) to '9' (strongly agree). As expected, participants' agreement with this statement increases from no- to input-mutual monitoring (*feeling observed*: 1.11 vs. 2.90, $t = -11.40, p < 0.001$; *feeling controlled* = 1.11 vs. 1.98, $t = -8.14, p < 0.001$) to input-output-mutual monitoring (*feeling observed*: 2.90 vs. 3.72, $t = -3.41, p < 0.001$; *feeling controlled* = 1.98 vs. 2.70, $t = -4.31, p < 0.001$).

¹¹ In particular, participants had to state to what extent (1) *Paint & Varnish* employees find it stressful when they make a mistake, (2) employees do not worry about doing something wrong, (3) it is acceptable for employees to make a mistake and (4) mistakes are detrimental from the employees' point of view and therefore should be avoided by all possible means. After reverse-coding questions (2) and (3), the variable's row mean is created.

This feeling of being monitored further influences whether individuals are rather autonomously and intrinsically motivated to work on (difficult) tasks to enhance their self-image, or are rather peer-directed and focus on their social-image.¹² We then argue that high degrees of self-awareness (peer-directedness) induce self-evaluation processes making participants try to fulfill their need to feel competent (communicate their commitment and capability to perform to others) and to maintain a favorable self (social)-image. In fact, we find that participants in the no-mutual monitoring conditions are self-focused, i.e., they concentrate on their own interests and abilities and want to signal a high work commitment to themselves, while participants in the other conditions (also) focus on their social-image and want to impress their peers to enhance their social-image.¹³

For H2, we predict that the firm's error culture is a benchmark for an employee's effort allocation decisions when there is no- or an input-mutual monitoring system such that a blame compared to an open error culture restrains employees from working on difficult tasks. The fear of making errors increases, which, in turn, would harm the self- or social-image. In contrast, because performance information is publicly available for peers when input-output-mutual monitoring is in place, participants already strongly fear failure on difficult tasks and therefore prefer working on easy ones.¹⁴

¹² To evaluate their autonomous, intrinsic motivation (*intrinsic motivation*), we asked participants whether they enjoyed working on the sales forecasts using a 9-point Likert scale from '1' (strongly disagree) to '9' (strongly agree). Participants' mean response of 6.90 significantly differs from the scale's midpoint of 5 ($t = 12.49, p < 0.001$) and reveals that they agreed with this statement.

¹³ In particular, we asked participants to state on a nine-point-Likert scale whether it was important to them to work on difficult sales forecasts (1= do not agree, 9 = fully agree) (*importance of difficult tasks*) to strengthen their self-image. Aggregate results suggest that it generally was, with responses significantly higher than the scale midpoint ($t = 1.84, p = 0.033$). Concurrent with self-awareness theory (Duval & Wicklund, 1973; Wicklund & Duval, 1971) participants in the no mutual monitoring conditions put more weight on difficult sales forecasts relative to the input- and input-output mutual monitoring conditions (no vs. input: 5.94 vs. 5.13, $t = 2.95, p < 0.001$; no vs. input-output: 5.94 vs. 5.02, $t = 3.36, p < 0.001$).

¹⁴ To test this prediction, we asked participants in our post-experimental questionnaire to assess the extent to which they tried not to make any errors (*fear of errors*) using a 9-point Likert scale from '1' (strongly disagree) to '9' (strongly agree). As predicted, within the no- and input-mutual monitoring conditions, we find a significant difference between an open and a blame error culture (no: 6.59 vs. 2.66, $t = 11.43, p < 0.001$; input = 5.38 vs. 2.03, $t = 10.02, p < 0.001$). Interestingly, we also find a significant difference within the input-output-mutual monitoring system. We trace this back to the circumstance that effort allocation is mainly influenced by impression management concerns with regard to peers and not the "pure" fear of making mistakes *per se*.

Regarding input-output-mutual monitoring, we find that participants in these conditions more strongly had the feeling that they were competing with the other participants when doing the sales forecasts (no vs. input-output MM: $t = -2.99$, $p = 0.003$; $t = -2.03$, $p = 0.044$) (*competition*). Participants subordinate their own effort allocation preferences to the control environment to look smart in peers' eyes furthering easy task engagement – although the firm's error culture principally accepts conceptual errors. Specifically, peer performance observability prompts them to focus on easy tasks where they feel safe and confident and where visible outputs accumulate instantly, which helps them to compete. This corresponds to Gold et al.'s (2014) assertion that establishing an open culture is easier said than done as it needs the consistent application of shared beliefs, norms and practices in the office. The “watchful eyes” of peers render the open error culture implausible, which causes employees to regard working on difficult tasks as threatening while easy task engagement presents them favorably bringing an open error culture's difficult task engagement down to the same level as a blame culture.

Performance effects

Task performance is a function of effort and other variables, notably ability, such that it is more complex to understand the effort-performance relation than effort alone (Bonner & Sprinkle, 2002). Put differently, our findings do not necessarily extend to performance on difficult and easy tasks. Therefore, we provide insights regarding how mutual monitoring and the firm's error culture impact performance. Since we have a multitask setting, we examine the performance on difficult and easy tasks separately for high- and low-performers (median split). Thus, it is conceivable that high-performers tend to tackle difficult tasks, while low-performers are more likely to self-select into the easy tasks so that performance effects aggregate and, as a result, are concealed when considering the total sample.

First, we look at the performance on difficult tasks proxied by the number of difficult sales forecasts completed correctly. As expected, we find significant performance effects for

the high-performers and not for the low-performers. In detail, we find that for the former subsample the firm's error culture makes a difference. A simple effect test that decomposes our different mutual monitoring systems depending on the firm's error culture shows that performance on difficult tasks significantly drops off only within the no- and input-mutual monitoring conditions if the error culture is blame (no mutual monitoring: $F = 6.51, p = 0.012$; input mutual monitoring: $F = 6.02, p = 0.016$, untabulated). This is consistent with our argumentation that employees in these two conditions are self-focused and work on difficult tasks to signal a high willingness and competence to themselves and/or to others. Consequently, with a blame error culture the danger of failing looms large threatening these positive signals and leading to a drop in performance. Thus, a blame error culture for no- and input-mutual monitoring and high-performers significantly impairs difficult task performance when there is no distracting output information available – it hampers difficult task prioritization. By contrast, for input-output mutual monitoring cultural cues are too subtle to influence difficult task performance for high-performers. Splitting performance solely as a function of the particular mutual monitoring system does not yield significant results.

In a second step, we look at performance on easy tasks as measured by the number of easy sales forecasts completed correctly. As expected, in this subsample analysis we find no significant performance effects for the high-performers, but for the low-performers. Specifically, we find for the latter subsample that error culture is no relevant and influential factor, since communicated cultural error-norms do not significantly spur task performance in either mutual monitoring system. By contrast, disaggregating performance on easy tasks solely as a function of the particular mutual monitoring system yields highly significant results. The main effect adjacent contrasts comparing the input- with the input-output mutual monitoring system reveal significant performance effects ($F = 4.52, p = 0.037$, untabulated). Hence, for low-performing employees, input-output mutual monitoring significantly spurs easy task prioritization. This finding underlines the predicted pressure and the risk of losing one's social-

image as a result of public failure in this mutual monitoring system. Performance on easy tasks is primarily driven by making peer performance information transparent for low-performers.

VI. DISCUSSION AND CONCLUSION

Informal control mechanisms are applicable to almost every setting. Their costs tend to be lower than more formalized controls, and they might produce fewer harmful side effects. Although not each informal control is effective at tackling each problem, and there may be interactions with other control mechanisms, informal means of control can address many control problems. Notably, cultural controls are designed to inspire mutual monitoring – a powerful form of peer pressure on employees who deviate from organizational norms, values and ways of behaving (Merchant & van der Stede, 2017). For informal control mechanisms to have an impact and to govern employees' behavior effectively, firms must give employees the physical (e.g., office plans or architecture) and social arrangements (e.g., institutional habits, ideologies, behaviors, or vocabulary) they need. In this study we investigate the effect of mutual monitoring in two different error cultures (blame vs. open) on effort allocations between a difficult and an easy task via an online experiment. In support of our prediction, we find that job contexts where employees can observe peer outputs elicit social-image concerns that mask cultural norms. Consequently, employees invest their efforts in what they can do safely and where they feel competent: easy tasks.

Our study informs firms about a hidden caveat of communicating performance outputs that is often associated with increasingly popular collaboration. Trusting anecdotal evidence from the business press, employees often feel being watched at their job. This study's findings suggest that such controlling environments divert employees' effort away from difficult to easy tasks. They also overshadow guiding normative cues stemming from the firm's error culture. Inasmuch as an input-output-mutual monitoring system spurs easy task prioritization this

informal control's drawback is greater the more the firm wants to channel manpower into difficult tasks. To reap cultural benefits of an open error culture, firms might consider removing output transparency and returning to more traditional job arrangements where employees can work self-concentratedly and where they do not have to prove their skills and qualities in a public sphere. Furthermore, we extend research on formal and informal control (Christ et al., 2016; Christ et al., 2008) by highlighting that peer-based controls affect effort allocation decisions through creating a controlling work environment characterized by peer scrutiny and intrusiveness.

Finally, we add to research by suggesting that subtle cues stemming from the firm's error culture may be more effective in some job contexts (no and input mutual monitoring) while ineffective in others (output mutual monitoring). Thus, when implementing new job designs or introducing new collaboration tools, firms should be aware that such innovations could have major consequences on their informal control system.

Fruitful areas for further research remain. For example, the degree to which peer-based and cultural controls are effective can vary considerably across individuals, groups, and communities with some communities having stronger ties among their members than others. Moreover, we test our predictions using an online experiment with fixed pay, so that the monitoring level is low by design. It is not ruled out that the strength of the effects would have been different in a controlled laboratory situation with incentive pay. Recently, Chan et al. (2020) have designed a laboratory experiment, manipulating whether a compensation pool generated from the output of paired employees is allocated based on the individual inputs of relative time spent or on the individual outputs. Future research might integrate these and our findings into a single experimental setting to examine how compensation, peer and cultural controls interact.

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Table 1

Descriptive Statistics (Mean, [Standard deviation])							
	Mutual Monitoring						Total
	No		Input		Output		
	Error Culture		Error Culture		Error Culture		
	Blame	Open	Blame	Open	Blame	Open	
Number of Participants (n)	32	32	32	32	32	32	192
Time Spent							
Round 1	0.4990 [0.2801]	0.5435 [0.2232]	0.4850 [0.2656]	0.5781 [0.2296]	0.4530 [0.2539]	0.4956 [0.2686]	0.5090 [0.2543]
Round 2	0.4863 [0.2655]	0.6199 [0.2788]	0.4924 [0.2945]	0.5910 [0.2475]	0.4494 [0.3215]	0.4352 [0.3075]	0.5124 [0.2916]
Round 3	0.4309 [0.3196]	0.6516 [0.2805]	0.4649 [0.2920]	0.5635 [0.2743]	0.3718 [0.3004]	0.5532 [0.3030]	0.5060 [0.3061]
Total Time Spent	0.4721 [0.2393]	0.6050 [0.2301]	0.4808 [0.2485]	0.5776 [0.1992]	0.4247 [0.2568]	0.4947 [0.2554]	0.5091 [0.2440]
Total Performance							
Difficult Task	6.1250 [5.0529]	8.3125 [5.8112]	4.9688 [4.6035]	8.0625 [6.6766]	6.0968 [5.2368]	7.5357 [5.1889]	6.8396 [5.5374]
Easy Task	38.6774 [26.1029]	30.2813 [22.9800]	33.4375 [26.9981]	28.3125 [21.4468]	39.7500 [21.9707]	36.1875 [24.9689]	34.4188 [24.2031]

Table 2**Hypotheses Test****Panel A: ANOVA results (n = 192), dependent variable = Total Time Spent**

Source of Variation	df	Mean Square	F-Statistic	p-Value
Mutual Monitoring	2	0.1187	2.08	0.13 [†]
Error Culture	1	0.4791	8.38	< 0.01 [‡]
Mutual Monitoring × Error Culture	2	0.0160	11.10	0.76
Residual	186	0.0571		
$R^2 = 0.066$, Adjusted $R^2 = 0.041$				

Panel B: Simple main effects tests decomposing the effect of mutual monitoring (n = 192), dependent variable = Total Time Spent

	df	F-Statistic	p-Value
Effect of input mutual monitoring vs. no mutual monitoring	1	0.05	0.82
Effect of output mutual monitoring vs. input mutual monitoring	1	2.70	0.10 [‡]

Panel C: Simple effects tests of error culture within the mutual monitoring environments (n = 192), dependent variable = Total Time Spent

	df	F-Statistic	p-Value
Effect of an open error culture within no mutual monitoring	1	4.95	0.03 [†]
Effect of an open error culture within input mutual monitoring	1	2.62	0.01 [‡]
Effect of an open error culture within output mutual monitoring	1	1.37	0.24

[†] p-value is two-tailed due to the lack of a directional hypothesis.

[‡] p-value is one-tailed due to the directional hypothesis.

Table 3**Definitions and Descriptive Statistics of Post-experimental Questionnaire Responses****Panel A: Variable Definitions**

Variable	Description
<i>Mutual monitoring</i>	<i>Mutual monitoring</i> is a between-subjects factor manipulated at three levels: <i>No mutual monitoring</i> , <i>input mutual monitoring</i> and <i>input-output mutual monitoring</i> . Participants working under <i>no mutual monitoring</i> can observe only their effort and performance, but not the effort and performance levels of the other team members. Participants working under <i>input mutual monitoring</i> can observe their effort and performance, and their team members' efforts but not the performance levels of the other team members. Participants working under <i>input-output mutual monitoring</i> can observe their effort and performance and the effort and performance levels of the other team members.
<i>Error culture</i>	<i>Error culture</i> is a between-subjects factor manipulated at two levels: <i>Open</i> and <i>blame</i> . Participants in the <i>open error culture</i> conditions learn that the firm accepts errors and that errors are seen as a natural part of learning and self-improvement. Participants in the <i>blame error culture</i> conditions learn that errors are seen as signs of incompetence and negligence. Therefore, errors should be avoided at all costs. Any employee who makes mistakes runs the risk of losing his or her reputation and damaging the company's reputation.
<i>Effort allocation</i>	<i>Effort allocation</i> , our primary dependent variable, is the time spent on difficult tasks (vs. easy tasks).
<i>Performance</i>	<i>Performance</i> is the number of correctly predicted sales forecasts per round or cumulatively.
<i>Round</i>	<i>Round</i> is a within-subjects factor. In total, one six-minute test round (three minutes to deal with easy and difficult sales forecasts each) and three six-minute rounds are conducted.
<i>Skill</i>	Participants' assessment of the extent to which they believe that someone who has correctly processed many difficult sales forecasts has outstanding (problem-solving) abilities, using a 9-point Likert scale (1 – do not agree, 9 – fully agree).
<i>Error culture assessment</i>	Participants' assessment of the extent to which they felt the following might apply to <i>Paint & Varnish</i> employees, using a 9-point Likert scale (1 – do not agree, 9 – fully agree).

	(1) <i>Paint & Varnish</i> employees find it stressful when they make a mistake. (2) Employees do not worry about doing something wrong. (3) It is acceptable for employees to make a mistake. (4) Mistakes are detrimental from the employees' perspective and should therefore be avoided at any rate. After reverse-coding items (2) and (3), the four-item row mean is created.
<i>Performance orientation</i>	Participants' assessment of the extent to which they tried not to make any errors, using a 9-point Likert scale (1 – do not agree, 9 – fully agree).
<i>Feeling observed</i>	Participants' assessment of the extent to which they felt being observed, using a 9-point Likert scale (1 – do not agree, 9 – fully agree).
<i>Feeling controlled</i>	Participants' assessment of the extent to which they felt being controlled, using a 9-point Likert scale (1 – do not agree, 9 – fully agree).
<i>Intrinsic motivation</i>	Participants' assessment of the extent to which they enjoyed working on the sales forecasts, using a 9-point Likert scale (1 – do not agree, 9 – fully agree).
<i>Importance of difficult tasks</i>	Participants' assessment of the extent to which it was important to them to work on difficult sales forecasts, using a 9-point Likert scale (1 – do not agree, 9 – fully agree).
<i>Fear of errors</i>	Participants' assessment of the extent to which they tried not to make any errors, using a 9-point Likert scale (1 – do not agree, 9 – fully agree). Answer values are reverse-coded.
<i>Competition</i>	Participants' assessment of the extent to which they felt they were competing with the other participants when editing the sales forecasts, using a 9-point Likert scale (1 – do not agree, 9 – fully agree).

Panel B: Post-experimental Questionnaire Responses: Mean (standard deviation)

Construct & variable name		No-Mutual Monitoring			Input-Mutual Monitoring			Input-Output-Mutual Monitoring		
		Open	Blame	Total	Open	Blame	Total	Open	Blame	Total
Manipulated variables	Mutual monitoring	0 (0)	0 (0)	0 (0)	1 (0)	1 (0)	1 (0)	2 (0)	2 (0)	2 (0)
	Error culture	1 (0)	0 (0)	0.50 (0.50)	1 (0)	0 (0)	0.50 (0.50)	1 (0)	0 (0)	0.50 (0.50)
Dependent variable (hypotheses tests)	Effort allocation (i.e., time spent)	0.61 (0.23)	0.47 (0.24)	0.54 (0.24)	0.58 (0.20)	0.48 (0.25)	0.53 (0.23)	0.49 (0.26)	0.42 (0.26)	0.46 (0.26)
Dependent variable (additional analyses)	Performance	0.53 (0.51)	0.56 (0.50)	0.55 (0.50)	0.44 (0.50)	0.41 (0.50)	0.42 (0.50)	0.50 (0.51)	0.66 (0.48)	0.58 (0.50)
Design validation	Skill	5.97 (2.09)	6.19 (2.29)	6.08 (2.18)	5.53 (2.49)	4.94 (2.35)	5.23 (2.42)	5.69 (2.22)	6.47 (2.21)	6.08 (2.23)
	Error culture assessment	3.65 (1.46)	7.91 (1.18)	5.78 (2.52)	3.82 (1.28)	7.95 (0.92)	5.89 (2.36)	3.88 (1.62)	7.94 (1.25)	5.91 (2.50)
	Performance orientation	7.94 (1.64)	7.94 (1.76)	7.94 (1.69)	7.84 (1.46)	7.75 (1.76)	7.80 (1.61)	7.88 (1.04)	8.09 (0.86)	7.98 (0.95)
Monitoring	Feeling observed	1.03 (0.18)	1.19 (0.47)	1.11 (0.36)	2.63 (1.90)	3.19 (2.40)	2.91 (2.17)	3.75 (2.65)	3.69 (2.40)	3.72 (2.51)
	Feeling controlled	1.09 (0.30)	1.13 (0.34)	1.11 (0.31)	1.75 (1.32)	2.22 (1.58)	1.98 (1.46)	2.53 (1.67)	2.88 (1.95)	2.70 (1.80)

Self-Image Concerns	Importance of difficult tasks	6.28 (2.77)	5.59 (2.77)	5.94 (2.77)	5.72 (2.57)	4.53 (2.64)	5.13 (2.65)	5.22 (2.64)	4.81 (2.63)	5.01 (2.62)
	Intrinsic motivation	6.97 (2.24)	6.25 (2.38)	6.61 (2.32)	7.38 (1.36)	6.81 (2.21)	7.09 (1.84)	7.16 (2.22)	6.84 (2.08)	7.00 (2.14)
Fear of Errors	Fear of errors	2.66 (2.30)	6.59 (2.47)	4.63 (3.09)	2.28 (1.65)	6.22 (2.35)	4.25 (2.83)	2.03 (1.58)	5.38 (2.86)	3.70 (2.85)
	Competition	3.06 (2.73)	3.66 (3.12)	3.36 (2.92)	4.03 (2.66)	3.75 (2.64)	3.89 (2.63)	4.88 (2.81)	4.84 (2.73)	4.86 (2.75)

Figure 1

Manipulation of the firm's error culture at the stage of the experimental task

Panel A: Easy task

Notes on how to deal with the sales forecasts

Remaining time [sec]: 360

A DIFFICULT

B DIFFICULT
WRONG

C EASY

D EASY
CORRECT

5

15

25

35

OK

To the next difficult sales forecast

To the next easy sales forecast

Panel B: Difficult task

Notes on how to deal with the sales forecasts

Remaining time [sec]: 360

A DIFFICULT

B DIFFICULT
WRONG

C EASY

D EASY
CORRECT

250

50

100

20

40

8

OK

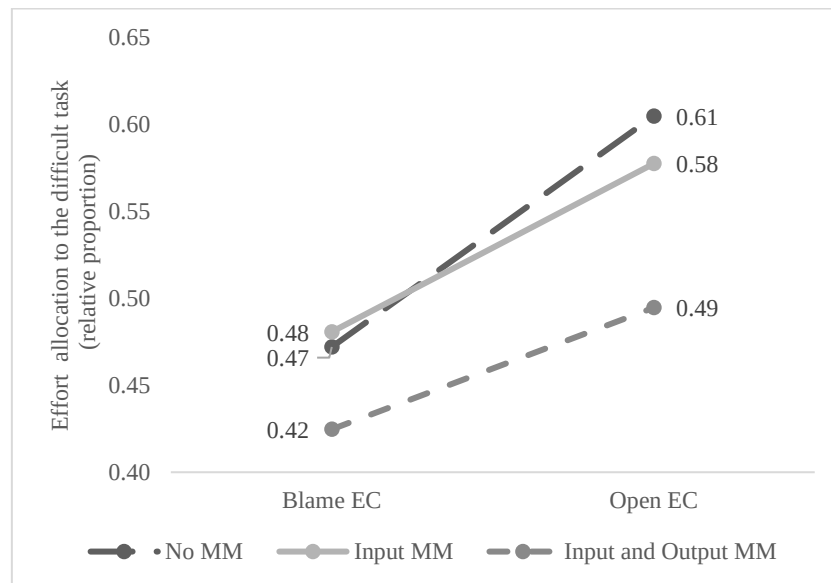
To the next easy sales forecast

To the next difficult sales forecast

Note: Panel A (Panel B) presents the screen's layout of an easy (a difficult) sales forecast exemplary for the input-output mutual monitoring conditions. Illustrated as an example is the color tone of the blame error culture. The screen layout is exactly the same in the input mutual monitoring conditions except for the public performance information, i.e., whether a participant is processing a sales forecast correctly or not. In the no mutual monitoring conditions, effort information is additionally missing, i.e., whether a participant is currently working on easy or difficult tasks. Private real-time feedback, including both effort and performance information, is always provided. With the open error culture, "WRONG", and "CORRECT" respectively, should appear for two seconds in a discreet shade of gray.

Figure 2

Graphical depiction of the effect on time spent (n = 192) ^a



^a MM = Mutual monitoring, EC = Error culture

A3 Social and economic controls: The influence of control result transparency and detrimental effects on others on misreporting

Study no.	3				
Title	Social and economic controls: The influence of control result transparency and detrimental effects on others on misreporting				
Authors	Corinna Ewelt-Knauer, Alana Sarina Pleger, Julia Schneider, Sandra Winkelmann				
Author contribution		Ewelt-Knauer	Pleger	Schneider	Winkelmann
	<i>Numeric share</i>	0.1	0.5	0.3	0.1
	Conceptual development of research question	✓	✓	✓	✓
	Development of theory	✓	✓	✓	✓
	Methodology		✓	✓	✓
	Acquisition of data		✓	✓	✓
	Analysis/interpretation of data	✓	✓	✓	✓
	Writing the manuscript	✓	✓	✓	
Publication status	Working Paper				
Research approach	Experimental study				
Language	English				
Abstract	This paper investigates detective controls some employees are randomly selected for after a defined period of time to review their ex-post behavior. We examine how two important characteristics of such a control process influence employees' performance misreporting. In detail, we focus on the detrimental effects on others (i.e., the risk of lowering peers' wealth) and on control result transparency. Because employees have social preferences and harming peers creates additional psychological costs, we predict that if misreporting potentially reduces a peer's wealth, the tendency to misreport will be lower. Moreover, we argue that control result transparency moderates the impact of detrimental effects on others so that a high control result transparency mitigates misreporting if it does not entail detriments for others, but not if it involves detriments for others. If outside observers can detect someone's misreporting behavior, it will be more difficult for the misreporting employee to apply self-serving justifications because he or she wants to appear moral to others. Thus, we think that any incremental psychological costs added via control result transparency have no or only low marginal effects on the level of misreporting, since moral justification is already relatively difficult and the costs of misreporting are already relatively high. Results support these predictions. They show that detrimental effects on others and control result transparency rather act as substitutes than as complements. If employees perceive that they might harm their peers due to their reporting decision, they cannot easily make an excuse to themselves to ease the burden of unethical choice. Thus, our study informs firms about how they can leverage the two characteristics of				

	detrimental effects on others and control result transparency of the control process to constrain performance misreporting in order to increase the efficiency of controls.
Keywords	Performance misreporting · Control processes · Control result transparency · Peers · Detrimental effects on others · Injunctive norms.

Social and economic controls:
**The influence of control result transparency and detrimental
effects on others on misreporting**

Corinna Ewelt-Knauer
Giessen University (Germany)
Corinna.Ewelt-Knauer@wirtschaft.uni-giessen.de
Licher Str. 62, 35394 Giessen, Germany

Alana Pleger
Giessen University (Germany)
Alana.Pleger-2@wirtschaft.uni-giessen.de
Licher Str. 62, 35394 Giessen, Germany

Julia Schneider
Giessen University (Germany)
Julia.Schneider@wirtschaft.uni-giessen.de
Licher Str. 62, 35394 Giessen, Germany

Sandra Winkelmann
Bochum University (Germany)
Sandra.Winkelmann@rub.de
Universitätsstraße 150, 44801 Bochum, Germany

Social and economic controls:

The influence of control result transparency and detrimental effects on others on misreporting

ABSTRACT

This paper investigates detective controls some employees are randomly selected for after a defined period of time to review their ex-post behavior. We examine how two important characteristics of such a control process influence employees' performance misreporting. In detail, we focus on the detrimental effects on others (i.e., the risk of lowering peers' wealth) and on control result transparency. Because employees have social preferences and harming peers creates additional psychological costs, we predict that if misreporting potentially reduces a peer's wealth, the tendency to misreport will be lower. Moreover, we argue that control result transparency moderates the impact of detrimental effects on others so that a high control result transparency mitigates misreporting if it does not entail detriments for others, but not if it involves detriments for others. If outside observers can detect someone's misreporting behavior, it will be more difficult for the misreporting employee to apply self-serving justifications because he or she wants to appear moral to others. Thus, we think that any incremental psychological costs added via control result transparency have no or only low marginal effects on the level of misreporting, since moral justification is already relatively difficult and the costs of misreporting are already relatively high. Results support these predictions. They show that detrimental effects on others and control result transparency rather act as substitutes than as complements. If employees perceive that they might harm their peers due to their reporting decision, they cannot easily make an excuse to themselves to ease the burden of unethical choice. Thus, our study informs firms about how they can leverage the two characteristics of detrimental effects on others and control result transparency of the control process to constrain performance misreporting in order to increase the efficiency of controls.

Keywords: Performance misreporting; Control processes; Control result transparency; Peers; Detrimental effects on others; Injunctive norms.

JEL Classifications: M40, M41, M42, M52.

Data Availability: Data are available from the corresponding author on request.

I. Introduction

There is common consent that transparency is essential to curbing unethical behavior and employee misconduct.¹ In particular, performance misreporting of employees (hereafter, misreporting) is a core problem. It can result in high costs and distort firm management and firm owners' decisions. Wirecard is a prominent example of a firm boosting its profits and sales figures via misreporting. Once this misconduct came to light, share prices and the firm's reputation fell dramatically, which ultimately resulted in insolvency in June 2020 (Davies, 2020; Alderman & Schuetze, 2020). Wirecard is only one example out of many others (Jo et al., 2021; McCrum, 2020). We need to know both the causes of misreporting and possible remedies so that we can "crowd in" ethical considerations and instill ethical behavior.

To prevent employees from misreporting, firms commonly try to create transparency. Notably, they use time-consuming and costly control processes. Since it would be uneconomical to check every step in order to achieve full transparency, firms often resort to statistical methods based on random selection processes to choose the control steps and the employees who will be controlled (Ponemon & Wendell, 1995). Yet, some decision bias remains. Probabilistic controls bring about reasonable, not full assurance (Power, 2003). Moreover, controls can impair ethical behavior by triggering an economic decision frame (Christ et al., 2012; Falk & Kosfeld, 2004). In particular, Ewelt-Knauer et al. (2020) document that implementing controls crowds out ethical considerations, which increases misbehavior. Along the same line, Tenbrunsel & Messick (1999) highlight that controls are understood as a sign of mistrust. Given the importance of how to keep the arising adverse effects in check, a few studies started to investigate how certain control characteristics influence employee

¹ Following Jones (1991), we grasp ethical behavior as a generally acceptable, legal decision. Ethical behavior therefore refers to an intentional adherence to implicit or explicit social contracts, norms or moral standards as well as a consideration of others, e.g., peers (Treviño et al., 2006). In contrast, unethical behavior is characterized by either illegal or morally unacceptable behaviors (Jones, 1991). Unethical behaviors thus encompass immoral, dysfunctional and fraudulent actions that have been identified in extant management control literature, e.g., budgetary slack creation (van der Stede, 2000) or performance misreporting (Burns & Kedia, 2006; Cardinaels & Jia, 2016).

behavior. Christ et al. (2012) concentrate on the control consequences and identify penalties to reduce trust and thus lower effort compared to bonus contracts. As a formal control instrument, controls crowd out intrinsic motivation and thus reduce performance (Schedlinsky et al., 2020). A higher control probability fuels self-interested behavior (Emett et al., 2019). Further, Lill (2020) documents that perceived control effectiveness decreases as the distance between supervisor and employee increases. Since further research is scarce, we add to this emerging stream of research on control characteristics.

In this study we apply norm theory (Douthit et al., 2021; Bicchieri, 2006, 2008; Blay et al., 2018) to employees' reporting decisions in both an ethical and a business frame context. Using an experimental methodology, we leverage the theory to isolate injunctive norms, i.e., a major influence known to be an indicator of misreporting, to examine the effects on employee misreporting when employees are faced with the ethical question of whether or not to overstate their performance (e.g., Altenburger, 2017; Kunz, 2017; Young, 2021). Specifically, we focus on a setting where overstating performance is economically beneficial since it yields a positive expected value and leads to a higher personal compensation. On this baseline we explore how (1) detrimental effects on others and (2) the disclosure of the control result (control result transparency) impact employees' decision frame and misreporting behavior. Detrimental effects on others refer to compensation schemes where employees' misreporting decision lowers their peers' wealth. Research suggests that harming peers appeals to employees' social preferences and triggers an ethical frame. In particular, dictator games unanimously document that individuals in practice do not fully correspond to the 'homo economicus' but exhibit social preferences such as the norm not to harm others (Krupka & Weber, 2013; Camerer, 2003; Bolton et al., 1998). Consistent with these studies, we predict that such detrimental effects on others crowd in ethical considerations, which deters misreporting. We consider control result transparency as one specific transparency facet that features two important characteristics: first,

it reveals results (result transparency) and does not address the control process (process transparency, e.g., selection process for the control; Ewelt-Knauer et al. (2021)). Second, since we focus on a misreporting setting, we examine the disclosure of undesirable behavioral outcomes in contrast to the disclosure of desirable behavioral outcomes (e.g., relative performance information or effort). The difference between these types of behavioral outcomes lies in the psychological mechanisms to be triggered.

Opposed to the studies mentioned right at the outset (e.g., Ewelt-Knauer et al., 2021; Tenbrunsel et al., 2003; Christ et al., 2012), others suggest that transparency leads to trust and increases desired behavior (Kanagaretnam et al., 2010; Rawlins, 2008; Schnackenberg & Tomlinson, 2016), whereas yet others indicate that transparency enables employees to better assess and therefore exploit the situational circumstances (Bernstein, 2012; Hannan et al., 2006). In practice, firms leverage transparency to detect and thus deter unethical behavior: disclosures of misconduct are commonly aimed at deterring such unethical actions and at instilling appropriate modes of conduct. As such, they also have a signaling value and an injunctive norm character because public disclosures of misconduct inform employees that the firm disapproves misconduct. Against this background, our study sheds further light on the ambiguous effect of transparency after a control process by illuminating how firms can use higher or lower control result transparency to increase control efficiency.

Our two examined control characteristics are highly relevant to practice and can, for instance, indicate an effect when firms use team-based compensation schemes, because with such compensation patterns employees' misreporting decision harms their peers financially, impairing their wealth. For example, large firms typically resort to team compensation structures where the financial payoffs of one employee depend on the performance reporting

decisions of his peers.² Therefore, such interdependent payment structures are featured by high ethical considerations for employees: their misreporting impairs their peers. At the same time, these firms usually disclose the control results in an attempt to detect misreporting and keep it in check. It follows that these settings with interdependent payment structures and control result transparency reinforce the detrimental effects on others. To comprehensively capture the effects of both control characteristics, we first look at detrimental effects on others only and then add control result transparency to explore how these two characteristics interact and work jointly resulting in the following three settings: (1) detrimental effects on others, (2) control result transparency, and (3) detrimental effects on others with control result transparency. The latter investigates the effect of harming peers both with and without control result disclosure.

We develop theory to posit that employees' misreporting decisions are affected by detrimental effects on others and control result transparency. First, relying on psychological research on injunctive norms (Bicchieri, 2006; Blay et al., 2018; Cialdini & Trost, 1998), we argue that detrimental effects on others increase the internal pressure to behave ethically by raising the psychological cost of misreporting when employees indirectly harm their peers. The rationale behind this is that employees have *social preferences* for the well-being of their peers. Second, regarding control result transparency in settings with no detrimental effects on others, publicity and the impression management considerations it triggers raise audience concerns and intensify employees' *awareness* of their social-image. Since prior research finds that employees are concerned about their image and afraid of image losses (i.e., negative publicity), we expect employees who experience high control result transparency to shy away from misreporting: nobody wants to be exposed as a liar in the public sphere. Specifically, misreporting would result in additional psychological costs impairing the cost-benefit-balance. This will now have a stronger weight. Contrary, regarding control result transparency in settings with detrimental

² If we show the masculine form, this is only to avoid long-winded formulations. As a matter of fact, the female person is always included.

effects on others, the psychological costs are already high so that control result transparency does not add incremental benefits, leading to no more (i.e., incremental) misreporting.

To test our predictions we conducted an online experiment in which we varied (1) detrimental effects on others (absent vs. present) and (2) control result transparency (low vs. high) over five rounds. Similar to Evans et al. (2001), the participants had to report project earnings in five experimental rounds (reported earnings). The reported earnings could vary and differ from the de facto earnings of the project. The participants received variable compensation based on reported earnings. After each round a selection process for a control was executed. If an employee was selected, his or her reported earnings were compared to the de facto earnings. Potential misreporting would lead to a sanction in the form of a loss of the round's compensation, and to detrimental effects on others by proportionately impairing peers' compensation. In the case of disclosed control results, employees were notified of whether or not individual employees were selected for a control and received a punishment. Our results are consistent with our predictions. They provide evidence that misreporting increases, if employees do not harm their peers with their reporting decision (H1). Our results suggest that firms can leverage control result transparency as a potential remedy if the firm's job characteristics do not allow for team-based or other forms of compensation interdependence. However, control result transparency does not incrementally lower misreporting if employees may harm their peers with their misreport. In particular, detrimental effects on others can crowd out the negative business frame that controls have on reporting. In detail, in settings with no detrimental effects on others, high control result transparency will induce an injunctive norm effectively, and this norm will likely be a significant input into the decision to misreport (H2). However, with detrimental effects on others, high control result transparency is less likely to lower misreporting because the shift to an ethical decision frame has already occurred (H3). This is due to the injunctive norm of misreporting resulting from detrimental effects on others

acting as a substitute in the decision-making process. That is, as peers (i.e., others) become a more significant input to the reporting decision through team-based compensation, perceived control result transparency as a firm management-induced norm becomes relatively less important as an input into the reporting decision. This results in detrimental effects on others attenuating the effect that control result transparency has on misreporting.

The results suggest that norm theory may be useful for predicting employees' reporting decisions in different, most notably in an ethical vs. economic, business frame. We find that the activation of injunctive norms leads to changes in employees' misreporting behavior. These findings are relevant for managers who seek to improve ethical behavior in their firm. Regulators, accountants, and those involved in corporate governance may regard the results as useful in their efforts to mitigate performance misreporting in firms. Our results suggest that a renewed emphasis on and understanding of the detrimental effects on peers could efficiently and effectively reduce performance misreporting.

Even if controls are widely used in practice, the behavioral effects of different control characteristics are rather unclear (Cardinaels & Jia, 2016; Indjejikian & Matějka, 2012). Our study provides evidence of how well-designed controls can overcome their negative side effects while bolstering the entire control function's effectiveness. In particular, we emphasize the importance of team-based compensation structures where peers face financial detriments in the event of a misreporting decision.

Apart from giving practical insights into how to advance higher-quality decision-making, our study contributes to accounting theory. Specifically, we extend the emerging literature on control processes. Grounded on existing research that has stressed several adverse effects of controls on employee behavior (Christ et al., 2012; Ewelt-Knauer et al., 2020; Falk & Kosfeld, 2004), we go one step further and explore whether firms can constrain these undesired actions with two control instruments of the control process: one more formal, i.e.,

control result transparency, and a more informal control instrument, i.e., detrimental effects on others. Doing so, we provide a deeper understanding of how firms can increase control efficiency and follow the claim of Brunner & Ostermaier (2019) and Chong & Wang (2019) that much more evidence is needed to understand how organizational design choices can effectively mitigate misreporting.

The remainder of this paper proceeds as follows. Section 2 presents the theoretical background and describes the setting. Section 3 develops the hypotheses while Section 4 depicts the experimental method. Section 5 unfolds the results and the additional analyses, including a discussion of alternative explanations. Section 6 concludes.

II. Background and Setting

When individuals decide about their behavior, they ask themselves what kind of situation they are in (Messick, 1999). Specifically, they want to know which decision frame they should activate. Economic theory suggests that employees have an *economic decision frame* weighing financial costs and benefits. Concerning performance reporting, they should maximally overstate their performance if this decision results in the highest payoff (Baiman & Lewis, 1989). In contrast, following behavioral accounting research, individuals do not solely have economic desires but are willing to forego wealth for being honest (e.g., Cardinaels & Jia, 2016; Maas & van Rinsum, 2013; Taylor & Bloomfield, 2011; Tenbrunsel & Messick, 1999), as this allows them to maintain their ethical self-concept (Mazar et al., 2008). Thus, being dishonest results in psychological costs while being honest or ethical generally results in psychological rewards (Fehr & Schmidt, 1999; Evans et al., 2001). However, it is the situational context, i.e., the social setting (Fehr & Schmidt, 1999; Messick, 1999) which determines

whether – at the one extreme – the economic decision frame or – at the other extreme – the ethical decision frame is activated.

In the social setting of firms, random controls are typically implemented to enhance the behavior that is desired by the firm. For instance, controls are to prevent or at least detect misreporting of employees. However, behavioral accounting research shows that such controls can stimulate adverse behavior (Falk & Kosfeld, 2004; Taylor & Bloomfield, 2011; Christ, 2013) by activating employees' economic decision frame (Emett et al., 2019; Taylor & Bloomfield, 2011; Tenbrunsel & Messick, 1999). Specifically, employees perceive controls as a sign of mistrust (e.g., Falk & Kosfeld, 2004; Christ, 2013; Taylor & Bloomfield, 2011; Tenbrunsel & Messick, 1999). Since employees anticipate that the firm expects them to misreport, it lowers the psychological costs of misreporting because such misbehavior only meets the firm's expectations and employees do not have the feeling of disappointing the firm due to their opportunistic behavior. Hence, ethical considerations are crowded out when deciding about misreporting (Ewelt-Knauer et al., 2020). From an economic point of view, misreporting is rational if it yields a positive expected value, i.e., when the financial benefits from misreporting exceed the potential financial costs when misreporting is detected (e.g., Burns & Kedia, 2006).

Beyond this background, research on accounting and business ethics needs to discuss how firms can implement an “ethical infrastructure” in the social setting of the firm (Tenbrunsel et al., 2003) to crowd back ethical considerations into employees' decision-making in the presence of controls (Cremer & Moore, 2020). Specifically, the situational context must be shaped in such a way that employees become less self-centered and hence abandon a purely economic decision-frame, and are rather more concerned about others, inducing an ethical decision frame. The *preference for* and *awareness of others* can be shaped by injunctive norms, i.e., socially determined consensual standards (social norms) describing how people ought to

behave in a given situation (Cialdini et al., 1990; Cialdini & Trost, 1998; Bicchieri, 2006). Thus, injunctive norms involve perceptions of which behaviors are typically approved or disapproved (Cialdini & Trost, 1998). Following norm theory, individuals have preferences to follow injunctive norms, even if it is costly to them (Park & Smith, 2007; Altenburger, 2017). Beyond this background, we focus on two injunctive norms³ that firms can use to design their ethical infrastructure to increase employees' psychological costs of misreporting and to crowd back ethical considerations in the presence of controls.

First, we rely on the detrimental effects of employees' misreporting on others as an important injunctive norm (Gert & Gert, 2020). Due to social preferences (Fehr & Schmidt, 1999), employees are concerned about others' well-being. Specifically, individuals shy away from harming others (Bicchieri, 2006; Fisher et al., 2019). If the employee's misreporting has negative effects on others, this negatively impacts an individual's self-concept and, therefore, increases the psychological costs of misreporting (e.g., Gneezy, 2005; Gneezy et al., 2013). Thus, misreporting is more difficult to justify ethically, if it has negative impacts on others (Bandura, 2002). In performance reporting contexts, the level of misreporting depends on how employees' performance reports affect peers (Maas & van Rinsum, 2013). For instance, if employees' compensation relies proportionally on their contributions to the group result and they report a higher performance, the share in their peers' payment decreases (DeMatteo et al., 1998; Maas & van Rinsum, 2013). Consequently, employees financially harm their peers with their reporting decision.

³ Both the interplay of different organizational norms and values and their alignment with personal objectives are important components of a firm's management control system (Merchant & van der Stede, 2017; Eisenhardt, 1985). Here injunctive norms shape employees' mindsets directly by activating social conventions and indirectly by communicating expected behaviors that might contribute to more effective management control. In both ways, injunctive norms provide guidance in ambiguous decision-making situations and may, in turn, induce mutual beneficial behaviors providing guidance. Both ways of management control are furthermore rather unobtrusive and thus associated with fewer negative side effects compared to other forms of, in particular, formal control (Goebel & Weißenberger, 2017; Merchant & van der Stede, 2017).

Second, we consider the injunctive norm induced by control result transparency. Control result transparency describes whether peers are informed about who was selected for a control and the outcome of the control, and thus, whether the respective peer misreported. Prior research has shown that transparency can induce desired behavior at least for two reasons (Kanagaretnam et al., 2010; Rawlins, 2008; Schnackenberg & Tomlinson, 2016): First, employees care about others' impressions of themselves and alter their behavior to manage such impressions even in the absence of economic consequences (Hannan et al., 2006; Schlenker, 1980) or even if they forego some economic gain (Maas & van Rinsum, 2013). The disclosure of misbehavior would threaten the employee's social-image (Mayhew & Murphy, 2009; Coricelli et al., 2010), increasing the psychological costs of misreporting. Church et al. (2012) show that employees may be concerned that misreporting, if known to peers, casts them in a negative light resulting in psychological costs.⁴ Second, disclosing the result of a control has a strong signaling effect as it communicates that the firm expects employees to abstain from misreporting. Hence, the transparency of the control result functions as an ethical reminder (e.g., Bucciol & Piovesan, 2011; Mazar et al., 2008; Shu et al., 2011). Following Bicchieri (2006), individuals' perceptions of the expected behavior affect their decision-making by activating concerns for adhering to the expected behavior. Due to the saliency of the injunctive norm and the resulting impression management concerns, the disclosure of the control result raises employees' awareness of others (Douthit & Stevens, 2014).

It is worth noting that although both detrimental effects on others and control result transparency are likely to direct the focus to the peers and elicit an injunctive norm against

⁴ By contrast, employees can also exploit transparency and use public information in a self-serving manner (Bernstein, 2012; Hannan et al., 2006). The transparency level of a firm's control result affects the employee's decision-making trade-offs by improving others' ability to make an inference regarding the employee's norm-compliant behavior. Thus, to the extent that the employee perceives benefits by appearing ethical, transparency can crowd in ethical behavior. Alternatively, the employee must forego economic benefits of misreporting performance in order to achieve the same impression of ethicality. This might shift the dilemma decision toward the benefits of misreporting performance and away from the benefits of appearing honest, thereby inciting opportunism.

misreporting, there is a decisive difference between the two variables. Considering detrimental effects on others the employee may reason that the others are important to him, so he does not want to harm them, because he cannot reconcile that with his moral standards. Here, the employee has a focus on others (i.e., social preferences motive). Referring to the effect of control result transparency without detrimental effects on others, misreporting decreases because the employee does not want to stain his image, thereby raising the awareness of others. Although here peers become focal, the employee does less misreporting out of self-interest, because he is afraid to tarnish his image towards his peers. So social awareness *of* others (triggered by control result transparency) is psychologically distinct from social preferences *for* others (created by detrimental effects on others). The crucial question is how both variables interact. Maybe the effect of one variable reinforces the other (complementary effect). But it may also be that the effect of one variable is compensated by that of the other variable (substitutive effect). Specifically, since employees do have social preferences, they do not want to harm their peers and misreporting will decrease. When employees do not intend to compromise their peers' wealth (at least not seriously) and have already reduced their misreporting as a result of detrimental effects on others, they no longer worry about what peers think about them. That is, they don't even include transparency in their reporting decision anymore, because it is irrelevant to them anyway: regardless of whether or not control results are publicly provided, employees abstain from misreporting because they do not want to impair others' financial fortune in the first place.

In summary, we rely on a setting where formal controls are present, and thus employees generally activate their economic decision frame to determine whether to misreport, when misreporting is financially beneficial. In this setting, we research whether the injunctive norms of the detrimental effects on others and control result transparency can reduce misreporting by crowding back ethical considerations into employees' decision-making.

III. Hypotheses Development

Hypothesis 1

For our first hypothesis we rely on the research of Maas & van Rinsum (2013) finding that misreporting is higher when peers benefit, compared to when peers are harmed by an employee's misreporting. However, we enhance their work by isolating the pure crowding in-effect of ethical considerations when introducing the first injunctive norm and misreporting that harms peers. Particularly, when formal controls are present but others are not harmed by misreporting, employees apply an economic business frame, because they are self-centered and focus on the financial advantages of misreporting. Then, when realizing that misreporting harms others, this broadens the scope of employees' decision-making and raises their social preferences for others. Thus, even though misreporting is, from a financial point of view, equally beneficial, we argue that misreporting decreases because of the psychological costs that are heightened by detrimental effects on others. More exactly, since now misreporting harms peers, social preferences and the need for protecting others become salient, such that an injunctive norm against misreporting is induced. Employees anticipate that their peers would not approve misreporting due to the fact that such misbehavior would imply detrimental effects for them. That way, harming peers would prompt employees to negatively update their self-concept, because such an act of unkindness is difficult to justify ethically (Bandura, 2002). Harming others is socially unacceptable (e.g., Maas & van Rinsum, 2013; Gneezy, 2005; Fehr & Schmidt, 1999). Consequently, detrimental effects on others entail psychological costs and move the injunctive norm against misreporting into sharper focus: misreporting has negative implications for others and is therefore more likely to be rejected. The psychological costs associated with doing harm to peers increase, so that ethical considerations loom larger than if the misreport could not harm peers. This, in turn, tames the self-centeredness induced by the business frame and triggers an ethical decision frame accordingly. Since our setting involves

potential detrimental effects on others we extend Maas & van Rinsum (2013) by crowding in ethical considerations:

H1: *When introducing detrimental effects on peers into the presence of controls, misreporting decreases.*

Hypothesis 2

We continue by focusing on an alternative way how to introduce ethical considerations into the presence of formal controls. In particular, we address control result transparency, i.e., peers gathering knowledge about who was controlled and the respective control result. Disclosing the results of control procedures acts as an ethical reminder and underlines the firm's disapproval of misreporting. Additionally, the transparency of the control result raises employees' awareness of others. Therefore, employees may feel ashamed and perceive possible misconduct as a threat to their social-image and the impression left on others (Church et al., 2012; Coricelli et al., 2010; Hannan et al., 2006; Maas & van Rinsum, 2013; Mayhew & Murphy, 2009; Schlenker, 1980). Thus, the psychological costs of misreporting increase, leading to a crowding in of ethical considerations. The public disclosure of the control result makes employees' reporting behavior salient, emphasizing how peers will perceive their reporting behavior. Since the firm management's norm signals that misreporting is illegitimate and not tolerated, a potential misreport may cast an employee behaving unethically in a negative light resulting in social-image losses. Consequently, we argue that control result transparency elicits less misreporting (Hannan et al., 2006; Cardinaels & Jia, 2016; Lill et al., 2021; Evans et al., 2016).

H2: *When misreporting has no detrimental effects on others, control result transparency decreases misreporting.*

Hypothesis 3

Next, we consider how both injunctive norms interact after the firm has implemented team-based or other interdependent compensation structures and control result transparency. Both instruments raise employees' collective awareness of ethical issues and cue that peers as well as the firm management disapprove misreporting, causing an individual to be less self-centered. In particular, detrimental effects on others through interdependent compensation can crowd out the negative business frame that controls have on reporting. That is, in settings with no detrimental effects on others, high control result transparency will induce an injunctive norm effectively, and this norm will likely be a significant input into the decision to misreport. However, with detrimental effects on others, high control result transparency is less likely to lower misreporting even further because the shift to an ethical decision frame has already occurred. This is due to the injunctive norm resulting from detrimental effects on others acting as a substitute in the decision-making process. That is, as peers (i.e., others) become a more significant input into the reporting decision through interdependent compensation, perceived control result transparency as a firm-induced norm becomes relatively less important as an input into the reporting decision. This results in detrimental effects on others attenuating the effect that control result transparency has on misreporting. Against this background, the psychological costs of misreporting are already present and cannot be increased further. As employees already exhibit social preferences and care about how their behavior affects others, it will be difficult for them to ethically justify harming others – an effect that is independent of the level of control result transparency. When deciding which performance to report, employees' peers are immediately affected by the decision, such that employees are already reluctant to misreport due to the detrimental effects on others. Therefore, control result transparency becomes less relevant to employees, since misreporting has been unappealing in the first place. Thus, the

psychological costs stemming from control result transparency become less salient and add to the psychological costs of the detrimental effects on others only insignificantly.

Even though two injunctive norms that both convey the disapproval of misreporting are induced, there is no additional misreporting-reducing effect of the second norm, once one norm crowds in ethical considerations. Relying on social norm activation theory (Bicchieri, 2006, 2008), a social norm can only be triggered once (Douthit et al., 2021; Douthit & Stevens, 2014). That is, once the social norm through the detrimental effects on others is activated and salient to employees, the second norm induced by control result transparency cannot be triggered as well, since it also conveys the disapproval of misreporting. Thus, the detrimental effects on others and control result transparency do not act as complements but as substitutes (e.g., Lill, 2020). In sum, we expect control result transparency to reduce misreporting when the employee's misreporting results in no detrimental effects on others, but not when misreporting has detrimental effects on others.

H3: *When misreporting has detrimental effects on others, control result transparency does not decrease misreporting further.*

IV. Method

Experimental Design and Task Description

We used a full factorial experimental design in which we manipulated two instruments between subjects. The first instrument is *detrimental effects on others* (*absent* vs. *present*). The second instrument is *control result transparency* (*low* vs. *high*), resulting in four experimental conditions. The experiment consists of one trial round and five reporting rounds. The online experiment was performed by using SoPHIE Labs software (Hendriks, 2012). Participants received a unique participant code that could not be traced back to their identity.

Based on Evans et al.'s (2001) reporting task, participants had to report their project earnings that only they knew to an unknown firm management. In each round, participants first learned that project earnings could always range from 200 to 400 euro cents. Second, participants learned that the firm management knows this range, but that it has no other option but to rely on the project earnings reported by the participants (reported performance). Third, participants learned that the exact project earnings were 300 euro cents in each round. Based on this information, participants were then asked to report the project earnings to the firm management in each round (*reported* project earnings). The participants thus had the opportunity to misreport by submitting any amount between the *real* project earnings (300 euro cents) and the maximum possible project earnings (400 euro cents). There was no possibility to underreport because underreporting does not make any economic sense.

Incentive Scheme

In addition to a fixed compensation of 500 euro cents, the participants received a variable compensation per round that consists of a 50-percent profit share based on the *reported* project earnings. Since we use *reported* instead of *real* project earnings, misreporting was economically beneficial. Participants always had an economic incentive to overstate, since reporting higher than the real project earnings yields a positive expected value. Formally, the total compensation per participant was calculated as follows:

$$\text{Variable Compensation}_i \text{ (in euro cents)} = 5 \text{ rounds} \times (0.5 \times \text{reported project earnings}_i);$$

$$i = 1 \text{ to } 5$$

As Maas & van Rinsum (2013) suggest, we employed an experimental setting in which we did not explicitly ask the participants to misreport but gave them the opportunity to do so. Therefore, we adopted Maas & van Rinsum's (2013) framing of the reporting task and stated

critical instructions very clearly (i.e., in capitalized form, “HIGHER” or ”LOWER”) to draw participants’ attention to them. In particular, participants were informed that the higher their reported project earnings were, the higher was their variable compensation. Hence, participants with the above-mentioned compensation scheme did not harm their peers if they overstated their project earnings.

For *detrimental effects on others*, however, the calculation formula is extended. First, participants received the same information about the effect of overstated project earnings on their variable compensation as in the *detrimental effects on others absent* conditions. Following the framing of Maas & van Rinsum (2013), they were additionally informed that the stronger they exceeded their real project earnings, the lower was the variable compensation of the other participants at the end of the rounds. Formally, this results in the following equation:

$$\begin{aligned} \text{Variable Compensation}_i \text{ (in euro cents)} &= 5 \text{ rounds} \times (0.5 \times \text{reported project earnings}_i) - \\ & (0.25 \times \text{average of the total excess of real project earnings by the other four participants}); \\ i &= 1 \text{ to } 5 \end{aligned}$$

As a side note, the second part of the equation is only subtracted after all rounds have been completed. Therefore, the variable compensation cannot be specified for each round. Our dependent variable is performance misreporting which is represented by a participant’s overstatement of project earnings. In each round, we measure whether and to what extent each participant has overstated the actual project earnings of 300 euro cents, which offers the possibility to objectively determine the extent of performance misreporting:

$$\text{Performance Misreporting}_i = \text{reported project earnings}_i - \text{actual project earnings}_i; i = 1 \text{ to } 5.$$

Control detection probability

To implement the control detection probability we focus on the control selection result, a crucial part of the control process, rather than covering the entire process including selection, performance check and potential penalty. Note that the latter design choice would likely have resulted in stronger effects if, for instance, control selection features were also disclosed. We opted for the conservative approach allowing for a higher generalizability. During the selection process, a random draw selected one participant (out of five) whose performance was checked and potentially penalized afterwards in the case of discrepancies.

At the outset of the experiment participants were informed that a random draw determined a selection for a control after each round. Furthermore, they were told that the likelihood of being randomly controlled was rather low. This vague formulation leaves the participants to subjectively evaluate the control probability; such evaluations also occur in practice since employees can anticipate that controls cannot be conducted comprehensively, but they do not know the exact control probability.

The control probability was 20 percent per participant per round. Performance misreporting was therefore financially advantageous. Although the participants lost the round's compensation in the case of a control that uncovered any misreporting behavior (control probability of 20 percent), the expected value of (maximal) misreporting was 160 euro cents per round in the *detrimental effects on others* conditions. Thus, it was still positive and higher than the safe payment of 150 euro cents when reporting the real project earnings of 300 euro cents. In total, the expected value of (maximal) misreporting was 800 euro cents for the *detrimental effects on others absent* conditions. By contrast, in the *detrimental effects on others present* conditions, the overall expected value of (maximal) misreporting depends on the overstatements of the other four participants. For example, if each of the other participants had misreported to the maximum possible extent, the expected value of one's own maximal

misreporting would have been 675 euro cents.⁵ Even though the (maximal) misreporting of peers decreases the variable compensation of the individual, misreporting behavior is financially beneficial across all conditions, as it enhances the average personal remuneration.⁶ Thus, from an economic perspective, misreporting behavior was rational in any case.

If participants were selected, they knew that their misreporting behavior would be discovered. In this case, the participants received no compensation in the round as a penalty. We chose this relatively high penalty independent of the extent of misreporting because high losses after the control of misreporting are common in practice, such as financial losses or job loss (Lill, 2020).

Detrimental effects on others manipulation

We manipulated *detrimental effects on others* dichotomously (*absent* vs. *present*). In the *detrimental effects on others absent* conditions, as the previously stated compensation formula highlights, participants' misreporting behavior does not affect variable compensation of the other four participants. In the *detrimental effects on others present* conditions, participants' misreporting behavior lowers variable compensation of the other four participants.

Control result transparency manipulation

The disclosure of the control result was manipulated at the two levels of *low* or *high control result transparency*. In conditions with *low control result transparency* it was publicly

⁵ On the one hand, the overall expected value of misreporting consists of the expected value for maximal misreporting of 160 euro cents per round (5×160 euro cents = 800 euro cents in total). On the other hand, the average total excess of the real project earnings of the other four participants decreases the expected earnings by 125 euro cents $\left(= 0.25 \times \frac{(4 \text{ participants} \times 100 \text{ euro cents} \times 5 \text{ rounds})}{4 \text{ participants}}\right)$.

⁶ By comparison, the overall expected value of reporting the real project earnings of 300 euro cents when the other four participants maximally misreport is 625 euro cents ($= 5 \times 150$ euro cents – 125 euro cents).

disclosed to all participants which of them had been controlled (result of control selection). However, only the participant, who had been selected for a control, was informed whether he was punished due to overstating his project earnings (result of control). All other participants did not get this information.

Under conditions of *high control result transparency*, all participants received information about the result of the control selection and the result of the control itself. Thus, after the control it was publicly revealed which participant underwent a control and whether he or she was punished for misreporting behavior.

Across conditions participants learn about the “penalty” rather than about the “reported earnings”. Displaying the “punishment” tends to have a deterrent rather than a contagious effect. Essentially, that is the basic idea of disclosing “punishments”, i.e., to deter fraudulent and unethical actions. The term “punishment” has negative connotations actually conveying that misreporting is undesired behavior. With *high control result transparency*, a participant’s “punishment” (indicating “0 euro cents”, i.e. implying a financial loss) is made public. The prevention focus is more present than if participants had been informed about “reported earnings”. From this design choice and chosen labeling it follows that the injunctive norm "misreporting is wrong" may be transmitted. For example, Luft (1994) shows that although economically identical, the labeling of contracts influences decision-making and behavior.

Experimental Procedures

After a brief introductory round via Zoom intended to reduce the virtually created distance, participants logged into SoPHIE Labs Software (Hendriks, 2012). To guarantee experimental control and keep each introductory round as constant as possible from session to session, all instructions were provided via the chat function in Zoom and the computer desk in

the experimental software program. The instructions provided information on the experimental procedures, the setting with respect to each participant's role and the reporting task, including the control process. The compensation scheme and the potential financial penalty were also explained. A pre-experimental quiz on these instructions ensured that participants had thoroughly read and understood the instructions. Then, a (non-remunerated) trial round was conducted to familiarize the participants with the reporting task. In this trial round, the participants were asked to input their reported earnings. Afterwards the participants received information on how much their compensation would have been hypothetically. No control was implemented in this trial round. Then, the five rounds of the experiment started with the manipulations described above.

After the participants had reported their project earnings, the computer informed each participant about his or her tentative compensation for the respective round. Following the automated control process, participants received information depending on the *control result transparency* manipulation. Afterwards each participant was informed about his or her compensation for this round, either with or without a potential penalty. This procedure was repeated in each round.

At the end of the experiment the participants answered demographic and process-related questions in a post-experimental questionnaire (PEQ). Finally, the participants were informed about their total compensation which was, on average, 12.35 euros (standard deviation 1.01 euros) for approximately 60 minutes of participation.

Participants

We conducted six sessions for each of the four experimental conditions with five randomly assigned participants each. In total, 120 undergraduate and graduate students from all

academic majors from a large European university participated in our experiment. Participation was voluntary.

A total of 45 percent of the participants were male, 55 percent were female. The participants' mean age was 24.09 years, and the participants were, on average, in their seventh semester of study (7.33 to be statistically exact). We found no significant differences across conditions regarding age, gender, nationality, lab or work experience (all p -values > 0.1 , two-tailed).

V. Results

Experimental Design Validation

We validated our experimental design to assess whether it was appropriate to test our theory. First, it was important that the participants understood the experimental task and the control process including the potential consequences of the control, regardless of the specific manipulations. According to the results of our pre-experimental quiz, all participants answered the related questions correctly. In addition, the participants had to answer corresponding statements in the PEQ on a nine-point Likert scale, with 'one' indicating 'strongly disagree' and 'nine' indicating 'strongly agree'. First, the participants had to evaluate whether they were confident that their actual project earnings were only privately known when reporting them to the firm management. The participants strongly agreed with the statement, since the mean was significantly above the scale's midpoint ($t = 10.4699$, $p < 0.01$, two-tailed). Second, regarding the awareness of the control, the participants had to indicate whether they had thought thoroughly about the control when reporting the project earnings. Again, the participants strongly agreed with the statement ($t = 1.9872$, $p < 0.05$, two-tailed). Third, regarding the impact of the potential control, the participants had to assess whether a performance

overstatement positively affected their compensation, unless they were controlled. The participants strongly agreed with the statement, since the mean was significantly above the scale's midpoint ($t = 21.8188, p < 0.01$, two-tailed). Regarding participants' responses to these three items, we infer that they understood the setting's privacy, the presence of a control process, and their average financial compensation benefits from a misreporting decision.

Moreover, given the remote nature (i.e., high physical distance) of our online experiment, we validated our experimental design regarding whether participants perceived it as trustworthy and serious. Therefore, we asked participants whether they thought that the information they received about other participants was trustworthy and whether they believed that the other participants took the experimental task seriously. The participants strongly agreed with both statements ($t = 19.7110, p < 0.01$, two-tailed and $t = 24.2194, p < 0.01$, two-tailed).

Manipulation Checks

To elicit how the participants experienced the experimental setting regarding our manipulations, they had to assess several statements as manipulation checks in the PEQ on a nine-point Likert scale. To test our first manipulation of *detrimental effects on others* (*absent* vs. *present*), we asked participants whether an overstatement of the project earnings negatively affected the compensation of the other participants. The participants in the condition with *detrimental effects on others present – low control result transparency* agreed significantly more strongly with the statement than participants in the condition with *detrimental effects on others absent – low control result transparency* ($t = -14.9288, p < 0.01$, two-tailed). Likewise, the participants in the condition with *detrimental effects on others present – high control result transparency* agreed significantly more strongly with the statement than participants in the

condition with *detrimental effects on others absent* – *high control result transparency* ($t = -16.4412, p < 0.01$, two-tailed).

To test the *control result transparency* (*low* vs. *high*) manipulation, we asked participants whether it was disclosed after every round who was selected for the control and if the respective participant was punished. The participants in the condition with *detrimental effects on others absent* – *high control result transparency* agreed significantly more strongly with the statement than participants in the condition with *detrimental effects on others absent* – *low control result transparency* ($t = 12.9415, p < 0.01$, two-tailed). Similarly, the participants in the condition with *detrimental effects on others present* – *high control result transparency* agreed significantly more strongly with the statement than participants in the condition with *detrimental effects on others present* – *low control result transparency* ($t = 13.5431, p < 0.01$, two-tailed). Thus, we conclude that our manipulations were successful.

Descriptive statistics

Table 1 presents the descriptive statistics for performance misreporting per round and the aggregated performance misreporting for rounds one to five for all four treatments. The results show that the participants were willing to engage in misreporting in general (aggregated mean of 147.975 euro cents). Moreover, the descriptive analysis reveals that participants who could not harm their peers with their reporting decision (aggregated mean of 169.917 euro cents) are more likely to overstate their project earnings than participants who harm others (aggregated mean of 126.033 euro cents). Thus, the descriptive data indicate that misreporting is lower under *detrimental effects on others present* than under *detrimental effects on others absent*, which is in line with our predictions for H1. Concerning H2, our data suggest that *high control result transparency*, as opposed to *low control result transparency*, mitigates

performance misreporting when participants' reporting does not *have detrimental effects on others* (Table 1, mean of 146.667 vs. 193.167 euro cents respectively). Vice versa, regarding H3, when participants' reporting has *detrimental effects on others* the level of performance misreporting remains at almost the same level for *high* vs. *low control result transparency* (Table 1, mean of 132.833 vs. 119.233 euro cents respectively). Thus, the descriptive results reflect our predictions for H1, H2 and H3, as depicted in Figure 1.

[Insert Table 1 and Figure 1 near here]

Hypotheses tests

To formally test our hypotheses, we run a repeated measures analysis of variance (RM-ANOVA) with misreporting as the dependent variable. As reported in Table 2, Panel A, the RM-ANOVA shows a significant main effect for *detrimental effects on others* ($F = 6.17, p = 0.013$, two-tailed), which provides support for hypothesis H1. Consistent with hypothesis H2, we detect a significant coefficient on the interaction term between *detrimental effects on others* and *control result transparency* ($F = 2.89, p = 0.090$, two-tailed).

[Insert Table 2 near here]

Table 2, Panel B, reports the results of the simple effect analyses. We decompose the interaction term to shed light on the effect of *detrimental effects on others* within different levels of *control result transparency*. While we find that the effect of *detrimental effects on others* on misreporting is insignificant for *control result transparency high* ($F = 0.31, p = 0.580$, two-tailed), the effect of *detrimental effects on others* on misreporting is significant for *control result transparency low* ($F = 8.75, p = 0.03$, two-tailed) pointing towards our predicted interaction. In particular, in the *low control result transparency* conditions we find participants' willingness for misreporting to be crowded out when *detrimental effects on others* is present and crowded

in when *detrimental effects on others* is absent. Overall, these findings additionally support H2 and H3.

Additional Analyses

General reasoning for H1, H2 and H3

Based on the control-induced business-frame within our baseline setting, we predicted that the two injunctive norms of *detrimental effects on others* and *control result transparency* induce different reporting behavior. Generally, we assumed that participants in the baseline setting focus on self-serving desires more strongly while participants in the other three conditions have stronger preferences for honesty leading to a perception of the decision frame as rather ethical than economic. Against this background, we first asked participants to assess whether it was more important to them to maximize their compensation or to be honest (*preference for honesty*; nine-point Likert scale with one indicating ‘maximizing compensation’ and nine indicating ‘being honest’). Consistent with our prediction, participants under the *detrimental effects on others absent – low control result transparency* indicated a significantly stronger tendency to maximize their compensation than participants in the conditions with *detrimental effects on others present – low control result transparency* and *detrimental effects on others absent – high control result transparency*, respectively ($t = 2.1604, p < 0.05$, two-tailed; $t = -1.8332, p < 0.1$, two-tailed). Second, we asked participants whether they rather faced an economic or an ethical decision-making situation (*ethical decision frame*). Again, participants in the *detrimental effects on others absent – low control result transparency* indicated significantly more strongly that they perceived the situation as economic than participants in the conditions with *detrimental effects on others present – low control result transparency* and *detrimental effects on others absent – high control result transparency*, respectively ($t = -4.0292, p < 0.01$, two-tailed; $t = 2.0749, p < 0.05$, two-tailed). There were

no significant differences between *detrimental effects on others absent – high control result transparency* (*detrimental effects on others present – low control result transparency*) and *detrimental effects on others present – high control result transparency* for the two statements above. Thus, when *detrimental effects on others* and/or *control result transparency* are induced to a control-induced business frame, participants have stronger tendencies for honesty and perceive the situation as rather ethical.

In particular, for H1 we predicted a main effect of the *detrimental effects on others* on misreporting and assumed that participants increase their fondness for others and care about others' well-being (social preferences), such that misreporting would negatively reflect on their self-concept and incur higher psychological costs. Against this background, we asked participants to assess whether the other participants were important to them. Consistent with our prediction, participants under the condition of *detrimental effects on others present* agreed, on average, significantly more strongly with the statement than participants under the condition of *detrimental effects on others absent* ($t = -2.0874, p < 0.05$, two-tailed). Thus, participants who could harm others with their reporting decision have significantly stronger social preferences than participants who could not harm others. In consequence, participants who could do harm exhibit less misreporting behavior.

Recall, in H2 and H3 we considered a second injunctive norm and predicted the effects of *low vs. high control result transparency* within the social setting of *detrimental effects on others* (*absent vs. present*). In particular, we indicated that high levels of *control result transparency* can diminish the level of misreporting when employees cannot harm their peers (H2), whereas the mitigating effect of *detrimental effects on others* on misreporting is not further strained with *high control result transparency* (H3). We based our argumentation on the imbalance of the benefits and the (psychological and financial) costs of misreporting. Particularly, for H2 we claimed that employees fear detriments for their social-image and the

impression left on others once misreporting behavior is made transparent. To verify our reasoning, we gather information whether participants experienced such psychological costs of misreporting. First, we asked participants whether it was important what the other participants thought of them (*social-image*). Participants in the *no detrimental effects on others – high control result transparency* condition agreed, on average, significantly more strongly with the statement than participants in the *no detrimental effects on others – low control result transparency* condition ($t = 3.5171, p < 0.01$, two-tailed). Thus, participants whose behavior would be publicly disclosed are more strongly concerned about their social-image than those whose misconduct remains secret. Second, we asked participants whether it was important to them to not overstate their performance in order to leave a good impression on their peers (*impression management*). Participants in the *no detrimental effects on others – high control result transparency* condition agreed, on average, significantly more strongly with the statement than participants in the *no detrimental effects on others – low control result transparency* condition ($t = 2.8010, p < 0.01$, two-tailed). As misreporting behavior if known to peers would interfere with participants' impression management, such psychological costs can reduce the tendency to overstate the performance. In sum, participants in the *no detrimental effects on others – high control result transparency* condition worry more strongly about their social-image and the impression left on others than if a possible misconduct remains secret. Therefore, they tend to integrate such psychological costs into their decision-making process and exhibit less misreporting behavior.

Regarding the participants in the *detrimental effects on others conditions* (H3), we argued that *high control result transparency* does not further reduce the level of misreporting since the psychological costs due to harming others are already relatively high. With respect to the previous three statements we did not find any significant differences between the *detrimental effects on others present – low control result transparency* and the *detrimental*

effects on others present – high control result transparency conditions ($t = 0.2657$, $t = 0.9756$, $t = 0.8599$, respectively, all p -values > 0.1 , two-tailed). In consequence, social-image and impression management concerns were at almost the same level indicating that the harming of others already induces high psychological costs. *High control result transparency* does not have an additional reducing effect of performance misreporting if participants risk cutting their peers' compensation by overstating their project earnings.

Furthermore, we argued that the social environment in terms of *detrimental effects on others* and the level of *control result transparency* can lead to a crowding in-effect of ethical considerations. To further substantiate our prediction, we asked participants whether potential implications for their peers made them think about which behavior was morally right (*ethical crowding in*). Participants in the *detrimental effects on others absent – low control result transparency* condition agreed, on average, significantly less strongly with the statement than participants in the *detrimental effects on others absent – high control result transparency* condition ($t = 3.3013$, $p < 0.01$, two-tailed). In contrast, we did not find any significant differences between participants in the *detrimental effects on others present – low control result transparency* and in the *detrimental effects on others present – high control result transparency* condition ($t = -0.5116$, $p > 0.1$, two-tailed). As a consequence, *high control result transparency* can induce moral reasoning when peers are not harmed by the reporting decision. However, when others are harmed, the crowding in-effect of *high control result transparency* remains at the same level indicating that the negative effects on others and the disapproval of such detriments are already salient. Thus, high psychological costs are already induced by the *detrimental effects on others* and lead to a crowding in of ethical considerations.

Alternative explanations

Regarding *control result transparency* we argued that the disclosure of the control result comprises an injunctive norm by signaling that the firm disapproves misreporting. As mentioned above, we do not find an additional misreporting-reducing effect of *high control result transparency* when the injunctive norm of *detrimental effects on others* is already induced. This is in line with prior research which suggests that transparent information may also be exploited in a self-serving manner (Bernstein, 2012; Hannan et al., 2006). In this regard *control result transparency* may not further mitigate misreporting behavior in connection with *detrimental effects on others* because employees are able to observe the behavior of their peers. That is, they may notice their peers' misconduct and, in turn, conclude that misreporting is accepted by their peers (a descriptive norm). Against this background, we asked participants whether they overstated their project earnings because they believed that the other participants overstated theirs as well (*descriptive norm*). We did not find any significant differences between our four conditions (all p -values > 0.1 , two-tailed). Thus, the participants in all conditions equally based their reporting decision on the decisions of their peers, leading to the conclusion that the transparency of the control result did not trigger a descriptive norm for misreporting behavior. This is consistent with our argumentation that our setting rather induces an injunctive norm, even if employees potentially learn about a peer's control result.

There is a host of social norms in the firm that may be triggered in one way or the other. Yet, for norms to matter to an employee's utility, they have to be efficacious – and to be efficacious they have to be made salient (Fisher et al., 2019; Douthit & Stevens, 2014; Altenburger, 2017). Essentially, it is the precise social setting that leads an employee to interpret the decision context as one to which a given norm applies, pay attention to the norm, and conform to it (Bicchieri, 2006, 2008). To be more precise, Bandura (2002) posits that which behavioral norm is activated depends on the strength (salience, tangibility, credibility, power),

immediacy (proximity to the individual), and the number of individuals following it. Given that detection is unlikely (20 percent detection rate) and control result precision is low (no information of the penalty or magnitude), descriptive norms can hardly form. For example, the number of peers following the norm remains obscure for the employee. Opposed to this are injunctive norms, given that a firm's management decision to disclose control results communicates salient signals that immediately impact the individual employee. With these norms firm management informs the employee that it rejects misreporting. Thus, we argue that the transparency of the control result is a salient aspect of the work environment that triggers an injunctive norm against misreporting.

Finally, we are able to rule out the alternative explanation for our findings that our results are driven by different values for honesty in our conditions. Therefore, we asked participants whether honesty is important to them (*honesty importance*). Again, we did not find any significant differences between our four conditions (all p -values > 0.1 , two-tailed). Thus, the participants value honesty equally in our four conditions. Hence, the lower levels of misreporting did not arise from different values for honesty but from our manipulations.

VI. Discussion and Conclusion

Our study investigates whether and how detrimental effects on others and control result transparency influence misreporting when misreporting is financially beneficial. We refer to a setting in which participants have a financial incentive to misrepresent their performance because they know that a control with a low detection probability will be conducted; the expected value of reporting is positive. In line with our hypotheses, we find that both detrimental effects on others and control result transparency seem to be particularly useful to promote a diffusion of central injunctive norms which lead to an increased collective awareness of ethical issues. Doing so, both constructs act as major instruments of behavioral control.

Specifically, our results document that if there are no financial detriments for others, control result transparency only makes others salient and makes employees quickly realize that misreporting is psychologically costly, yet economically beneficial. If there are financial detriments for others, others are already salient and employees have already realized that misreporting is psychologically costly, yet economically beneficial. While control result transparency can encourage the formation of a descriptive norm to spread misreporting, it can also set an injunctive norm disapproving misreporting, rendering probabilistic controls more effective in deterring misreporting. Our additional analyses rule out the alternative explanation of a descriptive norm – a finding that is especially germane to work settings where team-based compensation structures are not available to help with the monitoring and coordination challenges inherent in these settings. Here, disseminating control results could be a remedy.

Our results have implications for both the accounting profession and for management control systems. Transparency concerns the visibility of internal processes (Ewelt-Knauer et al., 2020) and results. The literature on *process* transparency addresses the ability of employees to learn about the actions of other employees, whereas the *results* transparency literature addresses the effect of learning how firm management approves or disapproves a certain behavior. Our notion of control result transparency refers to the latter. The distinction implies that the information obtained via *process* transparency is more informative or *descriptive* of actions and/or effort while disclosed control *results* communicate signals and thus activate injunctive norms. Internal controls can be designed with the intention that employee behaviors might be made publicly known to other employees. If team-based compensation structures with detrimental effects on others cannot be realized, we argue that transparency should nevertheless somehow appeal to ethical considerations, as it is crucial that employees learn about the actions that are desirable for the firm as well as for peers. We identify control result transparency as an effective means to do so and to crowd in ethical considerations. Hence, we contribute to the

emerging accounting literature on alternative work arrangements and job setups by examining two characteristics practically relevant to controls found in various settings (e.g., Johnson et al., 2008).

Of course, our study is also subject to limitations that are fruitful areas for future research. First, perhaps the most important caveat to this study is its experimental nature and our use of groups of student participants. However, we do not believe there are systematic differences between the groups that could account for the significant findings. In particular, we think that the effect of detrimental effects on others might be even stronger in practice with real-life interactions. Second, while there is no proof, we believe our suggestions for implementing detrimental effects on others and an emphasis on control result transparency will apply equally well to different cultures. In comparison to Western individualistic cultures, collectivistic cultures attach a higher value to conformity to norms. If instruments that appeal to social preferences and resort to public disclosure are used in more collectivistic cultures, we assert the effects would be similar if not stronger. Third, we only focus on misreporting and define misconduct in rather narrow terms. Yet, we do not rule out the possibility that our findings might apply to other forms of unethical or opportunistic behavior (e.g., cheating, excessive risk taking) as well. Most notably, fraudulent practices have gained prominence only recently. Future research could investigate this and look more closely at how detrimental effects on others and control result transparency impact specific forms of fraud. Finally, we also take a relatively narrow focus of control result transparency by notifying others only about whether one (!) out of five participants was punished or not. Our finding suggests that the presence of an injunctive norm against misreporting drives the effect of control result transparency on misreporting. To the extent that other levels of control result transparency create a descriptive norm for misreporting (e.g., performance is observable by peers, and there is uncertainty as to the veracity of others' reported performance or revealing the punishments of all employees),

descriptive norms for misreporting could be present (Lill, 2020). Future research can examine the emergence of a descriptive norm for misreporting under other control result transparency levels, such as public relative performance information systems or higher detection likelihoods.

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Table 1
Descriptive Statistics (Mean, [Standard deviation])

	Detrimental effects on others		Detrimental effects on others		Total
	absent		present		
	Low Control result transparency	High Control result transparency	Low Control result transparency	High Control result transparency	
Number of Participants (n)	30	30	30	30	120
Performance Misreporting per round	38.633 [47.036]	29.333 [44.188]	23.847 [39.773]	26.567 [41.557]	29.595 [43.476]
Performance Misreporting rounds 1 to 5	193.167 [131.070]	146.667 [151.654]	119.233 [135.881]	132.833 [152.522]	147.975 [145.506]
Total Performance Misreporting per round		33.983 [45.795]		25.207 [40.630]	
Total Performance Misreporting rounds 1 to 5		169.917 [143.420]		126.033 [144.429]	

Notes: Table 1 presents the descriptive statistics by Treatment.

Detrimental effects on others is manipulated as absent or present. Under the condition of *no detrimental effects on others*, participants' misreporting behavior does not impact variable compensation of the other four participants. In the *detrimental effects on others present* conditions, participants' misreporting behavior reduces variable compensation of the other four participants.

Control result transparency is manipulated at two levels, high transparency and low transparency. When *control result transparency* is *high*, all participants in the session receive information about the outcome of the control selection and the outcome of the control itself. When *control result transparency* is *low*, only the participant, who has been selected for a control, is informed about the outcome of the control. The outcome of the control selection is provided to all participants.

Performance misreporting describes the participants' overstatements and therefore equals the differences between the reported and actual project earnings. Reported project earnings are the project earnings the participants actually reported.

Table 2
Hypotheses Test

Panel A: Repeated Measures ANOVA results (n = 600), dependent variable = Performance Misreporting

Source of Variation	Partial SS	df	Mean Square	F-Statistic	p-Value
Model	22866.555	7	3266.6507	1.74	0.0964
Detrimental effects on others	11554.482	1	11554.482	6.17	0.0133 [†]
Control result transparency	1623.615	1	1623.615	0.87	0.3523
Detrimental effects on others × Control result transparency	5418.015	1	5418.015	2.89	0.0896 [†]
Round	4270.4433	4	1067.6108	0.57	0.6847
Residual	1109334	592	1873.8751		
$R^2 = 0.0202$, Adjusted $R^2 = 0.0086$					

Panel B: Simple effects tests of detrimental effects on others within the level of control result transparency (n = 600), dependent variable = Performance Misreporting

	df	F-Statistic	p-Value
Effect of detrimental effects on others within low control result transparency	1	8.75	0.0032 [†]
Effect of detrimental effects on others within high control result transparency	1	0.31	0.5801

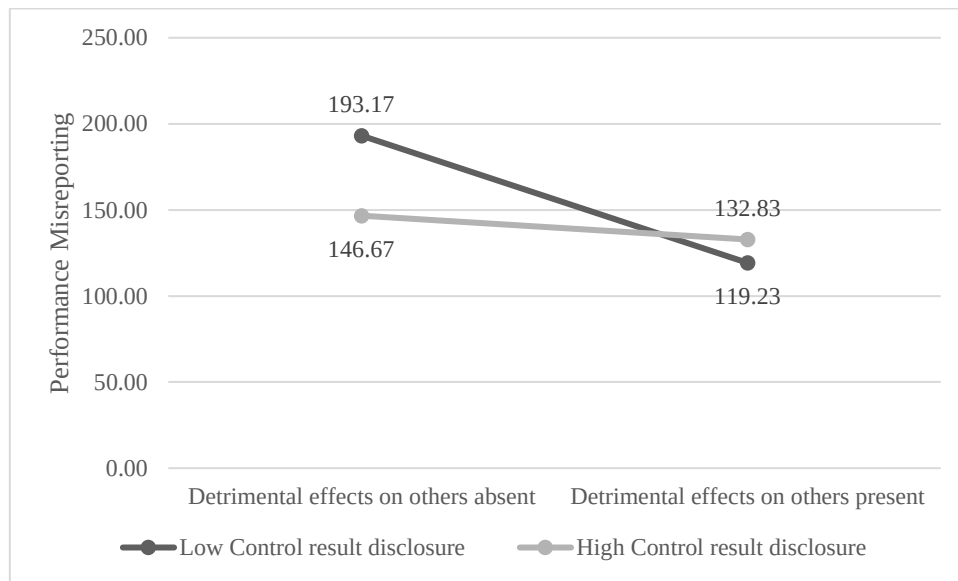
Notes: Table 2, Panel A, presents the repeated Measures ANOVA results with *performance misreporting* as dependent variable. Panel B reports the post-estimation results of the simple-effects tests with *detrimental effects on others* within the level of *control result transparency*.

Detrimental effects on others is manipulated as absent or present. Under the condition of *no detrimental effects on others*, participants' misreporting behavior does not impact variable compensation of the other four participants. In the *detrimental effects on others present* conditions, participants' misreporting behavior reduces variable compensation of the other four participants. *Control result transparency* is manipulated at two levels, high transparency and low transparency. When *control result transparency* is *high*, all participants in the session receive information about the outcome of the control selection and the outcome of the control itself. When *control result transparency* is *low*, only the participant, who has been selected for a control, is informed about the outcome of the control. The outcome of the control selection is provided to all participants.

[†] *p*-value is two-tailed due to the lack of a directional hypothesis.

Figure 1

Graphical depiction of the effect on performance misreporting (n = 120)



Notes: Figure 1 illustrates the descriptive results (cf. Table 1).

A4 Getting motivated through giving: How prosocial rankings can stimulate employee performance

Study no.	4			
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Authors	Colleen M. Boland, Julia Schneider, Amy Tegeler			
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Abstract	As one element of corporate social responsibility (CSR), many firms have established workplace-giving programs to make it possible for employees to donate part of their pay to charity. Simultaneously, donation platforms that make an employee's prosocial behavior visible to others are steadily increasing in number. Our laboratory experiment builds on this trend and capitalizes on an important non-monetary incentive in economic psychology to raise employee performance: rankings. In contrast to extant research, we examine a ranking scheme that categorizes employees based on individual giving decisions, a <i>social</i> performance measure. Our research focus is the joint effect of the donation ranking and the structure of the workplace-giving program on performance. We expect the positive performance effects to be strongest when workplace giving is perceived as voluntary rather than as mandatory, and simultaneously individual giving decisions are disclosed in a rank-ordered format. The experimental results support our predictions. The results have important implications as a new workplace design feature that firms can implement to leverage employees' preferences for charity to benefit the firm.			
Keywords	Relative performance information · charitable giving · workplace giving · Corporate Social Responsibility.			

Getting motivated through giving: How donation rankings can stimulate employee performance

Colleen M. Boland^a (corresponding author)
University of Wisconsin-Milwaukee

Julia Schneider^b
Justus-Liebig-University Giessen

Amy Tegeler^a
University of Wisconsin-Milwaukee

^a *Lubar School of Business, University of Wisconsin-Milwaukee, P.O. Box 742, Milwaukee, WI 53201, USA* ^b *Justus-Liebig-University Giessen, Licher Straße 62, D-35394 Giessen*

Contact details

E-mail address: BolandC@uwm.edu, *Telephone:* (414) 229-2551, *Fax:* (414) 229-6957 (C. M. Boland), *E-mail address:* Corinna.Ewelt-Knauer@wirtschaft.uni-giessen.de (C. Ewelt-Knauer), *E-mail address:* Julia.Schneider@wirtschaft.uni-giessen.de (J. Schneider)

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ABSTRACT

As one element of Corporate Social Responsibility (CSR), many firms have established workplace-giving programs to make it possible for employees to donate part of their pay to charity. Simultaneously, donation platforms that make an employee's prosocial behavior visible to others are steadily increasing in number. Our laboratory experiment builds on this trend and capitalizes on an important non-monetary incentive in economic psychology to raise employee performance: rankings. In contrast to extant research, we examine a ranking scheme that categorizes employees based on individual giving decisions, a *social* performance measure. Our research focus is the joint effect of the donation ranking and the structure of the workplace-giving program on performance. We expect the positive performance effects to be strongest when workplace giving is perceived as voluntary rather than as mandatory, and simultaneously individual giving decisions are disclosed in a rank-ordered format. The experimental results support our predictions. The results have important implications as a new workplace design feature that firms can implement to leverage employees' preferences for charity to benefit the firm.

Keywords: Relative performance information; charitable giving; workplace giving; Corporate Social Responsibility

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1. Introduction

In 2019, firms donated \$21.09 billion to charitable organizations (Giving USA Foundation 2020). These donations are expected to increase in both the USA and globally. Many employees value their firms' philanthropic commitments, and they also want to be personally and actively engaged (Douthit, Martin, and McAllister 2019; Cone Communications 2016). In response, numerous firms have adopted workplace-giving programs. According to the Giving in Numbers Report 2020 (Chief Executives for Corporate Purpose 2020), 89 percent of surveyed US firms (including the top 100 companies in the Fortune 500) offered at least one workplace-giving program to their employees, and approximately one quarter of these employees participated in such campaigns. Popular workplace-giving programs are annual giving and internal employee fundraising campaigns, matching gifts, payroll deductions, disaster relief, and volunteer grants.

However, to date, most workplace-giving programs are not systematically embedded in the firms' incentive schemes (Breeze and Wiepking 2020): most individual giving decisions are invisible to all but donor personnel (Agypt, Christensen, and Nesbit 2012). Nevertheless, because many individuals seek public acclaim and social approval, greater visibility could be an opportunity for firms (Bénabou and Tirole 2010; Andreoni and Bernheim 2009). Emerging online donation platforms¹ allow individuals to inform others of their generosity and compare their giving decisions. These platforms allow firms to build customized fundraising webpages and connect employee giving to their incentive schemes. Beyond tracking donations and showcasing total funds raised, flexible engagement features and regular updates offer employee recognition opportunities. Leaderboards or league tables on these platforms allow individuals to manage the impression others gather of them.

¹ Popular digital platforms to promote workplace-giving donations, employee-matching programs, and other fundraising activities include JustGiving, GlobalGiving, Good2Give, GoFundraise, or StratusLIVE.

Individuals strive for social approval and recognition of their behavior, and workplace-giving programs can allow employees to signal traits defined as "good". Being altruistic or generous is often regarded as "good," while being selfish is not (Fehr and Fischbacher 2002). Visibility of an employee's philanthropy (e.g., workplace-giving decisions) communicates an employee's generosity (and wealth) to colleagues, thereby improving the employee's reputation (Reinstein and Riener 2012). Indeed, previous experimental and field work suggests that people act more generously when they are observed and observe others (Bénabou and Tirole 2010).

This desire for public recognition of generosity motivates us to examine how firms can systematically capitalize on employees' engagement in workplace-giving programs to advance firm goals. We explore how firms can use these programs to stimulate employee performance at little or no additional cost. To investigate this desire, we choose rankings as a popular public recognition tool. Specifically, we study whether firms can unleash workplace-giving programs' motivational power and, in turn, employee performance, when individual giving behavior is acknowledged publicly in firm-wide donation ranking schemes. A donation ranking shows publicly how much each employee has contributed to charity via the firm's workplace-giving program in a rank-ordered format compared to their colleagues.

Our investigation integrates two important incentives—autonomy and public recognition: First, with regard to autonomy we note that employees often perceive payroll deductions labeled voluntary as mandatory (Mirvis 2012; Slack, Corlett, and Morris 2015). Therefore, we in a first step reason that the perceived mandatory character of workplace-giving programs impairs employees' motivation to give and thus reduces their willingness to work harder to increase their performance compared to programs perceived as authentically optional.²

² For example, in the US, United Way Campaigns frequently identify employee giving goals as 100% participation or suggest giving amounts by employee level (e.g., staff, manager, or executive). Hence, there is often ambiguity in the workplace as to whether such giving is truly voluntary.

Based on social comparison (Festinger 1954) and social distinction theory (Frey 2006, 2007), we then argue that employee performance increases when donation rankings make individual giving decisions publicly transparent, relative to when not. Drawing on self-determination theory (Gagné and Deci 2005; Deci and Ryan 1985), we expect that this positive performance effect is more pronounced when individual giving decisions are transparent *and* perceived as the employee's volitional decision (i.e., employee-, not firm-initiated). Our examination implies a trade-off between the potential performance-crowding out effect of a perceived mandatory workplace-giving program and the potential performance-crowding in effect of a voluntary workplace-giving program in the way the ranking's information is understood.

We test our predictions using a 2×2 between-subjects laboratory experiment. We manipulate the workplace-giving program's structure (voluntary vs. mandatory) and the presence of the donation ranking (absent vs. present). Using a variant of the Gill and Prowse (2019) experimental task, this study considers a setting where employee performance increases their pay (e.g., piecework, bonuses, or performance-based pay), and thus the amount available for workplace giving. Participants' compensation is based on individual performance, independent of the assigned donation rank with the monetary incentive structure being constant across experimental conditions.

The results show that performance is greater when a donation ranking is made public (vs. when not) and the workplace-giving program is discerned as genuinely voluntary. In contrast, the positive effect on performance diminishes when employees perceive participation in the workplace-giving program as mandatory. Payroll-giving intransparency (i.e., no ranking at all) even intensifies this performance-diminishing effect .

Our study contributes to theory and practice in multiple ways. Prior research shows that *performance* rankings generally boost employee effort and performance (Kramer, Maas, and van Rinsum 2016; e.g., Hannan, McPhee, Newman, and Tafkov 2013). However, rankings

based on some *social* performance measure (e.g., workplace giving) have attracted far less attention. Since *prosocial* incentives – such as workplace giving – are an integral part of a firm's recruiting and internal control system (Sprinkle and Maines 2010; Mirvis 2012), we highlight an important motivational spillover effect: prosocial incentives can spill over to employees' motivation to increase performance. While it is *not* surprising that being ranked on the task at hand matters to how employees perform this task, it is surprising that ranking systems on *unrelated*, prosocial activities like workplace giving also matter.

Our approach contributes to an emerging stream of research: traditional ranking schemes classify according to the rewarded job task (Black, Newman, Stikeleather & Waddoups, 2019; Huang & Murad, 2020). We document a carryover contracting benefit of a job task-*unrelated* activity to employee performance on the job task. Recently, Black, Newman, Stikeleather, and Waddoups (2019) showed that providing performance rank information on one task affects employee helping behavior in a subsequent unrelated task, and Huang and Murad (2020) find a spillover effect on competitiveness in the subsequent unrelated task. Reichert and Sohn (2021) detect a spillover effect of charitable giving on controls, leading to a more positive assessment of formal controls and of the manager implementing them, thus reducing the costs of control. Our study adds to these works by establishing a direct spillover link between a donation ranking and employee performance.

Moreover, we illustrate how an employee's intrinsic motivation, facilitated in the perceived workplace-giving opportunity, is moderated by more extrinsic forms of motivation stemming from the donation ranking provision. Essentially, the combined use of these incentives raises the question whether they are complements or substitutes in terms of their performance effects. Referring to Milgrom and Roberts' (1995) definition, activities are complements if doing (more of) any one of them increases the returns to doing (more of) the others. If the effects of two incentives reinforce each other, these incentives are complements producing a positive interaction. Conversely, if the effects of two incentives offset each other,

these incentives are substitutes, producing a negative interaction. While psychological research suggests that more extrinsic stimuli such as donation rankings might undermine an individual's intrinsic motivation to perform (e.g., Frey and Osterloh 2002), we find that an employee's intrinsic motivation to perform well is not crowded out by the dissemination of donation, rather than performance rankings – it is magnified.³

Prior management and economics research on charitable incentives and effort has found that especially socially-minded employees reciprocate a firm's corporate social responsibility (CSR) endeavors with increased effort and performance levels (e.g., Tonin and Vlassopoulos 2015). CSR activities have also been positively associated with employee attraction and retention efforts (e.g., Brekke and Nyborg 2008). However, to date, it is not clear whether and *how* a firm can *organize* its CSR activities effectively so that they directly contribute to the firm's financial goals (e.g., increasing profitability). We add to this research by suggesting *how* to execute CSR activities in practice. Our study identifies workplace-giving programs that make an individual's voluntary giving decisions transparent as a strategic instrument to improve employee performance – at little additional costs to the firm.

The paper proceeds as follows. Section II develops the theory and the hypothesis. Section III outlines the experimental design, and section IV presents the results. Section V concludes and discusses the results.

³ According to the autonomy continuum (Gagné and Deci 2005) extrinsic motivation (i.e., behavioral regulation and the value associated with it) can vary in the degree to which it is autonomous or controlled. Extrinsic rewards – be they tangible (e.g., money or promotions) or *psychological* (e.g., praise or public acclaim) – can also be internalized over time. For example, with introjected regulation, the regulation is within the person but is a relatively controlled form of internalized extrinsic motivation, such as avoiding shame, seeking approval, and efforts to protect the ego (“A good donation rank makes me feel like a worthy and respected person.”) (Gagné and Deci 2005). In our setting, concerns for social norms and social status (i.e., the concerns we theorize as driving the effect of donation rankings), must be externally triggered before they are internally defined (or ignored), weighted, and valued.

2. Background and Hypothesis

2.1 Background and Setting

Neoclassical economic theory postulates that first and foremost cash payments motivate agents (i.e., employees) to raise their performance (Lazear 2000). The standard economic principal-agent model uses monetary incentives to align employees' interests with those of the principals (i.e., firm shareholders) (Jensen and Meckling 1976). The argument is that monetary incentives have a disciplining or price effect because the employee will increase effort to the extent that it becomes more costly to shirk (Hölmstrom 1979). Our setting builds on this idea by focusing on employees who try to increase their wealth through better performance (e.g., piecework, bonuses, or performance-based pay), which improves their ability to donate through payroll deductions. However, evidence from psychology (Deci 1971) and behavioral economics (Gneezy, Meier, and Rey-Biel 2011) suggests that non-monetary (i.e., social) incentives can also elicit substantial performance increases, resulting in more efficient contracting inside the firm (Balakrishnan, Sprinkle, and Williamson 2011). Employees have preferences other than money to incorporate them into their utility function. These preferences can relate to altruism (e.g., represented by an employee's care for others' well-being), self-determination (e.g., represented by an employee's need for autonomy), or public recognition (e.g., represented by an employee's need to be liked and esteemed by others).

While performance-contingent compensation contracts are prevalent in practice at all organizational levels (Gittleman and Pierce 2013), they are costly for firms. The situation is different for *non-monetary* incentive strategies – appealing to an employee's self-determination and employees' desire to manage the impression others gather of them (i.e., a positive public recognition) or both – that firms are increasingly integrating into their total reward packages to create a more lucrative workplace for employees (Bode and Singh 2018).

Self-determination (internal cause, e.g., interest and enjoyment) serves an employee's intrinsic motivation. In contrast, public recognition (external cause, e.g., reward or evaluation)

engenders extrinsic motivation and is believed to inhibit an individual's intrinsic motivation to perform (e.g., Frey and Osterloh 2002). The primary reason why extrinsic stimuli are expected to have detrimental effects on intrinsic motivation is that they lower perceived autonomy (Gagné and Deci 2005). However, under some circumstances, certain external stimuli may "crowd in" and enhance intrinsic motivation through a process of motivational synergy (Hennessey, Moran, Altringer, and Amabile 2014). This process is most likely to occur when (i) self-determination is strong and salient, and (ii) public recognition values an employee's contribution. If these two conditions are met, the ranking's information becomes part of an employee's identity and sense of self: employees define rankings to honor their generosity – implying a positive interaction.

Consequently, if employees perceive the workplace-giving program as a strategic corporate imperative, the ranking may be perceived as meaningless or even controlling, thus undermining employees' intrinsic motivation (*control effect*). However, if employees perceive the workplace-giving program as an opportunity, the ranking may demonstrate a genuine commitment to the community and be seen as recognition (*recognition effect*). As such, the ranking, even though classified as an extrinsic stimulus, is likely to nurture autonomy and intrinsic motivation. With the recognition effect in the foreground, the visibility of employees' giving decisions (through the ranking) provides a self-promotion opportunity for employees; it allows them to signal distinctive generosity (or related prosocial traits). Employees can engage in impression management (Leary and Kowalski 1990). As a means of image building in the "struggle for recognition," a ranking offers employees a tool to present their generosity and prosocial attitudes to others. The potential positive effects of employee visibility in an autonomy-promotive job context imply that rankings in such a context are likely to motivate employees to create a favorable impression (Tetlock and Manstead 1985), to compare (Festinger 1954) and be socially distinct from their colleagues (Frey 2006, 2007).

In sum, since monetary incentives, autonomy, and public recognition appeal to different motivation mechanisms (intrinsic vs. extrinsic) and affect different components of an employee's utility function, positive or negative interactions may arise among these incentives (Lourenço 2016). These incentives may provide utility through (1) tangible payoffs (Baker, Jensen, and Murphy 1988), (2) an autonomy-supportive work environment (Gagné and Deci 2005), and (3) social esteem (Ellingsen and Johannesson 2007). The incentives employed within this study are likely to operate through these mechanisms, albeit in differing proportions. Monetary incentives primarily offer tangible payoffs (Baker et al. 1988); an autonomy-supportive work environment provides choice (Gagné and Deci 2005); and ranking schemes provide social esteem or social distinction (Frey 2006, 2007). To isolate the causal motivation mechanisms through which the incentives affect performance, we designed an experiment with performance-based pay throughout.

2.2 Altruism and Workplace-Giving Programs

Generally, charitable giving is considered meaningful prosocial behavior (i.e., a social norm), and altruism is an important personality trait (Croson, Handy, and Shang 2009). Workplace-giving programs will make the job meaningful, changing the nature of the work tasks from being about oneself to helping others (Douthit et al. 2019). Workplace-giving solutions create the possibility for the employee "to buy into" the warm glow of these social missions and a firm's paycheck donations (Andreoni 1990). As an employer-side opportunity for employee philanthropy, workplace-giving programs tend to be a salient feature of the employment contract (Douthit et al., 2019), resulting in CSR-type benefits for the firm. Recently, Newman, Tafkov, and Zhou (2019) suggested that employer-side initiatives for employee philanthropy outside the workplace would improve employee commitment *within* the firm.

2.3 The Structure of the Workplace-Giving Program and Autonomy

Firms can either strongly support their workplace-giving program, resulting in a perceived mandatory program, or emphasize the voluntary nature of individual employees' participation (Mirvis 2012; Slack et al. 2015). Regardless of whether a program is voluntary, different program characteristics like how the program is communicated or managed may give employees the impression that workplace giving is mandatory. When the firm strongly advocates participation in its workplace-giving campaign (e.g., to seek a 100 percent participation rate), employees may believe that they have no choice but to engage in the program. Such cues impact employees' perceptions of the voluntary nature of the program. For example, Keating, Pitts, and Appel (1981) provide evidence that in some situations contributions to United Way can be ascribed to social and job-related pressure rather than pure altruism or volition. Mirvis (2012) and Slack et al. (2015) point out that, within some firms CSR is viewed as being a formal, contractual, and integral component of ongoing employment activities. In these firms, employees tend to be less willing to act as organizational citizens, thus weakening economic CSR-type benefits. Conversely, when employees understand workplace giving as their own initiative and unconstrained decision, they may reciprocate and reward a firm's CSR endeavors with extra performance, in line with self-determination theory (Deci and Ryan 1985; Gagné and Deci 2005).

Self-determination theory differentiates to what extent an employee's behavior is self-regulated or autonomous versus externally controlled. Existing research suggests a positive performance effect of prosocial choice and choice options (Tonin and Vlassopoulos 2015; Charness, Cobo-Reyes, Jiménez, Lacomba, and Lagos 2012) because options mobilize people's intrinsic motivation and willingness to strengthen their performance. In contrast to these hidden advantages of choice autonomy, perceived controls, restrictions, or other forms of pressure are

expected to precipitate hidden costs (Falk and Kosfeld 2006).⁴ The workplace-giving program's structure is a job characteristic appealing to an employee's choice autonomy, either facilitating an autonomy-supportive (*recognition effect*) or pressurizing (*control effect*) work environment (Gagné and Deci 2005; Deci, Connell, and Ryan 1989). If employees interpret a prosocial activity as a reduced opportunity for determining the contribution at their own will and as a limitation of their choice autonomy (Falk and Kosfeld 2006), their intrinsic motivation may be undermined due to their desire for autonomy (Kajackaite and Werner 2015). Thus, since the prosocial activity is perceived as an obligation rather than an opportunity this "alter[s] the meaning of the activity itself from one that express[es] choice autonomy to one that express[es] compliance" (Bowles and Polanía-Reyes 2012, 374).⁵

2.4 A Donation Ranking and Public Recognition

Performance ranking schemes *on the work task* induce social comparisons and allow social distinctions, which in turn elicits a motivational incentive to exert greater effort resulting in better performance (Tafkov 2013; Hannan, McPhee, Newman, and Tafkov 2019). Specifically, social comparison (Festinger 1954) and distinction theory (Frey 2007, 2006) suggest that employees desire to compare themselves with others to evaluate or improve some aspect of the self (Gibbons and Buunk 1999). The aspect of comparison can be *either* abilities *or* opinions like values, beliefs or social norms, although "the lion's share of researchers' attention has been devoted to comparison of abilities" (Suls 2000, 106). When outperforming others and marking themselves off from others, employees receive positive feedback on the

⁴ More generally, the hidden cost of control literature argues that when you restrict autonomy you get what you ask for and not more. That is, if you announce that everyone must donate at least 10€, everyone donates just 10€ (even if they would have donated zero or 40€ without such a prompt).

⁵ While self-determination theory implies that forcing employees to do something may backfire, quasi-mandatory workplace-giving regimes may also send a strong norm signal. In particular, the fact that firms strongly favor employee giving may send a strong signal of donation norms, which then can stimulate employees to donate. Since we examine employee performance, the crowding-out effect due to the "forcing" or "controlling" element of the perceived mandatory workplace-giving program tends to prevail, while the norm effect tends to be of lower priority.

self, which enhances their self-image. By contrast, self-image suffers when underperforming others. Thus, in the presence of performance rankings, the motivational drive to get ahead of colleagues (Gibbons and Buunk 1999; Festinger 1954) encourages individuals to engage in costly actions to achieve better relative standings although outperforming others does not confer tangible benefits (Tafkov 2013; Hannan et al. 2013). Public recognition brings the added appeal to improve "performance" *on the task where they are ranked*.⁶

We build on this research by adding a prosocial component and propose a ranking scheme that sorts employees based on their giving decisions, a *social* performance measure. By construction, a workplace-giving program connects the work task to a meaningful outcome (in our setting, a charitable contribution). A donation ranking makes the perceived impact of helping transparent and more salient to colleagues. It shows how much an employee has donated relative to his colleagues and communicates an employee's otherwise unobservable social attributes and generous attitude. Individuals are more likely to engage in prosocial behavior when their good deed becomes visible to others (Soetevent 2005): many organizations publicly disclose an individual's contributions (Ariely, Bracha, and Meier 2009) and anonymous charitable contributions are rare (Glazer and Konrad 1996). An audience may trigger the need for social approval of behavior on the part of a donor (e.g., Filiz-Ozbay and Ozbay 2014). Since altruism indicates the willingness and ability to incur costs for others' benefit, observable prosocial behavior may establish prosocial reputation (Tsai and Xie 2017).

Motivational spillover effects from a rewarded job dimension to another (unrelated) job dimension that does not qualify for an award have been documented (Neckermann, Cueni, and Frey 2014; Gubler, Larkin, and Pierce 2016). For example, Black et al. (2019) and Huang and Murad (2020) theorize and find evidence that performance rankings will activate a competitive

⁶ Among the multiple social preferences (Bowles and Hwang 2008) identified in the economics literature, recognition in the workplace addresses preferences such as respect (Ellingsen and Johannesson 2007), social distinction (Frey 2007, 2006), status (Besley and Ghatak 2008), and image motivation (Ariely, Bracha, and Meier 2009).

mindset among employees that influences thought and behavior in subsequent, *unrelated* domains. Motivated by the warm glow of being recognized for giving (i.e., receiving a good rank), employees are likely to carry these "competitive urges" and the associated emotions to their core job task. That way, a donation ranking on an *unrelated* task may also trigger competition, boosting performance. Tran and Zeckhauser (2012) even suggest that people have an inherent preference for high rank, so that ranking schemes in general are an incentive in their own right. Consequently, a donation ranking confers an image reward for the top givers or indicates that incremental funds are necessary in the case of a poor rank. Comparing unfavorably with others' workplace contributions then encourages below-average givers to avoid the discomfort associated with a bottom rank, thus initiating performance improvements.⁷

In the aggregate, the image concerns conferred with the donation ranking may expand to employees' motivation to do well on their core job task increasing their performance.

2.5 Joint Effect of the Workplace-Giving Program's Structure and the Donation Ranking

Since monetary incentives, autonomy, and public recognition appeal to different motivation mechanisms and affect different components of an employee's utility function, we now examine whether the workplace-giving program's structure (*perceived* mandatory vs. voluntary) interacts with the donation ranking (absent vs. present). We contend that whether the ranking's information recognizes employee philanthropy or controls their philanthropic performance achievements depends on how the firm communicates, promotes, enacts, or enforces its workplace-giving initiatives. As the above discussion highlights, the workplace giving's motivational effect should originate, at least in part, from the perceived "opt in" of such programs.

⁷ Behaving prosocially, like contributing through workplace giving to help society, can also be undertaken instrumentally to signal one's wealth or income (e.g., Glazer and Konrad 1996; Harbaugh 1998). In our setting, being ranked first may signal to colleagues that the employee has raised relatively high performance-based cash earnings. Thus, from the ranking position, employees can roughly conclude the individual income levels.

We expect the positive performance effect of voluntary workplace-giving programs to be reinforced by ranking schemes (i.e., positive interaction). Deci et al. (1989) find that when the firm's management is more supportive of autonomy, e.g., to encourage employees' initiative and provide feedback in a freedom-promotive rather than controlling way, employees become more trusting of their firm and its operations, and form more positive work attitudes. Similarly, Gagné and Deci (2005) propose that when a socially valued activity is encouraged by social esteem motivation in an autonomy-supportive work context, internalization and self-promotion of that activity are facilitated.⁸ If employees perceive the formally voluntary workplace-giving program also functionally as one that furthers autonomy, a donation ranking will have a higher informational value for employees and, consequently, a higher behavioral performance effect.

Imparting a sense of self-value, implying an improvement of an employee's self-concept, requires employees to freely initiate and steer their behavior (Binswanger 1991). In an autonomy-supportive work environment, employees may endorse ("internalize") the donation ranking's information for self-assessment and self-improvement to excel generously in the future, triggering a competition that spills over to their performance on doing their job. Since autonomy means endorsing one's actions at the highest level of reflection (Dworkin 2008), we suspect that a donation ranking is useful, ergo effort-inducing and performance-enhancing, in this reflection.

Truly voluntary programs, where the employee embraces the impulse to give, allow employees to express their self-determined giving decisions, and a donation ranking makes an employee's volitional workplace-giving decision transparent. Thus, when employees understand workplace giving as their own initiative, a donation ranking signals to colleagues that one does good and is a generous character, reflecting an employee's prosocial values and

⁸ Deci, Eghrari, Patrick, and Leone (1994) find that when the context supports self-determination and conveys choice, integration (i.e., through which the regulation is assimilated with one's core sense of self) tends to occur, whereas when the context does *not* support self-determination, introjection (i.e., taking in a value or regulatory process but not accepting it as one's own) is likely to arise.

self image. In such an autonomy-supportive environment, employees acknowledge others' perspectives, providing meaningful rationales for joining the competition for the most generous employee, sparking their performance (Deci, Eghrari, Patrick, and Leone 1994; Gagné and Deci 2005). Donation rankings where the donation is self-determined by the employee can confer recognition and nurture social esteem motivation.

Opposed to this is a firm-initiated or, in our terminology, a perceived mandatory workplace-giving program (i.e., "opt out"). Such a quasi-mandatory regime conveys the impression that workplace giving is expected and thus restricts employees' perceived choice set and dampens their willingness to work hard for their firm. Perceived mandatory programs functionally constrain an employee's donation decision, making it harder for employees to deduce from the ranking which part of the donation is due to "coercion" and which is due to "inner self-conviction." If employees sense that they *have to* engage in workplace giving, the ranking's social esteem-nurturing motivational effect and, hence, the ranking's signaling value is likely to fade into the background, while just meeting the normative standard of behavior is likely to rise to the foreground. Thus, the work environment changes from one that fosters autonomy to one that appears controlling to employees (Gagné and Deci 2005) – with detrimental effects on employee motivation and performance. A perceived mandatory context tends to regulate behavior based on external standards rather than internal energizers (Koestner, Bernieri, and Zuckerman 1992). Consequently, the ranking's signaling value might be higher if workplace-giving programs are viewed as voluntary, and simultaneously donation rankings are provided – motivating employees to provide higher effort to generate a higher donation.

Hypothesis: The effect of the structure of the workplace-giving program interacts with ranking such that the presence, compared to absence, of a ranking leads to stronger performance increases when the program is voluntary instead of mandatory.

3. Method

3.1 Experimental Design and Task Description

We run a laboratory experiment to test our hypothesis. Using a 2x2 experimental design, we vary (between subjects) the structure of the workplace-giving program (voluntary vs. mandatory) and the presence of the donation ranking (absent vs. present). The experiment consists of one trial round and eight experimental rounds with rounds manipulated within subjects.

In the experimental task,⁹ participants move sliders along a scrollbar from zero to 100. The sliders are initially positioned at zero. A participant's performance equals the total number of sliders adjusted at exactly 50, its target position (Gill and Prowse 2019). In each work stage (i.e., experimental round), participants can choose both the number and order of sliders to work on. Each work stage is limited to 150 seconds to move the sliders displayed on the computer screen. If participants complete a work stage before the allotted time runs out, they can click on a "Break" button at the bottom of their screen. The "Break" button is also available if a participant does not finish all sliders. The countdown clock stops and records the participant's remaining time for that work stage. In every other round (i.e., in rounds 2, 4, 6, and 8) participants choose how many of their points earned in the last two work stages, including no points, to donate to an established charity.

3.2 Workplace-Giving Program Manipulation

In the voluntary workplace-giving program conditions, participants are informed that they can donate any number of *points* they have earned in the last two work stages, including zero.¹⁰ In the mandatory workplace-giving program conditions, participants are instructed that the research team is strongly in favor of charitable donations, and participants are expected to

⁹ The task is programmed using z-Tree software (Fischbacher 2007).

¹⁰ Note: we do not specify a giving threshold, but rather prompt participants in the perceived mandatory settings to donate any amount higher than zero.

donate some *points* they have earned in the last two work stages, although no threshold is specified. Regardless of the manipulation, donations flow through effort, even though this relation is imperfect. That is, extra effort can, but need not, increase the donation. Participants have to trade-off what sum goes into their pocket and what they donate. Our design choice, that extra effort allows for additional funds, which in turn reduces the relative cost of the donation's absolute value, reflects the emerging business practice of variable pay (Gittleman and Pierce 2013).

3.3 Ranking Manipulation

After deciding how much to transfer to their chosen charity, participants' giving decisions are made transparent through a donation ranking (hereafter: ranking). Participants see a waiting screen in the no ranking conditions before proceeding to the next round without receiving a ranking scheme. In the ranking conditions, participants receive their social performance rank (i.e., the individual rank of each participant's giving decision) within the team, which also contains the number of points each participant has donated to charity. Since we have chosen a public setting throughout, all participants receive the same information. That is, when the ranking is present, participants see their social performance rank (and donation size) and the ranks (and donation sizes) of each of the other five participants. The ranking is disseminated at the end of rounds 2, 4, 6, and 8, immediately after the participants have indicated their number of points they wish to donate to charity.

3.4 Participants and Procedures

To test our hypothesis, we recruited 101 undergraduate and graduate business students from a Western European university for sessions consisting of six individuals.¹¹ We removed

¹¹ One session without a ranking consists of five sampling participants.

three students from our population because they failed at least one manipulation check question, resulting in a final sample of 98 students (MC sample). All descriptive statistics and statistical results are reported for this MC sample. Participants' mean age was 23.84 years with 50 male (51.02 percent) and 48 female (48.98 percent) students. There were no significant differences across conditions in terms of age, gender, field of study, academic major, or lab experience (all $p > 0.13$, two-tailed). We conclude that our random assignment to treatment conditions was successful.

Although our study is about transparency, to preserve participants' anonymity in the study's records, upon arrival participants draw a number (#1, #2, ..., #6) which is not attached to any personal information. They enter the number on the first screen of the experimental workflow. Participants are also provided yellow T-shirts with their identification number (#1, #2, ..., #6). The shirts are intended to create a "team identity" and motivate participants to engage in social comparison. To remove social performance rank anonymity in the ranking conditions, participants then introduce themselves by their identification number ("I am participant #1," "I am participant #2," ..., "I am participant #6"). For consistency, these brief introductions are made in all experimental conditions. After the introduction round, participants complete several questions to measure their prosocial intentions. Next, participants read paper-based instructions and answer a comprehension quiz based on these instructions. After each participant has successfully finished the quiz, the participants choose their preferred charitable recipient from a charity selection sheet (one out of ten different charities). This decision applies to all rounds of the session. The session proceeds with a trial round and the eight rounds of the experiment. Finally, participants answer a computer-based post-experimental questionnaire which includes demographic information, process-related data, and selected personality traits. We collect all data within the 90 minutes of the experimental session. The last screen shows participants' earnings, in *points* (our experimental currency) and euros, in addition to the contributions to charity.

3.5 Compensation scheme

Compensation consists of a fixed 2.50€ show-up fee, a flat payment of 2.50€ for answering pre- and post-experimental survey questions, and a variable payment depending on participants' performance. Participants earn 40 points for each slider adjusted at the target position (50) and zero points for every other position. In addition, participants are compensated a time bonus of 4 points for every second saved, which is our proxy for disutility of effort (e.g., Sprinkle 2000). When time expires, a performance summary reports the participant's performance and point scores in the current round and cumulatively. On average, participants earned 14.62€ and donated 2.32€ to charity with earnings and donations highest in the ranking condition where workplace giving is voluntary (15.84€ and 3.31€). Since the experiment was conducted as a workplace-giving program, the donations were deducted from the income earned, resulting in cash payments of 12.30€ on average. Donations were made to charity as described to participants. Before and after subtracting the donations, participants' earnings (fixed, flat and variable components) differ significantly across workplace-giving program conditions ($F = 2.17, p = 0.096$; $F = 2.95, p = 0.037$). There is a significant correlation between individual donations and points earned ($r = + 0.30, p < 0.003$).

4. Results

4.1 Validation of Experimental Setting

Drawing on our post-experimental survey, this section validates the experimental instrument and tests whether our experimental manipulations were successful. We expect participants to experience lower financial autonomy in the mandatory relative to the voluntary workplace-giving program conditions. Thus, based on Stone, Bryant, and Wier (2010) and using an 11-point Likert scale (0 = not at all, 10 = very much), participants indicate to what extent they *perceived* they had no choice about making prosocial money decisions (*perceived choice*). The participants in the voluntary (mandatory) workplace-giving program conditions

indicated a significantly lower (higher) *perception* that their charitable contributions are forced choices ($t = 4.28, p = 0.001$). We conclude that the giving programs' framing makes a significant difference to the *perceived* freedom of choice. Moreover, 100 out of 101 participants correctly identified the intended framing of their assigned workplace-giving program (*MC 1*).

Next, we argue that employees are motivated to make more effort when a ranking is disseminated because a ranking stimulates social comparison (Festinger 1954) and distinction (Frey 2006, 2007), thereby leading to more motivation triggered by more competition to receive a better social performance rank. To check for this motivational spillover, participants must indicate the importance they attach to donating *more* than the other team members (*motivational spillover*) using an 11-point Likert scale. Since there is not a statistical difference between the no and ranking conditions ($t = -1.23, p = 0.112$), we go further into the workplace-giving program's structure. Participants in the voluntary regime attached significant importance to donate more than the other team members while the participants in the mandatory workplace-giving condition did not ($t = -1.76, p = 0.042$ vs. $t = 0.15, p = 0.561$) – a finding that points towards an interaction between our manipulated variables.

We also ask participants to indicate their agreement with the statement whether they worked hard when moving the sliders to incrementally increase their donation capability (*performance spillover*) (0 = totally disagree, 10 = totally agree). Participants' Likert-scale-responses in the ranking conditions – which correlate with their actual donation behavior ($r = + 0.39, p = 0.007$) – are significantly greater than the scale midpoint of five (mean = 5.96) ($t = 1.90, p = 0.032$). Additionally, we test if participants regard the relative rank as an appropriate proxy for an individual's generosity (*generosity comparison*), i.e., a *social* performance measure and no comparison of relative abilities as in a performance ranking. Therefore, we ask participants who received a ranking to indicate their agreement with the statement whether they think that they are more generous than the average participant in the room on an 11-point Likert scale (0 = totally disagree, 10 = totally agree). Because a lower rank signals superior relative

social performance, we expect participants' answers and donation rank to be negatively related when a ranking is provided (i.e., the most generous participant would have a rank of one and likely answer 10 on the Likert scale). Indeed, Tobit regressions reveal a significant negative relationship between participants' rank and the answers to the question (rank means $t \geq -3.17$, $p = 0.003$). Furthermore, 46 out of 48 participants noticed the disclosure of relative ranks (*MC 2*) and donation sizes (*MC 3*) as intended by the design.

The setting's general premise is that participants consider the comparison domain and their chosen charity's missions relevant. Thus, we ask participants to state to what extent they believe that prosocial behavior is important for succeeding in business (*career importance*) and everyday life (*life importance*) on an 11-point Likert scale (0 = not at all, 10 = to a great degree). Participants' mean response for career importance (life importance) is 5.70 (7.20), which significantly differs from the midpoint of five ($t = 2.84$, $p = 0.007$, for career importance, and $t = 9.18$, $p < 0.001$, for life importance) indicating that participants value prosocial behavior. Finally, participants state to what extent they agree that the charity of their choice pursues a charitable purpose that should be supported financially (*charity importance*) on an 11-point Likert scale (0 = totally disagree, 10 = totally agree). Participants responded with a mean of 9.26 which is significantly greater than the scale midpoint of 5 ($t = 31.39$, $p < 0.001$). We infer that participants rate their selected charity's mission and work as highly important and deserving financial support. Note that there are no significant differences across conditions ($p = 0.361$).

4.2 Descriptive Statistics and Hypotheses Tests

Table 1 reports the descriptive data for our dependent variable, performance, per round (the number of sliders adjusted correctly per round), and in total (the number of cumulative sliders adjusted correctly). Participants correctly adjusted a total mean of 234.57 (Column VIII) of a maximum of 384.00 sliders over all eight rounds. We find performance is greatest when a ranking is provided, and this positive performance effect is more pronounced in the voluntary

workplace-giving condition (a mean of 261.92 (Column III)) correctly positioned sliders). Like similar experiments employing real-effort tasks show, we also observe that performance ascends steadily over time across conditions as participants become more efficient in the task (e.g., due to learning effects) (Kajackaite and Werner 2015).

[Insert Table 1 about here.]

To formally test our hypothesis, we use planned custom contrasts and follow the three-step approach suggested by Guggenmos, Piercey, and Agoglia (2018). While the traditional ANOVA weights are good at detecting disordinal interactions, Buckless and Ravenscroft (1990) demonstrated that contrast testing provides a more powerful means to test for an ordinal interaction than the ANOVA interaction term. We employ the following contrast weights: -3 for ranking absent/mandatory workplace giving, -2 for ranking absent/voluntary workplace giving, +1 for ranking present/mandatory workplace giving, +4 for ranking present/voluntary workplace giving. These contrasts reflect the positive interaction effect of a ranking if the workplace-giving program is voluntary and the much less positive performance effect if the workplace-giving program is mandatory. In addition, they are also in line with the motivational spillover effect of ranking schemes to an unrelated task (Huang and Murad 2020; Gubler et al. 2016). As a first step, Guggenmos et al. (2018) recommend a visual evaluation of contrast weights' fit as to the descriptive data. Figure 1 depicts that our contrast weights fit the descriptive data.

Second, we perform the traditional significant testing of the planned contrast analysis. In support of our hypothesis, Table 2, Panel A, presents that our data significantly match the planned contrast weights ($F = 6.63, p = 0.012$, two-tailed).

[Insert Figure 1 and Table 2 about here.]

We find an ordinal interaction between the ranking and structure of the workplace-giving program, such that the positive performance effect of a ranking will be greater under a voluntary than under a perceived mandatory workplace-giving program. Third, our q^2 is 0.5 percent, indicating that our contrast explains 99.5 percent of the between-cell variance. We infer support for our hypothesis.

Moreover, we run a simple effects test as a post-estimation to further substantiate the pattern predicted by our hypothesis and test the effect of partial variation against the total sample variance. Table 2, Panel B, presents the results. Consistent with our hypothesis, the simple effects test shows that the ranking leads to better performance if workplace giving is voluntary but not if the program is mandatory ($t = 2.03, p = 0.045$ vs. $t = 1.36, p = 0.177$, Table 2, Panel B). The voluntary nature of workplace-giving programs fully unfolds if participants know each others' individual donation ranks and sizes. Put differently, the ranking takes its full effect if workplace giving is perceived as the participant's goodwill. On a broader level, consistent with Collier and Esteban (2007), this finding indicates that the benefits of CSR activities are contingent upon how well these activities are communicated and actioned and how employees realize them.

4.3 Additional Analysis: Development and Test of a Causal Mediation Model

In formulating this paper's hypotheses, we rely on self-determination (Gagné and Deci 2005) and social comparison (Festinger 1954) theories. Using maximum likelihood estimation procedure, we develop a causal model that identifies mediators related to these two theories to explain the process and behavioral-psychological mechanisms underlying our hypotheses.

With reference to self-determination theory (Gagné and Deci 2005), we argue that participants value financial autonomy in making benevolent decisions and determining effort. Based on Stone et al. (2010, 109), we define financial autonomy as "the belief that one can make financial decisions that are volitional choices reflecting one's own interests and beliefs."

When financial autonomy is perceived as low, i.e., when one believes that one's financial decisions are controlled by forces other than the self, participants tend to lower their effort. Therefore, the post-experimental questionnaire includes six reversed-coded items adapted from Stone et al.'s (2010) *financial need belief* construct and Weinstein and Ryan's (2010) *motivation to help scale* to derive a factor for *financial autonomy*. Responses are provided on an 11-point Likert scale. Table 3, Panel A depicts the corresponding factor for *financial autonomy* (eigenvalue = 2.62; explained variance = 0.44).

Concerning social comparison theory (Festinger 1954), we assert that participants are concerned about their prosocial standing relative to the other participants. Participants consider both the possibility of receiving a better and lower rank when making an effort. Therefore, the post-experimental questionnaire comprises three items reflecting a participant's level of involvement in social comparison while performing the task (*social comparison involvement*). Table 3, Panel B presents the 11-point Likert scale responses and the respective *social comparison involvement* factor (eigenvalue = 1.58; explained variance = 0.53), and Figure 2 displays the standardized coefficients of the causal model with *performance* (i.e., the total number of sliders adjusted correctly over all eight rounds) as the outcome variable.¹²

[Insert Table 3 and Figure 2 about here.]

We find that the voluntary workplace-giving program increases participants' sense of financial autonomy, while the mandatory workplace-giving program compromises participants' sense of autonomy and diminishes their reciprocity and goodwill towards the principal (i.e., the research team). Recall that our measure for *financial autonomy* is reverse-coded: when workplace giving is understood as voluntary, participants feel less externally controlled in their financial decisions (link 1: $p < 0.01$, $z = -5.57$). Further, the causal model also confirms that

¹² The causal model is a good fit for the data (chi-squared test: $X = 2.98$, $p = 0.40$; Tucker–Lewis index = 1.00; and incremental fit index = 1.00).

rankings facilitate social comparison, as indicated by the positive relationship between *ranking* and *social comparison involvement* (link 2: $p < 0.01$, $z = +6.29$). Both effects – greater *financial autonomy* (link 3: $p = 0.02$, $z = -2.37$) and higher *social comparison involvement* (link 4: $p = 0.02$, $z = 2.24$) – lead to greater *performance*. Thus, our causal mediation model implies that both a voluntary workplace-giving program and rankings motivate participants to improve their performance relative to the mandatory workplace-giving program and no donation ranking. Besides these direct effects on *performance*, there is a statistically significant indirect effect from *financial autonomy* over *social comparison involvement* on performance (link 5: $p = 0.04$, $z = 2.03$, two-tailed).

Interestingly, this path enters the model with a positive standardized coefficient, indicating that social comparison is activated when workplace giving is *perceived* as mandatory. Importantly, since the direct effect of the *structure of the workplace-giving program* on *performance* is statistically insignificant (link 6: $p = 0.90$, $z = 0.12$) this reveals that *financial autonomy* (reverse-scored) and *social comparison involvement* fully mediate the relationship between the *structure of the workplace-giving program* and *performance*. The combination of significant indirect paths for the mediators and an insignificant direct link suggests "indirect-only" mediation (Zhao, Lynch, and Chen 2010). Collectively, these results demonstrate that the interaction effect described by our hypothesis can be explained by the suggested behavioral mechanisms and psychological processes (i.e., facilitating social comparison and workplace-giving autonomy). This does not preclude ranking systems from exerting varying degrees of pressure on employee performance depending on the donation rank achieved – especially since the borderline between external pressures and internal motivational drivers is blurred (Gagné and Deci 2005). For example, rankings reward the donation performance of above-average generous employees (recognition tool) while exerting comparatively more pressure on parsimonious employees. In either case, the result is a social comparison process leading to a ratcheting up of efforts stimulating performance.

5. Discussion and Conclusion

As one element of a firm's CSR initiatives, workplace-giving programs are widespread in US firms. Our experiment focuses on such programs and examines the performance effect of workplace-giving transparency, using donation ranking schemes. As in real business, in our setting employees' effort may, but need not, generate a donation to charity. Although formally a voluntary approach, different program characteristics such as how the program is communicated or enacted sometimes give employees the impression that their participation is requested, creating an inner compulsion within employees. Since such external constraints impose costs of control (i.e., lower employee motivation, morale, and effort), we suppose that the workplace-giving program's structure interacts with giving transparency, leading either to adverse or positive performance reactions. Consistent with self-determination theory (Gagné and Deci 2005; Deci and Ryan 1985), our findings show that employees respond with higher performance to voluntary payroll deductions where they informally interpret the ranking's signaling value as an impression management opportunity.

Previous studies have examined the performance consequences of performance rankings (i.e., employee recognition programs). These studies have analyzed the impact of various design and layout features (Kramer et al. 2016; Kelly, Presslee, and Webb 2017), but less research has focused on the nature of feedback provided (the ranking's commonly examined comparison domain: relative abilities). Research on relative *social* performance information is scarce. Our ranking sorts employees in terms of a *social* performance measure, individual donation size. Thus, we add to the evidence of public recognition systems and document a *motivational spillover* from a ranking system *unrelated* to the task employees are doing to their performance on that task. Employees perform better when they are publicly recognized via donation rankings. We predict and find that firms can create prosocial "status incentives" (Besley and Ghatak 2008) by disseminating donation rankings which encourage employees to increase their social performance and to enter competition. This competition on the unrelated prosocial

activity extends, in turn, to employees' effort, incentivizing them to increase their performance on the task at hand. Put differently, the more the employee gives publicly to the social performance indicator, the more the preferences for not appearing selfish are activated (Fehr and Fischbacher 2002). Thus, for a ranking system, and if giving is voluntary rather than quasi-mandated as part of the employment contract (Slack et al. 2015), the preferences for not appearing selfish are stronger. As the preferences for not appearing selfish actually imply that people are selfish, one could predict that employees will give more and make more effort to increase their performance to obtain the same wage as if they did not donate. This performance-increasing effect will take place as long as the marginal benefit of extra effort is higher than the extra cost. Our experiment could be in 'this zone'. This explanation is further corroborated by the positive correlation between giving and performance. Our causal model reveals the behavioral-psychological process driving these effects: *financial autonomy* and *social comparison involvement* are indeed the two factors that induce employees to exhibit socially-oriented behavior and mediate performance improvements.

As a final note, the observation that the effect of the workplace-giving program's structure is comparatively weak could be explained by participants considering the charity's mission to deserve financial support. They might interpret a seemingly mandatory paycheck deduction as legitimate. In businesses, particularly community-minded employees may express understanding for the firm's decision to strongly advocate workplace giving to strengthen employees' engagement in CSR practices. For example, Schnedler and Vadovic (2011) suggest that control costs decrease when control becomes more legitimate, e.g., if it prevents antisocial behavior. This way, a perceived mandatory workplace-giving program somewhat overlaps with a "levy for a prosocial purpose" (Davis, Guenther, Krull, and Williams 2016).¹³ Relatedly,

¹³ Corporate stakeholders discuss controversially whether corporate tax payments can be regarded as socially responsible or whether CSR investments should be considered as irrelevant in a CSR context. On the one hand, the U.K. newspaper The Guardian (2009) reported on February 14, 2009 that "nearly 60 percent of financial

Reichert and Sohn (2021) propose that employees view controls and the managers implementing them more favorably when *the firm* engages in charitable giving.

We focus on the *employee* and *employee engagement* in CSR – identified as among the most urgent challenges facing firms (Slack et al. 2015). To date, workplace-giving programs are far from a seamless fit with the firm's incentive schemes. Our experiment indicates that firms could do more to systematically capitalize on these programs and use them as a strategic tool to unlock full motivational power and, in turn, performance gains. Specifically, as currently constructed, such giving programs are mostly invisible to all but donor personnel (Agypt et al. 2012). Our experiment proposes to remove workplace-giving anonymity and link individual giving behavior with public ranking schemes.

Future research should explore this line of research. While our study suggests donation rankings as an instrument to strengthen employee performance, future studies could consider other performance metrics. For example, donations to charity could be replaced with some environment-related information. Moreover, donation rankings are also likely to spur outcomes other than effort-induced performance increments. These could include desirable employee behaviors such as cooperation, corporate innovation, or employee creativity. Studying what additional levers of workplace giving prove more or less effective might also turn out to be fruitful. Most notably, employer-matching gifts that equal the donation contributed are a popular practice and might also impact an employee's willingness to exert additional effort, spurring performance. Employee volunteering programs – a prevalent non-pecuniary CSR activity – might also be of interest. Other organizational levers include various forms of employee recognition and publicly announced awards in addition to public ranking schemes (e.g., employee awards recognizing the most generous donor or donors).

directors in the U.K. do now regard tax as an ethical issue.” On the other hand, respondents to a survey of tax directors “were unanimous in saying that the payment of corporation tax is not at present a social issue relevant to CSR” (The Guardian, 2009). Given these contradictory points of view, recent empirical research examines the relation between corporate tax payments and CSR, suggesting that CSR and tax payments tend to act as substitutes (e.g., Davis, Guenther, Krull, and Williams 2016).

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TABLE 1
Descriptive Statistics per Treatment (Mean and Standard Deviation)

	Structure of the workplace-giving program						Total Column VIII
	Voluntary			Mandatory			
	Ranking			Ranking			
	Absent Column II	Present Column III	Total Column IV	Absent Column V	Present Column VI	Total Column VII	
Number of participants (n)	30	24	54	22	22	44	98
Per Round	27.95 (10.20)	32.74 (9.97)	30.08 (10.29)	26.63 (6.90)	30.16 (6.73)	28.39 (6.97)	29.32 (8.95)
Cumulative	223.60 (81.56)	261.92 (79.79)	240.63 (82.29)	213.00 (55.19)	241.27 (53.86)	227.14 (55.76)	234.57 (71.58)

Note: The table shows the descriptive statistics for *employee performance*, our main dependent variable, on average per round and cumulatively for all conditions. *Employee performance* measures the number of sliders adjusted correctly by a participant. Presented are the means and, in parentheses, the standard deviations.

TABLE 2
Hypothesis Test

Source of Variation	SS	df	MS	F-statistic	p-value ^a
Model custom contrast ^b	511.93	1	511.93	6.63	0.012*
Residual between-cells variance	0.30	2	0.15	0.00	0.998
Total between-cells variance	512.23	3	170.74	2.21	0.092
Error	7253.33	94	77.16		
Total	7765.56	97	511.93		
Contrast variance residual, $q^2 = 0.1\%$					

Panel A. Planned contrast comparison between the structure of the workplace-giving program and ranking.
Dependent variable: Performance (# of sliders adjusted correctly) (MC sample, n = 98).

Comparison	t-statistic	p-value ^a
Effect of ranking (absent vs. present) within the <i>mandatory</i> workplace-giving program conditions	1.36	0.177
Effect of ranking (absent vs. present) within the <i>voluntary</i> workplace-giving program conditions	2.03	0.045*

Panel B. Simple effects tests^c.
Dependent variable: Performance (# of sliders adjusted correctly) (MC sample, n = 98).

^a The *p*-values are reported on a two-tailed basis.

^b The contrast coefficients are -3 for ranking absent/mandatory workplace giving, -2 for ranking absent/voluntary workplace giving, +1 for ranking present/mandatory workplace giving, +4 for ranking present/voluntary workplace giving.

^c Panel B reports simple effect testing following the ANOVA containing the two between-subjects factors and their interaction.

Note: See the Supplementary Material for the variable definitions.

TABLE 3
Descriptive Statistics of the Process Variables

	Structure of the workplace-giving program						Total Column VIII
	Voluntary			Mandatory			
	Ranking			Ranking			
	Absent Column II	Present Column III	Total Column IV	Absent Column V	Present Column VI	Total Column VII	
Number of participants (n)	30	24	54	22	22	44	98
1. I was able to financially support the charity to the extent that I wanted.	8.53 (2.60)	8.46 (2.70)	8.5 (2.62)	7.68 (2.50)	9.23 (1.31)	8.45 (2.12)	8.48 (2.40)
2. I felt that I could completely determine the financial support of the charity myself.	8.27 (2.65)	8.54 (2.62)	8.39 (2.62)	7.00 (3.41)	8.05 (2.54)	7.52 (3.02)	8.00 (2.82)
3. I felt constrained in my financial decisions.	3.50 (3.66)	2.33 (3.68)	2.98 (3.68)	3.86 (3.54)	2.77 (2.79)	3.32 (3.20)	3.13 (3.46)
4. I felt obligated to donate in the experiment.	2.83 (3.57)	3.58 (3.80)	3.17 (3.66)	7.68 (3.08)	7.95 (3.43)	7.82 (3.22)	5.26 (4.16)
5. I donated because I had to and not because I wanted to.	1.60 (2.66)	1.58 (3.05)	1.59 (2.81)	3.86 (3.33)	4.68 (3.47)	4.27 (3.39)	2.80 (3.35)
6. I donated because it was desired by the research team.	3.07 (3.74)	2.00 (2.70)	2.59 (3.33)	5.91 (2.67)	5.82 (3.65)	5.86 (3.16)	4.06 (3.63)
Financial Autonomy Factor (reverse-coded)	-0.33 (0.98)	-0.46 (1.10)	-0.39 (1.03)	0.59 (0.72)	0.37 (0.73)	0.48 (0.73)	1.00 (0.00)

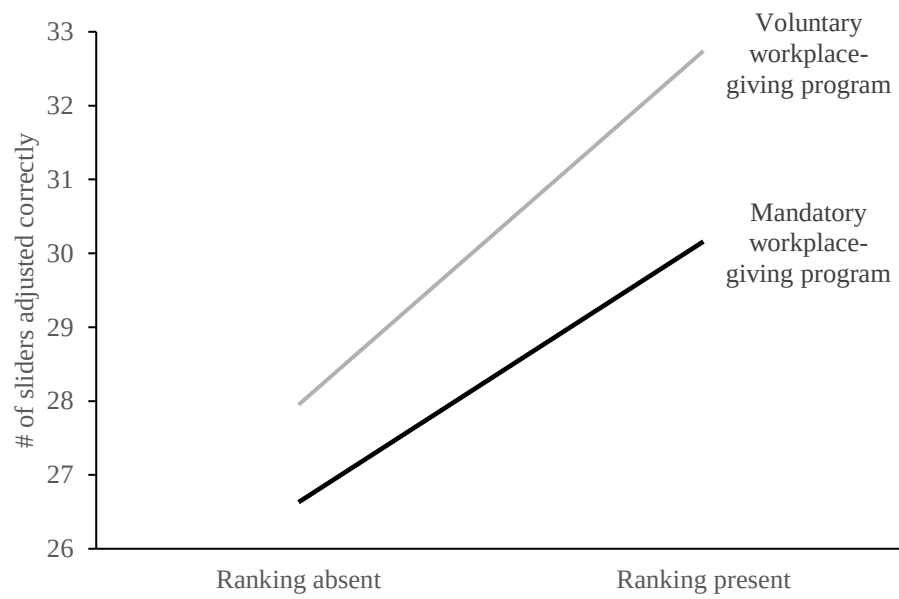
Panel A. Financial Autonomy Factor.

	Structure of the workplace-giving program						Total Column VIII
	Voluntary			Mandatory			
	Ranking			Ranking			
	Absent Column II	Present Column III	Total Column IV	Absent Column V	Present Column VI	Total Column VII	
Number of participants (n)	30	24	54	22	22	44	98
1. I compared my donation to that of my team members (<i>comparison team</i>).	1.67 (2.92)	7.58 (3.24)	4.30 (4.25)	2.55 (3.14)	7.55 (3.08)	5.05 (3.98)	4.63 (4.13)
2. It was very important to me not to donate less than the other team members (<i>comparison not worse</i>).	2.77 (3.08)	4.99 (3.72)	3.31 (3.40)	3.18 (3.33)	3.55 (3.73)	3.36 (3.50)	3.34 (3.43)
3. Looking at the other team members, I was proud of my donation (<i>good feeling due to donation</i>).	2.67 (2.71)	4.29 (2.74)	3.39 (2.82)	4.14 (3.00)	4.77 (2.93)	4.45 (2.94)	3.87 (2.91)
Social Comparison Involvement (reverse-coded)	-0.58 (0.74)	0.48 (1.06)	-0.11 (1.03)	-0.21 (0.94)	0.48 (0.85)	0.14 (0.95)	1.00 (0.00)

Panel B. Measure of Social Comparison Involvement.

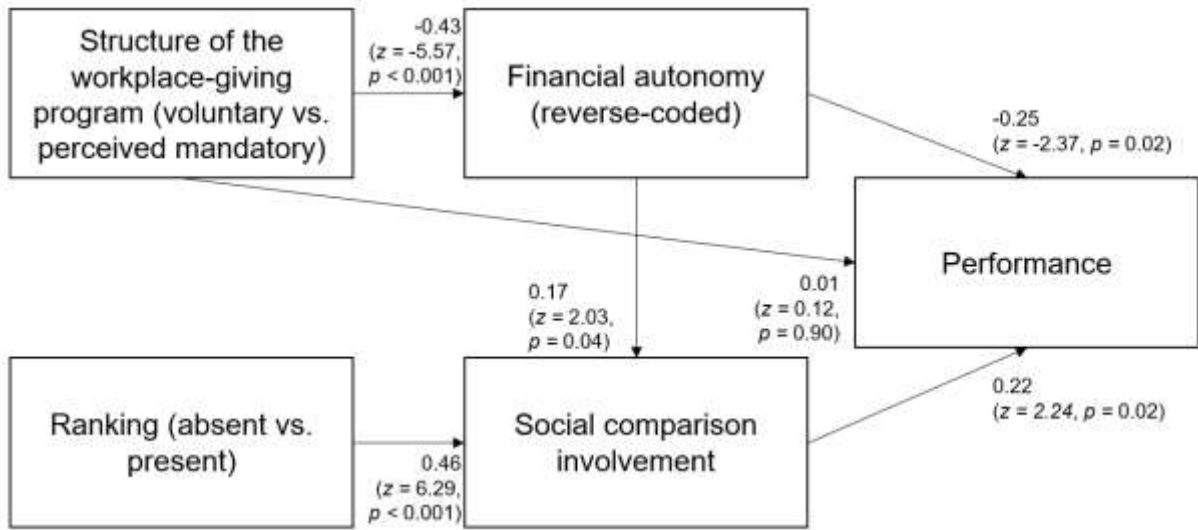
Notes: Panel A and Panel B contain questions and answers from the post-experimental questionnaire. Answers are provided on an 11-point Likert scale with higher numbers representing greater agreement. Panel A also contains a "Financial Autonomy Factor" that is calculated by applying principal component analysis using the answers to six questions adapted from Stone et al.'s (2010) financial need belief construct and Weinstein and Ryan's (2010) motivation to help scale (eigenvalue = 2.62; explained variance = 0.44). Panel B displays our measure for "Social Comparison Involvement". It represents participants' assessment on *comparison team*, *comparison not worse*, and *good feeling due to donation*. A principal component analysis using the three Likert scale responses yields our factor for social comparison involvement (eigenvalue = 1.58; explained variance = 0.53).

FIGURE 1
Mean performance per round by condition (n = 98)



Note: See the Supplementary Material for the variable definitions.

FIGURE 2
Causal mediation model (Standardized regression weights)



Notes: Presented are the standardized path coefficients using the SEM tool in Stata. Table 2 defines the independent variables and Table 3 defines the mediation variables. *Performance*, the model's outcome variable, is the total average number of sliders adjusted correctly over all eight rounds.

Supplementary Material (For Online Publication)

A. Variable definitions

Variable	Description
<i>Structure of the workplace-giving program</i>	<i>Structure of the workplace-giving program</i> is a between-subjects factor manipulated at two levels: <i>Voluntary workplace giving</i> and <i>Mandatory workplace giving</i> . Participants working under the <i>Voluntary workplace-giving program</i> can donate to one out of ten different charities in rounds 2, 4, 6, and 8. Participants working under the <i>Mandatory workplace-giving program</i> must donate at least one point, an economically insignificant amount, to one out of ten different charities in rounds 2, 4, 6, and 8. Our mandatory conditions reflect the fact that firms “routinely prod employees to contribute to organizations such as the United Way.”
<i>Ranking</i>	<i>Ranking</i> is a between-subjects factor manipulated at two levels: <i>Ranking absent</i> and <i>Ranking present</i> . Participants in the <i>Ranking absent</i> conditions are not provided with any prosocial feedback. Participants in the <i>Ranking present</i> conditions are provided with detailed prosocial feedback that includes their individual donation ranks and donation size and the donation ranks and donation sizes of the other five participants at the end of rounds 2, 4, 6, and 8.
<i>Performance</i>	<i>Performance</i> , our primary dependent variable, is the # of sliders adjusted correctly per round or cumulatively.
<i>Round</i>	<i>Round</i> is a within-subjects factor. In total, one trial round and eight rounds are conducted.
<i>Financial autonomy factor (reverse-coded)</i>	Participants’ responses to the six questions adapted from Stone et al.’s (2010) financial need belief and Weinstein and Ryan’s (2010) motivation to help instrument. Questions are based on an 11-point Likert scale ranging from ‘1’ (not true at all) to ‘11’ (very true). We use principal component analysis to compute a composite measure of financial autonomy (explained variance = 44%; eigenvalue = 2.62).
<i>Social comparison involvement factor</i>	Participants’ responses to three post-experimental questions (see Table 3, Panel B). Answers are provided on an 11-point Likert scale ranging from ‘1’ (not at all) to ‘11’ (to a great extent). We use principal component analysis to compute a composite measure of social comparison involvement (explained variance 53%; eigenvalue = 1.58).

<i>Perceived choice</i>	Participants' assessment of the extent to which they felt compelled to financially support the charity, using an 11-point Likert scale (1 – not true at all, 11 – very true)
<i>Motivational spillover</i>	Participants' assessment of the extent to which it was very important to them to donate more than the other team members, using an 11-point Likert scale (1 – strongly disagree, 11 – strongly agree)
<i>Performance spillover</i>	Participants' assessment of the extent to which they put much effort into adjusting the sliders to increase their ability to donate, using an 11-point Likert scale (1 – strongly disagree, 11 – strongly agree)
<i>Generosity comparison</i>	Participants' assessment of the extent to which they think they are more generous than the average team members in this room, using an 11-point Likert scale (1 – strongly disagree, 11 – strongly agree)
<i>Career importance</i>	Participants' assessment of the extent to which they think that social commitment is important for personal career success, using an 11-point Likert scale (1 – not at all important, 11 – very important)
<i>Life importance</i>	Participants' assessment of the extent to which they think that social commitment is important for personal happiness, using an 11-point Likert scale (1 – not at all important, 11 – very important)
<i>Charity importance</i>	Participants' assessment of the extent to which they think that the charity of their choice has a benevolent purpose that should be supported financially, using an 11-point Likert scale (1 – not true at all, 11 – very true)
<i>Manipulation Check 1 (MC 1)</i>	Participants' assessment of whether there was an obligatory donation, using a binary answer scale (0 – no, 1 – yes)
<i>Manipulation Check 2 (MC 2) (Ranking present conditions only)</i>	Participants' assessment of whether they were shown the donation rank of each team member such that they knew who was the most generous, the second most generous, ..., donor and who gave the least, using a binary answer scale (0 – no, 1 – yes)
<i>Manipulation Check 3 (MC 3) (Ranking present (detailed) conditions only)</i>	Participants' assessment of whether they were shown the amount donated by each team member such that they knew who gave how many points, using a binary answer scale (0 – no, 1 – yes)

Chapter B: Essays on Financial and Nonfinancial Disclosure

- B1 Does corporate social responsibility information attract young talents? Evidence from the German job market around the German CSR Directive Implementation Act
- B2 Innovative Investor Communication via the World Wide Web in the face of growing Digitalization
- B3 Monetary Valuation of Environmental Externalities on Corporate Level – German Empirical Evidence and Development of a Valuation Framework
- B4 Der neue Standard zur bilanziellen Abbildung von Versicherungsverträgen (IFRS 17) – Eine kritische Analyse der Auswirkungen auf die Versicherungsbranche
- B5 Schafft die Frauenquote Transparenz für Investoren? – Geschlechterverteilung im Aufsichtsrat und auf den zwei Führungsebenen unterhalb des Vorstands
- B6 Eine kritische und vergleichende Analyse der Nachhaltigkeitsberichterstattung nach den Standards der GRI und des SASB
- B7 Der Entgelttransparenzbericht gemäß §§ 21, 22 EntgTranspG – Vorschlag für einen Best-Practice-Bericht

B1 Does corporate social responsibility information attract young talents?

Evidence from the German job market around the German CSR Directive Implementation Act

Study no.	5	
Title	Does corporate social responsibility information attract young talents? Evidence from the German job market around the German CSR Directive Implementation Act	
Authors	Julia Schneider	
Author contribution		Schneider
	<i>Numeric share</i>	<i>1.0</i>
	Conceptual development of research question	✓
	Development of theory	✓
	Methodology	✓
	Acquisition of data	✓
	Analysis/interpretation of data	✓
	Writing the manuscript	✓
Publication status	Working Paper	
Doctoral Seminars	2020	Causal Inferences in Empirical Accounting Research (Goethe University)
Research approach	Empirical study (panel design) applying computational linguistics (text mining)	
Language	English	
Abstract	This study examines the impact of firms' dissemination of corporate social responsibility information (CSR disclosure) on employer attractiveness. We investigate this effect empirically by applying textual analysis on nonfinancial reports of publicly listed German firms and top 100 employer ratings over the period from 2011 to 2019. Moreover, with regard to the perception of CSR reporting and the credibility of corporate reports, we also investigate whether the degree of accounting conservatism and the disclosure tone moderate the effect of CSR disclosure on employer attractiveness. Our results reveal that more pronounced CSR disclosure benefits a firm by generally increasing its attractiveness as an employer. In terms of credibility and greenwashing issues, results hint at a spill-over effect from financial to nonfinancial reporting. More precisely, our results suggest that conservative firms in terms of financial accounting which report intensely about their CSR activities are perceived as less attractive. If combined with a positive reporting tone, this negative effect is mitigated, but it basically remains. Additionally, our analyses show that the topic-specific disclosures concerning employee and anti-corruption matters seem the most relevant ones for attracting young talents.	
Keywords	corporate social responsibility (CSR) · sustainability disclosure · employer attractiveness · stakeholder reactions · Directive 2014/95.	

Does corporate social responsibility information attract young talents? Evidence from the job market around the German CSR Directive Implementation Act

Julia Schneider¹

Abstract

This study examines the impact of firms' dissemination of corporate social responsibility information (CSR disclosure) on employer attractiveness. We investigate this effect empirically by applying textual analysis on nonfinancial reports of publicly listed German firms and top 100 employer ratings over the period from 2011 to 2019. Moreover, with regard to the perception of CSR reporting and the credibility of corporate reports, we also investigate whether the degree of accounting conservatism and the disclosure tone moderate the effect of CSR disclosure on employer attractiveness. Our results reveal that more pronounced CSR disclosure benefits a firm by generally increasing its attractiveness as an employer. In terms of credibility and greenwashing issues, results hint at a spill-over effect from financial to nonfinancial reporting. More precisely, our results suggest that conservative firms in terms of financial accounting which report intensely about their CSR activities are perceived as less attractive. If combined with a positive reporting tone, this negative effect is mitigated but basically remains. Additionally, our analyses show that the topic-specific disclosures concerning employee and anti-corruption matters seem the most relevant ones for attracting young talents.

JEL: G38, M14, M41, M48

Keywords: corporate social responsibility (CSR); sustainability disclosure; employer attractiveness; stakeholder reactions; Directive 2014/95

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¹ Doctoral Student of Financial Accounting, Justus-Liebig-University Giessen, Licher Str. 62, 35394 Giessen, Germany. E-mail: Julia.Schneider@wirtschaft.uni-giessen.de

I. Introduction

The apparent scarcity of highly skilled and motivated employees is one of the crucial challenges firms are facing today. Many firms are now realizing the importance of attracting highly qualified employees as a necessary component of their competitiveness (Bhattacharya, Sen, & Korschun, 2008; Bustamante, Ehlscheidt, Pelzeter, Deckmann, & Freudenberger, 2020; Kumari & Saini, 2018). To avoid future skills shortages and to ensure an appropriate workforce in the long term, firms must engage in a “war-for-talent” and create incentives and an image presenting them as a “good firm” to work for (Backhaus, Stone, & Heiner, 2002; Lis, 2012). Thus, firms must align their employee recruitment practices to the needs of the new generation of future employees, i.e., the millennials or generation Y. Recent surveys reveal that millennials tend to prefer socially responsible firms. For example, KPMG (2017) emphasizes that “[f]or many individuals, work isn’t simply a way of earning money to spend at the weekend. This generation is unique in its social consciousness, and nowadays, 63% of millennials expect their employers to contribute to a social cause.” Similarly, the Deloitte (2020) Global Millennial Survey suggests that millennials increasingly desire to help drive positive change locally and globally and expect firms to mirror the same social commitment, putting people before profits and prioritizing environmental sustainability. Therefore, to become an attractive employer-of-choice, firms should endeavor to portray themselves as socially responsible employers that do good to employees and society in general. Many firms are now indeed focusing on incorporating Corporate Social Responsibility (CSR) in their job offers or social media postings as well as in their annual and/or sustainability reports, inter alia, to attract young talents (Maniora & Pott, 2020).

Consistent with H. Christensen, Hail, and Leuz (2019) we define “CSR” as firm activities and policies that assess, manage and govern a firm’s responsibilities and its impacts

on society and the environment.² It includes a broad spectrum of environmental, social, employee-related and governance topics, activities and policies. CSR by definition reaches beyond legal, regulatory and contractual requirements (McWilliams & Siegel, 2001), thus leaving discretion to a firm as to how vigorously it reports on CSR.

At the same time, policy-makers such as the European Union (EU) have reacted to the increasing stakeholder demands for firms to give account of their CSR activities. In detail, the EU's CSR Directive (Directive 2014/95, "CSR Directive" hereafter) aims at increasing the transparency of firms' CSR, enabling (investor and *non-investor*) stakeholders to evaluate firms' CSR activities.³ With the EU Commission's consultation on the revision of the CSR Directive revealing numerous needs for reform, the proposal for a revised Corporate Sustainability Reporting Directive (CSRD) published in April 2021 is an attempt to "optimize" current European standard frameworks and, in doing so, to focus on society's and stakeholders' demand for CSR issues even more.

Yet, it is a priori unclear whether a broad CSR disclosure mandate is effective in pushing firms to more socially desirable behavior than they give account of in their annual and/or sustainability reports, and whether these CSR disclosures can benefit the firm, for instance by attracting (young) talents. This paper investigates whether pronounced CSR disclosures increase a firm's attractiveness from a labor market perspective and thus the likelihood of being considered as a future employer. So, in contrast to prior research that investigates capital-market effects of CSR disclosures (e.g., S. Y. Cho, Lee, & Pfeiffer, 2013; Elliott, Jackson, Peecher, & White, 2013; Matsumura, Prakash, & Vera-Muñoz, 2013), we focus on a stakeholder group other than the firms' shareholders, i.e., prospective employees. Firms might reach beyond the focus on investors and expand the scope of CSR reporting, targeting a wider audience and

² Related terms commonly used in the literature are "sustainability" or "environmental, social, and governance" (ESG) activities.

³ In Germany the CSR Directive was passed by the Bundestag on 9 March 2017 (Sect. 289b ff. German Commercial Code (HGB)), imposing only minimal cross-industry CSR reporting requirements on our sample firms for fiscal years 2017 onwards.

providing information that is not required by law but relevant to various stakeholders. For instance, firms could provide CSR information to legitimize their actions towards employees and convey that they are acting in their interests and are indeed socially responsible (C. H. Cho, Michelon, Patten, & Roberts, 2015; C. H. Cho & Patten, 2007; Deegan, 2007). For prospective employees it may not only matter whether the firm creates a good working environment but they may also use CSR disclosures to evaluate a firm's broader contribution to society or the firm's adherence to policies consistent with specific norms and ethical values.⁴ For this reason, we argue that CSR disclosures increase employer attractiveness (H1).

Additionally, while prior research indicates that corporate socially responsible firms may be more attractive for future employees (e.g., Greening & Turban, 2000; S.-Y. Kim & Park, 2011; Turban & Greening, 1997), it has failed to capture distinct topics and to report on sentiments through which CSR might affect an employer's attractiveness. Theory and empirical evidence indicate that the tone of textual disclosures (i.e., how optimistically or pessimistically they are written using words with positive or negative denotations and connotations) elicits a significant market reaction and is incrementally informative about the firm's fundamentals (T. I. M. Loughran & McDonald, 2011; Price, Doran, Peterson, & Bliss, 2012). Especially for CSR reporting that lacks precise regulations, the "softness" of qualitative disclosures offers opportunities for managers to strategically manipulate the level of detail of the reporting content (pervasiveness) as well as the disclosure tone, biasing prospective employees' perceptions and constraining the reports' credibility. D'Augusta and DeAngelis (2020) call for future research on whether stakeholders recognize conservatism's role in conjunction with such tone management and the impact on their intentions. Beyond this background, our study analyzes

⁴ A survey among students at a large German university conducted as a robustness check highlights that annual reports are important to nearly half of all respondents when choosing an employer. The hypothesis that students use annual reports as a source of information when looking for a job is significant, even after controlling for relevant demographic factors and personality traits. In addition, almost half of the respondents indicate that commitment to sustainability (46%) and sustainability aspects (49%) are important to them when searching for information about and choosing a potential employer.

whether and how the degree of accounting conservatism (H2a) in combination with the disclosure tone (H2b) moderates the effect of CSR disclosure on employer attractiveness.

Stakeholders view disagreement between “hard” facts and disclosure tone when estimating the credibility of soft information (Baginski, Demers, Wang, & Yu, 2016; Henry, 2008). Since accounting conservatism increases profit verification requirements and encourages timely loss recognition, conservatism mitigates managers’ ability to opportunistically choose a premium level that is too optimistic relative to the firm’s fundamentals. It makes it harder for firm managers to downplay or avoid discussing bad news in qualitative disclosures. Although it is unclear whether a conservative approach to the firm’s financials extends to nonfinancial disclosures, existing research in various disciplines attests spill-over effects between different corporate reporting fields (D’Augusta & DeAngelis, 2020; J.-B. Kim & Zhang, 2016; Osburg, Yoganathan, Bartikowski, Liu, & Strack, 2020).

We follow the dictionary-based textual analysis approach (Henry, 2008; Henry & Leone, 2016; T. I. M. Loughran & McDonald, 2011) and measure CSR disclosure based on the CSR disclosure requirements defined in § 289c (2) of the German Commercial Code (HGB) (“environment”, “social matters”, “employee matters”, “human rights”, and “anti-corruption and bribery”) and the disclosure’s tone based on the German translation of T. I. M. Loughran and McDonald’s (2011) pivotal dictionary (Bannier, Pauls, & Walter, 2019). We measure accounting conservatism using the price-to-book measure (P/B), one of the most widespread accounting conservatism proxies (Zhe Wang, 2009). We regress these constructs on employer attractiveness, and hence examine the relationship between employer attractiveness and (1) the CSR reporting scope, (2) the interaction of CSR reporting scope and a firm’s degree of accounting conservatism and (3) the joint influence with the disclosure’s tone of nonfinancial disclosures (i.e., annual and sustainability reports) for industrial firms listed in the German Prime Standard between 2011 and 2019. These reports are an ideal setting for our research question because they contain a comprehensive discussion of the firm’s economic, social and

environmental performance. Also, since the reporting tone or sentiment has been evidenced as relevant to stakeholders, annual and/or sustainability reports have proved to be a target for tone management and are also informative about the firm's fundamentals (D'Augusta & DeAngelis, 2020).

Consistent with our first hypothesis, we find that extensive CSR disclosures increase a firm's attractiveness as an employer, indicating that CSR reports provide valid information to prospective employees. In terms of our second set of (null) hypotheses we find that conservative firms in terms of financial accounting with extensive CSR reporting are less attractive to employees. We take these results as a hint that prospective employees interpret the high extent of CSR disclosure as an impression management strategy for firms that are usually known to be reporting conservatively. While an extensive CSR scope from aggressively reporting firms meets stakeholders' expectations, an extensive CSR report from supposedly conservative firms might come as a surprise, resulting in a decline of the respective firms' reputation. We also find that a positive disclosure tone mitigates this negative association, but is not powerful enough to reverse it. Additionally, we perform topic-specific analyses, revealing that in the context of employer attractiveness disclosures on employee and anti-corruption matters are the most relevant ones.

Our main contribution is twofold. First, this study extends the growing body of accounting research that has investigated the information content of textual disclosures, which is the bulk of mandatory and voluntary business communication (F. Li, 2010; Teoh, 2018). Methodologically, we add to the literature on nonfinancial information by using textual analysis, thus allowing a multi-dimensional coverage of CSR disclosure topics. Based on the CSR disclosure requirements defined in § 289c (2) HGB we examine the importance of these topic-specific CSR disclosure measures, both on aggregate and individually, from a labor market perspective. In doing so, we shed light on which CSR disclosure topics prospective employees assess as relevant and therefore benefit the firm's efforts aimed at recruiting young

talents. In addition to the scope of CSR information provided, young talents may consider whether the firm generally tends to report prudently and conservatively or rather aggressively, and in which tone the CSR signal is generally communicated.

Second, we expand the emerging literature on the strategic manipulation of soft disclosures and the interaction between accounting conservatism on more financial (i.e., “hard”) information and tone management on more nonfinancial (“soft”) information. While there is empirical evidence of the capability of accounting (Baginski et al., 2016) and accounting conservatism to constrain tone management (D'Augusta & DeAngelis, 2020), we go one step further and examine its impact on employer attractiveness. Congruent with prior research in this field, our findings document spill-over effects from the level of conservatism in a firm’s accounting (i.e., that is a property of quantitative financial reporting), onto other disclosure venues and different parts of the reporting package that are qualitative in nature and for which the target users are also non-investor stakeholders. So we provide further insights into the interplay of quantitative and qualitative disclosures and the use of hard facts to control the actions and lend credibility to firm disclosures (Baginski et al., 2016).

We structure the study as follows: Section 2 provides the theoretical background and Section 3 develops the hypotheses. Section 4 presents the data, variables and research design and Section 5 reports the results. Section 6 contains robustness checks beyond several additional analyses. Finally, Section 7 discusses these results and additional analyses and concludes.

II. Setting and theoretical background

CSR reporting and its impacts

During the past decade the topic of CSR has been gaining attention in society and politics. Firms have responded to this trend by voluntarily reporting on CSR issues before 2017, when – as a result of supranational regulations (i.e., the CSR Directive) – it eventually became mandatory for certain firms in Germany. In fact, there is some evidence documenting

anticipatory effects of the CSR Directive (H. B. Christensen, Floyd, Liu, & Maffett, 2017; Fiechter, Hitz, & Lehmann, 2020; Mittelbach-Hörmanseder, Hummel, & Rammerstorfer, 2020). The common goal of CSR policy is to promote the visibility of CSR, the enforcement of sound practices and trust in business. While this meant that firms would now have to add nonfinancial aspects to their financial reporting, the EU Commission indicated that this would benefit the firms as well (European Union, 2014) since more information would decrease information asymmetry.

Besides regulatory forces that nudge firms' reporting strategy towards CSR, growing stakeholder interest in a firm's CSR activities also exerts pressure on firms to disclose information about their environmental and social performance. From experience we know that firms are confronted with a lack of health care, with child labor or with insufficient occupational safety and environmental protection regulations. Most prominently news about unacceptable working conditions in production facilities in the textile industry has become the focus of the media – and thus the public spotlight. Employees, suppliers and customers expect firms to comply with responsible business practices and sustainable solutions in addition to produce at high social standards. To date, theoretical and empirical research mainly addresses CSR-related performance benefits and examines how capital market participants respond to CSR. For instance, Serafeim (2015) suggests that CSR information in financial reports particularly attracts investors oriented in long-term developments, and Mittelbach-Hörmanseder et al. (2020) indicate that CSR disclosure became negatively related to share price when firms shifted from voluntary to mandatory reporting. The CSR Directive currently heralds an expansion and even tighter requirements for sustainability reporting from 2022 onwards, which will once again confront firms with new challenges and more stringent expansion of reporting obligations. The timeliness of this topic and those past reforms provide an interesting setting to examine the relationship between CSR disclosure and a firm-specific benefit (i.e., employer attractiveness).

Despite the increase in regulations on CSR, neither the strength nor the direction of this relationship is a priori clear. There are diverse arguments about the impact of CSR activities on different stakeholder responses and, in turn, different firm-specific benefits. First, the “stakeholder maximization view” posits that strategic CSR activities can increase firm value (Deng, Kang, & Low, 2013) because catering for the stakeholders’ interests increases their willingness to support the firm. Second, the fundamentally different nature of CSR disclosure compared to financial disclosure requires the consideration of further aspects, such as the concrete topic, the form in which it is disclosed, as well as how it is used and by whom. These are important aspects to determine associations or to claim firm-specific benefits. Empirically, previous stakeholder-oriented research indicates a positive relationship between CSR and corporate reputation (e.g., Melo & Garrido-Morgado, 2012). A host of studies supports the notion that people are more likely to start working for firms they consider socially responsible and are willing to accept a pay cut for doing so (Backhaus et al., 2002; Behrend, Baker, & Thompson, 2009; Greening & Turban, 2000).

Methodologically, the fact that most research focuses on voluntary CSR disclosure poses a “dual selection problem” that may drive the predominantly positive findings. In a voluntary setting, firms can choose both their CSR activities and the subsequent disclosure about those activities, based on cost-benefit considerations. Differences in firms’ institutional environment may explain inconsistent findings regarding the effects of voluntary CSR disclosure. The German market represents an ideal setting for investigating the effect of CSR disclosure on employer attractiveness for two reasons. The CSR Directive made CSR reporting mandatory in Germany, and it does not confound different institutional backgrounds (and differences in the measures), thus providing a “clean” approach for testing the research question.

Theoretically, with a view towards our dependent variable (i.e., employer attractiveness) signaling theory (Spence, 1973) may prove fruitful in explaining incentives for incremental

CSR disclosure. Stakeholder responses to CSR disclosure rely on the stakeholder group's specific processing of CSR information content. While investors attach great importance to future earnings expectations and financial performance forecasts (e.g., stock returns, return on equity, firm value) and weigh them heavily in their decision-making, employees put greater emphasis on "softer" or "nonfinancial" benefits such as work-life balance, social and environmental credentials, career prospects or equal job opportunities (Magbool, Amran, Nejati, & Jayaraman, 2016). In sum: any performance and capital market effects are likely to emanate from CSR disclosure theoretically and may also empirically differ from labor market effects (i.e., choice of employment). Furthermore, as stakeholders' perspectives are more and more emphasized and managerial actions shift towards targeting the "triple bottom line" which encompasses profit, people, and the planet (e.g., Jayachandran, Kalaignanam, & Eilert, 2013; McDonnell & King, 2013), a study only considering shareholders doesn't seem to fully capture recent developments.

Reporting credibility: Accounting conservatism & Disclosure Tone

Conservative accounting serves as a corporate governance mechanism by alleviating multiple agency conflicts (LaFond & Roychowdhury, 2008; LaFond & Watts, 2008; Watts, 2003). First, and most importantly for our setting, accounting conservatism can discipline soft information such as qualitative disclosure, so that conservatively reported numbers increase the credibility and usefulness of these alternative disclosure venues and improve the information environment (D'Augusta & DeAngelis, 2020; LaFond & Watts, 2008). It generally dissuades firm managers from overstating good news and it also motivates them to unfold the success factors that would otherwise be deemed as too uncertain to be included in the current period.⁵

⁵ Prior studies also assert the disclosure quantity and credibility (i.e., quality) to vary depending on the degree of financial reporting conservatism with conservatism shaping qualitative disclosures. For example, S. Y. Cho, Kang, Lee, and Park (2020) show that firms that adopt conservative financial reporting are less likely to disclose CSR information and that the market reaction to a firm's CSR disclosure is weaker when its financial reporting is more conservative.

Since hard measures of a firm's financial and nonfinancial performance lead to consensus among stakeholders as the report's users, which also makes them more useful for contracting (Watts & Zimmerman, 1979), the provision of such hard, verifiable and thus reliable facts is one of the primary purposes of accounting. Basu and Waymire (2006, p. 202) argue that these hard measures are essential to modern economic relationships, because "immutable, verifiable records [...] are needed to sustain the trust that enables complex economic cooperation between strangers over time." However, useful CSR disclosures are inherently soft in character (Barth, Beaver, & Landsman, 2001). As a result, some academics have argued that the primary goal of accounting information is to confirm and discipline other sources of information: managers can more credibly convey their "softer" private information to stakeholders (Ball, 2013; Ball, Jayaraman, & Shivakumar, 2012).

The emerging academic interest in soft information shows that the linguistic tone of such business communication is relevant to stakeholders and influences their decisions. Consequently, firm managers have incentives to manipulate stakeholders' perceptions in their firm's disclosure narratives (Huang, Zang, & Zheng, 2014; F. Li, 2008). The Elaboration Likelihood Model (Petty & Cacioppo, 1986) posits that attitude and hence job application intentions determine how stakeholders process information. Faced with a persuasive message, young talents engage in more careful elaboration of the message.

Consistent with prior research, we expect conservatism – in the context of firm disclosures – to be a stable characteristic not easy to alter by firm managers, and thus an effective constraint for managerial opportunism. Notably, Baginski et al. (2016) document that "hard" management forecasts bolster accompanying "soft" forward-looking statements, and D'Augusta and DeAngelis (2020) show that the properties of the level of conservatism in the firm's financial statements effectively constrain the tone of disclosures.

Opposed to this, prior research also suggests that managers have flexibility in choosing a level of disclosure tone that best fits their needs. Although CSR disclosures have been mandatory for listed firms in Germany from 2017 onwards and encouraged ever since, their content is often unaudited and highly discretionary. As such we expect future employees to try to identify “cheap talk” or “public relation plays” that CSR disclosures can represent. There are four reasons why we predict accounting conservatism in itself and together with the CSR disclosures’ tone to impact employer attractiveness: First and foremost, empirical evidence reveals associations between different channels of firm disclosure areas implying that the characteristics of one source spill over to another. Specifically, to our setting: an increase in accounting conservatism that emerges more with financial information tends to reflect on more qualitative, nonfinancial information, thus leading to higher message credibility and appeal, and in turn, stronger identification with the firm in general (Eberle, Berens, & Li, 2013). Effects of one signal may compensate or reinforce effects of another, so that the credibility of one (credible) source influences the attitude towards another one (Osburg et al., 2020). Second, prior research suggests that financial statement users assess the agreement between numbers and words in establishing the credibility of “soft” information (Baginski et al., 2016; Henry, 2008). Third, accounting conservatism can encourage managers to be more transparent when disclosing bad news. Managers have clear incentives to circumvent communicating bad news in the hope that future business events may turn around and allow them to “bury” it (Kothari, Shu, & Wysocki, 2009). As such, managers may manipulate the tone of qualitative disclosure to downplay or avoid the discussion of negative outcomes. Fourth, a conservative approach can limit managers’ ability to stress good news. For instance, by calling for greater scrutiny of profits, conservatism might prevent managers from making optimistic statements about uncertain profitable opportunities, to avoid raising expectations that will be hard to achieve. A more conservative approach might also constrain managers’ optimism when they announce current good news (e.g., higher sales of green products in a foreign market). Under

conservatism, managers may feel pressure to justify why part of the new profits was deemed to be too uncertain for recognition in the current year. By doing so, they will be encouraged to report more detailed information about the threats to the firm's profitability.

III. Hypotheses development

The focus of business objectives reaches beyond shareholders' financial interests, but implies the interests of all stakeholders who contribute to the firm's success or who are affected by it (Freeman, 1994). Employees do not only represent an important stakeholder group, but are also a strategic asset to the firm (e.g., Becker, 2002). Beyond the background of the "war for talents", the need to attract and convince prospective employees is extremely pressing. Current surveys (e.g., Deloitte, 2020; KPMG, 2017) reveal that (young) talents tend to prefer a socially responsible firm as a future employer. Consequently, to express organizational identity and reinforce the commitment to sustainable development, firms are incentivized to report their CSR activities (even if not required by law), thus *signaling* to be socially responsible to stakeholder groups (inter alia prospective employees) (Hetze, 2016; Spence, 1973; Waples & Brachle, 2020).

While it is most crucial for a firm to have a clear understanding of how to attract prospective employees and build up a reputation as a good employer, the effectiveness of a firm's employer branding strategy depends on how information recipients (e.g., prospective employees) interpret those firm signals. Information that is *perceived* as personally more relevant tends to encourage deeper processing, and more relevant positive information will therefore lead to more positive reactions in relation to that information (Burnkrant & Unnava, 1989; Petty & Cacioppo, 1986). Thus, prospective employees who *perceive* a firm as more sustainable may favor it as an employer of choice (Peloza, Loock, Cerruti, & Muyot, 2012), which may eventually lead to a positive impact on firm value and success (e.g., Luo, Zhou, & Shon, 2016). A firm's reputation as an attractive future employer is mainly driven by the

perception of employees (rather than by its “true” fundamentals), which thus is important to firm managers (e.g., C. J. Fombrun, Gardberg, & Sever, 2000; Y. Lee, Ng, Shevlin, & Venkat, 2020; Post & Griffin, 1997). Consequently, they have an incentive to report extensively about their CSR activities, thereby expressing their commitment to sustainability and community welfare.⁶

To understand how socially responsible messages operate to affect job-seekers’ perceptions of the CSR report and corporate employment image, we draw on communication and information processing theories, in particular Spence’s (1973) signaling theory. A signal is the deliberate communication of positive information to convey favorable firm attributes. Signaling theory posits that better information affects prospective employees’ decision-making processes. Information asymmetry reduction is most relevant when prospective employees’ (i.e., signal-recipients) have limited information about the firm (i.e., target), as is typically the case in application processes (Kirmani & Rao, 2000; Spence, 1973). To reduce information asymmetry, firms have an incentive to signal high social values, thus attracting future employees and a quality workforce (Greening & Turban, 2000; Ryan, Sacco, McFarland, & Kriska, 2000). CSR disclosures are likely to signal high social values of a firm and make potential employers more attractive for prospective employees. A good CSR performance is linked to better stakeholder engagement as it limits the likelihood of opportunistic behavior (Benabou & Tirole, 2010; Eccles, Ioannou, & Serafeim, 2014). Since job-seekers usually have limited information about a potential target employer, to inform their application decision they try to infer the quality of the target based on available information. Contemporary firm websites are user-friendly and custom-tailored convenient information centers, so that nonfinancial reports are easily accessible via the firm’s websites. Rather than bold physical financial

⁶ While a survey among German university students conducted as a robustness check shows that annual reports are a meaningful source of information in the job selection process to learn about an employer. Above all, the students state that sustainability issues are a decisive factor in choosing a specific employer or for applying for a particular job vacancy (see footnote 4). Aside from this argument, CSR disclosures can be an adequate proxy for CSR reputation or even the firm’s public image in general.

publications, integrated reports have advertising character and include multiple pieces of business communication for a broad stakeholder group. Note that these multiple pieces presumably radiate onto each other to form an overall picture. Hence, just as a single source is unlikely to instantiate reputation, there is likely to be a high correlation between the individual sources of information. For example, transparent reports may go hand in hand with positive social media ratings. Job-seekers typically combine signals about firm ethics from various sources to complement and consolidate their perceptions of the firm and its actions to gain valuable insight into the firm and its working conditions (Celani & Singh, 2011; Osburg et al., 2020; Srivastava & Lurie, 2001). As a result, effective signals must really correspond to the truth, i.e., the firm cannot boast about "doing good" if it does not really do so.

Behaviorally, there are three signal-based mechanisms that affect employer attractiveness. These mechanisms refer to prospective employees' anticipated *pride* of being affiliated with the firm, their perceived *value fit* with the firm, and their *expectations* about how the firm treats its employees (Jones, Willness, & Madey, 2014). Employees prefer working for socially responsible and "fair" employers (Aguilera, Rupp, Williams, & Ganapathi, 2007; Collier & Esteban, 2007; H.-R. Kim, Lee, Lee, & Kim, 2010; Rupp, Ganapathi, Aguilera, & Williams, 2006). Firms that "do good" to society and the environment are perceived as fair and trustworthy employers that also "do good" to employees.

Thus, while from a firm's perspective CSR reports provide a platform to present itself as socially responsible and to signal this to shareholders (e.g., (potential) employees), a job-seeker picks up this signal, processes it, and hence evaluates the firm as more attractive. Based on these arguments, we posit the following association between CSR disclosure and employer attractiveness:

- H1:** A more pronounced CSR disclosure scope of a firm increases its attractiveness as an employer.

However, the positive effect of a firm's CSR disclosure on employer attractiveness hinges upon prospective employees' perceptions of the firm's CSR disclosures, i.e., that they actually view and interpret the scope of provided information positively. This assertion cannot be taken for granted, given that the rise of CSR reporting has also been criticized as an attempt at obtaining a social license to operate (i.e., to maximize perceptions of legitimacy) and meeting social expectations (Gray & Milne, 2007; Martínez-Ferrero & García-Sánchez, 2017). There are anecdotal claims suggesting that firms may focus more on advertising being "green" or "socially responsible" than they truly are (greenwashing or impression management) (Laufer, 2003). For example, a 2019 class-action lawsuit against Nestle alleges that the food giant's "sustainably sourced cocoa beans" are nothing of the sort (Glose, 2019). Most criticism is related to the biased and optimistic nature of CSR reports which are often used as public relations tools rather than reliable sources of information on environmental and social impacts (Boiral, 2016; C. H. Cho, Michelon, & Patten, 2012; Hahn & Lülfs, 2014; Talbot & Boiral, 2015). If there are firms paying "starvation wages" like Nike's sweatshop in Malaysia (Newell, 2015) or damaging the Indonesian rainforest like Nestlé (Tabacek, 2010), prospective employees may become more critical of the firms' CSR advertisements. As awareness of CSR has increased and trust in firm behavior and reports has diminished, prospective employees will question whether the firm is truly doing good (Brunner, Esch, & Kinscher, 2012). Self-assertive and artificial CSR disclosure practices may crowd-in employer rating discounts.

In this vein, Merkl-Davies and Brennan (2007) state that CSR disclosure leaves room for firms to engage in impression management. Impression management involves emphasizing positive outcomes (enhancement) and/or obfuscating negative impacts (concealment) so as to present an inaccurate, i.e., too favorable, corporate image (Merkl-Davies, Brennan, & McLeay, 2011). Firms could exploit the legal flexibility to manage and repair the public perception of their brand. Although organizations such as the Global Reporting Initiative (GRI) or the UN Global Compact offer guidance and recommendations for CSR disclosure, there is still

discretion for firms to select, depict and present information in a way intended to skew readers' perceptions of the firms' achievements (Godfrey, Mather, & Ramsay, 2003). Thus, with a view to this creative leeway, the disclosure of CSR activities raises many credibility concerns (e.g., Hiatt, Grandy, & Lee, 2015; Simnett, Vanstraelen, & Wai Fong Chua, 2009) as it is hard to validate and has (so far) not been formally audited or assured. Generally, if discretionary disclosures are used opportunistically to manage perceptions rather than providing useful information, reporting quality will be undermined. In the context of CSR reporting the logical question that follows from this is whether stakeholders are suspicious of or rather "impressed" by a pronounced CSR disclosure. If pronounced CSR disclosure is interpreted as a greenwashing or impression management vehicle to manipulate stakeholders' perceptions ("cheap talk"), stakeholders might ignore or even respond negatively to it. Specifically, such signals would reduce the confidence in the information disclosed as well as in the firm's integrity as a whole.

The issue of reporting credibility, however, is nothing new – it is something financial statement users and accounting researchers have been dealing with ever since. Some firms' financial statements tend to be perceived as more "reliable" than others (e.g., Dey, 2005; Khurana & Raman, 2004; Liang, Marinovic, & Varas, 2018), implying that stakeholders are critical of the information they get through firm reports. Particularly, there is always a risk that firms are "window dressing" and portray themselves as more favorable than they really are. While transnational regulations and accounting standards aim to limit the scope for discretion, and most financial statements are assured through audit opinions, there is still room for managing earnings, for example by exercising discretion and using accruals. Firms that (do not) exploit those discretionary possibilities are considered to follow an "aggressive" ("conservative") accounting reporting approach.

Relying on agency models (Fama & Jensen, 1983) conservative accounting reduces the negative effects of information asymmetry between outside investors and managers by limiting

management manipulation of financial reporting and thus influences shareholder behavior (LaFond & Watts, 2008). Especially Ball and Shivakumar (2005) led to the dominant perspective that accounting conservatism may contribute to financial performance since it can serve to reduce managers' opportunistic motives in disclosing optimistic earnings.⁷ In this vein, accounting conservatism is also referred to as the doctrine of prudence as it reflects management's intent to be prudent in the future. Thus, it serves as a bonding instrument that reduces the inherent financial statement risk (Lin, Wu, Fang, & Wun, 2014) and by doing so enhances the credibility of the firm. For instance, Watts (2003) states that accounting conservatism improves the verifiability of financial reports, which can have a positive impact on management compensation. As more information is disclosed via conservative reports, management will be increasingly transparent to a broader audience and trigger multiple stakeholder responses in various contexts. The simplistic agency theoretical assumptions of complete contracting and rational decision-making do not extend to the full explanatory power of accounting conservatism's potential contributions.

Essentially, there are two views on this controversial subject, so that it remains an empirical question whether the degree of accounting conservatism in financial statements provides incremental, useful signals for stakeholders that spill over into the perception of nonfinancial reporting and if so in which direction this association is heading.

First, given that firm reports are predominantly designed for a broader stakeholder group and also include other than financial information there is reason to assume that this credibility of financial reporting, evoked from, for instance, accounting conservatism, also impacts the credibility of nonfinancial reporting. There might be a spill-over effect of a firm's credibility – derived from its financial reporting approach – which also affects the perception of its

⁷ Guiso, Sapienza, and Zingales (2015) contend and find that firm performance increases the more employees perceive their firm's managers as trustworthy and ethical. Likewise, Gartenberg, Prat, and Serafeim (2019) document that firms whose purpose employees believe in have a stronger accounting and stock market performance.

nonfinancial reporting, i.e., CSR disclosure. Similarly, S. Y. Cho et al. (2020) examine, whether a firm's degree of conservatism in financial reporting is linked to its voluntary CSR disclosures. They find that accounting conservatism is negatively associated with the quantity and credibility of CSR disclosures, implying that there is indeed a relation. Also, Guo, Huang, and Zhang (2020) provide evidence that CSR disclosures vary depending on the firm's degree of conservatism in financial reporting. But their investigation documents that the degree of accounting conservatism is higher in CSR-oriented firms. In signal-theoretic terms, it could be asserted that firms which prepare conservative financial statements appear more trustworthy and authentic to future employees, making extensive CSR claims more reliable. Arguably, "conservatively reporting" (rather than "aggressively reporting") firms might, in the eyes of a stakeholder, be more reliable also in their nonfinancial disclosures.

Second, however, several studies state that stakeholders generally are looking for a coherent picture of a firm and prefer firms following a congruent approach (Del Baldo, Dillard, Baldarelli, & Ciambotti, 2020) and "walk their talk" (Harjoto & Laksmana, 2021; W. E. Lee & Hageman, 2018; MacLean, Litzky, & Holderness, 2015; Schons & Steinmeier, 2016). In particular, at times the CSR image perceived by the audience is not an accurate portrayal of the firm's conservatism and is, therefore, incongruent with the desired CSR image. If the firm's communicated conservatism does not match the CSR disclosures' pervasiveness the firm's pronounced CSR reporting strategy can also reduce the credibility and legitimacy of the firm. Prospective employees may get suspicious and assume false or unrealistic claims ("signal misfit") (Connelly, Certo, Ireland, & Reutzel, 2010; Seele & Gatti, 2017). Any potential benefits from substantive CSR actions might be outweighed by the negative signaling implications of symbolic actions (Walker & Wan, 2012) – as triggered by a discrepancy between a conservative position and communicated CSR endeavors. Following this reasoning, a pronounced CSR reporting of a firm supposedly reporting aggressively meets stakeholders' expectations, while the other way around a pronounced CSR reporting of a firm accounting

conservatively may confound the stakeholders' prevailing picture. Irritated by this inconsistency, stakeholders are likely to interpret the created incoherent overall picture as an impression management strategy with a negative signaling value.⁸ They will be confused by the missing "fit" between the conservative approach in financial reporting and an (surprisingly) extensive nonfinancial reporting scope, potentially resulting in a decline of a firm's reputation and hence its attractiveness as an employer. Just as the firm's CSR image is closely linked to its CSR identity, the firm's conservatism attributes represent firm characteristics with respect to its prudence. Both constructs collectively influence standard procedures, core values, practices and processes within the firm, and thus shape prospective employees' notions of how they will be treated if they join the firm (Dutton & Dukerich, 1991; Tata & Prasad, 2015). Any misfit and incredibility regarding the disseminating information about the firm's construed socially responsible identity and projected overall image may impair stakeholder relations.

Despite a growing body of theoretical and empirical research on CSR communication and the respective increase in relevant regulations, it is not clear which of the previous arguments prevails. Thus, we posit the following null hypothesis:

H2a: A more pronounced CSR disclosure scope of a firm does not influence its attractiveness as an (potential) employer if the firm reports conservatively in its financial statements.

In addition to the assumption that (financial) reporting credibility (i.e., accounting conservatism) influences the perception of the CSR report, the textual sentiment of firm disclosures (i.e., the reporting tone) might also affect prospective employees' perceptions. The report's evaluation and credibility are not only determined by the scope of information it contains, but also characterized by the tone of its language (Bannier et al., 2019; Tim I. M. Loughran & McDonald, 2016). The "sentiment" or "tone" of a written piece of communication

⁸ A negative signaling value implies that CSR information (e.g., about health and safety, training and development, and equal opportunity systems) which is incompatible with the firm's conservatism cues is not evaluated as favorably as it should be (e.g., a firm may believe that it deserves more credit for its investment in health and safety efforts). Recall the fact that the CSR image is not more than a projection of the firm's CSR identity.

indicates its overall positivity or negativity. When the communication's polarity or context is perceived as especially good or bad, positive or negative emotions are triggered, giving the disclosures' content and tone meaning (Safran & Greenberg, 1991). Drawing on cognitive and somatic concepts (Bandura, 2001; Bermiss, Zajac, & King, 2014; Ignatow, 2016; H. Li, Chen, Zhong, Gong, & Han, 2022; Utsumi, 2020) we propose that emotional processes can guide (or bias) a prospective employee's decision to apply for a job with an emotionally positive-sounding firm. A firm's stakeholders rely on qualitative, linguistic information in their valuations, not exclusively on pronounced CSR disclosure – whether biased by accounting conservatism or not – as a quantitative piece of information. For instance, a manager in an earnings conference call might use more positive words (e.g., “return”, “favorable”, or “boom”), thus providing information about future stock returns, earnings, or even breakthroughs via his or her tone (Tim I. M. Loughran & McDonald, 2016).⁹ Given the complementarity of qualitative characteristics to quantitative data as evidenced by impression management research, we extend our analyses by the disclosures' tone. Firms expect stakeholders to respond favorably to such positive self-presentation tactics in CSR reports. In particular, firms that face social or environmental legitimacy threats have an incentive to use communication strategies to influence the perceptions of their relevant publications, hence to report their CSR activities in an optimistic-sounding, bright and fanciful manner. Aside from the extent of disclosure (C. H. Cho & Patten, 2007; Patten, 2002), environmentally poorly performing firms tend to manipulate the use of language and verbal tone to obfuscate their poor

⁹ A broad stream of literature has emerged on this topic. For instance, Henry (2008) utilizes a dictionary-based approach on earnings press releases and shows that positive sentiment induces positive abnormal market returns. Ammann and Schaub (2020) analyze investor commentaries published in social media trading platforms and consider their sentiments to be predictive of the followers' investment decisions. Boudt and Thewissen (2019) suggest that CEOs indeed employ negative and positive words strategically in CEO letters in order to prompt a more positive perception in the reader.

performance and thus to positively influence public perceptions (C. H. Cho, Roberts, & Patten, 2010).¹⁰

Consequently, in nonfinancial reporting firms may communicate favorably about their CSR activities in the expectation that this will enhance their “green” and “social” image. The question, however, is whether prospective employees are susceptible to a (positive) linguistic tone of the CSR reports or if they are rather skeptical, having possibly distorting communication strategies of firms in mind.

There are again two conflicting views on this issue: On the one hand, prospective employees are a critical non-professional stakeholder group that usually do not seek technical data, but are more interested in “soft” information (Villiers & van Staden, 2011), e.g., information about career opportunities and other benefits or the work atmosphere (Maniora & Pott, 2020). For example, Osburg et al. (2020) demonstrate that positive endorsement of a firm’s CSR encourages job candidates to apply, while the mere existence of CSR disclosures also results in significantly higher application intentions. Non-professional stakeholders (at least some) are assumed to be unsophisticated and to make irrational or only partly rational decisions rather based on emotions (Merkl-Davies & Brennan, 2007). Thus, they may not critically reflect on the credibility of the disclosures. Instead, they may search for buzz words characterizing the firm’s self-presentation and since being prone to impression management, such manipulations tend to improve reputational perceptions.

On the other hand, however, prospective employees are confronted with negative press releases about the waste of natural resources, environmental pollution, child and forced labor practices, corporate affairs as well as the impersonality of transnational businesses, with such

¹⁰ Similarly, Melloni, Caglio, and Perego (2017) provide evidence that poor social performers provide less readable reports, while Caglio, Melloni, and Perego (2020) document that market participants appreciate readable, short and focused reports. Most recently, Cannon, Ling, Wang, and Watanabe (2020) analyze the association between CSR keywords with respect to philanthropy, business practice and product in 10-K filings and firm-competitive advantage. Their results indicate that the intensity of disclosures in these CSR categories is related to varying competitive advantage.

ethical issues arousing public interest. Consequently, they are fundamentally more cautious and skeptical of the disclosures of CSR activities. Anticipating impression management and greenwashing strategies, a firm's very positive disclosure tone might be counter-productive, increasing a skeptical attitude towards its CSR activities and thus decreasing its "green" and "social" image.

As indicated before, the "soft" nature and "weakly regulated" environment of CSR reporting leaves discretion for potential impression management, thus allowing firms to present themselves as "greener" and more "socially responsible" than they actually are. While we investigate in H2a whether a firm with pronounced CSR disclosures that is accounting conservatively is more or less likely to be perceived as an attractive employer, we extend our investigation in H2b to the reporting tone. Given the contradictory points of view, it is still an empirical question whether a positive CSR report's disclosure tone contributes to the firm's attractiveness as an excellent employer, if the firm is known to be accounting conservatively. The crucial, yet unresolved question is whether a potential employee trusts a positive disclosure tone more easily or not, if the firm's (financial) reporting credibility is rather high – thus credibly conveying that the firm is truthfully committed to the interests of young talents. We propose the following hypothesis in the null form:

H2b: A more pronounced CSR disclosure scope of a firm does not influence its attractiveness as an (potential) employer more if the CSR report underlies a positive disclosure tone and if the firm reports conservatively in its financial statements.

IV. Data, Variables and Research Design

We incorporate data from four sources. First, to compile our dependent variable, we collect data on employer attractiveness from *Trendence*, Europe's leading research institute in the fields of employer branding. Second, to generate a CSR disclosure measure with respect to different CSR topics, i.e., our independent variable, we use textual analysis. Third, to proxy disclosure tone in order to capture the reporting sentiment, we capitalize on the German

translation of the T. I. M. Loughran and McDonald's (2011) dictionary (Bannier et al., 2019). Finally, we rely on Thomson Reuters Datastream to incorporate the accounting conservatism measure P/B and financial statement-based controls.

Employer attractiveness

Employer attractiveness ratings (i.e., our dependent variable) are based on representative survey panels conducted by the *Trendence* Institute. The survey findings feed into employer attractiveness rankings, i.e., the top 100 employers in Germany. The *Trendence* employer ranking is based on the annual *Trendence Graduate Barometer* (conducted since 1999), Germany's most comprehensive study on career entry for students and graduates close to graduation in the fields of business, engineering, IT and law. More than 50,000 respondents assess firms according to their attractiveness as a potential future employer. Specifically, as part of the *Graduate Barometer*, each respondent is presented with an annually updated list of firms sorted alphabetically and can select a maximum of three top employers to be included in the rankings. To keep the ranking up to date, students cannot only choose firms on the list but also add firms they find attractive that are not listed in the questionnaire. The most frequently added firms are included in the following year's list, while the least successful firms from the previous year are removed. Table 1 illustrates key features of the *Trendence Graduate Barometer*.

[Insert Table 1 about here.]

The survey results from *Trendence* are published in the form of rankings (in percent) of the top 100 employers in Germany across different fields of business, engineering and IT studies. Based on these rankings, we measure a firm's employer attractiveness as the yearly average of these three study areas in percent. We focus on these employer rankings rather than employer assessment websites (e.g., Glassdoor.com) as our outcome variable for mainly two reasons. First, while Glassdoor.com allows current employees to provide their perceptions of the firm, senior management and various other aspects of working for a firm, employer rankings

capture the perceptions of *prospective* employees. This ensures the measurement of an external perception without internal firm- or individual-related bias. Second, although Glassdoor guarantees anonymity, employees might be reluctant to express their true views and attitudes towards their current employer as they might be afraid of negative repercussions.

Topic-specific CSR disclosure measures and disclosure tone

To generate a CSR disclosure measure with respect to different CSR topics, i.e., our independent variable, we use textual analysis. Textual analysis as a tool for assessing CSR disclosure in an objective, reliable and easily replicable way has become more widespread in the past decade (e.g., Cannon et al., 2020; C. H. Cho et al., 2010; Hummel, Mittelbach-Hörmanseder, Cho, & Matten, 2019; Tim I. M. Loughran, McDonald, & Yun, 2009; Melloni et al., 2017; Muslu, Mutlu, Radhakrishnan, & Tsang, 2019; Nazari, Hrazdil, & Mahmoudian, 2017). However, only a few studies assess topic-specific CSR disclosures (Cannon et al., 2020; Hummel et al., 2019; Mittelbach-Hörmanseder et al., 2020; Pencle & Mălăescu, 2016). Specifically, our analysis is based on the CSR topics as defined by the CSR Directive.¹¹

Among the methodological approaches available for topic-specific textual analysis, keyword search seems to us the most appropriate one. In detail, consistent with Cannon et al. (2020), Tim I. M. Loughran et al. (2009), Schultz, Kleinnijenhuis, Oegema, Utz, and van Atteveldt (2012) and Pencle and Mălăescu (2016), we measure topic-specific disclosure based on the frequency of specific keywords in the sample firms' reports. These keywords are word lists determining descriptors or catchwords for the five specific CSR topics. We have opted for

¹¹ We measure to what extent every report in our sample covers each of the following five topics: "environment", "social matters", "employee-related matters", "human rights", and "anti-corruption and bribery". Then we define search terms that directly relate to each of these topics and refer to the examples mentioned in § 289c (2) HGB: "ghg", "water consumption", "air quality", "renewable" and "biodiversity" for environment, "near distance", "local" and "community" for social matters, "diversity", "working conditions", "ILO", "discrimination", "freedom of association", "forced labor", "child labor", "worker consultation", "dialogue", "notice period", "trade union", "occupational health" and "occupational safety" for employee-related matters, "human rights" for human rights, and "corruption" and "bribery" for anti-corruption and bribery.

a supervised machine learning approach, because § 289c (2) HGB defines the classification categories, i.e., the topic-specific CSR disclosures. The supervised machine learning approach refers to all classes of techniques in which an algorithm learns patterns from an annotated set of training data (Welbers, van Attevelde, & Benoit, 2017), i.e., the topic-specific word lists or dictionaries. Based on these word lists the algorithm can learn which words, word stems or word combinations are more likely to occur in the topic-specific CSR disclosures. Given the sample firms' reports (from which the algorithm was not trained), the "CSR word" pervasiveness of the reports can then be estimated based on the presence of these words, word stems or word combinations (inductive part).

In the preceding deductive part the researchers provide the training data which contains good examples representing the categories that the researchers are attempting to predict or measure (Welbers et al., 2017). However, since the national law (§ 289c (2) HGB) contains no specific disclosure requirements and there is no generally accepted *a priori* defined German coding scheme, we use the GRI standards as de facto standards for sustainability reporting to compile the topic-specific word list (i.e., dictionaries). Therefore, we leverage the topic-specific GRI standards (in sum 33) firms predominantly use to report on their positive and negative economic, environmental and social impacts, e.g., with regard to energy, diversity and equal opportunities, anti-corruption or human rights screening, in order to comply with mandatory CSR disclosure requirements. Note that these reporting requirements as defined by § 289c (2) HGB can be mapped onto the topic-specific GRI standards (GRI, 2017)¹² which are currently available in twelve languages, including English and German (GRI, 2020). We create the topic-specific CSR dictionary using R, in particular the tm package (Feinerer, 2020). After preprocessing (e.g., lowercasing, removing stop words, punctuation, numbers and extra

¹² Filtering on document frequencies (the number of topic-specific GRI standards in which a search term occurs), using the term frequency-inverse document frequency (*tf-idf*) weighting measure, tends to "reproduce" our search terms (based on § 289c (2) HGB) and also the GRI-§ 289c HGB-mapping document. The *tf-idf*-weighting measure puts more weight on search terms that frequently occur in a document while simultaneously down-weighting search terms that occur in many documents and are not specific to a particular CSR disclosure topic.

whitespace) the 33 documents, we create a document term matrix (dtm). This matrix lists all occurrences of words by topic-specific GRI standard. Next, we compute the most frequently occurring terms and check for correlations between the pre-defined search terms and other terms that occur in the GRI standards, applying a correlation limit of 0.7. As a measure of the frequency at which the two (search and result term) co-occur in documents, these correlations reveal interesting combinations – for example, “thg”, and “pollutant”, “climate” and “energy-related”, or “occupational health” and “absentee”, “instruction” and “accident”. These give one further insight into classifications, i.e., our topic-specific dictionaries. Specifically, we use the search and results terms as a bag of words to create the dictionary, i.e., we do not add any other words to ensure the highest possible degree of objectivity. Instead of simple keywords, we use regular expressions for matching specific patterns (e.g., to ignore grammatical word extensions) and exclude CSR-unspecific terms that might result in false positives (e.g., “investment climate” or “transmission”). An iterative test of the regular expressions based on samples of firm reports helped to filter out these false positives.

The online supplementary material presents the regular expressions. Concerning regular expression frequency, the employee-related and environmental matters are the most prevalent, such that our dictionary appropriately reflects the topic-specific disclosure requirements’ composition (§ 289c (2) HGB). Within the five topic-specific disclosures there is sometimes considerable overlap, for instance between the search terms “occupational health” and “occupational safety” or between “corruption” and “bribery”. To avoid double counting, we list the regular expressions only for one of the search terms.

Finally, we apply the topic-specific dictionary to the sample firms’ reports and count how often the regular expressions occur in the reports, i.e., we count the number of hits (Welbers et al., 2017). We measure the CSR disclosure scope of the firm’s published reports (annual, sustainability and other reports) based on the natural logarithm of the total number of CSR topic-specific word hits (as derived from our “CSR dictionary”).

To assess the disclosure tone in order to gauge the reporting sentiment, we proceed analogously with one notable difference: The deductive part is omitted, since there are well-established and thus oftentimes validated dictionaries on sentiment analyses. As our measure for the disclosure tone we utilize the German translation of the prominent T. I. M. Loughran and McDonald's (2011) word list (Bannier et al., 2019) and compile the natural logarithm of the total number of positive word hits in the firm's reports.

Accounting conservatism measures

The idea underlying the use of Price-to-Book (P/B) as our measure for accounting conservatism is that, c. p., a conservative accounting system tends to depress the net book value of a firm relative to its “true” economic value (i.e., market value). Since a conservative accounting system tends to understate the net book value of a firm relative to its market value (Feltham & Ohlson, 1995), higher ratios imply higher accounting conservatism, and vice versa (Zhe Wang, 2009). In general, the studies that draw on the P/B measure estimate “unconditional” or news-independent conservatism (e.g., Gassen, Fülbier, & Sellhorn, 2006; Lara & Mora, 2004; Mason, 2004; Pae, 2007). A key advantage of the P/B measure of conservatism is that it is firm-specific while other accounting conservatism proxies cannot make firm-specific estimations and tend to perform poorly in time-series data (Zhe Wang, 2009). As part of our research question, we examine accounting conservatism in the context of report credibility. In this light, Liang et al. (2018) confirm that a low price-to-book value which we use as our accounting conservatism proxy, reflects poor credibility of financial disclosures.

Empirical model and control variables

Our dataset is characterized by the particularity that the dependent variable (i.e., employer ratings) exhibits comparatively many zero values while a few firms are very well regarded as excellent employers. Thus, to test our hypotheses, we perform panel Poisson

regressions to account for our integer-valued, non-negative dependent variable (i.e., count panel data). We regress CSR disclosure on employer attractiveness (H1, H2a and H2b, respectively), using the following specification:

$$EMPLOYER\_ATTRACTIVENESS_{i,t} = \beta_0 + \beta_1 CSR\_Disclosure_{i,t-n} + \beta_2 AccCons\_P/B_{i,t-n} + \beta_3 CSR\_Disclosure_{i,t-n} \# AccCons\_P/B + \beta_4 CSR\_Disclosure_{i,t-n} \# AccCons\_P/B_{i,t-n} \# CSR\_Tone_{i,t-n} + \beta_5 CSR\_Disclosure_{i,t-n} \# POST\_CSR\_EU_{i,t} + \beta_6 CSR\_Disclosure_{i,t-n} \# POST\_CSR\_RUG_{i,t} + \sum \beta_k Controls_{i,t} + industry\ and\ year-fixed\ effects + \varepsilon_{i,t}$$

The dependent variable *EMPLOYER ATTRACTIVENESS* comprises the prospective employee ratings based on the *Trendence Graduate Barometer* (ranging from 0 to 33.43 percent) of our sample firms. The independent variables are *CSR_Disclosure* (H1), that is our topic-specific CSR disclosure score derived by means of textual analysis (i.e., automated content analysis) and the *AccCons_P/B*, that is our measure for the degree of accounting conservatism of a firm (H2a). Additionally, we include the disclosure tone (*CSR_Tone*) as an interaction effect (in H2b), which we measure as the natural logarithm of the total number of positive word hits in the firm's reports based on the German translation of the T. I. M. Loughran and McDonald's (2011) word list (Bannier et al., 2019). Since the reporting tone plays an extremely important role in terms of perception, we consider it crucial to include this variable together with CSR scope and the accounting conservatism measure as a three-way-interaction, to depict the perception of the report as a whole. Furthermore, our model accounts for anticipatory effects of the CSR Directive and the CSR Directive Implementation Act ("CSR-RUG" hereafter), and includes interaction terms of topic-specific CSR disclosure with *POST_CSR_EU* and *POST_CSR_RUG*, respectively (Fiechter et al., 2020; Grewal, Riedl, & Serafeim, 2018; Mittelbach-Hörmanseder et al., 2020). *POST_CSR_EU* is a proxy for the shift from voluntary to "quasi-mandatory" CSR reporting which denotes the announcement of the CSR Directive in 2014: it amounts to 1 for the years 2014, 2015 and 2016 and 0 otherwise. *POST_CSR_RUG* is a proxy for the shift from "quasi-mandatory" to mandatory CSR reporting which denotes the implementation of the CSR Directive in German law in 2017: it amounts to

1 for the years 2017, 2018 and 2019 and 0 otherwise.¹³ To rule out alternative explanations, we control for firm-specific characteristics which might affect prospective employees' perceptions regarding the attractiveness of a firm, including ROA (calculated by dividing net income before interest and taxation by total assets at the fiscal year end), LEVERAGE (calculated as the ratio of total debt to common equity at the fiscal year end), ADVERTISE_INTENSITY (measured as the ratio of selling, general and administrative expenses to total assets at the fiscal year end), EMPLOY_SALARIES (proxied as salaries and benefits expenses divided by total assets at the fiscal year end), SIZE (defined as the natural logarithm of total assets at the fiscal year end), and GROWTH (proxied as the growth rate of net sales). Each of these variables is defined in Table 2.

[Insert Table 2 about here.]

We include ROA to control for profitability since prospective employees may view financially successful firms more favorably (C. Fombrun & Shanley, 1990) and, thus, employer attractiveness may be increasing due to firm profitability. Moreover, the media may be more likely to cover profitable firms (e.g., Merck, Daimler or Siemens). Given that, we also control for advertising intensity (ADVERTISE_INTENSITY). The more money firms spend on marketing activities, the more present they are in the media. Additionally, advertising efforts aim at promoting a firm's public image (Maniora & Pott, 2020), which may improve its employer attractiveness. We control for LEVERAGE because higher leverage might harm reputation, as it represents a strain upon future returns that may threaten the medium- and/or long-term firm viability (Brammer & Pavelin, 2006). Pecuniary remuneration is the primary financial incentive to motivate employees to do their job. Since a high salary and similar benefits also tend to be a decisive factor for choosing an employer, we include employee salaries (EMPLOY_SALARIES) in the analyses. Furthermore, we include SIZE to control for

¹³ Note that we do not include POST_CSR_EU and POST_CSR_RUG respectively as additional variables, because they are perfectly correlated with the years' fixed effects.

the effect that large firms receive more media coverage and are, as a result, better-known and more visible than smaller firms (Brammer & Pavelin, 2006; C. Fombrun & Shanley, 1990). Hence, controlling for size limits media coverage bias (Y. Lee et al., 2020). Additionally, prospective employees are likely to prefer working for large firms, as they offer greater career prospects and job opportunities. Finally, we consider GROWTH as a control factor, as it might indicate a higher need for human resources and job vacancies waiting to be filled. In all specifications of the regression models, we control for industry-fixed and year-fixed effects to capture differences between assessments of various industries and years, respectively. Furthermore, we cluster the standard errors by firm (i.e., at the treatment level) to control for heteroscedasticity and correlation among the residuals (Gow, Ormazabal, & Taylor, 2010; Maniora & Pott, 2020).

Sampling

Our dataset is compiled of 2,349 manually collected reports of firms listed in the DAX30, MDAX, SDAX and TecDAX over the time period from January 2011 to December 2019.

Panel A of Table 3 provides an overview of the sample-selection process. In total, we obtained 2,061 firm-year observations covering nine reporting years for a sample of 229 firms. We had to remove 299 observations for which no report is publicly available, or the report is not machine-readable, or for which there are two reports with different titles but with the same report content;¹⁴ this reduced our dataset to 1,762 observations. Another 647 observations that were incomplete due to missing values were also excluded, which reduced our final sample to

¹⁴ In detail, we had to exclude 124 of these reports from the textual analysis for various reasons (e.g., files that cannot be processed by textual analysis or files for which the firm and group report or several sustainability reports are not available).

a total of 1,115 observations. The distribution of our sample by industry group, which is based on the Industry Classification Benchmark (FTSE Russell, 2021) is displayed in Panel B.

[Insert Table 3 about here.]

V. Results

Descriptive statistics and correlations

In Table 4 we report the descriptive statistics for all variables used in our regression models (Eq. (1) and Eq. (2) in Table 5). Table 4, Panel A, shows a mean value of 1.18 percent for the prospective employees' perceptions, i.e., our employer attractiveness proxy (EMPLOYER_ATTRACTIVENESS) ranging from 0 to 33.43 percent and tending to be right-skewed. Specifically, the lump of data peaks at the start of the distribution. As expected, it has an overdispersion of zeros, which we considered in our analysis by using a Poisson regression for count data with the following characteristics: it is integer-valued, has a non-negative distribution, works for panel data and converges for our set of explanatory and control variables. The mean value of CSR_Disclosure is 6.18, with a minimum of 4.50 percent and a maximum score of 8.27 percent. The mean of CSR_Tone is comparable and amounts to 6.38 percent, while its minimum and maximum value are lower (2.77 and 7.81). The mean values of the CSR topic-specific disclosures range from 3.24 to 5.27 percent, with the scores of the variables that reflect environmental and employee matters displaying the highest similarity. Figure 1 illustrates the annual evolution of each topic-specific CSR disclosure; the pattern of a steady increase in CSR disclosures is evident, with the largest increase in 2017, i.e., when the CSR-RUG came into force. Furthermore, for our accounting conservatism measure AccCons_P/B our sample features an average value of 2.76.

[Insert Table 4 and Figure 1 about here.]

Table 4, Panel B, displays a pairwise correlation matrix for Pearson's and Spearman's measures and presents correlations among the variables included in our regression models. The

correlation between CSR_Disclosure and each topic-specific CSR textual variable is positive and strongly significant, with coefficients highest for environmental matters (Pearson 0.921) and lowest for social matters (Pearson 0.739). As expected, the results show that the correlations between the textual variables are strongly positive, thus indicating that firms tend to disclose information on several topics of CSR in their annual and sustainability reports (Hummel et al., 2019). Also as anticipated, large firms report more on their CSR efforts and are more likely to be in the focus of students close to graduation when choosing an employer, as evidenced by high and significant correlation coefficients of the CSR disclosure measure and the SIZE variable as well as the topic-specific textual CSR measures, respectively. Furthermore, EMPLOY_SALARIES is strongly positively correlated with our marketing expenses measure ADVERTISE_INTENSITY (Pearson 0.861), indicating that firms which spend more money on marketing activities also invest in higher employee compensation. Additionally, as presumed, our two proxies that mark the shift from voluntary to (quasi)-mandatory CSR reporting, i.e., POST_CSR_EU and POST_CSR_RUG, exhibit a correlation of 0.5. Aside from the correlations mentioned, we do not find evidence of excessively high correlations between the control variables. Thus, our setting does not raise multicollinearity concerns.

Multivariate regression results

Table 5 provides the results of our estimated equation regressing the CSR disclosure measures on the employer attractiveness ratings. We estimate two specifications of our multivariate regression model that include the CSR disclosure score (CSR_Disclosure), an accounting conservatism measure (AccCons_P/B) and its interaction with the reporting tone (CSR_Tone). In model 1 the estimated coefficient of our variable of interest CSR_Disclosure is positive and statistically significant at the 1 % level. This supports H1 predicting that CSR disclosures provide material information to prospective employees which they evaluate positively, leading to an increase in a firm's employer attractiveness. Considering the

accounting conservatism measure P/B in model 1, we find that the positive coefficient of AccCons_P/B is highly significant at the 1% level. While this is not our variable of main interest, it shows that firms with a high price-to-book value (hence, conservative accounting firms) generally seem to be more attractive to employees. Focusing on H2a, however, for the interaction of CSR_Disclosure#AccCons_P/B, this effect reverses: The coefficient is significantly negative ($p < 0.01$) so that we can reject hypothesis H2a (stated in the null form). The negative sign suggests that the attractiveness of a firm as a potential employer is negatively associated with firms reporting conservatively on financial matters which at the same time report extensively about their CSR activities. We infer that for firms usually known to be reporting conservatively in their financial statements, prospective employees view and interpret the high extent of CSR activities as insincere and boastful, being nothing more than a marketing strategy or pure public relations play. There no longer seems to be a “fit” between the conservative approach in terms of financial reporting and an (irritatingly) extensive CSR disclosure score in terms of nonfinancial reporting, diminishing the trust of prospective employees in CSR disclosures. Such an incongruence between different reporting strands (i.e., financial and nonfinancial reporting) makes prospective employees regard the CSR disclosures as not sincere and trustworthy anymore. An unconcise overall reporting strategy with the report’s elements or contents decoupled from one another is not only contrary to the idea of integrated reporting; our findings rather reveal that it also tends to discredit employer attractiveness. Whereas an extensive CSR disclosure score from firms reporting aggressively meets employees’ expectations, it seems to come as a surprise or even confounder with firms accounting conservatively, resulting in confusion on the part of the addressee and in a reputational loss of the firm. The more firms are known to be reporting conservatively on financial matters the more prospective employees may perceive the extensive CSR reporting ambitions as excessive impression management and greenwashing tools with a negative signaling value (“public relations plays”). The declining employer attractiveness could be

interpreted as interference, disturbance or disappointment towards these supposedly conservatively reporting firms for using more impression management strategies and greenwashing than the target audience would have assumed.

Since a firm's stakeholders are prone to the report's wording and sentiment, we analyze null hypothesis H2b and add the disclosure tone to investigate the impact of a positive reporting sentiment together with the conservatism measure. Model 2 shows that the interaction of accounting conservatism and a positive reporting tone (AccCons_P/B#CSR_Tone) has a significantly positive effect on employer attractiveness ($p < 0.01$). A positive reporting tone of the CSR disclosure from a firm reporting conservatively in the financial context is positively associated with a higher employer attractiveness, indicating that a positive tone conveys a positive image and is generally perceived favorably by future employees. Yet, when including CSR_Disclosure in this interaction term, consistent with our result discussion of hypothesis H2a, this effect again reverses. The estimated coefficient of (CSR_Disclosure# AccCons_P/B#CSR_Tone) is negative (-0.007) and statistically significant at the 1% level, suggesting that a firm reporting conservatively on its financial matters with a high CSR disclosure score is still judged as less attractive even if the reporting tone is positive. However, with the reporting tone in the model, the coefficient of the respective interaction terms decreases from -0.048 (Eq. model 1 without the reporting tone) to -0.007 (Eq. model 2 including the positive reporting tone). This hints at a positive reporting tone mitigating the negative effect of a high price-to-book ratio (i.e., a firm reporting rather conservatively on financial matters) in combination with a high CSR disclosure scope. While not an exact comparison, our results in H2b at least indicate that the positive association between a firm's detailed (i.e., rich in CSR disclosures) and optimistically written CSR report and employer attractiveness seems to some extent to outweigh the negative effects of the reporting conservatism variable. The other way around, for *less* conservatively reporting (hence "aggressive") firms a high CSR disclosure scope is perceived as legitimate and more authentic (Del Baldo et al., 2020). For these firms

extensive CSR disclosures and a positive tone do not stand out as a potential “greenwashing and advertising” practice, but fit into the total reporting picture. Overall, these results highlight that the interaction of disclosure tone together with the CSR disclosure score and its degree of accounting conservatism significantly affects employer attractiveness.

Regarding our control variables, across all models our proxy for the shift from voluntary to quasi-mandatory CSR reporting (POST_CSR_EU) is consistently significant at the 10% level, supporting the reasoning that there are anticipatory effects on CSR regulations (Mittelbach-Hörmanseder et al., 2020). Additionally, our control variable SIZE which represents firm size and thus prominence or public visibility, also remains highly significant ($p < 0.01$) in all models. This finding suggests that large and well-known firms appeal to young talents and are considered attractive future employers. The observed size effect is consistent with extant literature referring to the public scrutiny, agency- and contracting-cost argument (Armstrong, Guay, & Weber, 2010; Belkaoui & Karpik, 1989; Chow, 1982). Furthermore, the costs of information disclosure relatively decrease with the size of the firm (Buzby, 1975).

[Insert Table 5 about here.]

VI. Additional analyses and robustness tests

Alternative model specifications: Topic-specific measures

The CSR-RUG at minimum requires firms to disclose environmental matters, employee-related matters, social matters, human rights as well as corruption and bribery. We use our topic-specific CSR disclosure measures that build on these requirements and analyze how each of these topics may be relevant for a firm’s employer attractiveness ratings.

Table 6 depicts the results for topic-specific CSR disclosures showing that prospective employees appear to especially value disclosures about employee matters and anti-corruption matters which are highly significant at the 10 % level and the 5 % level, respectively. Out of all five topics, those two topics target employee concerns the most. Apart from the textual variable

“legal” (human rights), all other topic-specific measures also indicate that the association with employer attractiveness is positive. However, this lacks any statistical relevance.

For all five topic-specific models the accounting conservatism measure `AccCons_P/B` is again significantly positively associated with employer attractiveness, suggesting that conservatively reporting firms look more appealing to future employees and thus will attract more young talents. However, for the interaction term of the P/B and the topic-specific CSR disclosure scope, this positive effect reverses into a negative one, with the power of the association varying between the topics. Therefore, regarding null hypothesis H2a, our subsample regression tests confirm our main results (as presented in Table 5) that excessive CSR reporting by firms reporting conservatively on financial matters has a negative impact on employer attractiveness. This suggests that prospective employees interpret the combination of conservative firms and a high extent of CSR activities as greenwashing rather than being impressed by an overinflated nonfinancial reporting scope and verbose CSR reports.

[Insert Table 6 about here.]

Overall, our additional analysis suggests that all topic-specific disclosures as mandated by the CSR-RUG provide material information to prospective employees. The regression models (Table 6) illustrate that the coefficients for disclosure on employee-related issues and anti-corruption are the largest, while the coefficients for disclosure on human rights are the smallest. This mirrors the mean prevalence of certain topics in the annual reports for prospective employees, which is considerably higher with regard to employee-related and anti-corruption matters, compared to the topics social matters and human rights (see also Table 4, Panel A, and Figure 1). Consequently, since prospective employees are interested in anti-corruption matters (as indicated by the large positive coefficient on this textual variable), an increase in disclosure on this less prevalent topic (though material for employees) will have a stronger impact on employer attractiveness compared to the same increase in disclosure on human rights.

Heckman Two-Stage Estimation

We control for a possible self-selection bias via the Heckman two-stage approach. Consistent with econometric practice (Lennox, Francis, & Wang, 2011) to impose at least one restriction on the second stage, we include one exclusion variable in the first-stage probit regression, *GRI_Voluntary*. *GRI_Voluntary* captures the average firm-specific benefits around the CSR reporting requirement for firms that introduced CSR reporting ahead of the legislative amendment. This binary indicator variable takes the value of one for fiscal years ending in or before 2016, i.e., before the CSR Directive's implementation date in German law, if the firm adheres to the GRI standards that are deemed de-facto standards for CSR reporting. In a second stage, we add the inverse mills ratio (IMR) from the first-stage probit regression to our second-stage model. Table 7 shows the results. Our main result as to the CSR disclosure scope remains unchanged and confirms the existence of a randomly selected sample. Specifically, *CSR_Disclosure* is highly significant ($p < 0.001$).

[Insert Table 7 about here.]

Propensity-Score-Matching

Next, we perform propensity-score-matching (PSM). The usefulness of PSM lies in the reduction of correlations between treatment and observable variables (Shipman, Swanquist, & Whited, 2016). Therefore, PSM is not a substitute for the Heckman (1979) two-stage estimation, since it does not address most concerns relating to self-selection or endogeneity (Lennox et al., 2011; Peel & Makepeace, 2012; Shipman et al., 2016; Tucker, 2010).

To control for observables, we first dichotomized our aggregated CSR disclosure score based on its median. *CSR_Disclosure_Good* comprises all firms with CSR disclosures above the sample median. Second, we match “good” CSR disclosure observations with “poor” CSR disclosure observations. We match observations using the 1:1 nearest neighbor matching without replacement and impose a caliper distance of 0.03. Consequently, every single “good”

CSR disclosure observation from our sample is matched with a “poor” CSR disclosure observation underlying similar external influences due to comparable firm characteristics. Our matched sample yields 438 CSR disclosure observations (219 “good” vs. 219 “poor” CSR-disclosure observations).

In Table 8, Panel A, we plot the density for our treatment group to illustrate the overlap in propensity scores of treated and untreated observations before and after the matching procedure. The density is constructed by using kernel density (Shaikh, Simonsen, Vytlačil, & Yildiz, 2009; Shipman et al., 2016). The density plots show that the propensity scores of “good” CSR disclosure observations before the matching differ from “poor” CSR disclosure observations. As such, there is a high density of firms identified as “good” CSR disclosures with propensity scores between 0.3 and 0.7 and a high density of firms classified as “poor” CSR disclosures with propensity scores between 0 and 0.2. Table 8, Panel B, illustrates our main regressions within our matched sample. The regression results of our main model are confirmed with regards to a firm’s CSR disclosure’s conservatism (CSR_Disclosure# AccCons_P/B) and CSR disclosure’s tone (CSR_Disclosure#AccCons_P/B#CSR_Tone).

[Insert Table 8 and Figure 2 about here.]

VII. Discussion

This study addresses the question whether CSR disclosures improve a firm’s attractiveness as a potential future employer. We use top 100 employer rankings from *Trendence* to measure employee perceptions of a firm’s employer attractiveness. To examine firms’ CSR disclosures we use a lexicon-based approach and apply textual analysis to their annual and sustainability reports on “topic-specific” CSR categories concerning environmental, employee and social matters, human rights, and anti-corruption efforts.

We posit that a firm’s CSR disclosure scope increases its reputation as an attractive future employer to work for. As CSR has become increasingly more prominent in society and

in people's awareness, it tends to be a pivotal factor in terms of employer choice. For example, prospective employees who perceive a firm as more sustainable and social may favor it as an employer of choice, resulting in a competitive advantage in terms of a skilled labor force. However, CSR reports have become ubiquitous—almost table stakes—for most large firms. In the “war for talents”, are a firm's aggressive communication signals a convincing and reliable indicator of its CSR commitment and employer quality, or are they deliberately exaggerated to win over stakeholders that would be won over by another firm if the signals were prudent? While on the one hand, in such an active marketplace it is difficult to leverage CSR to create meaningful differentiation from competitors and thus benefit from CSR investments (Peloza et al., 2012), it is on the other hand difficult for stakeholders to differentiate true CSR commitment from simple “greenwashing”. This issue implicitly raises the question of credibility – a major concern in financial reporting. Picking up on prior research that assumes spill-over effects between different corporate reporting areas (D'Augusta & DeAngelis, 2020; J.-B. Kim & Zhang, 2016; Osburg et al., 2020), we set up a second set of null hypotheses (H2a and H2b), investigating whether there are any spill-over effects regarding the credibility between financial and nonfinancial reporting. Hence, we consider whether employer attractiveness ratings are influenced by the firm's general degree of its (financial) accounting conservatism. Particularly, we explore whether or not CSR activities disclosed by firms with more conservative reporting practices are perceived as more reliable and hence enhance the effect of a high CSR disclosure score (H2a). In this context, we also examine the reporting tone (H2b), because firm disclosure is often set up to maximize perceptions of legitimacy and brand value. Firms tend to manage their impressions and may deceptively use CSR disclosures to persuade prospective employees that the firm is socially responsible and offers a sound, wholesome work environment. On the one hand an optimistically sounding language tends to create a positive sentiment, while on the other hand there is good reason to suspect that such efforts at linguistic persuasion are not convincing. Thus, we expand hypothesis H2a by the disclosure tone and additionally investigate

whether the combination of CSR disclosure together with a firm's degree of accounting conservatism and its disclosure's tone influences employer attractiveness.

Concerning the first hypothesis H1, we find that a firm's employer attractiveness increases with an upward CSR disclosure scope and that particularly topic-specific CSR disclosures about employee and anti-corruption matters add to this increase. Results are robust for all of our models as well as additional analyses. Thus, the efforts of firms to report extensively about their CSR activities seem to resonate with this stakeholder group.

Concerning the second set of null hypotheses H2a and H2b (i.e., analyzing the association between CSR disclosure, accounting conservatism and the conservatism's joint influence with the disclosure's tone in the business communication), our findings reveal that stakeholders' *perceptions* of reports play a crucial role. We find empirical support that firms with a more conservative financial reporting approach that have a pronounced CSR disclosure scope are perceived as less attractive employers. We interpret these findings as a missing "fit" between the conservative course in financial reporting and an (irritatingly) extensive nonfinancial reporting scope, resulting in stakeholders getting confused. This confusion, in turn, will likely lead to a decline in a firm's ratings as an attractive employer. When adding the reporting sentiment (H2b), the negative effect remains but seems to mitigate the negative joint effect of accounting conservatism and the disclosure tone. Generally, results suggest that for conservatively reporting firms too extensively reported CSR activities do not facilitate the picture of an attractive employer but they may adversely backfire (Yoon, Gürhan-Canli, & Schwarz, 2006) and crowd-in negative perceptions of a firm's authenticity. Prospective employees may doubt whether the firm's CSR-disclosures truthfully reflect their CSR efforts. The other way around, results suggest for *less* conservatively reporting (hence, "aggressive") firms that extensive CSR reporting seems to be perceived as more authentic and legitimate: Together with a positive tone it does not stand out as a potential "greenwashing and advertising" instrument, but rather fits into the overall reporting picture of the firm. Hence, the study also

highlights that CSR needs to be practiced consistently within the firm to be a faithful representation of its operations. A firm's CSR activities then need to be reflected accordingly in its publications which must not just be a self-promotion tool or an image-building exercise. An employer rating grounded in firm strategy has a better chance of providing a sustainable competitive advantage than a rating that is based on exaggerated and "window-dressed" CSR disclosures. Thus, our empirical findings resonate with Jamsetji N. Tata, Founder of the Tata Group, quoting that "CSR should be in the DNA of every organization (Cabrera, 2018, p. 204)."

Our study contributes to the literature on CSR disclosure and stakeholders' perceptions of firm reports. We extend prior research by examining whether (topic-specific) CSR disclosures increase prospective *employees'* perception of a firm chosen as an employer, rather than focusing on shareholders or other stakeholders, as prior studies do. Moreover, we provide evidence that financial reporting credibility, derived from accounting conservatism, spills over to sustainability reporting – however, not in the way that firms accounting conservatively are more credible to stakeholders, which makes an extensive scope of CSR activities more believable, but on the contrary indicating that stakeholders prefer firms following a congruent approach (Del Baldo et al., 2020). When firms convey a more coherent and thus more credible image that can be realized through a uniform exercise of available "reporting aggressiveness" intensities and strategies between different reporting areas (i.e., an integrated reporting approach), it is valued by stakeholders. These firms are likely to attract more young talents.

We also contribute to practice by showing that CSR reports are – if used properly – a useful tool firms can benefit from. In this vein, it seems crucial for firms to follow either a conservative or an aggressive approach in both their financial and nonfinancial reporting, as a congruent reporting strategy is perceived as more credible and creates a more legitimate image of a firm. Just as research claims that firms should "walk their talk" (Harjoto & Laksmana, 2021; W. E. Lee & Hageman, 2018; MacLean et al., 2015; Schons & Steinmeier, 2016), they should also "talk" congruently to their accounting conservatism. Given that CSR disclosure

became mandatory in Germany in 2017, and that anticipatory CSR disclosure effects had already been observed before, it has become increasingly difficult for stakeholders to separate “cheap talk” from “meaningful CSR information”, which casts doubt on the value relevance of additional CSR disclosures. Our study provides evidence that stakeholders generally still value information about CSR, but that too much information – measured relative to the firm’s exercised accounting conservatism – can have a negative signaling value and can impair the firm’s employer attractiveness. However, depending on the stakeholder group some topics might be more relevant than others. Given the upcoming changes as outlined by the CSR Directive (2021), the right approach of CSR disclosures is highly relevant.

Despite thorough attempts at robustness and comprehensiveness, our study nevertheless is subject to several limitations that are fruitful avenues for future research. First, we focus on the information that firms disclose on various CSR matters in their annual and sustainability reports; however, firms may disclose such information also through other channels, like social networking sites (e.g., LinkedIn) or job ads. While our study considers annual and sustainability reports, and thus the growing trend towards integrated reporting, future research could examine CSR information reported through other channels. Yet, we believe that firms which report intensely about their CSR activities in their annual or sustainability reports will proceed similarly in their other communication channels as well. Doing so, these firms will build up a reputation for CSR that is proxied either way.

Second, this study concentrates on the German market and does not include other institutional environments (e.g., European countries) to provide for a “clean setting” which is not biased by different legal enforcement, CSR awareness or employee protection levels. Only recently, Mittelbach-Hörmanseder et al. (2020) indicate that in countries with a strong legal environment the explanatory power of topic-specific CSR disclosures on human rights, corruption and bribery increases. Finally, our topic-specific CSR dictionary does not claim to be complete. We derived this CSR dictionary mainly based on the GRI standards, the global

“de-facto” standard for firm sustainability reporting and the groundwork for other sustainability reporting frameworks. A cross reference with other frameworks (e.g., DNK) has proved that they often use general uniform terminology (e.g., “social”, “energy” or “employee”) which is also included in our dictionary. The novel methodology we leverage in our textual analysis to investigate disclosed information on specific topics of CSR may be of interest to other researchers, both in CSR accounting as well as in further accounting areas.

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APPENDIX

Table 1. Overview of the *Trendence* Top 100 Employer Rankings

Information	Description
Survey methodology	Anonymized password-protected online survey
Field stage	September 2010 to February 2011
Target group	Students close to their final exams
Field of study	Business, Engineering, IT
Distribution of questionnaires	Via e-mail
University selection	Universities are asked if they want to participate.
Student selection	Selection will be done by the respective institute.
List of firms	List of most popular 100 firms as voted The list is updated every year by voting and additions by the students.

Table 2. Definitions of variables and data source

	Definition	Data Source
<i>Dependent variable</i>		
EMPLOYER_ ATTRACTIVENESS	Employer attractiveness ratings are measured by prospective employee rating scores that stem from survey panels conducted by the <i>Trendence</i> Institute. The survey results are published in the form of rankings honoring the top 100 employers in Germany across different fields of study (business, engineering, IT). A firm's employer attractiveness is the annual average of these fields of study.	<i>Trendence Graduate Barometer</i>
<i>Variable of interest</i>		
CSR_Disclosure	The natural logarithm of the total number of word hits in the firm's published reports (annual, sustainability and other reports) based on the compiled vocabulary that reflects disclosure on environmental matters, employee-related matters, social matters, human rights as well as on corruption and bribery.	Textual analysis
CSR_Disc_Env	The natural logarithm of the total number of word hits in the firm's published reports (annual, sustainability and other reports) based on the compiled vocabulary that reflects disclosure on environmental matters.	Textual analysis
CSR_Disc_Emp	The natural logarithm of the total number of word hits in the firm's published reports (annual, sustainability and other reports) based on the compiled vocabulary that reflects disclosure on employee-related matters.	Textual analysis
CSR_Disc_Soc	The natural logarithm of the total number of word hits in the firm's published reports (annual, sustainability and other reports)	Textual analysis

	based on the compiled vocabulary that reflects disclosure on social matters.	
<i>CSR_Disc_Leg</i>	The natural logarithm of the total number of word hits in the firm's published reports (annual, sustainability and other reports) based on the compiled vocabulary that reflects disclosure on human rights.	Textual analysis
<i>CSR_Disc_Corr</i>	The natural logarithm of the total number of word hits in the firm's published reports (annual, sustainability and other reports) based on the compiled vocabulary that reflects disclosure on corruption and bribery.	Textual analysis
<i>AccCons_P/B</i>	A proxy for the degree of accounting conservatism, measured by the Price-to-Book ratio as the current market value per share divided by the current book value per share.	Datastream
<i>CSR_Tone</i>	The disclosure tone measured as the natural logarithm of the total number of positive word hits in the firm's published reports (annual, sustainability and other reports) based on the German translation of the T. I. M. Loughran and McDonald's (2011) word list; higher values reflect a more positive tone (Bannier et al., 2019).	Textual analysis
<i>CSR_Voluntary</i>	GRI Voluntary denotes firms that introduced CSR reporting ahead of the legislative amendment. This binary indicator variable takes the value of one for fiscal years ending in or before 2016 if the firm adopted the GRI standards prior to the CSR Directive's implementation date in German law.	GRI Database
Controls		
<i>POST_CSR_EU</i>	Proxy for the shift from voluntary to "quasi-mandatory" CSR reporting, which denotes the announcement of the CSR Directive in 2014: it amounts to 1	Handcollected

for the years 2014, 2015 and 2016
and 0 otherwise.

POST_CSRRUG	Proxy for the shift from “quasi-mandatory” to mandatory CSR reporting, which denotes the implementation of the CSR Directive in German law in 2017: it amounts to 1 for the years 2017, 2018 and 2019 and 0 otherwise.	Handcollected
ROA	Return on assets as net income before interest and taxation divided by total assets at the fiscal year end.	Datastream
LEVERAGE	Total debt divided by common equity at the fiscal year end.	Datastream
GROWTH	Growth rate of net sales calculated as the percentage change of the firm’s net sales or revenue between two fiscal years.	Datastream
ADVERTISE_INTENSITY	Advertising expenses measured by the ratio of selling, general and administrative expenses to total assets at the fiscal year end.	Datastream
EMPLOY_SALARIES	Salaries and benefits expenses divided by total assets at the fiscal year end; represents wages paid to employees and officers of the firm.	Datastream
SIZE	The natural logarithm of the firm’s total assets at the fiscal year end.	Datastream
YEAR	Years of the sample period from January 1, 2011 to December 31, 2019.	
INDUSTRY	Industry code within the industrial Classification Benchmark (ICB).	Datastream

Note: This table defines variables as used in our regression analyses.

Table 3. Sample selection and distribution

Panel A: Sample selection

	TOTAL
Initial population of firm-year observations for 229 firms (2011-2019)	2,061
Less: observations for which no report is available or cannot be processed in textual analysis	-299
= firm-year observations with processable reports (A total of 124 reports were not processable)	1,762
Less: observations with missing variables	-647
Total sample of firm-year observations for 171 firms	1,115

Panel B: Sample distribution by industry group

	Between		Overall	
	Freq	Percent	Freq	Percent
Technology	146	13.09	20	11.70
Telecommunications	56	5.02	9	5.26
Health Care	111	9.95	18	10.52
Financials	13	1.16	3	1.75
Real Estate	11	0.98	3	1.75
Consumer Discretionary	238	21.35	36	21.05
Consumer Staples	34	3.05	5	2.92
Industrials	344	30.85	50	29.20
Basic Materials	104	9.33	17	9.94
Energy	26	2.33	3	1.75
Utilities	32	2.87	7	4.09
Total sample	1,115	100	171	100

Table 4. Descriptive statistics and correlations*Panel A: Descriptive statistics*

Variables	Mean	Std.	Min	Lower Quantile	Median	Upper Quantile	Max	N
EMPLOYER_	1.180	3.715	0.000	0.000	0.000	0.700	33.433	1,115
ATTRACTIVENESS								
CSR_Disclosure	6.184	0.692	4.500	5.690	6.148	6.673	8.271	1,115
CSR_Disclosure_Env	5.270	0.783	3.555	4.700	5.147	5.832	7.806	1,115
CSR_Disclosure_Emp	5.084	0.824	1.792	4.511	5.069	5.673	7.203	1,115
CSR_Disclosure_Soc	3.239	0.881	0.000	2.639	3.296	3.892	5.591	1,115
CSR_Disclosure_Leg	3.296	0.826	0.000	2.833	3.332	3.829	5.642	1,115
CSR_Disclosure_Corr	3.763	0.632	0.000	3.367	3.829	4.159	5.493	1,115
AccCons_P/B	2.763	2.647	-15.610	1.430	2.190	3.240	20.250	1,115
CSR_Tone	6.379	0.529	2.773	6.091	6.404	6.678	7.806	1,115
POST_CSR_EU	0.680	0.467	0.000	0.000	1.000	1.000	1.000	1,115
POST_CSRRUG	0.349	0.477	0.000	0.000	0.000	1.000	1.000	1,115
ROA	5.098	7.704	-35.340	2.660	5.140	8.030	53.580	1,115
LEVERAGE	130.44	1,763.02	-1,348.53	15.15	51.89	99.58	58,625,460	1,115
GROWTH	8.195	18.769	-62.540	-0.550	5.570	12.340	198.020	1,115
ADVERTISE_INTENSITY	0.406	1.494	0.000	0.096	0.167	0.304	28.117	1,115
EMPLOY_SALARIES	0.398	1.616	0.000	0.098	0.178	0.277	28.373	1,115
SIZE	14.468	1.845	10.872	13.047	14.304	15.617	19.740	1,115
Observations	1,115							

Note: Table 4 is continued on the next page

Panel B: Correlations

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
EMPLOYER_	(1)	-	0.508	0.492	0.439	0.418	0.455	0.413	0.057	0.376	-0.026	-0.039	-0.004	0.141	-0.036	-0.091	-0.054	0.601
ATTRACTIVENESS																		
CSR_Disclosure	(2)	0.387	-	0.918	0.876	0.754	0.729	0.756	-0.038	0.681	0.197	0.280	-0.085	0.228	-0.033	-0.199	-0.207	0.715
CSR_Disc_Env	(3)	0.398	0.921	-	0.674	0.684	0.689	0.651	-0.097	0.650	0.166	0.207	-0.083	0.250	-0.052	-0.209	-0.214	0.700
CSR_Disc_Empl	(4)	0.307	0.875	0.659	-	0.644	0.602	0.677	0.041	0.613	0.223	0.323	-0.063	0.134	-0.023	-0.078	-0.102	0.577
CSR_Disc_Soc	(5)	0.318	0.739	0.658	0.638	-	0.582	0.602	-0.006	0.519	0.155	0.175	-0.037	0.218	-0.026	-0.188	-0.145	0.601
CSR_Disc_Leg	(6)	0.364	0.745	0.684	0.617	0.599	-	0.612	-0.062	0.565	0.057	0.151	-0.059	0.202	-0.004	-0.167	-0.209	0.623
CSR_Disc_Corr	(7)	0.262	0.745	0.619	0.687	0.579	0.620	-	0.020	0.574	0.215	0.335	-0.017	0.129	0.009	-0.172	-0.173	0.601
AccCons_P/B	(8)	-0.060	-0.071	-0.099	-0.025	-0.021	-0.062	-0.033	-	-0.031	0.173	0.113	0.305	-0.130	0.227	0.123	-0.018	-0.148
CSR_Tone	(9)	0.184	0.545	0.513	0.485	0.416	0.472	0.486	-0.023	-	0.070	0.128	-0.068	0.177	-0.012	-0.157	-0.133	0.574
POST_CSR_EU	(10)	-0.020	0.194	0.154	0.218	0.152	0.054	0.214	0.103	0.049	-	0.502	0.046	-0.060	0.064	0.040	-0.055	0.087
POST_CSRRUG	(11)	-0.026	0.274	0.198	0.307	0.173	0.151	0.331	0.106	0.089	0.502	-	-0.063	-0.040	0.036	0.045	-0.059	0.077
ROA	(12)	-0.011	-0.050	-0.046	-0.034	-0.005	-0.029	-0.016	0.229	-0.039	0.016	-0.063	-	-0.232	0.216	0.008	-0.035	-0.109
LEVERAGE	(13)	-0.002	0.010	-0.003	0.025	0.024	-0.021	-0.014	0.002	0.008	0.018	0.042	-0.023	-	-0.069	-0.209	-0.078	0.338
GROWTH	(14)	-0.029	-0.076	-0.096	-0.059	-0.059	-0.038	-0.011	0.133	-0.014	0.036	0.006	0.112	0.081	-	-0.127	-0.186	-0.041
ADVERTISE_	(15)	-0.051	-0.133	-0.141	-0.107	-0.089	-0.072	-0.100	0.006	-0.082	-0.167	-0.079	-0.003	-0.004	0.026	-	0.624	-0.325
INTENSITY																		
EMPLOY_	(16)	-0.047	-0.123	-0.128	-0.092	-0.079	-0.067	-0.119	-0.005	-0.072	-0.170	-0.088	-0.013	-0.002	0.018	0.861	-	-0.356
SALARIES																		
SIZE	(17)	0.518	0.727	0.716	0.578	0.587	0.632	0.572	-0.190	0.478	0.075	0.064	-0.038	0.002	-0.038	-0.155	-0.135	-

Notes: Panel A reports descriptive statistics and Panel B shows Pearson correlations (below the diagonal) and Spearman correlations (above the diagonal) for all variables included in the multivariate regressions shown in Table 5. Variables are defined in Table 2 and section 4 of this paper. In Panel B, figures printed in bold indicate a correlation above 0,5.

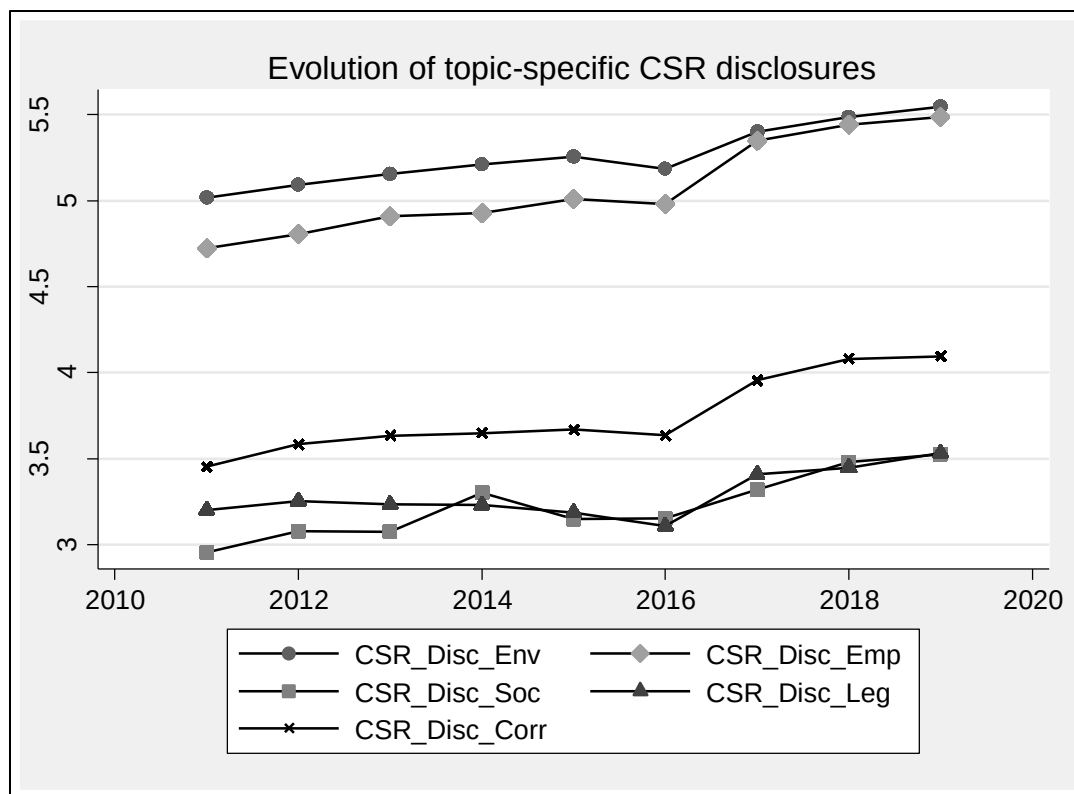


Figure 1. Topic-specific CSR disclosures by year

Table 5. Multivariate Regression

<i>Employer Attractiveness Ratings</i>		
	Model 1 AccCons_PTVB	Model 2 AccCons_PTVB # CSR_Tone
VARIABLES	Poisson coeff.	Poisson coeff.
Intercept	-18.773*** (1.603)	-18.573*** (1.573)
CSR_Disclosure	0.91*** (0.046)	0.075* (0.044)
CSR_Disclosure # AccCons_P/B	-0.048*** (0.012)	
AccCons_P/B	0.385*** (0.094)	
AccCons_P/B # CSR_Tone		0.057*** (0.013)
CSR_Disclosure # AccCons_P/B # CSR_Tone		-0.007*** (0.002)
POST_CSR_EU # CSR_Disclosure	0.085* (0.039)	0.085* (0.039)
POST_CSR_RUG # CSR_Disclosure	0.024 (0.097)	0.025 (0.098)
ROA	0.0003 (0.005)	0.0001 (0.005)
LEVERAGE	-0.00005 (0.0001)	-0.00006 (0.0001)
GROWTH	-0.004* (0.002)	-0.004* (0.002)
ADVERTISE_INTENSITY	0.072 (0.066)	0.075 (0.068)
EMPLOY_SALARIES	-0.024 (0.084)	-0.027 (0.086)
SIZE	1.125*** (0.1)	1.12*** (0.1)
Cluster	ID	ID
Industry-fixed effects	Included	Included
Year-fixed effects	Included	Included
Observations	1,115	1,115

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 6. CSR-specific Disclosures

<i>Employer Attractiveness Ratings</i>					
	CSR_Disc_Env	CSR_Disc_Emp	CSR_Disc_Soc	CSR_Disc_Leg	CSR_Disc_Corr
	Model 1	Model 2	Model 3	Model 4	Model 5
VARIABLES	Logit coeff.	Logit coeff.	Logit coeff.	Logit coeff.	Logit coeff.
Intercept	-18.571*** -1.539	-18.596*** -1.547	-18.078*** -1.517	-17.981*** -1.486	-18.764*** -1.541
CSR_Disc_Env	0.057 (0.047)				
CSR_Disc_Emp		0.092* (0.039)			
CSR_Disc_Soc			0.088 (0.052)		
CSR_Disc_Leg				-0.035 (0.06)	
CSR_Disc_Corr					0.201** (0.062)
AccCons_P/B	0.285*** (0.08)	0.324*** (0.074)	0.188** (0.071)	0.178*** (0.053)	0.304*** (0.071)
CSR_Disc_Env # AccCons_P/B	-0.038** (0.012)				
POST_CSR_EU # CSR_Disc_Env	0.065 (0.034)				
POST_CSR_RUG # CSR_Disc_Env	0.015 (0.075)				
CSR_Disc_Emp # AccCons_P/B		-0.047*** (0.012)			
POST_CSR_EU # CSR_Disc_Emp		0.097** (0.036)			

POST_CSR_RUG # CSR_Disc_Emp		0.045 (0.08)			
CSR_Disc_Soc #AccCons_P/B			-0.036* (0.018)		
POST_CSR_EU # CSR_Disc_Soc			0.1* (0.041)		
POST_CSR_RUG # CSR_Disc_Soc			0.034 (0.069)		
CSR_Disc_Leg # AccCons_P/B				-0.032** (0.012)	
POST_CSR_EU # CSR_Disc_Leg				0.113*** (0.031)	
POST_CSR_RUG # CSR_Disc_Leg				0.079 (0.065)	
CSR_Disc_Corr # AccCons_P/B					-0.061*** (0.015)
POST_CSR_EU # CSR_Disc_Corr					0.13** (0.045)
POST_CSR_RUG # CSR_Disc_Corr					-0.015 (0.107)
ROA	0.00004 (0.005)	0.0003 (0.005)	0.0004 (0.005)	0.001 (0.005)	0.0004 (0.005)
LEVERAGE	-0.00005 (0.0001)	-0.00003 (0.0001)	-0.00005 (0.0001)	-0.00005 (0.0001)	-0.00006 (0.0001)
GROWTH	-0.004* (0.002)	-0.004* (0.002)	-0.005** (0.002)	-0.005** (0.002)	-0.005** (0.002)
ADVERTISE_INTENSITY	0.072 (0.067)	0.071 (0.063)	0.08 (0.069)	0.077 (0.067)	0.069 (0.06)
EMPLOY_SALARIES	-0.022 (0.085)	-0.026 (0.082)	-0.036 (0.086)	-0.034 (0.087)	-0.02 (0.078)
SIZE	1.129*** (0.099)	1.121*** (0.099)	1.102*** (0.103)	1.12*** (0.102)	1.114*** (0.104)

Cluster	Firm	Firm	Firm	Firm	Firm
Industry-fixed effects	Included	Included	Included	Included	Included
Year-fixed effects	Included	Included	Included	Included	Included
Pseudo R-squared					
Observations	1,115	1,115	1,115	1,115	1,115

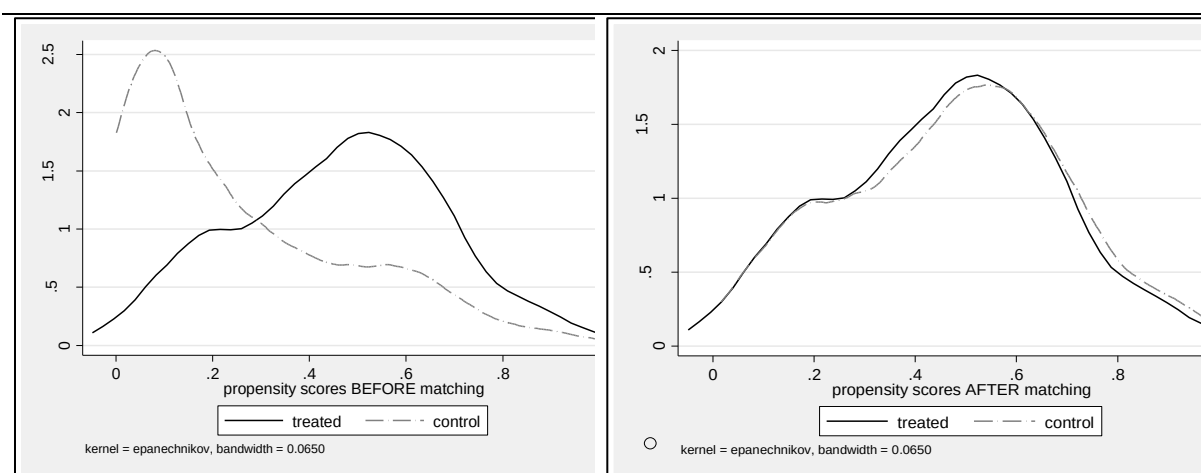
Robust standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1

Table 7. Heckman Two-Stage Approach

<i>Dependent Variable = EMPLOYER ATTRACTIVENESS</i>			
VARIABLES	First-stage regressions	(1)	(2)
		Second-stage regressions	
	Logit coeff.	Logit coeff.	Logit coeff.
CSR_Disclosure		0.00178*** (0.000512)	0.00179*** (0.000510)
AccCons_P/B		0.128 (0.147)	
CSR_Disclosure # AccCons_P/B		-0.000105 (0.000125)	
AccCons_P/B # CSR_Tone			0.0159 (0.0220)
CSR_Disclosure # AccCons_P/B # CSR_Tone			-0.00002 (0.00002)
Voluntary Adopters	0.447*** (0.116)		
ROA	0.00820 (0.00656)	-0.00346 (0.0304)	-0.00175 (0.0303)
LEVERAGE	0.00008 (0.00006)	0.000485 (0.000942)	0.000510 (0.000942)
GROWTH	-0.00549* (0.00302)	0.00529 (0.0136)	0.00599 (0.0136)
ADVERSTISE_INTENSITY	0.00188 (0.146)	-2.055** (0.980)	-2.032** (0.981)
EMPLOY_SALARIES	(0.00656)	3.136** (1.525)	(0.0303) 3.087**
SIZE	-0.0651 0.505*** (0.0422)	1.937*** (0.247)	1.933*** (0.247)
Lambda (IMR)		2.166** (0.872)	2.174** (0.871)
Intercept	-8.353*** (0.626)	- 31.12*** (4.577)	-31.12*** (4.577)
Cluster	Firm	Firm	Firm
Industry-fixed effects	Included	Included	Included
Year-fixed effects	Included	Included	Included
Wald chi2		269.10	268.92
Prob > chi2		<0.001	<0.001
Observations	1,115	1,115	1,115

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 8. Propensity-Score-Matching (PSM)*Panel A: Density plot before and after matching**Panel B: Main regressions**Employer Attractiveness Ratings*

VARIABLES	(1) OLS coeff.	(2) OLS coeff.
Intercept	-10.19** (3.970)	-10.03** (3.963)
CSR_Disclosure	0.223 (0.256)	0.216 (0.239)
AccCons_P/B	-0.486** (0.229)	
CSR_Disclosure # AccCons_P/B	0.0939** (0.0402)	
AccCons_P/B # CSR_Tone		-0.0795** (0.0384)
CSR_Disclosure # AccCons_P/B # CSR_Tone		0.0150** (0.00665)
ROA	0.000098 (0.00920)	0.00142 (0.00867)
LEVERAGE	-0.000137 (0.000253)	-0.000124 (0.000249)
GROWTH	-0.00422 (0.00317)	-0.00421 (0.00321)
ADVERTISE_INTENSITY	-0.106 (0.118)	-0.108 (0.119)
EMPLOY_SALARIES	0.0747 (0.0670)	0.0760 (0.0672)
SIZE	0.697*** (0.262)	0.690*** (0.260)
Cluster	Firm	Firm

Industry-fixed effects	Included	Included
Year-fixed effects	Included	Included
R-squared	0.2564	0.2549
Observations	438	438

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Supplementary Material

Corporate Social Responsibility Dictionary based on paragraph 289c of the German Commercial Code – Contents of a non-financial statement (German version)

(1) Umweltbelange

Treibhausgasemissionen

- (?i)([a-zA-ZÜÄÖüäöß]*)emission([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)schad(\S?)(\s?)(. {0,10})stoff([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)energie(\S?)(\s?)(. {0,10})bedingt([a-zA-ZÜÄÖüäöß]*)
- \b(?i)thg\b
- (?i)([a-zA-ZÜÄÖüäöß]*)atmosphäre([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)stick(\S?)(\s?)(. {0,10})stoff([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)erwärmung([a-zA-ZÜÄÖüäöß]*)
- \b(?i)fckw\b
- (?i)([a-zA-ZÜÄÖüäöß]*)fein(\S?)(\s?)(. {0,10})partikel([a-zA-ZÜÄÖüäöß]*)
- \b(?i)fkwb
- (?i)([a-zA-ZÜÄÖüäöß]*)gas(\S?)(\s?)(. {0,10})transport([a-zA-ZÜÄÖüäöß]*)
- \b(?i)sox\b
- \b(?i)ipcc\b
- (?i)([a-zA-ZÜÄÖüäöß]*)klima([a-zA-ZÜÄÖüäöß]*)
- \b(?i)kyoto\b
- (?i)([a-zA-ZÜÄÖüäöß]*)meteorolog([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)methan([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)nitrogen([a-zA-ZÜÄÖüäöß]*)
- \b(?i)nox\b
- \b(?i)ods\b
- (?i)([a-zA-ZÜÄÖüäöß]*)oxid([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)ozon([a-zA-ZÜÄÖüäöß]*)
- \b(?i)pfkwb
- (?i)([a-zA-ZÜÄÖüäöß]*)schwefel([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)scope([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)sonnen(\S?)(\s?)(. {0,10})licht([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)versauerung([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)fein(\S?)(\s?)(. {0,10})staub([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)wald(\S?)(\s?)(. {0,10})schädigung([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)biomasse([a-zA-ZÜÄÖüäöß]*)
- \b(?i)ghg\b
- \b(?i)wbcsd\b
- (?i)([a-zA-ZÜÄÖüäöß]*)treibhaus(\S?)(\s?)(. {0,10})gas([a-zA-ZÜÄÖüäöß]*)

Wasserverbrauch

- (?i)([a-zA-ZÜÄÖüäöß]*)Wasser(\S?)(\s?)(. {0,10})verbrauch([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)abwasser([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)gewässer([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)wasser(\S?)(\s?)(. {0,10})einleitung([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)wasser(\S?)(\s?)(. {0,10})entnahme([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)wasser(\S?)(\s?)(. {0,10})rückführung([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)wasserstress([a-zA-ZÜÄÖüäöß]*)

- \b(?)bach\b
- (?)([a-zA-ZÜÄÖüäöß]*)bäche([a-zA-ZÜÄÖüäöß]*)
- (?)([a-zA-ZÜÄÖüäöß]*)einleitung(\S?)(\s?)(. {0,10})limit([a-zA-ZÜÄÖüäöß]*)
- (?)([a-zA-ZÜÄÖüäöß]*)eisberg([a-zA-ZÜÄÖüäöß]*)
- (?)([a-zA-ZÜÄÖüäöß]*)eiskappe([a-zA-ZÜÄÖüäöß]*)
- (?)([a-zA-ZÜÄÖüäöß]*)eisplatte([a-zA-ZÜÄÖüäöß]*)
- (?)([a-zA-ZÜÄÖüäöß]*)entnahme(\S?)(\s?)(. {0,10})quelle([a-zA-ZÜÄÖüäöß]*)
- (?)([a-zA-ZÜÄÖüäöß]*)entwässerungsgebiet([a-zA-ZÜÄÖüäöß]*)
- (?)([a-zA-ZÜÄÖüäöß]*)filtrattrockenrückstand([a-zA-ZÜÄÖüäöß]*)
- \b(?)flüsse\b
- \b(?)fluss\b
- (?)([a-zA-ZÜÄÖüäöß]*)fluss(\S?)(\s?)(. {0,10})mündung([a-zA-ZÜÄÖüäöß]*)
- (?)([a-zA-ZÜÄÖüäöß]*)gletscher([a-zA-ZÜÄÖüäöß]*)
- (?)([a-zA-ZÜÄÖüäöß]*)grund(\S?)(\s?)(. {0,10})wasser([a-zA-ZÜÄÖüäöß]*)
- (?)([a-zA-ZÜÄÖüäöß]*)hydrologisch([a-zA-ZÜÄÖüäöß]*)
- (?)([a-zA-ZÜÄÖüäöß]*)meer(\S?)(\s?)(. {0,10})wasser([a-zA-ZÜÄÖüäöß]*)
- (?)([a-zA-ZÜÄÖüäöß]*)nieder(\S?)(\s?)(. {0,10})schlag
- (?)([a-zA-ZÜÄÖüäöß]*)oberflächen(\S?)(\s?)(. {0,10})wasser([a-zA-ZÜÄÖüäöß]*)
- (?)([a-zA-ZÜÄÖüäöß]*)ozean([a-zA-ZÜÄÖüäöß]*)
- (?)([a-zA-ZÜÄÖüäöß]*)prozesswasser([a-zA-ZÜÄÖüäöß]*)
- (?)([a-zA-ZÜÄÖüäöß]*)rückführung([a-zA-ZÜÄÖüäöß]*)
- (?)([a-zA-ZÜÄÖüäöß]*)sanitär(\S?)(\s?)(. {0,10})versorgung([a-zA-ZÜÄÖüäöß]*)
- (?)([a-zA-ZÜÄÖüäöß]*)sanitation([a-zA-ZÜÄÖüäöß]*)
- (?)([a-zA-ZÜÄÖüäöß]*)schmutz(\S?)(\s?)(. {0,10})wasser([a-zA-ZÜÄÖüäöß]*)
- (?)([a-zA-ZÜÄÖüäöß]*)schwermetall([a-zA-ZÜÄÖüäöß]*)
- (?)([a-zA-ZÜÄÖüäöß]*)sümpfe([a-zA-ZÜÄÖüäöß]*)
- (?)([a-zA-ZÜÄÖüäöß]*)süß(\S?)(\s?)(. {0,10})wasser([a-zA-ZÜÄÖüäöß]*)
- (?)([a-zA-ZÜÄÖüäöß]*)sumpf([a-zA-ZÜÄÖüäöß]*)
- (?)([a-zA-ZÜÄÖüäöß]*)teich([a-zA-ZÜÄÖüäöß]*)
- (?)([a-zA-ZÜÄÖüäöß]*)wasser(\S?)(\s?)(. {0,10})qualität([a-zA-ZÜÄÖüäöß]*)
- (?)([a-zA-ZÜÄÖüäöß]*)dampf([a-zA-ZÜÄÖüäöß]*)
- (?)([a-zA-ZÜÄÖüäöß]*)dampf([a-zA-ZÜÄÖüäöß]*)
- (?)([a-zA-ZÜÄÖüäöß]*)dunst([a-zA-ZÜÄÖüäöß]*)
- (?)([a-zA-ZÜÄÖüäöß]*)wasser(\S?)(\s?)(. {0,10})aufbereitung([a-zA-ZÜÄÖüäöß]*)
- (?)([a-zA-ZÜÄÖüäöß]*)wasser(\S?)(\s?)(. {0,10})balance([a-zA-ZÜÄÖüäöß]*)
- (?)([a-zA-ZÜÄÖüäöß]*)wasser(\S?)(\s?)(. {0,10})bewirtschaftung([a-zA-ZÜÄÖüäöß]*)
- (?)([a-zA-ZÜÄÖüäöß]*)wasser(\S?)(\s?)(. {0,10})fußabdruck([a-zA-ZÜÄÖüäöß]*)
- (?)([a-zA-ZÜÄÖüäöß]*)wasser(\S?)(\s?)(. {0,10})intensiv([a-zA-ZÜÄÖüäöß]*)
- (?)([a-zA-ZÜÄÖüäöß]*)wasser(\S?)(\s?)(. {0,10})netz([a-zA-ZÜÄÖüäöß]*)
- (?)([a-zA-ZÜÄÖüäöß]*)wasser(\S?)(\s?)(. {0,10})nutz([a-zA-ZÜÄÖüäöß]*)
- (?)([a-zA-ZÜÄÖüäöß]*)wasser(\S?)(\s?)(. {0,10})schwund([a-zA-ZÜÄÖüäöß]*)
- (?)([a-zA-ZÜÄÖüäöß]*)wasser(\S?)(\s?)(. {0,10})speicher([a-zA-ZÜÄÖüäöß]*)
- (?)([a-zA-ZÜÄÖüäöß]*)wasser(\S?)(\s?)(. {0,10})umwelt([a-zA-ZÜÄÖüäöß]*)
- (?)([a-zA-ZÜÄÖüäöß]*)wasser(\S?)(\s?)(. {0,10})verbrauch([a-zA-ZÜÄÖüäöß]*)
- (?)([a-zA-ZÜÄÖüäöß]*)wasser(\S?)(\s?)(. {0,10})versorg([a-zA-ZÜÄÖüäöß]*)
- (?)([a-zA-ZÜÄÖüäöß]*)wasser(\S?)(\s?)(. {0,10})verwendung([a-zA-ZÜÄÖüäöß]*)
- (?)([a-zA-ZÜÄÖüäöß]*)wasser(\S?)(\s?)(. {0,10})volumen([a-zA-ZÜÄÖüäöß]*)
- (?)([a-zA-ZÜÄÖüäöß]*)wasser(\S?)(\s?)(. {0,10})zufuhr([a-zA-ZÜÄÖüäöß]*)
- (?)([a-zA-ZÜÄÖüäöß]*)wasseraufbereitung([a-zA-ZÜÄÖüäöß]*)
- (?)([a-zA-ZÜÄÖüäöß]*)trink(\S?)(\s?)(. {0,10})wasser([a-zA-ZÜÄÖüäöß]*)
- (?)([a-zA-ZÜÄÖüäöß]*)oberflächen(\S?)(\s?)(. {0,10})abfluss([a-zA-ZÜÄÖüäöß]*)

Luftverschmutzung

- (?!)([a-zA-ZÜÄÖüäöß]*)Luft(\S?)(\s?)(. {0,10})verschmutzung([a-zA-ZÜÄÖüäöß]*)

Nicht(erneuerbare) Energien

- (?!)([a-zA-ZÜÄÖüäöß]*)erneuerbar([a-zA-ZÜÄÖüäöß]*)
- (?!)([a-zA-ZÜÄÖüäöß]*)benzin([a-zA-ZÜÄÖüäöß]*)
- (?!)([a-zA-ZÜÄÖüäöß]*)brennstoff([a-zA-ZÜÄÖüäöß]*)
- (?!)([a-zA-ZÜÄÖüäöß]*)energie(\S?)(\s?)(. {0,10})bedarf([a-zA-ZÜÄÖüäöß]*)
- (?!)([a-zA-ZÜÄÖüäöß]*)energie(\S?)(\s?)(. {0,10})bezogen([a-zA-ZÜÄÖüäöß]*)
- (?!)([a-zA-ZÜÄÖüäöß]*)energie(\S?)(\s?)(. {0,10})form ([a-zA-ZÜÄÖüäöß]*)
- (?!)([a-zA-ZÜÄÖüäöß]*)energie(\S?)(\s?)(. {0,10})intensität([a-zA-ZÜÄÖüäöß]*)
- (?!)([a-zA-ZÜÄÖüäöß]*)energie(\S?)(\s?)(. {0,10})nutzung([a-zA-ZÜÄÖüäöß]*)
- (?!)([a-zA-ZÜÄÖüäöß]*)energie(\S?)(\s?)(. {0,10})träger([a-zA-ZÜÄÖüäöß]*)
- (?!)([a-zA-ZÜÄÖüäöß]*)energie(\S?)(\s?)(. {0,10})vorschrift([a-zA-ZÜÄÖüäöß]*)
- (?!)([a-zA-ZÜÄÖüäöß]*)Abgas([a-zA-ZÜÄÖüäöß]*)
- (?!)([a-zA-ZÜÄÖüäöß]*)Flüssiggas([a-zA-ZÜÄÖüäöß]*)
- (?!)([a-zA-ZÜÄÖüäöß]*)erdgas([a-zA-ZÜÄÖüäöß]*)
- (?!)([a-zA-ZÜÄÖüäöß]*)fern(\S?)(\s?)(. {0,10})wärme([a-zA-ZÜÄÖüäöß]*)
- (?!)([a-zA-Z]*energie(\S?)(\s?)(. {0,10})verbrauch([a-zA-Z]*)
- (?!)([a-zA-ZÜÄÖüäöß]*)heizgerät([a-zA-ZÜÄÖüäöß]*)
- (?!)([a-zA-ZÜÄÖüäöß]*)kaltwasser(\S?)(\s?)(. {0,10})anlage([a-zA-ZÜÄÖüäöß]*)
- (?!)([a-zA-ZÜÄÖüäöß]*)solar(\S?)(\s?)(. {0,10})energie([a-zA-ZÜÄÖüäöß]*)
- (?!)([a-zA-ZÜÄÖüäöß]*)treibstoff([a-zA-ZÜÄÖüäöß]*)
- (?!)([a-zA-ZÜÄÖüäöß]*)umwelt(\S?)(\s?)(. {0,10})belastung([a-zA-ZÜÄÖüäöß]*)
- (?!)([a-zA-ZÜÄÖüäöß]*)wind([a-zA-ZÜÄÖüäöß]*)
- (?!)([a-zA-ZÜÄÖüäöß]*)joule([a-zA-ZÜÄÖüäöß]*)
- (?!)([a-zA-ZÜÄÖüäöß]*)energie(\S?)(\s?)(. {0,10})quelle([a-zA-ZÜÄÖüäöß]*)
- (?!)([a-zA-ZÜÄÖüäöß]*)strom([a-zA-ZÜÄÖüäöß]*)
- (?!)([a-zA-ZÜÄÖüäöß]*)kohle([a-zA-ZÜÄÖüäöß]*)
- (?!)([a-zA-ZÜÄÖüäöß]*)energie(\S?)(\s?)(. {0,10})art([a-zA-ZÜÄÖüäöß]*)

Biodiversität

- (?!)([a-zA-ZÜÄÖüäöß]*)Bio(\S?)(\s?)(. {0,10})diversität([a-zA-ZÜÄÖüäöß]*)
- (?!)([a-zA-ZÜÄÖüäöß]*)arten(\S?)(\s?)(. {0,10})sterben([a-zA-ZÜÄÖüäöß]*)
- (?!)([a-zA-ZÜÄÖüäöß]*)biosphere([a-zA-ZÜÄÖüäöß]*)
- (?!)([a-zA-ZÜÄÖüäöß]*)einschleppung([a-zA-ZÜÄÖüäöß]*)
- (?!)([a-zA-ZÜÄÖüäöß]*)ernährungs(\S?)(\s?)(. {0,10})sicherheit([a-zA-ZÜÄÖüäöß]*)
- (?!)([a-zA-ZÜÄÖüäöß]*)fauna([a-zA-ZÜÄÖüäöß]*)
- (?!)([a-zA-ZÜÄÖüäöß]*)flora([a-zA-ZÜÄÖüäöß]*)
- (?!)([a-zA-ZÜÄÖüäöß]*)gefährdet([a-zA-ZÜÄÖüäöß]*)
- (?!)([a-zA-ZÜÄÖüäöß]*)gefährdungs(\S?)(\s?)(. {0,10})grad([a-zA-ZÜÄÖüäöß]*)
- (?!)([a-zA-ZÜÄÖüäöß]*)genetisch([a-zA-ZÜÄÖüäöß]*)
- (?!)([a-zA-ZÜÄÖüäöß]*)geschützte([a-zA-ZÜÄÖüäöß]*)
- (?!)([a-zA-ZÜÄÖüäöß]*)erbe ([a-zA-ZÜÄÖüäöß]*)
- \b(?i)\sGen([eE]?)\b
- (?!)([a-zA-ZÜÄÖüäöß]*)schutz(\S?)(\s?)(. {0,10})bedürftig([a-zA-ZÜÄÖüäöß]*)
- (?!)([a-zA-ZÜÄÖüäöß]*)reversibilität([a-zA-ZÜÄÖüäöß]*)
- (?!)([a-zA-ZÜÄÖüäöß]*)reversibel([a-zA-ZÜÄÖüäöß]*)
- (?!)([a-zA-ZÜÄÖüäöß]*)landfläche([a-zA-ZÜÄÖüäöß]*)
- (?!)([a-zA-ZÜÄÖüäöß]*)lebens(\S?)(\s?)(. {0,10})grundlage([a-zA-ZÜÄÖüäöß]*)
- (?!)([a-zA-ZÜÄÖüäöß]*)lebens(\S?)(\s?)(. {0,10})raum([a-zA-ZÜÄÖüäöß]*)

- (?i)([a-zA-ZÜÄÖüäöß]*)lebens(\S?)(\s?)(. {0,10})räume([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)meeres(\S?)(\s?)(. {0,10})ökosystem([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)puffer(\S?)(\s?)(. {0,10})zone([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)renaturier([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)salz(\S?)(\s?)(. {0,10})gehalt([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)schädling([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)schutz(\S?)(\s?)(. {0,10})gebiet([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)schutz(\S?)(\s?)(. {0,10})status([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)tier(\S?)(\s?)(. {0,10})art([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)variations(\S?)(\s?)(. {0,10})breite([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)natur(\S?)(\s?)(. {0,10})schutz([a-zA-ZÜÄÖüäöß]*)
- \b(?i)unesco\b
- \b(?i)iucn\b
- (?i)([a-zA-ZÜÄÖüäöß]*)pflanze([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)spezies([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)umwelt(\S?)(\s?)(. {0,10})verträglich([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)natur([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)bedrohte([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)habitat([a-zA-ZÜÄÖüäöß]*)

(2) Arbeitnehmerbelange

Geschlechtergleichstellung

- (?i)([a-zA-ZÜÄÖüäöß]*)Geschlechter(\S?)(\s?)(. {0,10})gleichstellung([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)chancen(\S?)(\s?)(. {0,10})gleichheit([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)aufstiegs(\S?)(\s?)(. {0,10})möglichkeit([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)diversität([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)führungs(\S?)(\s?)(. {0,10})ebene([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)geschlecht([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)gleich(\S?)(\s?)(. {0,10})berechtig([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)grund(\S?)(\s?)(. {0,10})gehalt([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)minderheit([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)mitarbeiter(\S?)(\s?)(. {0,10})innen([a-zA-ZÜÄÖüäöß]*)
- \b(?i)mann\b
- (?i)([a-zA-ZÜÄÖüäöß]*)männer([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)frau([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)weiblich([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)bezahlung([a-zA-ZÜÄÖüäöß]*)

Arbeitsbedingungen

- (?i)([a-zA-ZÜÄÖüäöß]*)Arbeits(\S?)(\s?)(. {0,10})bedingung([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)arbeits(\S?)(\s?)(. {0,10})verhältnis([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)auszubildende ([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)beschäftigungs(\S?)(\s?)(. {0,10})verhältnis([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)fachkraft([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)fachkräfte([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)kantine([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)praktikant([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)teilzeit(\S?)(\s?)(. {0,10})beschäftigt([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)urlaub([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)angestellte([a-zA-ZÜÄÖüäöß]*)

- (i)([a-zA-ZÜÄÖüäöß]*)vollzeit(\S?)(\s?)(. {0,10})beschäftig([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)arbeits(\S?)(\s?)(. {0,10})platz([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)befristet([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)über(\S?)(\s?)(. {0,10})stunde([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)arbeit(\S?)(\s?)(. {0,10})geber([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)arbeits(\S?)(\s?)(. {0,10})zeit([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)promotion([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)fluktuation([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)arbeits(\S?)(\s?)(. {0,10})moral([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)arbeits(\S?)(\s?)(. {0,10})woche([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)aufstiegs(\S?)(\s?)(. {0,10})chance([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)einstellungen(\S?)(\s?)(. {0,10})verfahren([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)elter(\S?)(\s?)(. {0,10})zeit([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)entlassungs(\S?)(\s?)(. {0,10})verfahren([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)entwicklungs(\S?)(\s?)(. {0,10})möglichkeit([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)rückkehr(\S?)(\s?)(. {0,10})rate([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)erwerbs(\S?)(\s?)(. {0,10})unfähigkeit([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)hinterbliebenen(\S?)(\s?)(. {0,10})leistung([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)kinder(\S?)(\s?)(. {0,10})tages(\S?)(\s?)(. {0,10})einrichtung([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)mutter(\S?)(\s?)(. {0,10})schutz([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)personal(\S?)(\s?)(. {0,10})entwicklung([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)personal(\S?)(\s?)(. {0,10})kosten([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)sport(\S?)(\s?)(. {0,10})anlage([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)gerechtigkeit([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)versorgungs(\S?)(\s?)(. {0,10})leistung([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)zeit(\S?)(\s?)(. {0,10})arbeitnehmer([a-zA-ZÜÄÖüäöß]*)

Übereinkommen der Internationalen Arbeitsorganisation

- (i)([a-zA-ZÜÄÖüäöß]*)Übereinkommen der Internationalen Arbeitsorganisation([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)arbeits(\S?)(\s?)(. {0,10})organisation([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)arbeits(\S?)(\s?)(. {0,10})vertrag([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)migrant([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)arbeits(\S?)(\s?)(. {0,10})anforderung([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)arbeits(\S?)(\s?)(. {0,10})ablauf([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)arbeits(\S?)(\s?)(. {0,10})bedingt([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)arbeits(\S?)(\s?)(. {0,10})bezogen([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)arbeits(\S?)(\s?)(. {0,10})methode([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)arbeits(\S?)(\s?)(. {0,10})mittel([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)arbeits(\S?)(\s?)(. {0,10})recht([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)arbeits(\S?)(\s?)(. {0,10})stunde([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)arbeits(\S?)(\s?)(. {0,10})umgebung([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)demo(\S?)(\s?)(. {0,10})graphisch([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)erholungs(\S?)(\s?)(. {0,10})zeit([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)frei(\S?)(\s?)(. {0,10})stellung([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)mitarbeiter(\S?)(\s?)(. {0,10})beteiligung([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)mitarbeiter(\S?)(\s?)(. {0,10})demografie([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)mitarbeiter(\S?)(\s?)(. {0,10})vergütungssystem([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)mobbing([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)qualifikation([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)qualifizierung([a-zA-ZÜÄÖüäöß]*)

- (?i)([a-zA-ZÜÄÖüäöß]*)schichtarbeit([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)wanderarbeit([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)weiterbildung([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)kinderarbeit([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)ausbildungs(\S?)(\s?)(. {0,10})programm([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)jugendlich([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)mindest(\S?)(\s?)(. {0,10})alter([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)misshandlung([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)schulbesuch([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)schulpflicht([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)sklave([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)menschenhandel([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)ausbeute([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)ausweis(\S?)(\s?)(. {0,10})papier([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)gefängnis([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)häftling([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)knechtschaft([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)pflichtarbeit([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)arbeits(\S?)(\s?)(. {0,10})verträge([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)mitarbeiter(\S?)(\s?)(. {0,10})vertretung([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)diskriminierung([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)belästigung([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)fair([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)gleichbehandlung([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)hautfarbe([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)lebensstil([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)sexuell([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)religion([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)herkunft([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)ethnisch([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)welt(\S?)(\s?)(. {0,10})frauen(\S?)(\s?)(. {0,10})konferenz([a-zA-ZÜÄÖüäöß]*)

Informations- und Konsultationsrechte

- (?i)([a-zA-ZÜÄÖüäöß]*)Informations-(\S?)(\s?)(. {0,10}) und (\S?)(\s?)(. {0,10})Konsultationsrechte([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)Konsultationsrechte([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)Informationsrechte([a-zA-ZÜÄÖüäöß]*)

Sozialer Dialog

- (?i)([a-zA-ZÜÄÖüäöß]*)Sozialer(\S?)(\s?)(. {0,10})Dialog([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)mitteilungs(\S?)(\s?)(. {0,10})frist([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)betriebs(\S?)(\s?)(. {0,10})unterbrechung([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)tarif(\S?)(\s?)(. {0,10})vertrag([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)tarif(\S?)(\s?)(. {0,10})verträge([a-zA-ZÜÄÖüäöß]*)

Rechte der Gewerkschaften

- (?i)([a-zA-ZÜÄÖüäöß]*)Rechte(\S?)(\s?)(. {0,10})der(\S?)(\s?)(. {0,10})Gewerkschaften([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)vereinigungs(\S?)(\s?)(. {0,10})freiheit([a-zA-ZÜÄÖüäöß]*)

- (?i)([a-zA-ZÜÄÖüäöß]*)tarif(\S?)(\s?)(. {0,10})verhandlung([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)gewerkschaft([a-zA-ZÜÄÖüäöß]*)

Gesundheitsschutz

- (?i)([a-zA-ZÜÄÖüäöß]*)Gesundheits(\S?)(\s?)(. {0,10})schutz([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)arbeits(\S?)(\s?)(. {0,10})sicherheit([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)erkrankung([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)gesundheits(\S?)(\s?)(. {0,10})schutz([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)abwesenheits(\S?)(\s?)(. {0,10})rate([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)amputation([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)angst(\S?)(\s?)(. {0,10})störung([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)anweisung([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)arbeits(\S?)(\s?)(. {0,10})ausfall([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)arbeits(\S?)(\s?)(. {0,10})belastung([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)arzt([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)ärztl([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)asbest([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)atemweg([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)ausfall(\S?)(\s?)(. {0,10})zeit([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)ausrutsch([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)unfall([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)unfälle([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)zusammen(\S?)(\s?)(. {0,10})stoß([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)zusammen(\S?)(\s?)(. {0,10})stöße([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)berufs(\S?)(\s?)(. {0,10})bedingt([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)blut([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)chronisch([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)drogen(\S?)(\s?)(. {0,10})missbrauch([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)epidemie([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)epileptisch([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)ergonom([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)erkrank([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)explosiv([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)exposition([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)feuer([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)fitness(\S?)(\s?)(. {0,10})programm([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)fitness(\S?)(\s?)(. {0,10})studio([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)gefahren(\S?)(\s?)(. {0,10})identifizierung([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)gefahren(\S?)(\s?)(. {0,10})risik([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)gefahren(\S?)(\s?)(. {0,10})situation([a-zA-ZÜÄÖüäöß]*)
- (?i)gesund
- (?i)([a-zA-ZÜÄÖüäöß]*)glied(\S?)(\s?)(. {0,10})maße([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)hepatitis([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)infarkt([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)hör(\S?)(\s?)(. {0,10})schwäche([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)hör(\S?)(\s?)(. {0,10})verlust([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)hygiene([a-zA-ZÜÄÖüäöß]*)
- \b(?i)icd\b
- (?i)([a-zA-ZÜÄÖüäöß]*)impf(\S?)(\s?)(. {0,10})stoff([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)insekten(\S?)(\s?)(. {0,10})stich([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)körper(\S?)(\s?)(. {0,10})bewegung([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)körper(\S?)(\s?)(. {0,10})flüssigkeit([a-zA-ZÜÄÖüäöß]*)

- (i)([a-zA-ZÜÄÖüäöß]*)kontroll(\S?)(s?)(. {0,10})vorrichtung([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)kranken(\S?)(s?)(. {0,10})haus([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)kranken(\S?)(s?)(. {0,10})häuser([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)kranken(\S?)(s?)(. {0,10})kasse([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)krank(\S?)(s?)(. {0,10})heit([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)krebs(\S?)(s?)(. {0,10})erregend([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)krebs(\S?)(s?)(. {0,10})forschung([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)lähmung([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)lärm([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)latenz(\S?)(s?)(. {0,10})zeit([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)malaria([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)medizinisch([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)melde(\S?)(s?)(. {0,10})richtlinie([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)mitarbeiter(\S?)(s?)(. {0,10})gesundheit([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)mortalität([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)muskuloskelettal([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)notfall([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)post(\S?)(s?)(. {0,10})traumatisch([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)raucher(\S?)(s?)(. {0,10})entwöhnung([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)schnitt(\S?)(s?)(. {0,10})wunde([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)sicherheits(\S?)(s?)(. {0,10})inspektion([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)stolper(\S?)(s?)(. {0,10})gefahr([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)stress(\S?)(s?)(. {0,10})abbau([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)tod([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)tödlich([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)toxisch([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)tuberkulose([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)verletz([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)wartungs(\S?)(s?)(. {0,10})arbeit([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)schwere(\S?)(s?)(. {0,10})grad([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)schutz(\S?)(s?)(. {0,10})ausrüstung([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)wohlergehen([a-zA-ZÜÄÖüäöß]*)

Sicherheit am Arbeitsplatz

- (i)([a-zA-ZÜÄÖüäöß]*)Arbeitsplatz(\S?)(s?)(. {0,10})sicherheit([a-zA-ZÜÄÖüäöß]*)

(3) Sozialbelange

Regionaler bzw. kommunaler Dialog und lokale Gemeinschaften

- (i)([a-zA-ZÜÄÖüäöß]*)Regionaler bzw. kommunaler Dialog([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)lokal([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)gemeinschaft([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)abstammung([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)alphabetisierung([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)analphabet ([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)behinderung([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)beeinträchtigung([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)bildungs(\S?)(s?)(. {0,10})infrastruktur([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)communit([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)einkommens(\S?)(s?)(. {0,10})niveau([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)förder(\S?)(s?)(. {0,10})programm([a-zA-ZÜÄÖüäöß]*)

- (?i)([a-zA-ZÜÄÖüäöß]*)gemein(\S?)(\s?)(. {0,10})wesen([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)land(\S?)(\s?)(. {0,10})nutzungs(\S?)(\s?)(. {0,10})änderung([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)migrations(\S?)(\s?)(. {0,10})status([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)sozio(\S?)(\s?)(. {0,10})ökonomisch([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)stakeholder(\S?)(\s?)(. {0,10})analyse([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)umsiedlung ([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)Lokale(\S?)(\s?)(. {0,10})Gemeinschaft([a-zA-ZÜÄÖüäöß]*)

(4) Achtung der Menschenrechte

Vermeidung von Menschenrechtsverletzungen

- (?i)([a-zA-ZÜÄÖüäöß]*)Menschen(\S?)(\s?)(. {0,10})recht([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)afrikanisch([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)amerikanisch([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)arabisch([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)europäisch([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)gerichtshof([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)grund(\S?)(\s?)(. {0,10})freiheit([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)universalitäts(\S?)(\s?)(. {0,10})grunds([a-zA-ZÜÄÖüäöß]*)

(5) Bekämpfung von Korruption und Bestechung

Instrumente zur Bekämpfung von Korruption und Bestechung

- (?i)([a-zA-ZÜÄÖüäöß]*)Bekämpfung(\S?)(\s?)(. {0,10})von(\S?)(\s?)(. {0,10})Korruption(\S?)(\s?)(. {0,10})und(\S?)(\s?)(. {0,10})Bestechung([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)korruption([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)bereicherung([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)betrüger([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)börsen(\S?)(\s?)(. {0,10})aufsicht([a-zA-ZÜÄÖüäöß]*)
- ([a-zA-ZÜÄÖüäöß]+)betrug([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)demokratie(\S?)(\s?)(. {0,10})missbrauch([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)ermittlung([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)erpressung([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)geld(\S?)(\s?)(. {0,10})wäsche([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)geschäfts(\S?)(\s?)(. {0,10})führungspraktik([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)geschenk([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)illegal([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)missbräuchlich([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)unehrlich([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)unterschlagung([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)verschleier([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)vertrauens(\S?)(\s?)(. {0,10})bruch([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)weltbank([a-zA-ZÜÄÖüäöß]*)
- \b(?i)wgi\b
- (?i)([a-zA-ZÜÄÖüäöß]*)bestech([a-zA-ZÜÄÖüäöß]*)
- \bBetrug([a-zA-ZÜÄÖüäöß]*)\b

Corporate Social Responsibility Dictionary based on paragraph 289c of the German Commercial Code – Contents of a non-financial statement(English version)

(1) Environment-related matters

Greenhouse gas emissions

- (?i)([a-zA-ZÜÄÖüäöß]*)emi(\S?)(\s?)(. {0,10})ssion([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)pollutant([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)energy(\S?)(\s?)(. {0,10})related([a-zA-ZÜÄÖüäöß]*)
- \b(?i)thg\b
- (?i)([a-zA-ZÜÄÖüäöß]*)atmosphere([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)nitrogen([a-zA-ZÜÄÖüäöß]*)
- \b(?i)fckw\b
- (?i)([a-zA-ZÜÄÖüäöß]*)particulate([a-zA-ZÜÄÖüäöß]*)
- \b(?i)fkwb
- (?i)([a-zA-ZÜÄÖüäöß]*)gas(\S?)(\s?)(. {0,10})transport([a-zA-ZÜÄÖüäöß]*)
- \b(?i)sox\b
- \b(?i)ipcc\b
- (?i)([a-zA-ZÜÄÖüäöß]*)climate([a-zA-ZÜÄÖüäöß]*)
- \b(?i)kyoto\b
- (?i)([a-zA-ZÜÄÖüäöß]*)meteorolog([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)methan([a-zA-ZÜÄÖüäöß]*)
- \b(?i)nox\b
- \b(?i)ods\b
- (?i)([a-zA-ZÜÄÖüäöß]*)oxid([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)ozon([a-zA-ZÜÄÖüäöß]*)
- \b(?i)pfkwb
- (?i)([a-zA-ZÜÄÖüäöß]*)sulphur([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)sulfur([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)scope([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)sun(\S?)(\s?)(. {0,10})light([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)acidification([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)fine(\S?)(\s?)(. {0,10})dust([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)forest(\S?)(\s?)(. {0,10})degradation([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)warming([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)biomass([a-zA-ZÜÄÖüäöß]*)
- \b(?i)ghg\b
- (?i)([a-zA-ZÜÄÖüäöß]*)carbon([a-zA-ZÜÄÖüäöß]*)
- \b(?i)wbcsd\b
- (?i)([a-zA-ZÜÄÖüäöß]*)greenhouse(\S?)(\s?)(. {0,10})gas([a-zA-ZÜÄÖüäöß]*)

Water use

- (?i)([a-zA-ZÜÄÖüäöß]*)water(\S?)(\s?)(. {0,10})consumption([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)waste(\S?)(\s?)(. {0,10})water([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)water(\S?)(\s?)(. {0,10})discharge([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)water(\S?)(\s?)(. {0,10})withdrawal([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)water(\S?)(\s?)(. {0,10})recycling([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)water(\S?)(\s?)(. {0,10})stress([a-zA-ZÜÄÖüäöß]*)

- (?i)([a-zA-ZÜÄÖüäöß]*)streams([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)discharge(\S?)(\s?)(. {0,10})limit([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)iceberg([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)ice(\S?)(\s?)(. {0,10})cap([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)ice(\S?)(\s?)(. {0,10})sheet([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)withdrawal(\S?)(\s?)(. {0,10})source([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)basins([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)dissolved(\S?)(\s?)(. {0,10})solids([a-zA-ZÜÄÖüäöß]*)
- \b(?i)river([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)estuary([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)glacier([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)groundwater([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)hydrological([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)seawater([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)precipitation([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)surface(\S?)(\s?)(. {0,10})water([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)ocean([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)water(\S?)(\s?)(. {0,10})related([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)sanitation([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)heavy(\S?)(\s?)(. {0,10})metal([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)fresh(\S?)(\s?)(. {0,10})water([a-zA-ZÜÄÖüäöß]*)
- \b(?i)lake([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)pond([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)water(\S?)(\s?)(. {0,10})quality([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)steam([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)haze([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)water(\S?)(\s?)(. {0,10})treatment([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)water(\S?)(\s?)(. {0,10})balance([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)water(\S?)(\s?)(. {0,10})management([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)water(\S?)(\s?)(. {0,10})footprint([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)water(\S?)(\s?)(. {0,10})intensiv([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)water(\S?)(\s?)(. {0,10})network([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)water(\S?)(\s?)(. {0,10})us([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)water(\S?)(\s?)(. {0,10})depletion([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)water(\S?)(\s?)(. {0,10})storage([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)water(\S?)(\s?)(. {0,10})environment([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)water(\S?)(\s?)(. {0,10})consumption([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)water(\S?)(\s?)(. {0,10})supply([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)water(\S?)(\s?)(. {0,10})volume([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)drinking(\S?)(\s?)(. {0,10})water([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)surface(\S?)(\s?)(. {0,10})runoff([a-zA-ZÜÄÖüäöß]*)

Air pollution

- (?i)([a-zA-ZÜÄÖüäöß]*)air(\S?)(\s?)(. {0,10})pollution([a-zA-ZÜÄÖüäöß]*)

Use of renewable and non-renewable energies

- (i)([a-zA-ZÜÄÖüäöß]*)renewable([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)fuel([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)energy(\S?)(s?)(. {0,10})requirements([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)energy(\S?)(s?)(. {0,10})related([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)form(\S?)(s?)(. {0,10})of(\S?)(s?)(. {0,10})energy([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)energy(\S?)(s?)(. {0,10})intensity([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)energy(\S?)(s?)(. {0,10})us([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)energy(\S?)(s?)(. {0,10})source([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)energy(\S?)(s?)(. {0,10})regulation([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)exhaust(\S?)(s?)(. {0,10})gas([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)liquefied(\S?)(s?)(. {0,10})gas([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)natural(\S?)(s?)(. {0,10})gas([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)district(\S?)(s?)(. {0,10})heating([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-Z]*)energy(\S?)(s?)(. {0,10})consumption([a-zA-Z]*)
- (i)([a-zA-ZÜÄÖüäöß]*)heater([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)chilled(\S?)(s?)(. {0,10})water(\S?)(s?)(. {0,10})plant([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)solar(\S?)(s?)(. {0,10})energy([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)environmental(\S?)(s?)(. {0,10})footprint([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)wind([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)joule([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)energy(\S?)(s?)(. {0,10})source([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)electricity([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)coal([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)energy(\S?)(s?)(. {0,10})type([a-zA-ZÜÄÖüäöß]*)

Protection of the biological diversity

- (i)([a-zA-ZÜÄÖüäöß]*)Biodiversity([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)extinction(\S?)(s?)(. {0,10})of(\S?)(s?)(. {0,10})species([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)biospher([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)introduction(\S?)(s?)(. {0,10})of(\S?)(s?)(. {0,10})invasive([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)endanger([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)food(\S?)(s?)(. {0,10})security([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)fauna([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)flora([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)threatened([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)extinction(\S?)(s?)(. {0,10})risk([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)genetic([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)protected([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)heritage([a-zA-ZÜÄÖüäöß]*)
- \b(i)\sGen([sS]?)\b
- (i)([a-zA-ZÜÄÖüäöß]*)vulnerable([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)reversib([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)ground(\S?)(s?)(. {0,10})land([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)surface([a-zA-ZÜÄÖüäöß]*)

- (i)([a-zA-ZÜÄÖüäöß]*)livelihood([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)marine(\S?)(\s?)(. {0,10})ecosystem([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)buffer(\S?)(\s?)(. {0,10})zone([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)restor([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)salinity([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)pest([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)protected(\S?)(\s?)(. {0,10})area([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)protected(\S?)(\s?)(. {0,10})status([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)range(\S?)(\s?)(. {0,10})of(\S?)(\s?)(. {0,10})variation([a-zA-ZÜÄÖüäöß]*)
- \b(i)unesco\b
- \b(i)iucn\b
- (i)plant([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)environmental(\S?)(\s?)(. {0,10})site(\S?)(\s?)(. {0,10})impact([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)habitat([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)nature([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)species([a-zA-ZÜÄÖüäöß]*)

(2) Employee-related matters

Gender equality

- (i)([a-zA-ZÜÄÖüäöß]*)gender(\S?)(\s?)(. {0,10})equality([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)equal(\S?)(\s?)(. {0,10})oppurtunit([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)opportunities(\S?)(\s?)(. {0,10})for(\S?)(\s?)(. {0,10})advancement([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)opportunity(\S?)(\s?)(. {0,10})for(\S?)(\s?)(. {0,10})advancement([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)diversity([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)highest(\S?)(\s?)(. {0,10})governance(\S?)(\s?)(. {0,10})level([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)gender([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)equalit([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)basic(\S?)(\s?)(. {0,10})salary([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)minority([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)employees([a-zA-ZÜÄÖüäöß]*)
- \b(i)men\b
- \b(i)woman\b
- \b(i)female\b
- (i)([a-zA-ZÜÄÖüäöß]*)payment([a-zA-ZÜÄÖüäöß]*)

Working conditions

- (i)([a-zA-ZÜÄÖüäöß]*)working(\S?)(\s?)(. {0,10})conditions([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)employment(\S?)(\s?)(. {0,10})relationship([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)apprentice ([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)talent([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)expert([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)canteen([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)intern([a-zA-ZÜÄÖüäöß]*)

- (i)([a-zA-ZÜÄÖüäöß]*)part(S?)(s?)(. {0,10})time([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)holiday([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)vacation([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)full(S?)(s?)(. {0,10})time([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)workstation([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)temporary(S?)(s?)(. {0,10})contract([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)worker([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)overtime([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)employer([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)working(S?)(s?)(. {0,10})hours([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)promotion([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)employee(S?)(s?)(. {0,10})turnover([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)employee(S?)(s?)(. {0,10})morale([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)working(S?)(s?)(. {0,10})week([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)recruitment(S?)(s?)(. {0,10})practice([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)parental(S?)(s?)(. {0,10})leave([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)dismissal(S?)(s?)(. {0,10})practice([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)return(S?)(s?)(. {0,10})to(S?)(s?)(. {0,10})work(S?)(s?)(. {0,10})rate([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)disability(S?)(s?)(. {0,10})coverage([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)survivor's(S?)(s?)(. {0,10})benefit([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)day(S?)(s?)(. {0,10})care([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)maternal(S?)(s?)(. {0,10})protection([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)human(S?)(s?)(. {0,10})resource(S?)(s?)(. {0,10})development([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)reduced(S?)(s?)(. {0,10})payroll([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)sports(S?)(s?)(. {0,10})center([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)sports(S?)(s?)(. {0,10})facilit([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)justice([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)welfare(S?)(s?)(. {0,10})matters([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)temporary(S?)(s?)(. {0,10})employee([a-zA-ZÜÄÖüäöß]*)

Implementation of fundamental conventions of the International Labour Organization

- (i)([a-zA-ZÜÄÖüäöß]*)Convention of the International Labour Organization([a-zA-ZÜÄÖüäöß]*)
- \b(i)ilob
- (i)([a-zA-ZÜÄÖüäöß]*)labour(S?)(s?)(. {0,10})organization([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)employment(S?)(s?)(. {0,10})contract([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)migrant([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)excessive(S?)(s?)(. {0,10})workload(S?)(s?)(. {0,10})demand([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)workflow([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)work(S?)(s?)(. {0,10})related([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)work(S?)(s?)(. {0,10})method([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)labor(S?)(s?)(. {0,10})law([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)working(S?)(s?)(. {0,10})environment([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)demographic([a-zA-ZÜÄÖüäöß]*)
- (i)([a-zA-ZÜÄÖüäöß]*)recovery(S?)(s?)(. {0,10})time([a-zA-ZÜÄÖüäöß]*)

- (?i)([a-zA-ZÜÄÖüäöß]*)absence(\S?)(\s?)(. {0,10})from(\S?)(\s?)(. {0,10})work([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)worker(\S?)(\s?)(. {0,10})participation([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)worker's(\S?)(\s?)(. {0,10})demographic([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)employee(\S?)(\s?)(. {0,10})remuneration([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)bullying([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)qualification([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)shift(\S?)(\s?)(. {0,10})work([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)provision(\S?)(\s?)(. {0,10})of(\S?)(\s?)(. {0,10})training([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)workplace([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)child(\S?)(\s?)(. {0,10})labor([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)training(\S?)(\s?)(. {0,10})program([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)youth(\S?)(\s?)(. {0,10})employment([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)minimum(\S?)(\s?)(. {0,10})age([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)abuse([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)schooling([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)slave([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)human(\S?)(\s?)(. {0,10})trafficking([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)exploitative(\S?)(\s?)(. {0,10})labor([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)identity(\S?)(\s?)(. {0,10})paper([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)prison([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)bondage([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)compulsory(\S?)(\s?)(. {0,10})labor([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)worker(\S?)(\s?)(. {0,10})representation([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)discrimination([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)harassment([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)fair([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)color([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)lifestyle([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)sexual([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)religion([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)empowerment([a-zA-ZÜÄÖüäöß]*)
- \b(?i)origin\b
- (?i)([a-zA-ZÜÄÖüäöß]*)ethnic([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)world(\S?)(\s?)(. {0,10})conference(\S?)(\s?)(. {0,10})on(\S?)(\s?)(. {0,10})women([a-zA-ZÜÄÖüäöß]*)

Respect for the rights of workers to be informed and consulted

- (?i)([a-zA-ZÜÄÖüäöß]*)Information(\S?)(\s?)(. {0,10}) and (\S?)(\s?)(. {0,10})consultation rights([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)consultation(\S?)(\s?)(. {0,10})rights([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)information(\S?)(\s?)(. {0,10})rights([a-zA-ZÜÄÖüäöß]*)

Social dialogue

- (?i)([a-zA-ZÜÄÖüäöß]*)social(\S?)(\s?)(. {0,10})dialogue([a-zA-ZÜÄÖüäöß]*)

- (?i)([a-zA-ZÜÄÖüäöß]*)minimum(\S?)(\s?)(. {0,10})notice(\S?)(\s?)(. {0,10})period([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)operational(\S?)(\s?)(. {0,10})disruption([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)collective(\S?)(\s?)(. {0,10})agreement([a-zA-ZÜÄÖüäöß]*)

Respect for trade union rights

- (?i)([a-zA-ZÜÄÖüäöß]*)rights(\S?)(\s?)(. {0,10})of(\S?)(\s?)(. {0,10})trade(\S?)(\s?)(. {0,10})union([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)freedom(\S?)(\s?)(. {0,10})of(\S?)(\s?)(. {0,10})association([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)collective(\S?)(\s?)(. {0,10})bargaining([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)trade(\S?)(\s?)(. {0,10})union([a-zA-ZÜÄÖüäöß]*)

Health protection

- (?i)([a-zA-ZÜÄÖüäöß]*)occupational(\S?)(\s?)(. {0,10})health([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)occupational(\S?)(\s?)(. {0,10})safety([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)disease([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)absentee(\S?)(\s?)(. {0,10})rate([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)amputation([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)anxiety([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)instruction([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)lost(\S?)(\s?)(. {0,10})workday([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)workload([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)physician([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)asbestos([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)respiratory([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)lost(\S?)(\s?)(. {0,10})time([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)slip([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)accident([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)collision([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)work(\S?)(\s?)(. {0,10})related([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)blood([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)chronic([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)drug(\S?)(\s?)(. {0,10})abuse([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)epidemic([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)epileptic([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)ergonom([a-zA-ZÜÄÖüäöß]*)
- \b(?i)ill\b
- (?i)([a-zA-ZÜÄÖüäöß]*)explosive([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)exposure([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)fire([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)fitness(\S?)(\s?)(. {0,10})program([a-zA-ZÜÄÖüäöß]*)
- \b(?i)gym\b
- (?i)([a-zA-ZÜÄÖüäöß]*)hazard(\S?)(\s?)(. {0,10})identification([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)hazardous(\S?)(\s?)(. {0,10})situation([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)limb([a-zA-ZÜÄÖüäöß]*)

- (?i)([a-zA-ZÜÄÖüäöß]*)hepatitis([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)heart(\S?)(\s?)(. {0,10})attack([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)hearing(\S?)(\s?)(. {0,10})impairment([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)hygiene([a-zA-ZÜÄÖüäöß]*)
- \b(?i)icd\b
- (?i)([a-zA-ZÜÄÖüäöß]*)vaccine([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)insect(\S?)(\s?)(. {0,10})bite([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)body(\S?)(\s?)(. {0,10})movement([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)bodily(\S?)(\s?)(. {0,10})fluid([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)hospital[a-zA-ZÜÄÖüäöß]*
- (?i)([a-zA-ZÜÄÖüäöß]*)health(\S?)(\s?)(. {0,10})insurance([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)carcinogenic([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)research(\S?)(\s?)(. {0,10})on(\S?)(\s?)(. {0,10})cancer([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)paralysis([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)noise([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)latency([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)malaria([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)medical([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)reporting(\S?)(\s?)(. {0,10})guid([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)worker's(\S?)(\s?)(. {0,10})health([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)mortality([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)musculoskeletal([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)emergencyl([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)post(\S?)(\s?)(. {0,10})traumatic([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)smoking(\S?)(\s?)(. {0,10})cessation([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)laceration([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)safety(\S?)(\s?)(. {0,10})inspection([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)tripping(\S?)(\s?)(. {0,10})hazard([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)stress(\S?)(\s?)(. {0,10})reducing(\S?)(\s?)(. {0,10})program([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)death([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)toxic([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)tuberculosis([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)violation([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)maintenance([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)safety([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)severity([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)protective(\S?)(\s?)(. {0,10})equipment([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)well(\S?)(\s?)(. {0,10})being([a-zA-ZÜÄÖüäöß]*)

Safety at work

- (?i)([a-zA-ZÜÄÖüäöß]*)workplace(\S?)(\s?)(. {0,10})safety([a-zA-ZÜÄÖüäöß]*)

(3) Social matters

Dialogue with local communities or on the regional level or the measures taken to ensure the protection and development of those local communities

- (?i)([a-zA-ZÜÄÖüäöß]*)regional dialogue([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)local([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)communit([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)descent([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)literacy(\S?)(\s?)(. {0,10})level([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)illiterate ([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)not(\S?)(\s?)(. {0,10})literate ([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)disabilit([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)impairment([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)educational(\S?)(\s?)(. {0,10})facilit([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)income(\S?)(\s?)(. {0,10})level([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)development(\S?)(\s?)(. {0,10})program([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)land(\S?)(\s?)(. {0,10})conversion([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)migration(\S?)(\s?)(. {0,10})status([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)socio(\S?)(\s?)(. {0,10})economic([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)stakeholder(\S?)(\s?)(. {0,10})mapping([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)resettlement ([a-zA-ZÜÄÖüäöß]*)

(4) Respect for human rights

Prevention of human rights abuses

- (?i)([a-zA-ZÜÄÖüäöß]*)human(\S?)(\s?)(. {0,10})right([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)african ([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)american([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)arabic([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)european([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)court([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)fundamental(\S?)(\s?)(. {0,10})freedom([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)principle(\S?)(\s?)(. {0,5})of(\S?)(\s?)(. {0,5})universality([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)principles(\S?)(\s?)(. {0,5})of(\S?)(\s?)(. {0,5})universality([a-zA-ZÜÄÖüäöß]*)

(5) Fight against corruption and bribery

Instruments for fighting corruption and bribery

- (?i)([a-zA-ZÜÄÖüäöß]*)fight(\S?)(\s?)(. {0,10})against(\S?)(\s?)(. {0,10})corruption(\S?)(\s?)(. {0,10})and(\S?)(\s?)(. {0,10})bribery([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)corruption([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)enrichment([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)exchange(\S?)(\s?)(. {0,10})commission([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)Fraud([a-zA-ZÜÄÖüäöß]*)

- (?i)([a-zA-ZÜÄÖüäöß]*)abuse(\S?)(\s?)(. {0,10})of(\S?)(\s?)(. {0,10})democracy([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)investigation([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)extortion([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)ethic([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)money(\S?)(\s?)(. {0,10})laundering([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)responsible(\S?)(\s?)(. {0,10})business([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)gift([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)illegal([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)abuse(\S?)(\s?)(. {0,10})of(\S?)(\s?)(. {0,10})function([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)dishonest([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)embezzlement([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)concealment([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)breach(\S?)(\s?)(. {0,10})of(\S?)(\s?)(. {0,10})trust([a-zA-ZÜÄÖüäöß]*)
- (?i)([a-zA-ZÜÄÖüäöß]*)world(\S?)(\s?)(. {0,10})bank([a-zA-ZÜÄÖüäöß]*)
- \b(?i)wgi\b
- (?i)([a-zA-ZÜÄÖüäöß]*)bribe([a-zA-ZÜÄÖüäöß]*)

B2 Innovative Investor Communication via the World Wide Web in the face of growing Digitalization

Study no.	6			
Title	Innovative Investor Communication via the World Wide Web in the face of growing Digitalization			
Authors	Anastasia Bauer, Julia Schneider, Meike Windhäuser			
Author contribution		Bauer	Schneider	Windhäuser
	<i>Numeric share</i>	0.33	0.33	0.33
	Conceptual development of research question	✓	✓	
	Development of theory	✓	✓	
	Methodology	✓	✓	
	Acquisition of data			✓
	Analysis/interpretation of data	✓	✓	
	Writing the manuscript	✓	✓	
Publication status	Working Paper submitted to the Journal <i>Information and Organization</i> (2022)			
Research approach	Empirical study (panel design) applying fixed-effects regression models			
Language	English			
Abstract	The Internet is widely used by listed firms to facilitate investor relations. To enhance financial transparency, firms leverage this online channel to spread information timely, and present information content in a user-friendly way in various formats using multiple technological features. While there is common consent that better Internet-based financial disclosure transparency and a comprehensive set of technological features lead to lower information asymmetry and an improved market efficiency, this study focuses on the antecedents of innovative investor communication via the Internet. We identify novel institutional and demographic diversity characteristics determining a firm's Internet-based disclosure practices as relevant to the firm's investors. A checklist of 40 items is developed to evaluate the level and sophistication of innovative investor communication (communication score). A higher communication score is associated with the establishment of a Chief Information Officer (CIO) or Sustainability Officer (CSO), with lower turnover at the management board and with an older (a younger) management board (Chief Executive Officer (CEO)). Our research provides a theoretical and practical framework of elements that are necessary within state-of-the-art Internet-based investor communication.			
Keywords	Internet financial reporting · Voluntary disclosure · Corporate communication · Social media · Digital innovation · Technology · Investor Relations · Institutional characteristics · Diversity · Transparency.			

Innovative Investor Communication via the World Wide Web in the face of growing Digitalization

Anastasia Bauer
Justus Liebig University Giessen (Germany)
Anastasia.Bauer@wirtschaft.uni-giessen.de
Licher Str. 62,
35394 Giessen, Germany

Julia Schneider
Justus Liebig University Giessen (Germany)
Julia.Schneider@wirtschaft.uni-giessen.de
Licher Str. 62,
35394 Giessen, Germany
Phone: +49-(0)-641-99-22584
Fax: +49-(0)-641-99-22589
(corresponding author)

Meike Windhäuser
Justus Liebig University Giessen (Germany)
mwindhaeuser@gmx.de
Licher Str. 62,
35394 Giessen, Germany

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Abstract

The Internet is widely used by listed firms to facilitate investor relations. To enhance financial transparency, firms leverage this online channel to spread information timely, and present information content in a user-friendly way in various formats using multiple technological features. While there is common consent that a better Internet-based financial disclosure transparency and a comprehensive set of technological features lead to lower information asymmetry and an improved market efficiency, this study focuses on the antecedents of innovative investor communication via the Internet. We identify novel institutional and demographic diversity characteristics determining a firm's Internet-based disclosure practices as relevant to the firm's investors. A checklist of 40 items is developed to evaluate the level and sophistication of innovative investor communication (communication score). A higher communication score is associated with the establishment of a Chief Information Officer (CIO) or Sustainability Officer (CSO), with lower turnover at the management board and with an older (a younger) management board (Chief Executive Officer (CEO)). Our research provides a theoretical and practical framework on elements that are necessary within state-of-the-art Internet-based investor communication.

Keywords: Internet financial reporting, Voluntary disclosure, Corporate communication, Social media, Digital innovation, Technology, Investor Relations, Institutional characteristics, Diversity, Transparency.

1. Introduction

The World Wide Web has revolutionized financial transparency for both listed firms and investors in financial markets. Relative to traditional media – most notably paper-based annual or interim reports – the Internet allows *firms* to aggregate and disclose various kinds of information in multiple presentation formats. Web-based disclosure provides firms with the opportunity of improving communication quality, attracting potential investors, enhancing reputation, and reducing information preparation and distribution costs (Ettredge, Richardson, & Scholz, 2002; Gajewski & Li, 2015). Furthermore, the Internet enables firms to directly communicate with their investors in a cost-effective, dynamic and timely way (Bollen, Hassink, & Bozic, 2006). Although the content of web-based information may not necessarily be exclusive nor required by law, managerial decision to disseminate the information via the firm's investor relations website is highly discretionary and reflective of its potential usefulness. The adoption of online disclosure makes it possible for a firm to present information easily, and make its investor-relations website a user-friendly information center. Thus, the various financial reporting functions can be customized to an investor's individual needs. *Investors* may benefit from Internet disclosure, because web-based technologies facilitate the information-gathering process. Via the Internet, investors can very quickly and conveniently obtain different types of financial information which is presented in various formats (Word, Excel, Pdf, etc.), and they can use it instantaneously (Oyelere & Kuruppu, 2012). As Hodge, Kennedy, and Maines (2004) point out, search-facilitating technologies, such as eXtensible Business Reporting Language (XBRL), enable financial statement users to access, analyze and interpret the firm's financial statement information, and let managers choose how to report this information. Moreover, since Internet-based information is widely disseminated and, in turn, improves overall financial transparency, financial disclosure on the firm's website is likely to reduce the information asymmetry between informed and uninformed investors (Gajewski & Li, 2015).

Using the German stock market, this study aims to develop a better understanding of the determinants of Internet-based voluntary financial reporting. It is the main purpose to determine whether firm as well as managerial and board characteristics that are readily observable, influence web-based investor communication, in particular its degree of innovative sophistication. Although this study only focuses on Germany, the inferences made based on our empirical analysis and the implications given within this paper are likely to apply to other markets as well. Essentially, the World Wide Web is a transnational phenomenon as digitalization and globalization are transnational megatrends. Since our primary interest is on *voluntary* disclosure facilities and applications, our analysis is largely detached from reporting standards and statutory regulations that tend to vary by state and country. Building on prior research on web-based disclosure practices (e.g, Gajewski & Li, 2015; Claire Marston & Polei, 2004), we investigate the level of innovative features on a firm's investor relations website that facilitates communication with the firm's investor groups.

To date, much attention has been devoted to firm characteristics such as firm size or leverage and their connection with web-based financial reporting quality. By contrast, little attention has been paid to the firm's top executives and their response to environmental (e.g., stakeholder or legislative), institutional and economic pressures with respect to the implementation of Internet investor communication practices. Although these institutional and environmental factors may force firms to adopt and improve financial reporting via the Internet (Hinings, Gegenhuber, & Greenwood, 2018), the firms' executives may ultimately choose if and how Internet investor communication is managed. Based on the works of Gajewski and Li (2015) and others (Ettredge et al., 2002; Oyelere & Kuruppu, 2012; e.g., Pirchegger & Wagenhofer, 1999), we draft a checklist of 40 items to assess the level of innovative web-based investor communication. Importantly, this checklist takes into account both the extent of information available via the Internet and its presentation (e.g., via video, flash) and dissemination (e.g., via social media platforms, fact books), and download tools available on a

firm's website. For example, we consider interactive and mobile communication tools which are particularly important for the investor's needs to flow into the firm's investor relations activities. From an *investor's* perspective, such interactive tools provide the investor with the opportunity to self-structure relevant reporting metrics, thus making the firm's investor relations site a convenient and user-friendly information center (Gajewski & Li, 2015). From the *firm's* perspective, the convenient use and customized application of its financial data enhance the firm's market attractiveness, and reduce its cost of capital, ultimately resulting in a higher firm value (Francis, Khurana, & Pereira, 2005). Although our methodological approach does not fully exclude mandatory disclosures, it leads to a communication measure that comprises investor-related information the firm decides to publish on the Internet voluntarily – in a Web-browser format of its choice (Orens, Aerts, & Cormier, 2010). Our empirical analysis reveals a significant association between important firm-level institutional characteristics (establishment of a Chief Information (CIO) and Chief Sustainability Officer (CSO), C-level transitions) alongside personal attributes (management board's and CEO age) and innovative web-based investor communication. Institutionalization by establishing a special management function aimed at innovating and refining the firm's investor-relations web presence (e.g., including the enrichment of the firm's investor relations (IR) website with modern applications, features and presentation formats) is first of all costly for firms, resulting in potential cash inflows only later. Consequently, the presence of a Chief Digital Officer (CDO), CIO or CSO or of a Digitalization Committee may visually underline the strategic emphasis on innovative investor communication: such a management or sustainability board function enforces digital transformation which also involves investor communication.

Our results contribute four-fold: First, instead of examining the consequences of web-based disclosure, we focus on the determinants of this particular information dissemination channel. Specifically, while for instance Gajewski and Li (2015) examine the impact of web-based investor communication on information asymmetry, and others (Ahmed, Tahat, Burton,

& Dunne, 2015; Cormier, Aerts, Ledoux, & Magnan, 2009) investigate the effects on firm performance or value relevance, we start a step earlier and analyze the determinants of Internet financial reporting. Even though researchers have already shed light on the determinants of investor communication, they are predominantly limited to traditional means of communication (paper-based annual reports, preliminary announcements, earnings announcements, financial analysts' information, etc.). We, however, also put special emphasis on the digital progress. By incorporating modern aspects such as the firm's linkage to social media sites, firm apps, smartphone interfaces or live broadcasts, we consider innovative technological features of investor communication.

Second, advances in information and communication technologies are associated with a wide and increasing range of economic, social and governmental consequences, which are experienced by organizations, their stakeholders (e.g., investors), and societies at large. In particular, the COVID-19 pandemic has spurred digitalization, boosted and renewed the firms' Internet presence, because physical relationship interactions, face-to-face events and meetings, such as the Annual General Meeting, could not be held and social contacts needed to be avoided (Whillans, Perlow, & Turek, 2021; Zilber & Goodman, 2021). Our panel covers this transition period and researches the firm's IR presence before and after that unexpected external shock (Faraj, Renno, & Bhardwaj, 2021; Gkeredakis, Lifshitz-Assaf, & Barrett, 2021). The present empirical study expands our understanding of important firm-based institutional characteristics by studying firms' IR practices as they were suddenly forced to introduce a fully virtual environment.

Third, several empirical analyses investigate the impact of electronic communication on information asymmetry by considering the adoption of XBRL.¹ These analyses show that the

¹ Extensible Business Reporting Language (XBRL) is a text-based language for the exchange of information for electronic financial reporting. It provides a comfortable way of filing, evaluating, processing and publishing data in more dynamic Web (HTML) or standard print (Word or PDF) output formats. While the electronic publication of business data is a voluntary offer in many countries, firms subject to accounting requirements in Germany have

technique of XBRL improves financial transparency and lowers information asymmetry in the capital market (Yoon, Zo, & Ciganek, 2011). Instead of narrowing our focus on one single web disclosure technology, we develop a sophisticated comprehensive innovative investor communication score to study the overall level of firm website-based financial reporting and its determinants on the German capital market.

Fourth, since our paper provides empirical evidence of the German institutional environment, it perfectly fits with governmental efforts to promote digitalization and digital technologies, including that of German listed firms.²

Finally, our study contributes to practice. Our comprehensive, innovative investor communication score provides practitioners with a guide on the elements needed within modern Internet-based investor communication in order to increase its use by potential investors, and thus enhances the firm's attractiveness.

The remainder of this paper proceeds as follows: Section 2 describes the theoretical background. Section 3 develops the hypotheses and Section 4 explains the research method. Section 5 presents the regression results. Section 6 discusses these results and Section 7 concludes the paper.

2. Theoretical background

2.1. Digitalization

The Chairman of Cisco, John Chambers, argues that technology will become the firm's most essential asset and thereby emphasizes the fundamental transformation and disruption of firms caused by digitalization (Chambers & Kirkland, 2016). The consequences of digitalization are not solely felt in the IT department, but affect the entire organization

been obliged to prepare annual financial statements in XBRL format and transmit them to the tax authorities as an e-balance sheet since 2012 (Section 5b EStG).

² <https://www.bundesregierung.de/resource/blob/975226/1552758/b480703ff5182a097d7fba7bff752281/pdf-umsetzungsstrategie-digitalisierung-data.pdf> (accessed on 20.04.2019).

(Valentine, 2014). The firms possessing the infrastructures and knowledge to take advantage of these changes are the only ones that can succeed in this competitive environment (Ansari & Riasi, 2016; Riasi & Pourmiri, 2015).

Although a frequent object of investigation, digitalization is about more than just technological devices or apparatuses (physical artefacts, e.g., smartphones, computers, fiber) (Winner, 1977). As Gidlund and Sundberg (2021) claim, it is also about techniques (skills and procedures, e.g., digital case management, digital learning platforms) and organizations or institutions and its entities (organizational arrangements, e.g., bodies, body members and their characteristics). Another dimension of how firms deal with the impact of digitalization and organize, for instance, institutional aspects, has gained momentum in the “information age” (Brown & Marsden, 2013). From an organizational point of view, we need to understand what institutional aspects spur Internet financial disclosure and drive a firm’s stakeholder relations. In a volatile, rapid-changing business environment firms and their institutional frame may look significantly different in the future: how firms should reconfigure their governance structures may be increasingly relevant as it implies different stakeholder responses (e.g., from investors, job candidate talents). Especially, the management board and the board of directors are the organizational entities involved throughout the different phases of the strategic process influencing how changes are addressed. For example, executives may consult supervisory board members to test their ideas, e.g., how the board members would approach digital business realignment. As such, they seek advice from members of the board of directors which serves as a source of knowledge and expertise (Zattoni, Gnan, & Huse, 2012). Bankewitz, Aberg, and Teuchert (2016) assert that their members influence excellence in how firm resources are orchestrated and what topics are put on the agenda. Both the management and the supervisory board members enrich the firm with human resources and thus help contribute to a firm’s functional diversity (Buyl, Boone, Hendriks, & Matthyssens, 2011; Hebl & Avery, 2012).

2.2. Internet financial disclosure

Internet financial reporting is a fast-growing phenomenon which has become a standard practice of most firms. Financial information disclosed on the web includes, among others, financial statements, sustainability reports, fact books and other news with and without investor focus. Investor relations or investor communication can be defined as “the link between a company and the financial community, providing information to help the financial community and the investing public to evaluate a company” (C. Marston, 1996, p. 477). Traditionally, this information was provided within the scope of press and financial analyst conferences, annual general meetings or paper-based annual and interim corporate reports (Bollen et al., 2006). Debreceeny and Gray (1999) anticipated that, in time, the Internet would become the main means of communicating financial information, incorporating some of the latest technological developments (including XBRL and cookies), and employing direct communication such as mailing lists or online participation in interactive forum discussions or meetings. Although firms still use printed reports, these are often regarded as secondary means, thus trailing the release of information on the Internet, e.g., in an HTML language (Bollen et al., 2006).

As a result, beyond more traditional information outlets, firms communicate information specifically written and formatted for the investor relations website as a distinct information source (Orens et al., 2010). In this respect, web-based investor communication does not primarily add new information content but improves the method of providing that information. For instance, financial data in Excel sheets simplify the processing, customized graphical display and computation of data across firms and/or over periods, thus making it easier for investors to directly compare firm stock with market indices. Firms cannot only leverage the Internet as an alternative to adopt conventional investor relations activities, but also as a state-of-the-art means of communication (Bollen et al., 2006).

Since the dissemination of investor-related information through the Internet underlies no strict rules or narrow guidelines, the reporting practices among firms vary considerably

(Boubaker, Lakhali, & Nekhili, 2011). For example, due to this wide margin of discretion, the heterogeneous ways of disclosing items differ in terms of their navigational flexibility, their layout and presentation formats. *From an investor's perspective*, in contrast to relatively static documents, web-based documents with hyperlinks are likely to reduce information search and acquisition effort. Likewise, XBRL-enhanced search engines help investors to search for, acquire and integrate financial statements and corresponding footnote information directly, regardless of where the information is located within the firm's business report (Hodge et al., 2004). However, *from a firm's perspective*, the decision to use the Internet to optimize financial disclosure depends on how the firm expects to benefit from the more complete and timely business reporting, and is therefore influenced by the firm's expected future performance (Trabelsi, Labelle, & Dumontier, 2008). Voluntary web-based disclosure helps to reduce a firm's cost of capital (Orens et al., 2010). It also adds value to the firm, since it helps investors to make meaningful investment decisions, and thus to persuade them to invest into the firm (Ahmed et al., 2015).

Various research has been conducted on Internet financial disclosure, especially at the turn of the millennium (Pirchegger & Wagenhofer, 1999), but the business environment and technology have progressed since. As a result, the determinants of financial disclosure (i.e., firm characteristics) on the web may have changed. For instance, social media platforms such as Twitter, Facebook or YouTube are increasingly used to strengthen the firm's investor relations. Beyond operating websites (Ashbaugh, Johnstone, & Warfield, 1999), many firms communicate via social networks nowadays.

3. Hypotheses development

3.1. The CDO, CIO and/or the CSO as a corporate accelerator with respect to innovative investor communication via the Internet

Almost 90 percent of business leaders in the U.S. and in the U.K. expect IT and digital technologies to make an increasing strategic contribution to their core business in the coming decade. Rather than asking when firms need to give digitalization strategic priority, questions such as how to embrace it, how to use it as a competitive advantage and how to effectively digitalize the firm's key operations and functional areas must be answered (T. Hess, Matt, Benlian, & Wiesböck, 2016).

In the face of the ongoing trend towards digital technologies many firms have appointed a Chief Digital Officer (CDO) while others have created the senior executive function of a Chief Information Officer (CIO) or a Chief Sustainability Officer (CSO) with similar, related or overlapping job duties and role responsibilities, even though individual role emphases may diverge. That is, both the CDO and the CIO or the CSO combine technical expertise with leadership skills and management know-how. Thus, this senior executive function provides the necessary digital competence and technological infrastructure to successfully face contemporary challenges stemming from continuous innovation and digitalization (T. Hess et al., 2016; Walchshofer & Riedl, 2017). Since digital transformation is expected to also comprise financial disclosure with investor focus, modern CDO's, CIO's or CSO's are, among other things, responsible for driving the firm's *investor*-related online presence. In the following, we refer to the Chief digitals when discussing these three management board positions (CDO, CIO and CSO) that contribute to the firm's functional diversity (Buyl et al., 2011; Hebl & Avery, 2012).

"Digitalization must be in the top management's area of competence and coordinated and controlled centrally", Bitkom-managing director Dr. Bernhard Rohleder points out. At the C-level, commercial and IT expertise ought to converge. Rohleder adds: "Firms must

proactively drive digital change and create clear responsibilities” (cited by Krösmann, 2016). A crucial question is whether the appointment of a CDO, CIO or CSO, as one aspect of a management board’s functional diversity, advances digital transformation concerning innovative investor communication. Theoretically, from an upper echelons perspective (Hambrick & Mason, 1984) this should be the case, since a CDO, CIO or CSO has digital expertise and experience. Empirically, team research has repeatedly shown that functional background and knowledge explain differences in expertise and experience between individual team members (Yuan, Guo, & Fang, 2014). Moreover, Boone and Hendriks (2009) indicate that functional background knowledge can improve high-quality decisions and organizational effectiveness. Endowing firms’ top executives with digital expertise provides the management board with resources in the form of digital knowledge and new perspectives. These resources can be used in strategic decision-making processes. Without a CDO, CIO or CSO, these resources would not be available to the management board (Boone & Hendriks, 2009).

For example, some firms leverage the role of the CDO to stress digital capabilities on a strategic level. Although the role means different things to different firms, CDOs are usually pioneers or digital accelerators in firms for a general entrepreneurial mindset and facilitators of firm-wide change associated with digital transformation to seize new digital opportunities as best as possible (Tumbas, Berente, & Vom Brocke, 2018). In some firms, CDO responsibilities are more tactical and involve leading specific initiatives and projects that digitally enable firm units and stakeholders including investors. To attain goals associated with any digital capability, firms must leverage various technologies, e.g., mobile apps, social media or the Internet of Things. In other firms, CDOs are in charge of leading product and service innovation. Here, the CDO is often at the intersection of different functions – most commonly the IT department, but also marketing, technology strategy and communications (Kunisch, Menz, & Langan, 2020). In particular, mobile applications can extend investor experience and the role of mobility in this experience. Social media help firms to intensely interact and engage with investors through

various channels, maintaining and building up investor relationships. To be successful, it is vital for these CDOs to focus on their firms' crucial stakeholders. Yet other firms address digital innovation through existing executive positions, such as the CIO (Gerth & Peppard, 2016; Peppard, Edwards, & Lambert, 2011). Based on these interrelations, this study examines the role of the CDO in relation to the established roles of the CIO and the CSO. The CIO is the executive traditionally in charge of operating, maintaining and inventing IT activities. Over the years, though, the IT function, and thus the responsibility of the CIO, has increasingly evolved from being a supporting unit to becoming a relevant strategic partner of other business units (Agarwal & Sambamurthy, 2002; Guillemette & Paré, 2012). The CSO drives the formulation and execution of a firm's sustainability strategy, mastering the transition to a responsible firm. The management board creates systems, business models, and procedures that seek to maximize long-term profitability while meeting investor expectations at the same time. As a result, the need for a CDO is not always apparent – particularly in firms where CIOs ambidextrously drive rapid-paced digital innovation while simultaneously attending to the IT infrastructure (Gregory, Keil, Muntermann, & Mähring, 2015; Syed, Blome, & Papadopoulos, 2020). The CIO of Hilti, for example, highlights how his IT function managers both experiment with new technologies while still maintaining their primary focus on firm-wide process management (Vom Brocke, 2016). Given these overlaps, it is unclear whether the CDO complements other executives' functions or whether one chief position is needed to adequately meet the digital demands (Tumbas et al., 2018). The question is also whether the CDO can be a successful change agent if, for example, the appointment is a symbolic action representing potential isomorphism. Under this scenario, the CDO has little power to impact the firm (Miller & Serafeim, 2014).

To sum up: both theory and research suggest that the institutional establishment of a function for “digitalization” at the C-level is positively related to the use of innovative investor communication. “Digital” will remain one of the top priorities in firms, and executive leadership for digital innovation will be needed to fill specific gaps in a firm's IT landscape in

one form or another. Consequently, these gaps may be filled by existing executives (the CIO or the CSO) or by new digital executives (the CDO). A C-level function for digitalization, information or sustainability makes digital transformation success a strategic priority, which includes facilitating the firm's investor-related online presence. Formally, we predict as follows:

H1: The use of innovative investor communication is positively related to the presence of a Chief Digital Officer (CDO), Chief Information Officer (CIO) or a Chief Sustainability Officer (CSO).

3.2. Managerial turnover disrupts the efficiencies of the status quo – Are new Chief digitals distracted by the day-to-day urgencies and overwhelmed by their felt need to hit the ground running?

A series of recent high-profile information security breaches has brought firms' chief executives for digitalization and technology into the spotlight. For example, EDAG Engineering Group became the target of an organized cyber-attack which affected its IT network. As an immediate consequence, the IT systems were shut down to protect confidential stakeholder data and to minimize the potential damage (Horvath, 2021). IT experts estimate the average IT control weakness damage at several million euros. More serious, however, is the damage to the firm's image (Gelowicz, 2021). Following such a negative event, the firm's responsible chief executives frequently resigned, leading to a change in the management board composition and other technological re-structuring (Banker & Feng, 2019). Until the new chief senior executive has settled in and a smooth operation can be run again, it can take many months.

On average, the tenure of a Chief digital tends to be considerably shorter (4.3 years) than that for CEOs (8 years) and CFOs (5.1 years) (Korn Ferry Institute, 2017). Despite the growing importance of IT and the evolving role of a responsible chief executive position, the determinants and consequences of these executives' turnovers remain underexplored. Prior literature on executive change suggests that CEOs and CFOs turn over when they fail to meet

financial performance expectations (Farrell & Whidbee, 2003; Mergenthaler, Rajgopal, & Srinivasan, 2012; Puffer & Weintrop, 1991). By contrast, CDOs, CIOs and CSOs are directly responsible for firms' IT architecture and technological viability. When the firm's IT infrastructure, including the responsible executive positions fail, beyond risking proprietary data being misused or exposed, other business goals may also be jeopardized. As discussed above, CDOs, CIOs and CSOs face pressure from boards and stakeholders first to build an effective and secure IT system in order to limit IT process failures or malicious hacks and second to push technological innovation that also extends to the firm's investor communication. To name but a few, regular updates, state-of-the-art information, latest facts and figures, social media connectivity via icons, user-defined analytical possibilities and self-composable data interfaces are part of modern investor relations' websites. Maintaining and designing an updated and innovative investor communication involves choices that are directly under a CDO's, CIO's or CSO's scope of responsibilities. Because innovative website tools and features reflect digital orientation and IT functional excellence, we expect a CDO's, CIO's or CSO's tenure and innovative investor communication to be positively related.

CDO, CIO and CSO turnover tends to be a visible signal of poorly performing CDOs, CIOs and CSOs, which negatively reflects on investor communication, because CDOs, CIOs and CSOs bear the responsibility for a firm's effective web-based investor communication and IR website design (Chatterjee, Richardson, & Zmud, 2001; IDG Enterprise, 2017; Khallaf & Skantz, 2011). By contrast, long job tenure may be a visible signal of IT performance excellence and functional expertise, resulting in continuity and learning effects, thus enabling constant change, further advancing investor communication and leading to faster digital progress (Ernst & Young., 2012). The continuously accelerating process of digital change requires them to constantly reinvent themselves if they wish to remain relevant and effective, which may be most easily feasible under known structures and a familiar firm environment. Just as Harding (2021) points out, as technology is now woven through every modern firm's facet, the IT

landscape's complexity approaches the indescribable. Understanding and then exploiting IT in such an environment would be "a near-Herculean task".

At the same time, this means that when a CDO, CIO or CSO takes over, he must first settle into his new role and portfolio of tasks. Each newly appointed CDO, CIO or CSO has to learn on the job, to adapt to his new and unique environment. Given the rapidly evolving environment, CDOs, CIOs or CSOs have to do so quickly and reinvent their role based on what the new firm expects from them (Harding, 2021). Consequently, operational performance may decline in the immediate aftermath of a managerial succession before it climbs again. During the training and assimilation stage the new executive might have other urgent priorities besides building up an innovative IR website. Hence, investor communication may drop off with a managerial succession, especially when the predecessor's gaps and misses have to be patched at first and the experiential knowledge is not available yet. This reasoning is consistent with prior research on the turnover's operating performance effect (Fizel & D'Itri, 1997; Parker & Skitmore, 2005). Particularly in IT-based settings or roles characterized by knowledge exploitation, turnover may have negative effects on operating performance due to the disruption of existing routines or the loss of the former CDO's, CIO's or CSO's accumulated experience (Nelson & Winter, 1990). In such dynamic environments the successful delivery of software systems on budget and on schedule is a requisite for managerial performance (Abdel-Hamid, 1992). It takes a while to get used to the new job profile ("settling in period") before firms may benefit from the innovative thinking or increased motivation that new employees invest in their job (Abelson & Baysinger, 1984; Mowday, Porter, & Steers, 1982; Staw, 1980).

To sum up: While IT failures call for firms to undergo structural change to "symbolically distance the organization from 'bad influences'", and the most common symbolical disassociation is "executive replacement" to "signify a desire to change" (Suchman, 1995, p. 598). As such, we expect a higher likelihood of CDO, CIO or CSO turnover to explain poor

and old-fashioned IR websites while a lower likelihood of CDO, CIO or CSO turnover is indicative of innovative investor communication.

H2: The use of innovative investor communication is negatively related to a board management (i.e., Chief digitals) turnover.

3.3. Does managerial age matter to innovative investor communication?

While our second hypothesis investigates managerial turnover, we now devote our attention to managerial age as another pivotal demographic diversity characteristic driving innovative investor communication. That said, the individual C-level members' age is an important personality trait and a relevant indicator for strategic firm orientation. Although institutional and environmental factors may push firms into adopting Internet financial disclosure to some extent we again draw on strategic choice to argue that the firm's management board ultimately exercises strategic choice on whether and how to pursue transformation activities – including how to communicate with investors (Finkelstein & Hambrick, 1996). Following Hambrick and Mason (1984), who propose that firms are a reflection of their leaders, we examine corporate executives' age – a key characteristic of the firm's management board – as it may influence their decision to implement the firm's financial disclosure practices via the Internet. This seminal paper also introduced the idea that a focus on the characteristics of the management board would yield stronger explanations of firm-level outcomes than the customary focus on the individual top executive (e.g., CEO) alone would. On the one hand, firm leadership is a shared activity, and the collective cognitions, capabilities, and interactions of the entire management board enter into strategic behaviors (Hambrick, 2007). On the other hand, there are others who continue advocating (and also empirically validate) the view that the CEO sets the main strategic parameters and essentially pushes the firm's agenda (e.g., Mackey, 2008).

Generally, studies examining the role of executive age, including both that of the CEO and the entire management board, in explaining managerial decision-making or firm behavior

produce mixed findings. For example, Huang, Rose-Green, and Lee (2012) find a positive relation between CEO age and higher-quality financial reporting. They conclude that age may be positively correlated to the development of expertise and life experiences. By the same token, previous research also documents how a leader's attitudes and behaviors may change over time, and individuals may become sensitized to strategic issues through greater exposure and opportunities to interact and build networks with individuals (Bluedorn & Jaussi, 2008; Ng & Sears, 2012). This may show how important it is for firm success to communicate with investors and other stakeholders via the World Wide Web. Others report that age is positively related to the development of social expertise and paying attention to ethical conduct in firms (T. M. Hess & Auman, 2001). Likewise, existing studies link age and life experience to the cultural intelligence of an individual (Shannon & Begley, 2008). Older individuals may be more conversant with business cases for specific topics (Ang, van Dyne, & Koh, 2006; Ng & Sears, 2012). Senior executives are also cognizant of how they will be judged after they have departed from their firm, and they derive their self-worth in part from their contributions and their overall records of accomplishment (Sonnenfeld, 1986). In this regard, members of the management board also wish to be identified with a key plan or policy they have instituted that will assist them in leaving a positive legacy (Dobel, 2006). Legacies often reflect a leader's personal search for higher meaning (e.g., connecting, informing, and communicating with firm investors and other stakeholders) and may be accompanied by the use of supportive styles of investor communication (i.e., more innovative features). As individuals' time horizons shrink when they grow older, they are more inclined to pursue emotionally meaningful goals and develop a stronger sense of investor communication (e.g., to leave a positive mark in their minds as a competent firm leader). Consistent with this perspective, McCuddy and Cavin (2009) report that age is positively related to servant leadership (empathy, foresight, persuasion, and stewardship). This empirical evidence makes us posit that those who are older may have a

stronger motivation to inform their investors about their achievements and will be more inclined to implement innovative investor communication instruments on their firm's IR website.

However, hiring older CEOs might also have a downside: since younger individuals have a constant exposure and high affinity to technological applications, digital tools and social media, they are more familiar with the opportunities arising from digitalization. First, younger managers are more likely to perceive certain financial reporting practices that leverage digital application. Second, as younger managers grew up in a digital era that is more tolerant of online tools, they tend to be more in favor of digital trends and applications, and enthusiastic about venturing and launching them. Although the Internet and social media user base has grown more representative of the broader population, online presence is still most prevalent among younger people (Jiang, 2018). Moreover, more senior CEOs are more likely to avoid risks and are comparatively less likely to make long-term oriented decisions. They tend to shift their firms' investment policies towards a less risk-oriented, more diversified approach to maintain the existing status quo, which impairs their decision-making ability (Behr & Fehre, 2019). The use of new techniques or newly improved and further developed technologies might be evaluated negatively accordingly. As a consequence, there is the risk that changes will not sufficiently take place, straining firm performance (Cline & Yore, 2016). While it becomes apparent that the adaptation of new ideas becomes less likely and existing structures are more likely to be continued with increasing age, strategic changes are usually made with younger, more dynamic and open-minded firm executives (Wiersema & Bantel, 1992). Consistent with the notion that elderly individuals are often more conservative and show a higher commitment to the status quo while younger ones tend to be more enterprising and energetic (Serfling, 2014), younger corporate C-level executives seem more likely to be the driving forces in fostering innovative investor communication. They are the ones who are willing to enter new projects and who critically question established structures and processes, thus prioritizing the adaptation of, for example, novel improved tools for stakeholder communication. Finally, executive age

may have an impact on IR practices that may be positive or negative with CEOs from older generations appearing to be less aggressive on average, choosing a lower level of capital expenditures, lower financial leverage, and higher cash holdings (Bertrand & Schoar, 2003).

Since these arguments are inconclusive, we state our third set of hypotheses in the null:

H3a (H3b): The use of innovative investor communication is not related to the top management's (CEO) age.

3.4. A Digitalization Committee as the firm's digital change facilitator

There are no regulations or guidelines on committees for digitalization on board level. Yet, some firms have set them up – with the number of firms increasing. Digitalization committees prepare, review, approve and monitor long-term digital transformation projects, including digital strategy. Their mission is to promote the understanding and advancement of appropriate digitization applications, architectures and technologies for business operations by providing forums to learn about best practices, new and current technologies and enabling the exchange of problem-solving ideas within related industries. According to Weill and Woerner (2016) around digitalization the boards of directors must be involved in defense, oversight, and strategy. Focusing on defense issues helps to prevent cyber risk, data privacy breaches, service interruptions, noncompliance repercussions or similar hazards. Most boards of directors deal with these issues through their audit committee, though sometimes the responsibility is delegated to the risk committee. Oversight of the firm's digital transformation projects includes implementing large, mission-critical systems (e.g., enterprise resource planning, customer records, or core banking), which demands significant change-management efforts and monitoring. Contributing to and evaluating discussions about strategy and digital disruption now must concentrate on new market entrants, e.g., in the banking industry PayPal, Apple, and retails besides other banks. With the increasing importance of disruptive technologies, the disappearance of organizational boundaries, the breakdown of industry barriers and the disruption of formerly successful business models, most firm strategies will be significantly

affected. This highlights the need for firms to react to the threats and opportunities of the changing contexts to remain competitive, making board responsibilities more far-reaching and complex (Bankewitz et al., 2016).

Digitalization or digitalization steering committees represent a pioneering factor in accomplishing innovation change, allocating necessary resources, and setting technological priorities. Solis (2014) refers to the “innovation governance hub”. While the firm’s management board is responsible for formulating corporate strategy, the digitalization committee periodically ensures strategy linkage to digital transformation, emerging technologies and trends and their translation into practice. CEOs will lead organizational transformation, and this very well may require increasing support, digital aptitude, or savviness from an experienced and well-informed board (Weill & Woerner, 2016).

Among the legal, moral and fiduciary responsibilities boards of directors have towards stakeholders, “challenging the status quo” is cited as the second most critical board activity, after “evaluating the CEO” (Weill & Woerner, 2016). In highly innovative firms and high-tech industries demanding specific know-how, empirical evidence suggests that advisory functions are becoming even more important than monitoring requirements (Andrés & Rodríguez, 2011). As a means of meeting the advisory needs that arise from investor communication via the Internet, delegating the advisory task to a digitalization committee may be effective. Digital competence in the scope of financial disclosure and a digitalization committee go hand in hand with committee members advising, discussing and deciding which direction the firm should take. Firms having a digitalization committee have likely identified digitalization as a key strategy theme with the committee researching potentially disruptive technologies, communications and automation and assessing their future impact on the firm and industry.

Many corporate governance codes, including the OECD Principles of Corporate Governance, recommend firms to establish committees such as an audit, remuneration and nomination committee. When discussing corporate governance in Germany the supervisory

board of director's primary function is to monitor the decisions, activities and compliance of the management board (Steger & Jahn, 2019). While the installment of an audit committee used to be particularly important, more contemporary board discussions address the question how to tackle digitalization and its challenges. We assume that the establishment of a digitalization committee signals that the firm fosters innovation and intends to strengthen digital competence on board level.

Against this line of argumentation, we expect that the boards' "digital quota" (Kollmann & Schmidt, 2016) tends to be positively related to the presence of a digitalization committee supporting firm-wide digital architectures, processes and tools, including innovative investor communication via the Internet. Our expectation is formally stated as follows:

H4: The use of innovative investor communication is positively related to the presence of a digitalization committee.

3.5. The impact of gender diversity at supervisory and management board level

Gender diversity is usually related to a broader mind-set, stakeholder-oriented behavior, different ways of thinking, and work styles (Cabeza-García, Fernández-Gago, & Nieto, 2018). Board gender diversity (i.e., gender diversity among the firm's executive and supervisory board) is on a global scale a most controversial topic (Ahern & Dittmar, 2012). In March 2015, Germany passed a law for quotas regarding female representation on the supervisory board. This quota law requires a minimum of 30 percent of supervisory board members to be female (Smale & Miller, 2015). Even though a similar gender quota is lacking at the executive board level, firms must define and publicly disclose individual target figures for their female representation at the top management level as well as for the next two hierarchy levels below the top management.

According to Terjesen, Sealy, and Singh (2009), female directors convey attitudes, opinions and capabilities to their boards that differ from those of their male counterparts. Moreover, women are able to better connect with different stakeholders than men, for example

with future employees or with other investor groups (Hillman, Shropshire, & Cannella, 2007). Thus, female directors may have a higher investor orientation, putting more emphasis on investor relations than men do. Female directors are likely to utilize online channels, such as the firm's website, to facilitate more stakeholder-oriented interaction (Kimbrough, Guadagno, Muscanell, & Dill, 2013). *Ceteris paribus*, a higher female proportion will contribute positively to the channels used for communicating (non-)financial information between the firm and its external stakeholders, including investors.

Yet, the question remains whether women directors will resort to the World Wide Web as a medium of communication. Although gender differences in Internet technology usage used to exist, recent evidence suggests that they have diminished (Yu, Ellison, McCammon, & Langa, 2016) or even reversed in favor of women. For instance, women 45+ have been the fastest-growing demographic group on social networking sites such as Facebook (Muscanell & Guadagno, 2012) suggesting that women have been at the forefront of social media technology. For the German population, a recent online survey finds that the digital divide between male and female Internet users is almost balanced out (Frees & Koch, 2018). Distinguishing the precise online activities, the same study shows that, relative to men, women turn to the Internet to communicate interactively with others via chat, e-mail or instant messenger. From a theoretical point of view, these results follow the pattern established by social role theory (Eagly, 1987) that women are more communal, i.e. use the Internet as a means of communication and social interaction to bond with others (Kimbrough et al., 2013).

Briefly, just as female business leaders are generally ranked higher in terms of more "soft power" leadership qualities, e.g., being open and accessible, using social media or being comfortable networking with investors, they are also likely to leverage innovative tools to communicate their firms' messages (Weber Shandwick, 2015). We formulate the following two hypotheses:

H5a (H5b): The use of innovative investor communication is positively related to gender diversity at the management board's (supervisory board-of-directors') level.

4. Research method

4.1. Sample description and variables

Our raw dataset comprises all firms quoted in the German Prime Standard (DAX30, MDAX, SDAX and TecDAX) in the fiscal years 2017 and 2019. These four indices include the 160 largest publicly traded German blue chips, mid caps and small caps with the TecDAX running parallelly for technology stocks since September 24, 2018.³ Consistent with prior studies, we delete 25 firms from financial institutions (SIC = 60–67) because of their distinct business model. Moreover, it can be argued that financials are in general heavily influenced by regulatory requirements, and, due to their system relevance, firms operating in the financial industry are strongly scrutinized by analysts and the public media, which likewise may have a positive impact on the extent of innovative investor communication. Removing 22 firms with missing financial data regarding our control or independent variables reduces our final dataset to 113 sampling firms, i.e., 218 firm-year-observations. The sampling firms belong to one out of eight industry sectors as presented in Table 1.

[Insert Table 1 and Table 9 about here.]

For our sampling firms, data concerning our independent variables was collected from websites and annual reports. Firm level data including performance, cash flow and balance sheet variables were extracted via Thomson Reuters Datastream and Worldscope. Extracted data relate to the financial years 2017 and 2019, respectively.

³ As of September 24, 2018, the separation into traditional and technology stocks was abolished, and the stocks previously listed in the TecDAX were also included in the SDAX and MDAX which were enlarged accordingly. The TecDAX will continue as a parallel index for technology stocks Deutsche Börse (2018).

Table 9 lists and describes all independent variables which we use in our regression analysis. Our first three independent variables, the presence of a CDO, CIO or CSO (tog. ‘Chief digital’), capture whether the firm has established the C-level-position of a CDO, CIO or CSO, accordingly, in the years preceding the reference data. Thus, ‘Chief digital’ measures ‘functional diversity’ in German management boards. The typical Chief digital’s job description is about formulating and implementing the digital, IT or ESG (‘environment, social, governance’) strategy within the firm’s existing structures (Gerdeman, 2014; Groysberg, Kelly, & MacDonald, 2011; Horlacher & Hess, 2016) that also extend to the firm’s IR practices. Moreover, the Chief digital is responsible for planning and managing the firm’s digital transformation, and makes far-reaching decisions that can affect all organizational hierarchies and functional areas. In addition, the installment of an adequate IT infrastructure to master digital transformation in an effective and responsible manner may fall under the purview of the Chief digital. Investors may take notice, because, as Hewlett Packard Enterprise CSO Christopher Wellise mentions: “ESG-related issues are integral to fiduciary responsibility, and they offer another data point for investors (Kinthaert, 2020).” Further, SAP Chief Sustainability Officer Daniel Schmid adds that stakeholders are very interested in how to embed sustainability metrics and make interconnections transparent in the online SAP Integrated Report or sustainability dashboard (Mueller, 2019). If the firm has established a C-level function with such a job description, the dummy variable is 1, and 0 otherwise.

The fourth independent variable is a personal change, i.e., the establishment, replacement or job cut, within the management board regarding the CDO’s, CIO’s and CSO’s function (Turnover). To investigate the potential consequences of a C-suite change on innovative investor communication, we examine the likelihood of turnover for CDOs, CIOs and CSOs. Given CEOs’ broad responsibilities within the firm, with the design, implementation, sophistication and innovativeness of investor communication only being a few

out of many others, we consider chief positions more specific to a firm's digitalization and technological progress.

The fifth and sixth independent variables are the management board's and CEO's age which is the mean age of the management board (Age management board) or the age of the firm's CEO (Age CEO) – the calculation is based on their and her or his year of birth (e.g., '2017 – 1950' or '2019 – 1950') – as far as provided.⁴ We consider the management board's or the CEO's age as an aspect of diversity in H3a (H3b), and not tenure, since digital competences and the promotion of online communication channels tend to be rather a matter of generation than of entrenchment.

Our seventh independent variable is the presence of a supervisory board committee for innovation or digitalization (Committee). This dummy variable measures whether the firm has voluntarily established a committee for technology, innovation or digitalization at the supervisory board level. When applicable, the dummy variable is 1, and 0 otherwise.

Our eighth and ninth independent variables are gender diversity of the management board (Gender management board) and supervisory board (Gender supervisory board) measured in percent, respectively. In Germany, publicly listed and equally co-determined firms are required by law to observe a gender quota of 30 percent for the supervisory board and to define target figures – and disclose to what extent they have observed them – for their female representation on the top management level as well as on the next two hierarchy levels below the top management.⁵

We control for factors that – according to prior studies – are related to innovative investor communication. Specifically, our regression tests include the firm's free float (i.e., the percentage of total shares in issue available to ordinary investors or the total number of shares

⁴ If, as an exception to the rule, the year of birth or age of one management board member is not publicly disclosed, this particular board member's year of birth or age is excluded from the mean age.

⁵ See § 289f in conjunction with § 315d par. 2, no. 5 and 6 of the German Commercial Code (HGB).

minus the strategic holdings (Free float)), the level of internationalization (proxied by international sales divided through net sales or revenues (Foreign sales)), and the market-to-book ratio (MtB) (e.g., Bollen et al., 2006). As a liquidity metric, we include the cash flow-to-sales-ratio (Cash flow) which compares a firm's operating cash flow to its net sales or revenues. We also control for profitability (calculated as net income divided by total assets (ROA)) and growth (measured as the percentage increase in sales (Growth)). As risk metrics, our empirical models comprise leverage as measured by the total-debt-to-total-common-equity ratio (Leverage) and the standard deviation of cash flows from operations (SD_CFO). Thus, our risk metrics account for both financial (leverage) and business risk arising from the firm's operations (standard deviation of cash flows from operations). The likely most common finding in prior empirical studies is the positive relationship between firm size and web-based financial reporting (e.g., Ashbaugh et al., 1999; Claire Marston & Polei, 2004). Referring to the public scrutiny, agency- and contracting-cost argument, these studies elaborate that large firms are motivated to enhance information transparency to meet the needs of financial statement users and other stakeholder groups of the firm (Debreceeny, Gray, & Rahman, 2002; Gajewski & Li, 2015). Furthermore, the costs of information disclosure relatively decrease the larger the firm is (Buzby, 1975). We control for firm size (Size) by including the natural logarithm of the firm's total assets. Table 2 presents the descriptive statistics of our independent and control variables.

[Insert Table 2 about here.]

Next, we address our dependent variable, our measure for innovative investor communication. This measure (henceforth: communication score) is an unweighted composite score covering 40 items.

4.2. Communication score

There is neither general agreement on a common checklist of necessary elements for an effective communication score nor a general theory on how to build an index (Wallace, Naser,

& Mora, 1994). Disclosure emphasis, sophistication and level of detail vary from country to country, with regard to the institutional context as well as the study's research approach.

Therefore, instead of stipulating a set of disclosure assessment criteria from the beginning, our empirical analysis starts with Internet-based disclosure items used by existing research to create an assessment index. To learn about contemporary online disclosure opportunities and best practices, while evaluating the firms' investor-relations websites we concentrate on state-of-the-art items among the sampling firms' disclosure practices. Existing studies on firm reporting via the Internet (Debreceeny et al., 2002; Gajewski & Li, 2015; Claire Marston & Polei, 2004) tend to focus on more traditional aspects. Our empirical analysis considers rather novel items, including the firm's linking to social media sites, firm apps or smartphone interfaces, since these modern aspects are also closely related to the technological features and advantages of Internet financial disclosure. As a consequence, in addition to more traditional items covered in the previous works (e.g., fact sheet, recall function), our communication measure emphasizes "custom-tailored" applications, interactive functionalities, investor convenience services and similar innovative characteristics of the investor relations websites (e.g., smartphone view, interactive version of the annual report). We then collect the different investor-related items these firms make publicly available on their websites. Altogether, this yields a checklist of 40 different items that can be grouped into 12 different categories. These comprise the availability of the annual report (category #1), the availability of the half-year report (#2) or the availability of the fact book (#3) with the following aspects: with hyperlinked table of contents, with hyperlinks within the footnotes, hyperlinks to websites, and, for the annual report, online interactive version. Another category covers the illustration or interactive facilities of key performance indicators, facts and figures and other key investor-related data (#4), comprising the following aspects: online download function (pdf or excel), online interactive features, and XBRL interface (i.e., excel import-function). Other categories query the existence of share price (#5) or financial forecast (#6) information, as well as the

distribution of investor-related content via live broadcasts (#7) on the IR website. Further categories include contact, notification and alert options (#8) (e.g., email, phone, newsletters, RSS feeds), iPhone, iPad and android-apps (#9), as well as the firms' social media presence (#10), while we always check the investor focus. We especially emphasize the linkage to social networks such as Facebook or Twitter and the video portal YouTube. The item only counts towards our communication score if the investor relation is given. The last two categories comprise other helpful features, tools or records (#11) such as event/financial calendars, FAQs, search engines, smartphone view, etc., and the user-friendliness (#12), i.e., accessibility of the investor relations site by one mouse click.

Importantly, we consider facts that hardly leave any margin of discretion, and no subjective soft aspects. The full checklist of all 12 categories with the corresponding items entering our score is provided in Table 3.

[Insert Table 3 about here.]

In order to aggregate the collected information of the single items into a comprehensive measure of Internet financial disclosure, we construct dummy variables for each item indicating whether a firm refers to this particular item on its website or not.⁶ We then summarize these binary indicator variables per firm. As a result, the level of web-based innovative investor communication (total score) of each sampling firm varies between zero and 40. Table 4, Panel A, shows the descriptive statistics regarding the total communication score.⁷

[Insert Table 4 about here.]

⁶ We explicitly point out that we have focused on the investor section containing all investor-related information. Nevertheless, if necessary, we have also considered the complete firm website, as several technological items (like the "help site", internal search engine, or language settings) of our disclosure index are designed for the whole website.

⁷ For the first observation period, all firm websites in our sample were analyzed during the months of May 2017 to July 2017, while the data concerning the firms' social media presence was collected subsequently from July to October 2018. For the second observation period, the firm websites were analyzed during the months of November through December 2020.

5. Empirical Results

5.1. Descriptive statistics

As Table 4, Panel A, shows, the average (median) communication score covering all sampling firms amounts to 19.69 points (19.00 points). The maximum score achieved is 32.00, while the lowest is 7.00. Hence, there is widespread variation in the overall level of financial disclosure via the Internet across the 218 firm-year observations.

Disaggregating our sampling firms according to the capital market indices, we see that DAX30-listed firms exhibit much higher average (24.79 points) and median (25.00 points) communication scores than firms listed in the other indices. Given that the DAX30-firms are the largest publicly-listed firms in Germany with the highest standards of transparency as required by the stock exchange, this finding might not be surprising. Simultaneously, however, there is hardly any variation between the average and median communication scores for the other indices, while the variation within these indices is increasing. This can be seen from the wider span between the minimum and maximum value and the standard deviation in particular of the SDAX and TecDAX-listed firms relative to the standard deviation of the DAX30-listed firms.

The descriptive statistics for our independent variables are set out in Table 4, Panel B. As shown, the relative superiority of the DAX30-firms also holds for the distribution of the independent variable values. For example, concerning the Chief digital, the CDO's relative distribution varies from 23.40 percent (DAX30) to 17.11 percent (MDAX) and 15.38 percent (SDAX) with TecDAX-listed firms positioned in between (19.44 percent). A similar picture unfolds for the CSO (DAX30: 14.89 percent; MDAX: 7.89 percent; SADX: 1.28 percent; TecDAX: 2.78 percent) whereas the CIO's distribution deviates from this overall trend (DAX30: 14.89 percent; MDAX: 7.89 percent; SADX: 1.28 percent; TecDAX: 2.78 percent). Turnover is lowest in the DAX30 (2.13 percent), higher in the MDAX (5.26 percent) and SDAX (6.41 percent) and highest in the TecDAX (11.11 percent).

The management board (53.70 years) and also the CEO (57.69 years) are older in the DAX30 than in any other stock index (for the management board (CEO): MDAX: 52.09 (53.67) years; SADX: 52.73 (55.09) years; TecDAX: 52.15 (53.74) years), which, along with age, points to a certain continuity, stability and managerial experience.

The phenomenon of “glass ceiling” in terms of gender⁸ is documented by our data, too. While only 5.07 (5.15, 5.92) percent of the management board are female in MDAX (SDAX, TecDAX)-firms, 12.02 percent are female in the sampling DAX30-firms. The female underrepresentation also emerges at the supervisory board level (DAX30-listed firms: 33.28 percent; MDAX-listed firms: 28.47 percent; SDAX-listed firms: 24.76 percent; TecDAX-listed firms: 26.46 percent). This observation is consistent with up-to-date reports revealing that female participation in top positions of German market-listed firms has made greater progress at the supervisory board than at the executive level.

5.2. Correlation analysis

Table 5 shows the Pearson correlations between our Communication score and the explanatory variables. Our Communication score is significantly and positively correlated with the presence of a CDO, a CSO, the management board’s and CEO’s age, the presence of a digitalization committee, and gender diversity, both at the management and supervisory board level. Concerning our control variables, the communication score is positively and significantly related to Free float, Foreign sales, Cash flow and Size. Thus, consistent with the investor recognition hypothesis (Merton, 1987), large, internationally and efficiently operating firms, and firms with a low concentration of ownership use the Internet to communicate with private investors. Furthermore, the communication score is significantly negatively correlated with the controls covering firm value (MtB), firm growth (Growth), and operating leverage (SD_CFO),

⁸ It refers to the female underrepresentation, with the imbalance between male and female executive directors being greater the higher the hierarchical level within the firm is.

indicating that growth stock with high price-earnings expectations are associated with a lower level of innovative web-based investor communication. This observation together with the positive correlation coefficient for liquidity (Cash flow), suggests that a firm's decision to invest in innovative web-based communication primarily depends on its capability to finance such innovative communication technology. High-growth firms need their scarce resources to finance business growth, thus no funds may be left to refine investor communication tools, and to shift to digital technology for the dissemination of investor-related information. By contrast, well-established firms with stable cash flows from operations are, on average, financially more flexible, having the necessary financial capacity and budgeting certainty to upgrade their investor relations website. On the whole, the correlations are relatively small, with the strongest statistically significant correlation coefficient of +0.669 between the age of the management board and the CEO ($p < 0.001$): the CEO is the management board's chair.

[Insert Table 5 about here.]

5.3. Univariate analysis

Table 6, Panel A, shows the univariate comparisons of our independent variables across observations for our communication score. These results suggest that the presence of a CDO or CSO significantly enhances the firm's innovative investor communication. Specifically, the group of sampling firms that have established a formal CDO or CSO position achieve a significantly higher communication mean score than the group of sampling firms lacking a CDO and CSO position ($t = -3.46, p < 0.001$; $t = -3.01, p = 0.003$). The same is true for the subgroup of firms that have introduced a digitalization committee in previous years, exhibiting a significantly higher mean compared to firms that do not have such a committee ($t = -2.24, p = 0.026$). Recall, the correlation between the management board's and CEO's age is positive and significant with both variables having a significant correlation with the communication score – a finding that is corroborated by the univariate comparison tests. Essentially, the median

splits reveal that firms with a management board or CEO older than the median have a significantly lower communication mean score than firms with a comparatively younger management board or CEO ($t = -3.53$ $p < 0.001$; $t = -2.99$, $p = 0.003$). In advocacy for appeals for more gender diversity, group comparisons also show that a higher proportion of females both at the management board and at supervisory board level indicates a higher mean communication score. Both female quota comparisons are significantly different from the respective comparison group ($t = -4.77$, $p < 0.001$; $t = -2.85$, $p = 0.005$).⁹

As the link between the institutional characteristics, including diversity aspects, and innovative investor communication is analyzed for two periods (2017 and 2019), we also present the univariate t -test results on our independent variables comparing these two periods (see Table 6, Panel B). As one might expect, in view of the latest digital transformation achievements, firms have created new CDO and CIO positions during these two periods to enforce information technology. These achievements are statistically significant at $p = 0.020$ and $p = 0.019$, respectively. Despite the ongoing sustainability movement, firms have not invested more in new CSO positions. There are no significant differences across periods concerning management board turnover regarding the CDO, CIO or CSO and CEO age, while the management board on the aggregate grows older ($t = -1.77$, $p = 0.080$). Contrary to the digitalization mega-trend, firms have not established new supervisory board committees for monitoring and advising on the digital transformation of the firm. Both management board and supervisory board gender diversity have increased over time ($t = -2.09$, $p = 0.039$; $t = -5.50$, $p < 0.001$, respectively) signaling that legislative efforts to increase the participation of women in top management positions of the past decade are taking effect.

⁹ At executive level we compare the mean of the minority group of firms having a non-zero female quota with the majority of firms having no female managerial representation. At the supervisory board level, we conduct a median split and compare the group of firms with a female quota lower than the median with the group of firms with a female representation above the median. Reperforming the t -test for the supervisory board diversity's mean yields inferentially identical results ($t = -4.75$, $p < 0.001$). At executive level a median split is not meaningful, since more than half of the firms do not have a female management board position (cf. Table 2).

[Insert Table 6 about here.]

5.4. Multivariate regression results

Table 7 displays the multivariate regression results, a fixed-effects estimation, for our empirical model with the communication score as described in section 4.2 as the dependent variable. Our fixed-effects model assumes that the unobserved time-invariant individual effect α_i (within estimator) to be a set of random variables that represents purely random variation at each of the two points of time. Although we assume statistical independence of α_i and the between-firm error term ϵ_{it} (varying across firms, not over time), our fixed-effects approach allows for *any* associations between α_i and the vector of time-varying predictors x_{it} (i.e., the institutional and demographic diversity characteristics). The inclusion of such associations “controls” for time-invariant unobservables – whatever the observed variables are – making the fixed-effects approach so attractive. To statistically decide between a fixed- or random-effects method we run a Hausman specification test with the null hypothesis that a random-effects model is a fully efficient specification of the firm-specific effects (vs. a fixed-effects method as the alternative). Since “ $p > X^2$ ” < 0.001 is < 0.05 (i.e., significant) the Hausman specification test suggests a fixed-effects approach to be preferable relative to a random effects method. Our null hypothesis that the firm-specific effects are adequately modeled by a random-effects model can be rejected. This is because the between-firm variation is likely to be confounded with unobserved firm-specific characteristics and to exploit only the variation that produces approximately unbiased estimates of the parameters of interests. The predictor variables vary greatly over time for each firm but have little variation across firms, so that the fixed-effects estimates tend to be pretty precise in our two-period panel (Allison, 2009).

Concurrent with our expectation in H1, the variables CIO and CSO are significant and positive at $p < 0.001$. However, we do not find a significant effect for the CDO. An innovative online presence on the firm’s investor relations website featuring convenient and target-specific

applications seems to require the support and commitment of a C-level position. This support is often the CIO's or CSO's responsibility, rather than the CDO's. H2 predicts a Chief digital's turnover to be negatively related to innovative investor communication. In support of our prediction, the relationship is significantly negative at $p < 0.001$. With respect to H03a and H03b, the management and supervisory board's age is statistically significant at $p = 0.063$ and $p < 0.001$, respectively. The coefficient for Age management board is positive, indicating that an older management board is associated with more advanced web-based investor communication, and more sophisticated technological disclosure features. As Huang et al. (2012) claim, older executives seem to be more experienced and, thus, have acquired more professional expertise and technical knowledge. The coefficient for Age CEO is, however, negative, suggesting that a an older CEO tends to come with less innovative investor communication. This management board member's knowledge and individual functional experience coupled with a young-dynamic CEO as the principal strategic leader appear to provide the ideal generational mix (age diversity) to promote innovative investor communication at the entire management board level. Contrary to our prediction in H4, the variable Committee is insignificant ($p > 0.1$). These results suggest that firms having introduced a committee for innovation or digitalization do neither more nor less invest in higher-quality communication technology compared to firms without such a committee. H5a and H5b predict that a higher female representation at the management and supervisory board level respectively is linked to better online financial communication practices. The association between the variables Gender management board (Gender supervisory board) and our communication score is insignificant (both: $p > 0.1$). Thus, we fail to find support of both hypotheses.

[Insert Table 7 about here.]

5.5. Additional analyses

As noted above, we concentrate on the presentation format and level of presentation sophistication where neither strict mandatory guidelines exist nor there is common consent on

elements for an effective communication score. To check the reliability and robustness of our regression results, we break down the total communication score into ten different communication sub-scores. These sub-score analyses allow us to test whether a particular institutional or diversity aspect drives one specific facet of the communication score relation. To address the issue, we re-run the previous analyses but replace the total communication score with the individual scores for specific dimensions of a firm's innovative investor communication. As these dimensions' lines blur, reflecting interrelated sub-categorical aspects of the total communication score, we use these explanatory variables in separate regressions.

Table 8 presents the regression fixed-effects results for the individual sub-scores (model (1) – model (10)). As can be seen from almost all panel estimation approaches, the year of analyses (2017 vs. 2019) plays a crucial role for the overall innovation of investor communication, i.e., across the empirical models. Specifically, the overall level and sophistication of innovative investor communication have progressed over time. However, the individual institutional and diversity aspects appear to contribute to distinct subdimensions of the total communication score differently, particularly with respect to effect strength rather than direction.

[Insert Table 8 about here.]

Remarkably, the variable CDO is significant only in model (2), signaling the robustness and predictive power of this determinant exclusively for mobile applications offering investors an expanded design with improved user interfaces. Nowadays, firms need to align their IR practices and to instill the right composition of mobile technologies, platforms and disciplines to consistently execute ahead of their competitors. With such a goal in mind, mobile solutions are a key factor enabling investors to reduce operational or training costs, improve investor service and achieve a new velocity by providing real time visibility and monitoring. Mobile applications are pre-populated with data and fields that make it easy for users to navigate intuitively through a process and to complete a specific order. For example, such apps could

help the investor to identify the probably most profitable six or seven investments out of a dozen of investments. Mobile web access continues growing with increased penetration of emerging mobile platforms and devices like larger smart-phones, tablets and continuous richness of micro browsers (Bal, 2013). This variable's exclusive significance ($p = 0.013$) may underline the importance of making mobile app-based investor communication a CDO priority. Hyperlinks and online cross-references support investors to navigate through reports and HTML content, ensuring quick data locatability, trackability and accessibility. Model (4) refers to such linkages and shows that particularly the CSO pushes this subdimension of our communication score ($p < 0.001$) while the CDO and CIO have no impact on links and cross references in a firm's investor communication. Integrated reporting is becoming increasingly popular, and for some years now financial reports have been giving more and more space to sustainability and responsibility. Investors are also increasingly requesting a presentation of long-term value creation, and linkages meet this request. As evidenced by models (7), (8) and (9), C-level turnover constrains HTML/online IR functionalities, the presentation of web-based information and social media interfaces as well as social media IR activities. Strikingly, the coefficient's sign is negative in all estimations, suggesting that firms are reluctant to proactively communicate about management board transitions on the website or in social media: management board turnover is often fraught with negative headlines. Management board and CEO age are significantly related to HTML/online IR functionalities (model (7)) and the presentation of web-based information in HTML-format (model (8)). We assume that C-level generational heterogeneity nurtures mutual mentoring and copying of technical skills, utilities and attitudes from the younger C-level managers, while the older C-level managers contribute professional experience. For the variable Committee, the strongest effect arises in model (5), which is significant at $p = 0.082$. Since markets are efficient at immediately pricing in all firm-relevant information, up-to-date share and price information is needed for effective monitoring of management activities, a core task of the supervisory board. The positive coefficient of this

variable implies that establishing a committee for digitalization or innovation accelerates the easy accessibility, convenient collection and usage of share price information via the firm's investor relations website. Overall, innovative investor communication items that are pivotal to comfortable information gathering and screening appear to be largely related to institutionalized elements such as the establishment of a C-level position or a C-level's transition, but also to the establishment of a supervisory board committee for digitalization. With regard to demographic diversity, in contrast to age diversity, gender diversity seems to be rather unrelated to innovative investor communication across all panel estimations.

6. Discussion

A firm's innovative investor communication geared at discovering, implementing and satisfying emerging stakeholder needs with novel technological solutions, tends to be crucial for firm innovativeness, IR and reputation building. Despite its apparent relevance, relatively little attention has been devoted to the determinants of a firm's institutional characteristics that help to explain heterogeneity in innovative investor communication across firms. To date, it is still empirically unresolved whether it is the management board, or a certain C-level position, and/or a special committee for digitalization, IT governance or digital knowledge management that drives investor communication via the World Wide Web. Especially the influence of top executives and the board of directors should be critical, since innovation strategies are shaped at the top management level.

Building on the theory of upper echelons (Carpenter, Geletkanycz, & Sanders, 2004; Hambrick & Mason, 1984) top executives and directors are costly. Rockefeller suggested that top directors could earn as much as 40 times a worker's salary in the past century. So investors and other stakeholders might ask 'What constitutes the legitimacy of top executives who ran their companies into their current difficulties?' (Bournois & Roussillon, 2010, p. 1). Very few now share a deep belief in 'Too Big to Fail'. Results indicate that some – but not too much –

functional diversity, proxied by the presence of a CDO, CIO and CSO in the C suite, has a strong positive effect on a firm's innovative investor communication. Thus, we challenge the basic idea that functional diversity should be unconditionally positively related to the quality of strategic decision-making and its technological outcomes (Bantel, 1993). While variations in functional areas among top executives provide multiple perspectives not available in more homogeneous C suites, beyond a threshold, there is a marginal benefit because the functions begin to overlap. When the level of functional heterogeneity is low, there is greater mutual benefit from exchange of information and functional expertise, which makes it easier for the management board to create a high-innovative investor communication strategy. With an increase in the C suite's digital competences, however, the marginal benefit of any incremental digital skill declines, and the addition of another chief executive position for digitalization ebbs away and turns insignificant. Specifically, our results suggest that the coexistence of a CIO and CSO promotes a proactive orientation on emerging investor needs and on novel technologies whereas the addition of a CDO creates no further value. A firm's investor orientation then leads to a portfolio of more innovative website features with higher customization, digital experience, convenience and analytical or timely sophistication. At large, our results therefore fit in with existing research on firms' stakeholder and innovation orientation (Nielsen & Bukh, 2013; Talke, Salomo, & Kock, 2011), which also emphasizes the importance of institutional characteristics as determinants for innovation strategy and innovation outcomes.

While the insignificant effect of a digitalization committee may be surprising, it matches the observation that a special committee dealing with such matters is seldom in place today. Less than 12.84 percent of firms have dedicated digitalization committees. Contemporary board members seem to lack specific competences to deal with the firms' digital agenda which the management board seek advice from. Our finding is also consistent with various corporate failures that lead to critically question recent boards' work and effectiveness (Boivie, Bednar, Aguilera, & Andrus, 2016; Gillespie & Zweig, 2010). To be more precise, our additional

analyses show that the competence particularly extends to share price-related, i.e., strongly shareholder-focused, information, as one specific area of innovative investor communication. Board directors are often uncertain about what their role should be in helping senior management drive the digital transformation (Huber, Sukharevsky, & Zimmel, 2021); they do not see themselves as “digital directors” and feel outmatched by the ferocity of changing technology and emerging risks (Sarrazin & Willmott, 2016). Bankewitz et al. (2016, p. 59) propose that “future boards consist of a network of capable people, who are [...] called to the board based on their competences matching the organizations’ challenges in the competitive environment whereas boards today consist of [...] members who are assigned mainly based on their [firm] independence.”

Our study should be viewed in the context of contemporary discussions about how generational differences could impact the functioning of boards and how to best leverage the value of an age-diverse board. Studies show that the productivity of both younger and older employees is higher in businesses with mixed-age individuals. Each board member will likely have a unique skill set that will advance the business goals (OECD, 2020). Our study corroborates to this view and suggests that firms with an age-diverse management board can utilize on the IT skills and resources from younger CEOs to inspire, teach and support the whole board on digital trends and emergent investor communication technologies. Our finding is also consistent with existing management literature, suggesting that the full executive board influences the strategic cornerstones in leading innovation and technology in the firm (Medcof, 2008). On the aggregate board level, experience and prudence seem to pay off (Huang et al., 2012). Here some management experience appears to be required, as indicated by the board’s age variable (Age management board), to have acquired the skills and knowledge to realize and further advance innovative investor communications. But if only the personality of the management board’s chairman (Age CEO) is considered by itself, young dynamism, innovative thinking and a visionary technological drive are needed (Serfling, 2014) – especially since

CEOs tend to be a few years older than other C-level positions for the most part anyway. So, whereas the CEO as the strategic firm leader is the initiator of novel ideas and ultimately decides on their implementation, the whole management board consults regularly. A more experienced and generation-heterogeneous management board may intensively and deliberately discuss the CEOs proposals and thus promote promising investor communication technologies while too visionary ones may be rejected.

Considering gender diversity, the pros and cons of gender-heterogeneous boards seem to be approximately balanced (Hamilton, Nickerson, & Owan). On the one hand, there are disadvantages due to process losses in the coordination and communication between genders; on the other hand, it is hoped that there will be gains from different knowledge and more diverse competences, leading to different perspectives supporting innovation and to more informed decisions. Either way, the empirical support for a politically often proclaimed superiority of mixed-gender teams is thin as soon as one leaves pure correlation studies which by their very nature do not allow for robust conclusions about causes and effects (e.g., Adams & Ferreira, 2009; Apesteguia, Azmat, & Iriberri, 2011). Our insignificant results for gender management board and gender supervisory board match this prior research's inconclusiveness.

7. Summary and Conclusion

Corporate investor communication is a most critical element affecting disclosure transparency, information asymmetry and capital market efficiency (Healy & Palepu, 2001). Consequently, it is fundamental for firm managers, investors and regulators to obtain a notion of what factors determine online disclosure practices. This paper sheds light on important determinants affecting Internet-based communication sophistication. The main objective of this empirical analysis is to allow a better understanding of whether, beyond *novel institutional* characteristics, *demographic attributes* of the firm's top management predict the technological level and comprehensiveness of innovative investor-related disclosure. To this effect, an index

consisting of 40 items is developed in order to analyze the extent and presentation format of investor-related information released via the Internet by 113 firms listed in the German Prime Standard, i.e., 218 firm-year-observations. Our study identifies the establishment of a CIO or CSO and C-level turnover as relevant firm-based institutional characteristics describing the level of a firm's online investor communication. Besides, we find that the management board's and CEO's age as demographic attributes are significantly associated with our aggregated communication score. We identify important diversity aspects, i.e., functional and generational diversity within a firm's C suite, to be related with innovative investor communication. As a practical takeaway, we advise firms to aim for appropriate levels of functional and demographic diversity – while too much might do more harm than good – and CEO age-experience. In order to take an innovative direction on investor communication as a constraint, however, the correlation analysis suggests that a firm must have a sufficient financing flexibility and financial security, e.g., illustrated by *less* volatile cash flows from operations ($SD\_CFO, p < 0.01$) or by *more international* (i.e., more diversified) revenue streams (Foreign sales, $p = 0.01$): business activities on foreign markets tend to come with a larger customer base.

Our findings have several implications for practice. The existence of a CIO and CSO tends to have a positive impact. These positions should therefore be filled to promote innovative investor communication activities. Our findings especially point at a strong investor orientation of a CSO and show that the CSO is also relevant for issues beyond sustainability in the narrow sense. Additionally, firms should avoid frequent changes within these management board positions. Furthermore, Internet-based investor communication is strengthened if the management board consists of a young CEO and a comparatively older entire management board. Overall, the fact that we find a significant effect for the CIO, but not for the CDO, might imply that the position of the CIO is already sufficient to spur innovative investor communication. On average, the additional hiring of a CDO would not necessarily be required

to realize this, even if an additional C-level's net benefit is highly firm-specific as a CDO's concrete areas of responsibility differ from firm to firm.

Our study is subject to limitations. First, our sample consists of management boards' survey-level (observable demographics) characteristics, in particular age and gender diversity, rather than top managers' deep-level characteristics (e.g., leadership style or value orientation) to explain firm behavior. To develop a more complete picture of how managerial attributes affect firm behavior, future research may open the "black box" (Finkelstein & Hambrick, 1996; Lawrence, 1997) and examine demographic and background variables in addition to deep-level managerial characteristics, and investigate the nature of their interplay. Second, given that our sample consists of German firms, it is not clear whether our findings can be generalized towards firms abroad underlying different legislation and corporate governance systems. Third, strategic choice theory, upper echelons theory and related empirical studies have established a relationship between top-executive characteristics and the implementation of various organizational practices (Carpenter et al., 2004). We recommend more long-term and experimental research in this field to further support the causal direction of the relationship supposed within this study. Finally, future research could examine the performance effects or value relevance resulting from "high-quality" Internet investor communication.

Authors' statement

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TABLE 1
Sample Distribution by Industry

Industry (SIC)	Freq	Percent	Freq	Percent
Agriculture, Forestry, Fishing (01–09)	2	0.92	1	0.88
Mining (10–14)	2	0.92	1	0.88
Construction (15–17)	4	1.83	2	1.77
Manufacturing (20–39)	122	55.96	63	55.75
Transportation & Public Utilities (40–49)	31	14.22	16	14.16
Wholesale Trade (50–51)	5	2.29	3	2.65
Retail Trade (52–59)	15	6.88	8	7.08
Services (70–89)	37	16.97	19	16.81
Total	218	100.00	113	100.00

TABLE 2
Descriptive Statistics of the Independent and Control Variables

	Mean	Median	Std. Dev.	Minimum	Maximum
Independent Variables					
CDO	0.19	0.00	0.39	0.00	1.00
CIO	0.11	0.00	0.31	0.00	1.00
CSO	0.06	0.00	0.25	0.00	1.00
Turnover	0.05	0.00	0.22	0.00	1.00
Age management board	52.76	53.06	3.73	39.00	63.50
Age CEO	55.12	55.00	6.44	30.00	78.00
Committee	0.13	0.00	0.34	0.00	1.00
Gender management board	0.07	0.00	0.11	0.00	0.50
Gender supervisory board	0.28	0.33	0.13	0.00	0.58
Control Variables					
Free float	66.86	71.00	23.43	9.00	100.00
Foreign sales	60.55	68.02	30.10	0.00	101.99
MtB	3.15	2.40	2.85	-0.13	19.67
Cash flow	8.39	10.16	21.64	-139.21	52.40
ROA	4.83	4.80	6.65	-31.22	26.85
Growth	10.17	6.32	24.21	-31.67	296.09
Leverage	85.75	57.58	116.68	-479.54	1033.87
SD CFO	0.03	0.02	0.02	0.00	0.17
Size	15.43	15.24	1.64	11.63	19.98
Industry_D	5.18	4.00	1.97	1.00	9.00
Year_D	1.50	1.50	0.50	1.00	2.00

Note: The number of firm-year observations is equal to 218.

TABLE 3
Internet-based Disclosure Index (“Communication Score”)

Items	Descriptions
Annual report	
Hyperlinked table of contents	A reference to data within the annual report’s directory (i.e., to a specific chapter or section of the annual report) that the investor can directly follow by clicking.
Hyperlinks within the footnotes	References within the annual report’s footnotes that point either to a whole document or to a specific element within this document or within the annual report.
Hyperlinks to websites	References within the annual report that redirect to the firm’s investor relations website or to other firms’ websites.
Online interactive version	Disclosure of an interactive version of the firm’s annual report on the investor relations website that allows convenient screening and searching for relevant information (e.g., through navigation and browsing tools).
Half-year report	
Hyperlinked table of contents	A reference to data within the half-year report’s directory (i.e., to a specific chapter or section of the half-year report) that the investor can directly follow by clicking.
Hyperlinks within the footnotes	References within the half-year report’s footnotes that point either to a whole document or to a specific element within this document or within the half-year report.
Hyperlinks to websites	References within the half-year report that redirect to the firms’ investor relations website or to other firm’s websites.
Fact Book	
Hyperlinked table of contents	A fact book contains and comments on facts and figures (e.g., about corporate strategy, business segments, or financials) and presents forward-looking statements based on currently available information. A reference to data within the fact book’s directory (i.e., to a specific chapter or section of the fact book) that the investor can directly follow by clicking.
Hyperlinks within the footnotes	References within the fact book’s footnotes that point either to a whole document or to a specific element within this document or within the fact book.
Fact Sheet	A presentation of data in a format that highlights key points concisely, commonly using tables, bullet points and/or headings, on a single page.
Key performance indicators, facts and figures and other key investor-related data	
Online download function (pdf or excel)	Functionalities are available for download key investor-related data, such as key performance indicators, financial statistics or graphs, sometimes in a separate download area.
Online interactive features or equivalent tools	Investor-related data is furnished with interactive features that allow investors to select their preferred figures, time period, comparison benchmarks etc.
XBRL interface (i.e., excel import-function)	An XBRL conversion tool or add-in allows to import XBRL- or HTML-data directly in excel. These tools enable the investor to easily import most tables, graphs and/or figures displayed on the investor relations website into excel.
Share price information	
Online interactive functionalities	Disclosure of interactive share price information on the investor relations website allows customized portrayal of the share price

Updated daily share price data	data (e.g., with respect to the time period, relevant capital market, comparison benchmark etc.). Share price data presented on the investor relations website is updated on a daily basis.
Share price/depot/return on investment calculator	Provision of a share price or investment calculator on the investor relations website that can be used to calculate a specific parameter for an investment plan (e.g., return rate, starting amount, end amount, investment duration).

Financial forecast, capital market information

Current year's outlook	Disclosure of the current year's end financial forecast on the investor relations website.
Future years' outlook	Disclosure of the future years' financial forecasts on the investor relations website.

Live broadcast (e.g., about financial results)

Live broadcast without registration	Distribution of audio or video content to investors via the firm's investor relations website. Content transmitted can include a summary of quarterly business results and other key insights. No prior registration required.
Live broadcast with registration	Same as above, but with a prior registration requirement. The online registration form contains personal identification of the investor, usually the name and email address. If desired, the investor will be sent customized firm news.

Contact, notification and alert options

E-Mail reply	Installment of an e-mail reply function on the investor relations website. If the investor makes a request, the firm will respond to the query via email.
Recall	Installment of a recall function on the investor relations website. If the investor makes a request, the firm will respond to the query via phone.
Newsletters/mailling list for Investor relations news	A report containing news information on the firm's business activities, delivered electronically via e-mail regularly to all stakeholders, who are interested in (who have subscribed to receiving) it.
RSS-Feeds	A type of web feed that allows investors to access updates of online content in a standardized, computer-readable format. Subscribing to a website RSS removes the need for the investor to manually check the website for new content.

Applications

IPad or iPhone App	Provision of a firm-specific app developed for Apple mobile devices (IPad or iPhone) with investor-related content the investors can download.
Android App	Provision of a firm-specific app developed for Android mobile devices with investor-related content the investors can download.

Social media platforms, social networking profiles and video portals

Facebook

Linking to investor relations website	Direct link of the firm's investor relations website to the social media platform Facebook.
Distinct investor focus	Information posted on Facebook, which has an obvious investor focus (e.g., financial data, interim results).

Twitter

Linking to investor relations website	Direct link of the firm's investor relations website to the news and social networking service Twitter.

Distinct investor focus	Information posted on Twitter, which has an obvious investor focus (e.g., financial data, interim results).
YouTube	
Linking to investor relations website	Direct link of the firm's investor relations website to the video hosting service YouTube.
Distinct investor focus	Information shared via YouTube, which has an obvious investor focus (e.g., financial data, interim results).
Other helpful features, tools or records	
Information about the shareholders' meeting in pdf version	Disclosure of information related to the firm's annual meeting of shareholders (e.g., key agenda points) in pdf format.
Event/financial calendar	Publication of an event and/or financial calendar that covers all important events and releases that affect the firm's financial position. The calendar may be timely, interactive, as well as customizable.
Financial glossary	Publication of an alphabetical list of financial terms with the definitions and further explanations for those terms on the investor relations website.
Frequently asked questions (FAQs)	Disclosure of a list of frequently asked questions (FAQs) and answers to investor-related topics on the firm's website.
Search engine or help site	Disclosure of a search engine or help site, including investor-related matters of concern, on the firm's website.
Smartphone view	Convenient graphical display of the investor relations website on the end user's mobile device, such as tablet or smartphone. Scrollbars and tabs are well-adjusted to small display size.
Site available both in English and in German, according to the user's preference	Language settings of the firm's website include English and German at least.
User-friendliness	
Investor relations site is accessible by one mouse click	To capture user-friendliness and convenient data accessibility this item checks whether the investor relations website is accessible by one mouse click.

TABLE 4
Descriptive Statistics by Stock Index

Panel A: Communication Score

	Mean	Median	Std. Dev.	Minimum	Maximum	N
DAX30	24.79	25.00	4.05	15.00	32.00	47.00
MDAX	19.09	19.00	3.90	9.00	28.00	76.00
SDAX	17.87	17.00	4.55	7.00	28.00	78.00
TecDAX	19.14	18.50	5.39	7.00	31.00	36.00
All Indices	19.69	19.00	5.07	7.00	32.00	218.00

Panel B: Independent Variables

	Mean	Median	Std. Dev.	Minimum	Maximum
DAX30					
CDO	0.23	0.00	0.43	0.00	1.00
CIO	0.04	0.00	0.20	0.00	1.00
CSO	0.15	0.00	0.36	0.00	1.00
Turnover	0.02	0.00	0.15	0.00	1.00
Age management board	53.70	54.00	1.92	47.00	58.89
Age CEO	57.69	58.00	4.50	43.50	67.00
Committee	0.26	0.00	0.44	0.00	1.00
Gender management board	0.12	0.13	0.09	0.00	0.29
Gender supervisory board	0.33	0.33	0.07	0.17	0.50
MDAX					
CDO	0.17	0.00	0.38	0.00	1.00
CIO	0.13	0.00	0.34	0.00	1.00
CSO	0.08	0.00	0.27	0.00	1.00
Turnover	0.05	0.00	0.22	0.00	1.00
Age management board	52.09	52.25	4.12	39.00	60.67
Age CEO	53.67	54.00	6.29	36.67	68.00
Committee	0.12	0.00	0.33	0.00	1.00
Gender management board	0.05	0.00	0.10	0.00	0.40
Gender supervisory board	0.28	0.33	0.12	0.00	0.45
SDAX					
CDO	0.15	0.00	0.36	0.00	1.00
CIO	0.14	0.00	0.35	0.00	1.00
CSO	0.01	0.00	0.11	0.00	1.00
Turnover	0.06	0.00	0.25	0.00	1.00
Age management board	52.73	53.13	4.06	42.00	63.50

Age CEO	55.09	54.50	7.43	30.00	78.00
Committee	0.09	0.00	0.29	0.00	1.00
Gender management board	0.05	0.00	0.12	0.00	0.50
Gender supervisory board	0.25	0.29	0.16	0.00	0.58
TecDAX					
CDO	0.19	0.00	0.40	0.00	1.00
CIO	0.17	0.00	0.38	0.00	1.00
CSO	0.03	0.00	0.17	0.00	1.00
Turnover	0.11	0.00	0.32	0.00	1.00
Age management board	52.15	52.06	2.92	46.75	57.67
Age CEO	53.74	54.50	5.59	43.50	64.00
Committee	0.28	0.00	0.45	0.00	1.00
Gender management board	0.06	0.00	0.12	0.00	0.50
Gender supervisory board	0.26	0.33	0.15	0.00	0.50
All Indices					
CDO	0.19	0.00	0.39	0.00	1.00
CIO	0.11	0.00	0.31	0.00	1.00
CSO	0.06	0.00	0.25	0.00	1.00
Turnover	0.05	0.00	0.22	0.00	1.00
Age management board	52.76	53.06	3.73	39.00	63.50
Age CEO	55.12	55.00	6.44	30.00	78.00
Committee	0.13	0.00	0.34	0.00	1.00
Gender management board	0.07	0.00	0.11	0.00	0.50
Gender supervisory board	0.28	0.33	0.13	0.00	0.58

Note: The number of firm-year observations is equal to 218.

Panel A illustrates descriptive statistics of the communication score aggregated over the full sample, also subdivided into the underlying stock exchange indices DAX30, MDAX, SDAX and TecDAX. The numbers do not add up to 218, because of the restructuring of the Prime Standard Indices on 24. September 2018. Due to this, the segments “Tech” and “Classic” are not divided anymore without overlap, i.e., a “Tech” firm could be listed in the DAX, MDAX or SDAX and the TecDAX at the same time.

Panel B illustrates descriptive statistics of the independent variables aggregated over the full sample, also subdivided into the underlying stock exchange indices DAX30, MDAX, SDAX and TecDAX.

TABLE 5
Pearson correlation coefficients

Variables	Communication Score	CDO	CIO	CSO	Turnover	Age management board	Age CEO	Committee	Gender management board	Gender supervisory board
Communication Score	1.00									
CDO	0.229*** (0.001)	1.00								
CIO	-0.07 (0.314)	0.02 (0.789)	1.00							
CSO	0.201*** (0.003)	0.113* (0.095)	-0.09 (0.175)	1.00						
Turnover	0.06 (0.381)	0.211*** (0.002)	0.321*** (0.000)	0.03 (0.713)	1.00					
Age management board	0.168** (0.013)	-0.05 (0.482)	-0.169** (0.012)	0.10 (0.134)	-0.159** (0.018)	1.00				
Age CEO	0.129* (0.056)	-0.08 (0.227)	-0.01 (0.841)	0.11 (0.120)	-0.123* (0.070)	0.669*** (0.000)	1.00			
Committee	0.151** (0.026)	0.131* (0.053)	0.04 (0.555)	0.01 (0.868)	0.04 (0.589)	-0.00 (0.967)	0.03 (0.638)	1.00		
Gender management board	0.180*** (0.008)	0.08 (0.220)	-0.03 (0.702)	-0.09 (0.184)	0.126* (0.063)	0.04 (0.589)	0.05 (0.453)	0.116* (0.089)	1.00	
Gender supervisory board	0.379*** (0.000)	0.129* (0.057)	-0.02 (0.811)	0.109* (0.110)	0.01 (0.929)	0.171** (0.011)	0.09 (0.178)	0.08 (0.258)	0.143** (0.035)	1.00
Free float	0.228*** (0.001)	0.05 (0.490)	-0.02 (0.792)	-0.05 (0.444)	0.02 (0.757)	0.193*** (0.004)	0.180*** (0.008)	0.173** (0.011)	0.03 (0.658)	0.07 (0.337)
Foreign sales	0.174** (0.010)	0.10 (0.131)	-0.162** (0.016)	0.01 (0.833)	-0.05 (0.500)	0.129* (0.057)	0.10 (0.130)	0.10 (0.127)	-0.00 (0.973)	0.07 (0.274)
MtB	-0.197*** (0.004)	-0.07 (0.290)	0.156** (0.022)	-0.07 (0.317)	0.06 (0.384)	-0.225*** (0.001)	-0.10 (0.139)	-0.01 (0.894)	-0.07 (0.305)	-0.247*** (0.000)
Cash flow	0.139** (0.041)	0.10 (0.129)	0.03 (0.624)	-0.00 (0.957)	-0.02 (0.768)	0.01 (0.893)	0.02 (0.753)	-0.122* (0.072)	-0.08 (0.256)	-0.00 (0.961)
ROA	0.01 (0.892)	0.04 (0.576)	-0.02 (0.764)	-0.07 (0.309)	-0.118* (0.083)	-0.03 (0.640)	-0.01 (0.923)	-0.05 (0.452)	0.02 (0.781)	-0.126* (0.063)
Growth	-0.253*** (0.000)	-0.09 (0.202)	-0.08 (0.232)	-0.06 (0.378)	-0.07 (0.292)	-0.09 (0.172)	-0.138** (0.042)	-0.03 (0.617)	-0.07 (0.308)	-0.257*** (0.000)

Leverage	0.01 (0.855)	-0.06 (0.421)	-0.02 (0.802)	0.02 (0.764)	0.01 (0.927)	-0.01 (0.835)	0.09 (0.192)	-0.02 (0.758)	0.04 (0.611)	-0.01 (0.859)
SD CFO	-0.248*** (0.000)	-0.03 (0.616)	-0.01 (0.863)	-0.08 (0.217)	-0.09 (0.198)	-0.01 (0.941)	0.03 (0.687)	0.03 (0.613)	-0.134** (0.048)	-0.00 (0.976)
Size	0.459*** (0.000)	0.04 (0.544)	-0.120* (0.076)	0.239*** (0.000)	-0.06 (0.373)	0.178*** (0.009)	0.171** (0.011)	0.167** (0.013)	0.218*** (0.001)	0.333*** (0.000)

Continued on the following page.

Variables	Free float	Foreign sales	MtB	Cash flow	ROA	Growth	Leverage	SD CFO	Size
Communication Score									
CDO									
CIO									
CSO									
Turnover									
Age management board									
Age CEO									
Committee									
Gender management board									
Gender supervisory board									
Free float	1.00								
Foreign sales	0.167** (0.014)	1.00							
MtB	-0.07 (0.335)	0.00 (0.997)	1.00						
Cash flow	-0.03 (0.697)	-0.138** (0.042)	0.00 (0.981)	1.00					
ROA	-0.03 (0.660)	-0.118* (0.083)	0.225*** (0.001)	0.507*** (0.000)	1.00				
Growth	0.01 (0.933)	-0.09 (0.194)	0.145** (0.032)	-0.02 (0.750)	0.137** (0.044)	1.00			
Leverage	0.03 (0.647)	-0.118* (0.083)	0.224*** (0.001)	0.05 (0.497)	-0.215*** (0.001)	0.01 (0.825)	1.00		
SD CFO	-0.06 (0.417)	0.02 (0.807)	0.226*** (0.001)	-0.197*** (0.003)	0.01 (0.947)	0.03 (0.643)	-0.171** (0.012)	1.00	

Size	0.158**	0.127*	-0.327***	0.198***	-0.01	-0.09	0.268***	-0.324***	1.00
	(0.019)	(0.060)	(0.000)	(0.003)	(0.894)	(0.174)	(0.000)	(0.000)	

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

TABLE 6
Univariate Tests

Panel A: Communication Score

Variables	n	Mean	<i>t-value</i>	<i>p-value</i>
CDO absent	177	19.14	-3.456	0.001***
CDO present	41	22.10		
CIO absent	194	19.81	1.009	0.314
CIO present	24	18.71		
CSO absent	204	19.43	-3.015	0.003***
CSO present	14	23.57		
Turnover absent	207	19.62	-0.878	0.381
Turnover present	11	21.00		
Age management board $\leq$ median	105	18.47	-3.533	<0.001***
Age management board $>$ median	113	20.83		
Age CEO $\leq$ median	99	18.59	-2.994	0.003***
Age CEO $>$ median	119	20.61		
Committee absent	190	19.40	-2.241	0.026**
Committee present	28	21.67		
Gender management board = 0	152	18.66	-4.768	<0.001***
Gender management board $\neq$ 0	66	22.06		
Gender supervisory board $\leq$ median	75	18.67	-2.848	0.005***
Gender supervisory board $>$ median	143	20.59		

Panel B: Time period comparison

Variables	n	Mean	<i>t-value</i>	<i>p-value</i>
CDO 2017	113	0.15	-2.371	0.020**
CDO 2019	113	0.23		
CIO 2017	113	0.08	-2.381	0.019**
CIO 2019	113	0.14		
CSO 2017	113	0.06	<0.001	1.000
CSO 2019	113	0.06		
Turnover 2017	113	0.04	-1.135	0.259
Turnover 2019	113	0.06		
Age management board 2017	113	52.40	-1.767	0.080*
Age management board 2019	113	52.83		
Age CEO 2017	113	55.23	-0.461	0.646
Age CEO 2019	113	55.55		
Committee absent 2017	113	0.13	<0.001	1.000
Committee present 2019	113	0.13		
Gender management board 2017	113	0.06	-2.088	0.039**
Gender management board 2019	113	0.08		
Gender supervisory board 2017	113	0.25	-5.501	<0.001***
Gender supervisory board 2019	113	0.30		

TABLE 7
Multivariate Regression Results

Variables	Expected Sign	Coefficient	Robust Std. Err.	<i>t-value</i>	<i>p-value</i>	
Intercept	+/-	70.205	27.795	2.53	0.013	**
CDO	+	0.248	0.926	0.27	0.790	
CIO	+	5.191	1.174	4.42	0.000	***
CSO	+	2.340	0.649	3.61	0.000	***
Turnover	-	-3.470	1.022	-3.39	0.001	***
Age Management Board	+/-	0.201	0.107	1.88	0.063	*
Age CEO	+/-	-0.154	0.045	-3.44	0.001	***
Committee	+	0.924	1.783	0.52	0.605	
Gender management board	+	-2.972	3.099	-0.96	0.339	
Gender sustainability board	+	-0.465	3.165	-0.15	0.884	
Control Variables						
Free float	+	-0.069	0.020	-3.50	0.001	***
Foreign Sales	+	-0.006	0.033	-0.19	0.852	
MtB	+	-0.088	0.196	-0.45	0.655	
Cash flow	+	-0.041	0.011	-3.57	0.001	***
ROA	+/-	-0.003	0.081	-0.04	0.967	
Growth	-	-0.009	0.007	-1.31	0.194	
Leverage	+/-	0.002	0.003	0.77	0.445	
SD CFO	-	11.615	8.418	1.38	0.170	
Size	+	-3.186	1.732	-1.84	0.068	*
Year of analysis	+	2.769	0.603	4.60	0.000	***
Industry	Dummy					
Year	Dummy					
Firm	Dummy					

$R^2 = 0.564$

n =218

All *p*-values are two-tailed.

All variables are as defined in Table 3.

TABLE 8
Additional Analyses

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	<i>Financials Score</i>	<i>Applications Score</i>	<i>User- friendliness Score</i>	<i>Links Score</i>	<i>Shares Score</i>	<i>Interaction Score</i>	<i>Online Score</i>	<i>Information Score</i>	<i>Social Media Score</i>	<i>Score without Social Media</i>
CDO	0.50 (0.58)	0.30** (0.12)	0.08 (0.07)	-0.17 (0.59)	0.00 (0.27)	-0.46 (0.40)	-1.79 (1.14)	-1.57 (1.13)	-0.47 (0.69)	-1.07 (1.29)
CIO	1.12 (0.77)	-0.12 (0.34)	0.02 (0.19)	1.27 (0.97)	0.28 (0.20)	0.47 (0.37)	5.02** (2.08)	4.89** (1.87)	2.43** (1.17)	2.18 (1.33)
CSO	1.84** (0.71)	-0.18 (0.17)	-0.01 (0.30)	3.18*** (0.70)	0.01 (0.35)	0.17 (0.38)	5.58*** (0.97)	5.41*** (0.95)	1.01 (0.69)	4.32*** (1.00)
Turnover	-1.87** (0.73)	0.03 (0.17)	0.36 (0.31)	-0.89 (0.56)	-0.13 (0.33)	-0.48 (0.30)	-4.34*** (1.38)	-4.67*** (1.23)	-3.15*** (1.04)	-0.97 (1.49)
Age management board	0.09 (0.08)	-0.01 (0.03)	-0.02 (0.02)	0.22* (0.11)	0.03 (0.02)	0.06 (0.04)	0.36** (0.17)	0.37** (0.17)	0.05 (0.09)	0.29* (0.17)
Age CEO	-0.07** (0.03)	-0.00 (0.01)	-0.01 (0.01)	-0.10*** (0.04)	0.00 (0.01)	-0.03 (0.02)	-0.19*** (0.05)	-0.18*** (0.05)	-0.02 (0.04)	-0.15*** (0.06)
Committee	0.44 (1.05)	0.11 (0.18)	0.14 (0.20)	-0.40 (0.51)	0.74* (0.42)	-0.13 (0.34)	0.34 (1.48)	0.31 (1.46)	-0.38 (1.44)	1.11 (1.81)
Gender management board	-0.06 (1.99)	-0.34 (0.87)	0.19 (0.28)	-2.04 (2.40)	0.04 (0.49)	0.89 (1.33)	-2.58 (3.59)	-3.11 (4.03)	-0.38 (2.07)	-2.31 (4.30)
Gender sustainability board	3.13 (2.35)	0.96 (0.71)	0.23 (0.37)	-0.35 (2.40)	-0.44 (0.68)	-1.13 (1.23)	-4.43 (4.43)	-3.69 (4.39)	0.08 (1.73)	-3.13 (4.66)
Free float	-0.03* (0.02)	0.00 (0.00)	0.00 (0.00)	-0.02 (0.02)	-0.01** (0.01)	-0.03* (0.01)	-0.09*** (0.02)	-0.09*** (0.02)	0.01 (0.02)	-0.09*** (0.03)
Foreign sales	-0.00 (0.01)	-0.00 (0.00)	-0.01* (0.00)	-0.01 (0.02)	-0.00 (0.00)	0.00 (0.01)	-0.02 (0.05)	-0.01 (0.05)	-0.01 (0.01)	-0.01 (0.05)
MtB	0.13 (0.12)	0.00 (0.04)	-0.01 (0.04)	0.04 (0.18)	0.01 (0.03)	0.06 (0.06)	0.06 (0.30)	0.07 (0.29)	-0.17 (0.13)	0.20 (0.32)
Cash flow	0.01 (0.01)	0.00 (0.00)	0.00 (0.00)	0.00 (0.01)	-0.01*** (0.00)	-0.01* (0.00)	-0.02 (0.01)	-0.02 (0.01)	-0.00 (0.01)	-0.01 (0.01)
ROA	-0.00 (0.04)	-0.01 (0.01)	0.01 (0.01)	-0.04 (0.04)	0.01 (0.01)	-0.01 (0.02)	-0.07 (0.07)	-0.09 (0.07)	-0.02 (0.04)	-0.06 (0.06)
Growth	-0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)	-0.02*** (0.00)	0.00 (0.00)	0.00 (0.00)	-0.02*** (0.01)	-0.03*** (0.01)	0.00 (0.00)	-0.03*** (0.01)
Leverage	-0.00	-0.00	0.00	-0.00	0.00	-0.00	-0.00	-0.00	0.00	-0.00

	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
SD CFO	7.50	-1.64	2.70	0.80	2.56	-0.31	20.17*	15.83	5.82	12.65
	(9.89)	(2.02)	(1.81)	(7.86)	(1.76)	(3.07)	(11.88)	(11.97)	(6.51)	(13.21)
Size	-0.61	0.36	0.21	-1.67	-0.01	-0.15	-2.46	-2.31	-1.00	-1.14
	(1.22)	(0.34)	(0.35)	(1.45)	(0.29)	(0.68)	(2.31)	(2.26)	(1.11)	(2.32)
Year of analysis	1.08***	-0.38**	-0.13	3.22***	-0.09	0.12	4.43***	4.18***	1.07***	2.81***
	(0.38)	(0.16)	(0.09)	(0.43)	(0.13)	(0.21)	(0.85)	(0.83)	(0.36)	(0.79)
_cons	14.98	-4.84	2.05	24.74	1.52	5.85	68.93*	62.04	16.78	46.62
	(19.16)	(5.55)	(5.57)	(23.40)	(4.55)	(10.65)	(37.88)	(37.48)	(18.60)	(38.05)
Observations	218	218	218	218	218	218	218	218	218	218
R-squared	0.38	0.13	0.22	0.73	0.30	0.15	0.65	0.63	0.38	0.46
Industry-fixed effects (omitted)	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Year-fixed effects	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Firm-fixed effects	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes

Table 8 presents the coefficients and robust standard errors (in parentheses) for models 1 through 10.

All *p*-values are two-tailed.

All variables are as defined in Table 3.

TABLE 9
List of Regression Variables

Variable Name	Variable Description	Data Selection Criteria
Dependent Variable		
Communication score		Unweighted sum score of the Internet-based disclosure items entering the score (cf. Table 3)
Independent Variables		
Chief digital	The presence (vs. absence) of a Chief Digital Officer (CDO), Chief Information Officer (CIO), or Chief Sustainability Officer (CSO), respectively	
CDO	The presence (vs. absence) of a Chief Digital Officer (CDO)	0 = no CDO; 1 = CDO; reference date: financial year end; has to be a member of the management board; board member can be CDO and CIO/CSO at the same time; board member should not have more than 4 different responsibilities (functions and divisions); board member does not need to be called CDO, it is sufficient if he has the corresponding responsibilities; key words that were recognized: Technology ("Technologie", "Technik"), Innovation ("Innovation"), Digitalization ("Digitalisierung"), Chief Digital Officer, Chief Technical Officer, Chief Technology Officer
CIO	The presence (vs. absence) of a Chief Information Officer (CIO)	0 = no CIO; 1 = CIO; reference date: financial year end; has to be a member of the management board; board member can be CIO and CDO/CSO at the same time; board member should not have more than 4 different responsibilities (functions and divisions); board member does not need to be called CIO, it is sufficient if he has the corresponding responsibilities; key words that were recognized: Information technology (IT) ("Information Technologie"), Chief Information Officer, CTO (if it is translated with "IT-Vorstand")
CSO	The presence (vs. absence) of a Chief Sustainability Officer (CSO)	0 = no CSO; 1 = CSO; reference date: financial year end; has to be a member of the management board; board member can be CSO and CDO/CIO at the same time; board member should not have more than 4 different responsibilities (functions and divisions); board member does not need to be called CSO, it is sufficient if he has the corresponding responsibilities; key words that were recognized: Sustainability ("(Umwelt-) Nachhaltigkeit"), HSEQ (Health, Safety, Environment & Quality), Environment ("Umwelt), ESG (Environment, Social, Governance), Chief Sustainability Officer
Turnover	The presence of a personal change within the management board, regarding the positions of CDO (Chief Digital Officer), CIO (Chief Information	0 = no change; 1 = change; the personal change had to take place within the financial year; personal change contains the addition and/or reversal and/or change of the board member

	Officer) and CSO (Chief Sustainability Officer)	
Age management board	The average age of the management board	Age of the firm's management board members calculated on the basis of their year of birth (e.g. =2017-1950 or =2019-1950); reference date: financial year; in case you cannot find the age of one management board member the average age was calculated out of the rest (exception: management board consists just out of 2 members); if the firm has the legal form of a SE or SA and no management board, the board of directors was appointed as management board (including executive, non-executive and independent directors) or the administrative board ("Verwaltungsrat") was appointed as management board; if the firm has the legal form of a KGaA, the management board of the general partner ("Komplementär") was appointed as the management board
Age CEO	The age of the firm's Chief Executive Officer (CEO)	Age of the firm's CEO calculated on the basis of his year of birth (e.g., =2017-1950 or =2019-1950); reference date: financial year; if the firm does not have a CEO (or the CEO is not part of the management board) the age of the chairman of the management board was used; if the firm does not have a chairman of the management board the age of the speaker of the management board was used; in the case of more than one CEO the average age was calculated; in case you cannot find the age of one CEO the average age was calculated out of the rest (exception: just 2 CEO's)
Committee	The presence of a supervisory board committee for digitalization	0 = no committee; 1 = committee; reference date: financial year end; management board committees and administrative board committees were not taken into account; committee should not have more than 3 different responsibilities; digitalization key words that were recognized: Technology ("Technologie", "Technik"), Innovation ("Innovation"), Digitalization ("Digitalisierung")
Gender management board	Gender diversity, i.e., the representation of women (vs. men), within the management board	Number of women within the management board divided through the number of all management board members; reference date: financial year end
Gender supervisory board	Gender diversity, i.e., the representation of women (vs. men), within the supervisory board	Number of women within the supervisory board divided through the number of all supervisory board members; honorary members of the supervisory board were not taken into account; reference date: financial year end
Control Variables		
Free float		Free float number of shares, i.e., the percentage of total shares in issue available to ordinary investors or the total number of shares less the strategic holdings
Foreign sales		Percentage of foreign sales to total sales
Cash flow		Cash flow to sales ratio, calculated by dividing operating cash flows by net sales
ROA		Return on assets calculated by dividing net income prior to financing costs by the average of last year's and current year's total assets

MtB		Market-to-book-value defined as the market value of the common equity divided by the balance sheet value of the common equity in the firm
Growth		Firm growth expressed as a percentage change in net sales or revenues from one year to the next
Leverage		Total-debt-to-total-assets ratio, with total debt representing all interest bearing and capitalized lease obligations (sum of long- and short-term debt)
SD CFO		The five-year standard deviation of cash flows from operations divided by total assets
Size		Firm size measured by the natural logarithm of the firm's total assets
Industry	Industry classification based on the Standard Industrial Classification (SIC) Code	Further classification: "01-09 Agriculture, Forestry, Fishing" = 1, "10-14 Mining" = 2, "15-17 Construction" = 3, "20-39 Manufacturing" = 4, "40-49 Transportation & Public Utilities" = 5, "50-51 Wholesale Trade" = 6, "52-59 Retail Trade" = 7, "60-67 Finance, Insurance, Real Estate" = 8, "70-89 Services" = 9, "91-99 Public Administration" = 10

Highlights

- Firms increasingly leverage their website to promote investor relations.
- Firm-level institutional and board-level diversity demographics drive state-of-the-art investor relations via the Internet.
- Innovative investor communication is related to a CIO's or CSO's presence, to lower management turnover and to an older (a younger) management board (CEO).
- CDOs and digitalization committees foster domain-specific innovative investor communication.
- Identification of relevant institutional and demographical diversity characteristics that facilitate innovative investor communication

B3 Monetary Valuation of Environmental Externalities on Corporate Level – German Empirical Evidence and Development of a Valuation Framework

Study no.	7			
Title	Monetary Valuation of Environmental Externalities on Corporate Level – German Empirical Evidence and Development of a Valuation Framework			
Authors	Corinna Ewelt-Knauer, Wolfram Henkel, Julia Schneider			
Author contribution		Ewelt-Knauer	Schneider	Henkel
	<i>Numeric share</i>	<i>0.1</i>	<i>0.8</i>	<i>0.1</i>
	Conceptual development of research question		✓	
	Development of theory		✓	
	Methodology		✓	✓
	Acquisition of data		✓	
	Analysis/interpretation of data	✓	✓	✓
	Writing the manuscript		✓	✓
Publication status	Published (2020) <i>Zeitschrift für Umweltpolitik & Umweltrecht</i> , 3: 268-325. (VHB-Jourqual 3: B)			
Research approach	Normative (conceptual analysis) and empirical study			
Language	English			
Abstract	The monetary valuation of environmental externalities is a highly controversial field in sustainability accounting. Its opportunities are the facilitation of comparisons between various impacts, the facilitation of communicating environmental externalities and the estimation of costs connected to potential internalisations. Central problems besides possible ideological concerns of stakeholders are the subjectivity and uncertainty of the results. An empirical analysis of environmental disclosure practices of German publicly listed companies shows a high variation in what predominantly qualitative environmental information is reported and reveals major shortcomings in terms of quantitative disclosures, particularly concerning monetary values. Based on these results, we develop an environmental externality valuation framework (EEVF). The EEVF highlights the key differences between conventional sustainability accounting in biophysical units and monetary valuation of environmental externalities. It acknowledges the central challenges of monetising environmental externalities and suggests intensive stakeholder engagement, a conservative accounting approach as well as the development of a monetisation frontier as potential solutions. Aiming at structuring discussions in science and in practice as well as corporate reporting on assumptions and decisions made in the valuation process, the EEVF contributes to the highly topical subject of monetary valuation of environmental externalities.			

Monetary Valuation of Environmental Externalities on Corporate Level – German Empirical Evidence and Development of a Valuation Framework

Corinna Ewelt-Knauer, Wolfram Henkel and Julia Schneider, Gießen*

Summary

The monetary valuation of environmental externalities is a highly controversial field in sustainability accounting. Its opportunities are the facilitation of comparisons between various impacts, the facilitation of communicating environmental externalities and the estimation of costs connected to potential internalisations. Central problems besides possible ideological concerns of stakeholders are the subjectivity and uncertainty of the results. An empirical analysis of environmental disclosure practices of German publicly listed companies shows a high variation in what predominantly qualitative environmental information is reported and reveals major shortcomings in terms of quantitative disclosures, particularly concerning monetary values. Based on these results, we develop an environmental externality valuation framework (EEVF). The EEVF highlights the key differences between conventional sustainability accounting in biophysical units and monetary valuation of environmental externalities. It acknowledges the central challenges of monetising environmental externalities and suggests intensive stakeholder engagement, a conservative accounting approach as well as the development of a monetisation frontier as potential solutions. Aiming at structuring discussions in science and in practice as well as corporate reporting on assumptions and decisions made in the valuation process, the EEVF contributes to the highly topical subject of monetary valuation of environmental externalities.

1 Introduction

“This lawsuit is intended to shift those costs back where they belong – on the fossil fuel companies” (Paddison 2017). This statement of a US county supervisor refers to a trial of three US communities against the oil and gas company Exxon and other carbon producers about compensation payments for estimated damages of more than \$ 54.5 billion caused by sea level rise (Paddison 2017). As the responsible companies currently do not compensate society for these costs, they are termed externalities (Organisation for Economic Co-operation and Development 1993, 44). The lawsuit

* *Wolfram Henkel* is an employee of Fresenius SE & Co. KGaA. The opinions and views expressed in this article are solely those of the authors and not those of Fresenius SE & Co. KGaA or its affiliates.

demonstrates that these currently external costs to the company might be internalised over time (NCC 2016, 2) and thus be of viable interest for companies. Managing external effects is expected to become more important for companies due to increased regulations, market forces or stakeholder action (Kering 2015, 22).

Established sustainability reporting metrics like the ones promoted by the Global Reporting Initiative (GRI) mainly focus on accounting for the source of these externalities (e.g., greenhouse gases) in biophysical units¹ (Global Reporting Initiative 2018) rather than on valuing their impact on society in monetary units. A strategy intended to face the increasing relevance of externalities is provided by sustainability accounting approaches – such as full cost accounting – seeking to monetise environmental externalities² (Lamberton 2005, 8). Although no new discipline (Unerman, Bebbington, and O’dwyer 2018, 504), monetary valuation has recently received considerable attention as multiple companies started publishing their monetised externalities in the form of Environmental Profit and Loss (EP&L) accounts (e.g., DEPA 2016; Puma 2011; Vodafone Netherlands 2015). Moreover, in 2016 the Natural Capital Coalition (NCC)³ released the Natural Capital Protocol, a framework for the valuation of natural capital in a corporate context (NCC 2016). In its “European Green Deal”, a set of measures meant to combat climate change and protect the environment, released in 2019, the European Commission also undertakes to support the standardisation of natural capital accounting approaches on corporate level (European Commission 2019, 17). Within this European Green Deal, the European Union (EU) supports the Value Balancing Alliance (Value Balancing Alliance 2020), an organisation founded in 2019 by large international companies with the support of the Organisation for Economic Co-operation and Development (OECD), Harvard Business School and other institutions, aiming, among other things, at standardising monetary valuation procedures of positive and negative corporate impacts on society (Value Balancing Alliance 2020).

On the one hand, resorting to the basic definition of accounting, proponents of monetary valuation argue that this translates “environmental impact into a language business understands” (Kering 2015, 7) and will help improve a company’s sustainability performance (Atkinson 2000, 240). On the other hand, there are serious concerns about the reliability and accuracy of monetisation results (Costanza et al. 1997, 255). Also, many critics believe that placing an economic value on nature will harm nature more than it will help protect it (Hines 1991, 28). Against the background of the high topicality of this subject and the opposing views on monetary valuation, this paper ascertains the status quo of monetary valuation and reporting practices in Germany.

1 Subsequently, sustainability accounting which does not include any kind of valuation (e.g., indicators in biophysical units) is termed “conventional sustainability accounting”.

2 Subsequently, the use of the terms “monetary valuation” and “monetisation” refers to *environmental externalities* if not explicitly stated differently.

3 In January 2020, the Natural Capital Coalition united with the Social & Human Capital Coalition as the Capitals Coalition (<https://naturalcapitalcoalition.org/the-natural-capital-coalition-and-the-social-human-capital-coalition-unite-as-the-capitals-coalition/>, accessed on 23.03.2020).

The empirical results first yield that companies cover the individual environmental categories with varying degrees of intensity. Second, depending on the environmental category, there are differences in the completeness of the information (e.g., level of detail, specified targets). Third, currently companies disclose hardly comparable environmental data and focus on qualitative information. While some companies provide comprehensive environmental disclosures, others do not, but, although very few companies report monetised environmental impacts in separate documents, none provide those data in their published sustainability reports. Since monetary units are the best dimension in which stakeholders can compare and interpret different environmental effects with each other and estimate their potential financial impacts on a company, we argue that companies should consider evaluating their externalities monetarily and publishing the valuation results.

Based on these observed deficiencies in the companies' environmental disclosures, most notably the lack of monetary values, this paper addresses the following research questions:

1. *What are the opportunities and problems of monetary valuation compared to conventional sustainability accounting approaches?*
2. *How can potential problems particularly connected to monetary valuation be reduced?*

To provide an answer to both research questions this study analyses practical valuation approaches using general financial accounting principles and frameworks more specific to sustainability accounting (e.g., Lamberton 2005). Based on our analysis we develop an environmental externality valuation framework (EEVF) that highlights the characteristics of monetary valuation and provides suggestions for coping with subjectivity, uncertainty and ideological concerns.

The findings show the facilitation of comparisons between various impacts, the facilitation of communicating environmental externalities and the estimation of costs connected to potential internalisations as major opportunities connected to monetary valuation. The central problems are related to the subjectivity and uncertainty of the results as well as to ideological concerns among stakeholders. The EEVF proposes to face these problems by applying the conservatism principle in the valuation process, by engaging intensively with stakeholders and by developing a monetisation frontier in cooperation with them.

This study contributes to the existing literature by giving an empirical overview of contemporary environmental disclosure practices of German listed companies. Since our empirical analysis indicates several shortcomings particularly with respect to monetary environmental information, we suggest a comprehensive framework for valuing environmental externalities. In particular, the EEVF examines pros and cons for translating a company's environmental impacts into monetary units, for internalising and publishing the results (i.e., the monetary value estimates). It can be used

for structuring dialogues with internal and external stakeholders about monetisation approaches or for reporting on decisions and assumptions made in the valuation process. In the light of the inadequate publicly available information about environmental issues and the high heterogeneity in environmental disclosures as evidenced by our empirical analysis, our study also informs the ongoing debate on the CSR-directive's amendment (European Commission 2020). Thus, our study is ultimately geared to advance the field of sustainability accounting and reporting.

The paper is structured as follows. Chapter 2 establishes the theoretical background of different concepts linked to sustainability, sustainability accounting and sustainability reporting. This is followed by an empirical analysis of contemporary environmental accounting reporting practices in chapter 3. Based on a comprehensive investigation of characteristics of monetary valuation and our empirical findings on contemporary environmental accounting reporting practices, chapter 4 develops the EEVF. Chapter 5 critically discusses arguments against monetary valuation, and chapter 6 concludes.

2 Theoretical Basics

2.1 Sustainability and Monetary Valuation of Environmental Externalities

The probably most accepted definition of *sustainability* or *sustainable development* is the one of the World Commission on Environment and Development (Brundtland Commission) (Farley 2012, 41; Joshi and Li 2016, 2). In its report “Our Common Future” it defines sustainable development as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (World Commission on Environment and Development 1987, 41). The *triple bottom line* divides *corporate sustainability* into an economic, environmental and social dimension (or bottom line) and further relates these bottom lines to natural, social, and human capital as well as to financial and physical capital (Elkington 1999, 72–86).

Natural capital as defined by the Natural Capital Coalition is “the stock of renewable and non-renewable natural resources on earth [...] that combine to yield a flow of benefits or ‘services’ to people” (NCC 2016, 12). While *non-renewable* natural capital mainly comprises geological resources (e.g., minerals and petroleum), examples of *renewable* natural capital are woods and other ecosystems (Costanza and Daly 1992, 38; El Serafy 1989, 11). The benefits human beings yield from ecosystems such as food provision, climate regulation and provision of recreation areas are called ecosystem services (Millennium Ecosystem Assessment 2005, 40). The condition for *weak sustainability* is met if the total of natural capital and man-made capital is kept constant, while *strong sustainability* requires that each type of capital is maintained (Atkinson 2000, 237; Costanza and Daly 1992, 44). By loosening up this strong re-

quirement and allowing for substitution (i.e., weak sustainability), it is possible to monetise all kinds of capital including their welfare effects to evaluate ex-post if a specific action has at least preserved the initial total welfare (Ekins, Simon, Deutsch, Folke, and de Groot 2003, 168; Chiesura and de Groot 2003, 220).

A company's or a product's sustainability performance cannot be assessed without also considering *externalities* (or external effects; Buchanan and Stubblebine 1962, 372). Externalities occur "when the effect of production or consumption of goods and services imposes costs or benefits on others which are not reflected in the prices charged for the goods and services being provided" (Organisation for Economic Co-operation and Development 1993, 44). Following this definition, *environmental impacts*⁴ such as loss of habitats (Herbohn 2005, 530) or impacts of air emissions (Baxter, Bebbington, and Cutteridge 2002, 3) are *externalities* if the responsible company does not pay a compensation to the public for these effects (Baxter et al. 2002, 3; Kering 2015, 19). For example, in the case of environmental impacts stemming from waste disposal, the company pays at least a partial compensation through waste disposal fees (Baxter et al. 2002, 3). Emphasising the downside, *negative* externalities are also referred to as external costs (European Commission 2003, 5), social costs (Epstein 1996, 20) or societal costs (United States Environmental Protection Agency 1995, 16). External *environmental* costs can arise in the form of damage to nature or to individuals (Beer and Friend 2006, 550). It is possible that external costs are not recorded in financial terms at all (e.g., if a species becomes extinct because of excessive land use by a company) or that external costs appear in accounts not connected to their source (e.g., if air pollution causes higher healthcare costs) (Baxter et al. 2002, 2). From a micro- and macroeconomic perspective, the ultimate objective of monetising environmental externalities is to create an efficient resource allocation ("normative benchmark"), leading to a net gain of economic value.⁵

Since only a minor share of the costs related to environmental impacts is currently paid by companies (PWC 2015, 10), we will use the terms "externalities" and "environmental impacts" synonymously.

4 Consistent with the impact pathway model of PWC's (2015, 29f.) valuation methodology for the EP&L, we understand environmental impacts as environmental outcomes (e.g., reduced air quality) stemming from impact drivers (e.g., emissions of air pollutants) and resulting in societal impacts (e.g., increases in respiratory diseases). Environmental impacts are then monetised by valuing their societal impacts.

5 The following illustrative example highlights that internalising external effects can be important from a microeconomic perspective to prevent market failures – meaning that the cost of external effects from the responsible company are allowed for to prevent misallocation of resources (Neubäumer, Hewel, and Lenk 2017, 30f.). If a chemical plant on a river's upper reaches pollutes the water so heavily that a paper mill must clear the water before using it, there are external costs for the paper mill. These external costs are caused but not paid by the chemical plant. Thus, the environmentally harmful manufactured products are offered too cheaply by the chemical plant and thus the demand for them could increase. This could result in a misallocation because companies that manufacture their products in an environmentally friendly way are displaced from the market and products are only manufactured in an environmentally harmful way. To internalise external costs, companies must first estimate them – by some method – and our EEVF can provide structured guidance.

To calculate external costs and value marginal changes in stocks and flows of natural capital in monetary terms, companies must choose between numerous approaches (NCC 2016, 82). Most monetary valuation approaches are based on market or financial prices (e.g., water prices), production functions, replacement costs, damage costs avoided, or on abatement costs.⁶ Others rely on hedonic pricing or travel costs (revealed preferences approaches) or involve contingent valuation (stated preferences approaches). The latter asks consumers directly about their willingness to pay for an increase (or accept a decrease) of a specific ecosystem service (NCC 2016, 114–21; Kering 2015, 63). Value or benefit(s) transfer, a popular but less sophisticated valuation approach, adopts monetary value estimates for ecosystem services from existing research, usually requiring multiple adjustments (Koetse, Brouwer, and van Beukering 2015, 123, 126; NCC 2016, 86, 121; United Nations 2014, 125–27). Which method is most suitable and should be used by practitioners depends on various factors, e.g., data availability, the type of natural capital which should be valued or time and monetary constraints (NCC 2016, 82).

2.2 Sustainability Accounting

Sustainability accounting comprises the collection, analysis and further application of social and environmental data to enhance corporate environmental, social and economic performance (Schaltegger and Burritt 2010, 377; Forum for the Future 2003, 7). While there is common consent that all three sustainability dimensions of the triple bottom line should be taken into consideration, it is less clear whether monetary and/or non-monetary measuring units should be used (Burritt, Thoradeniya, and Saka 2009, 2).

Companies may integrate sustainability accounting into their business as a potential tool to cope with pressure from various stakeholders (Burritt and Schaltegger 2010, 831; Schaltegger and Burritt 2010, 378). Like “classical” or “traditional” accounting, sustainability accounting addresses the information needs of both internal and external stakeholders. To *internal* stakeholders, sustainability accounting can provide data for steering a company’s sustainability performance and support decision-making. The generated data can also be disclosed to fulfil *external* stakeholders’ demand for information to examine a company’s social and environmental effects (Lamberton 2005, 19).

With regard to monetary valuation, *full cost accounting* aims at capturing all internal and external benefits and costs of a business decision (Baxter et al. 2002, 2; Bebbington, Gray, Hibbitt, and Kirk 2001, 8f.). Previous full cost accounting studies have mainly focused on environmental externalities (Antheaume 2004; Atkinson 2000), not on social externalities. In the following we will outline two full cost accounting methods that have received broad attention⁷ and that will be used to derive and vali-

⁶ The abatement cost method values environmental externalities not based on their damage caused but on the costs an organisation would face to reduce this impact (e.g., the emission of pollutants) (Kering 2015, 63).

date the EEVF accordingly: the Environmental Profit and Loss (EP&L) and the Sustainability Assessment Model (SAM).⁸

The first method, the *Environmental Profit and Loss (EP&L)*, monetises environmental externalities of a company and its supply chain (Puma 2011, 2; Pinault Printemps Redoute Group 2012, 13). Although the EP&L is usually primarily applied with focus on negative environmental externalities, it can also relate to positive aspects (Kering 2016, 3) such as *reduced* air pollution (Kering 2015, 98). Yet, there are methodological differences between the initial EP&L methodology published by Puma (2011) with support of PWC and Trucost and the refined methodology of its parent company Kering (2015 in cooperation with PWC (2015)).⁹ Other companies using the EP&L have also adapted the measurement and valuation approaches to their business (e.g., DEPA 2016; Vodafone Netherlands 2015). However, the objectives among the different users are very similar (Kering 2015, 7 f.; Puma 2011, 4 f.; DEPA 2014c, 10 f.).

The aim of the second central full cost accounting method, the *Sustainability Assessment Model (SAM)*, is to assess a project's level of sustainability by measuring and monetising the connected resource usage and the economic, environmental and social impacts which are presented in a bar chart (Baxter et al. 2002, 2–4). One characteristic of the SAM is its focus on stakeholder involvement in the sustainability assessment (Bebbington, Brown, and Frame 2007, 231 f.).

Generally, there are three main difficulties associated with monetisation: First, the *subjectivity* of the results which is inherent in monetary valuation (Jasinski, Meredith, and Kirwan 2015, 1125). It is caused by the multiple assumptions which need to be made in the valuation process (Bebbington et al. 2001, 118; Bebbington et al. 2007, 232). Second, the marked *uncertainty* of the results (Costanza et al. 1997, 255) which is based on the uncertainty of measurement and valuation methods (Antheaume 2004, 455–57) or subjective assumptions (Kering 2015, 70) and which also includes the discussion about potential manipulation of monetised results (Herbohn 2005, 531). Third, there are *ethical concerns* about the potential loss of intrinsic motivation for environmental protection (Neuteleers and Engelen 2015, 257 f.) and about the consequences of placing a value on nature or human life (Costanza et al. 1997, 255).

⁷ A google search yields over 21.500 matches for the term “EP&L” (53.300 for the term “Sustainability Assessment Model”) (Date of search: 22 July, 2020).

⁸ Besides these two methods there are further full cost accounting approaches such as the Sustainability Accounting Guide developed by the Forum for the Future (2003) and several conceptual and experimental studies on full cost accounting (e.g., Antheaume 2004; Atkinson 2000; Herbohn 2005; Demeke, Ingwersen, Weisbrod, Ceja, and Weber 2018). For a comprehensive review of full cost accounting see Jasinski, Meredith and Kirwan (2015) and for a review of the historical development of accounting for externalities see Unerman, Bebbington and O'dwyer (2018). Since, as noted by Jasinski, Meredith and Kirwan (2015, 1130), the share of grey literature in the full cost accounting field is high, subsequently several white papers and documents published by organisations will be used.

⁹ For example, compared to Puma's (2011) initial EP&L water pollution is included as a sixth impact area beyond air pollution, greenhouse gas emissions, land use, water use and waste.

Our developed EEVF (chapter 4) will allow for the discussed sustainability concepts, sustainability accounting approaches as well as monetary valuation difficulties.

2.3 Sustainability Reporting

Sustainability reporting (or CSR reporting) responds to the societal expectations of corporate behaviour, i. e., to legitimise corporate behaviour and its impacts on society (Chen and Roberts 2010, 652; Cho, Laine, Roberts, and Rodrigue 2015, 80). As established by legitimacy theory, the company operates within societal bounds and norms, and sustainability reporting may be viewed as a reaction to stakeholder demands and other factors in the company's environment. Since stakeholders like analysts, investors, or regulators seek transparent, comparable and consistent sustainability information, sustainability reporting may be a mechanism through which companies can influence how they are perceived by stakeholders (Suchman 1995, 586; Hopwood 2009, 437).

In March 2017 the German Federal Parliament (Deutscher Bundestag 2017) passed the CSR Directive Implementation Act obliging large publicly traded companies to report on their business activities' social and environmental impacts. To do so, the directive encourages companies to use standardised frameworks that aim at fostering harmonisation and greater comparability. The GRI standards are perhaps the most influential ones that guide companies what non-financial information to report on and how to do so (Hahn and Kühnen 2013, 7). However, some are concerned that the rise in reporting goes along with even more scepticism and scrutiny among stakeholders making it harder for the reader to differentiate between cheap talk from genuine sustainability actions (Christensen, Morsing, and Thyssen 2017, 243; Wickert, Scherer, and Spence 2016, 1170; Schoeneborn, Morsing, and Crane 2019, 6). As a consequence, mechanisms that verify the reliability of a company's sustainability disclosures have become more important.

Our empirical analysis in the next chapter is based on established sustainability reporting frameworks, most notably the GRI standards as the de-facto standard for sustainability reporting (Hahn and Kühnen 2013, 7), providing a detailed list of environmental categories and related indicators. Put differently, most companies tend to relate their environmental disclosures to the GRI standards, with high adhering rates likely to be reflected by our empirical findings.

3 Empirical Analysis

To determine the status quo of contemporary monetary valuation and reporting practices, we analyse the non-financial disclosures of German companies listed in the Prime Standard (DAX30, MDAX and SDAX). Focusing on Germany seems to be warranted for at least two reasons. First, Germany is the strongest economy in the EU (Eurostat 2020), the fourth strongest economy worldwide¹⁰ (Plecher 2020) and,

from a global perspective, a relatively high share of companies is in the manufacturing sector (The World Bank 2020). Consequently, German companies also tend to cause significant environmental impacts as a whole. Second, voluntary sustainability reporting in Germany has a long-standing tradition – with an emphasis on environmental issues (Einwiller, Ruppel, and Schnauber 2016, 238). For example, the German government has explicitly supported the Eco-Management and Audit Scheme (“Eco-Audit”) and strongly encouraged companies to participate, including a requirement for producing an annual environmental statement (Kolk, Walhain, and van de Wateringen 2001, 18f.; Kolk 2003, 285).¹¹

The analysis covers the companies’ annual reports and, if available, the sustainability reports and non-financial statements, of the fiscal year 2018. We choose the Prime Standard because it contains the 160 biggest publicly traded companies in the German economy that fall within the scope of the CSR Directive Implementation Act. Hence, those companies must disclose their environmental performance e.g., in terms of greenhouse gas emissions, water consumption, air pollution, usage of renewable and non-renewable energies or protection of biodiversity (§ 289c par. 2 and 3, § 315 c HGB (German commercial law)). We remove three companies from our sample due to their integration in a group structure. These companies refer to the sustainability reports of their respective parent companies in their annual reports. Thus, our analysis is based on a sample of 157 companies.

Data is hand-collected¹² from the following seven environmental categories: 1. greenhouse gases, 2. water, 3. waste, 4. materials and basic materials, 5. land use and consumption, 6. biodiversity, 7. environmental assessment of the suppliers (in short, supplier assessment). To reflect the environmental dimension of sustainability comprehensively, the environmental categories cover a wide range of environmental impacts that are also disclosure matters of established sustainability reporting frameworks (e.g., the GRI or Sustainability Accounting Standards Board (SASB) standards). Related studies take a similar approach and develop a disclosure index based on the GRI standards to assess the extent of discretionary disclosures (e.g., Clarkson, Li, Richardson, and Vasvari 2008, 309–13; Plumlee, Brown, Hayes, and Marshall 2015, 345). For each category, we analyse whether the company reports at all, and, if so, to what extent the company reports about the respective category, and whether the aim is to reduce the environmental impact. We also consider whether monetisation of externalities is carried out. In detail, each category is assessed based on four to six items (assessment criteria), as presented in Table 1. In addition, we collect the presence of an environmental profit and loss, the adherence to an established sustainability reporting framework (e.g., GRI), as well as the form of publication.

¹⁰ Each based on the gross domestic product (GDP).

¹¹ In such an environmental statement, the company reports publicly on environmentally relevant activities and data, such as emissions, waste, biodiversity, consumption of resources, water and energy.

¹² We would like to thank Mr. Dominik Simon for collecting the empirical data basis as part of his master thesis.

Table 1: Environmental categories' assessment criteria and further variables

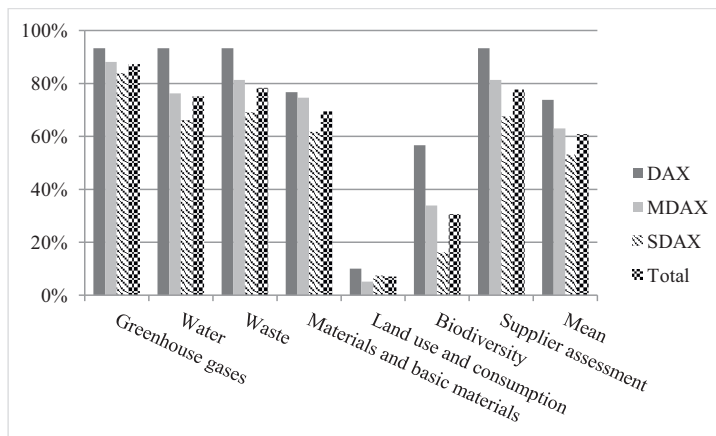
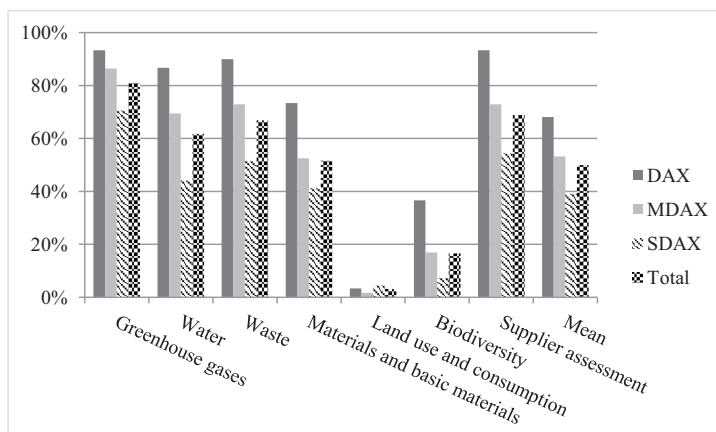
Item Name	Item Description
Environmental categories' assessment criteria	
Mentioned at all (*)	Dummy variable, that is 1 if the company refers to the environmental category's topic in its annual and/or sustainability report, and 0 otherwise. <i>Example:</i> The company mentions that the environmental category's topic is immaterial in the company's value creation process and therefore there is no further information on it.
Detailed information (*)	Dummy variable, that is 1 if the company elaborates on the environmental category's topic in detail in its annual and/or sustainability report, and 0 otherwise. <i>Example:</i> Precise disclosures about CO ₂ -emissions, water usage, volume of waste, land use, consumption of basic materials or ambition to preserve biodiversity.
Sustainable raw materials	Dummy variable, that is 1 if the company reports on the usage of sustainable raw materials, and 0 otherwise (<i>only for materials and basic materials</i>).
Targets defined (*)	Dummy variable, that is 1 if the company aims at reducing its environmental impact, and 0 otherwise. <i>Example:</i> Reduction of the company's water consumption by 50 % by the year 2030 or increase of the share of sustainable raw materials.
Monetisation (*)	Dummy variable, that is 1 if the company conducts a monetisation, i. e. reports the monetary value of the externality, and 0 otherwise.
CO ₂ -Equivalents & Scopes	Absolute figure of the tons of CO ₂ -equivalents the company emits per scope (<i>only for greenhouse gases</i>).
Other variables	
Environmental Profit and Loss	Dummy variable, that is 1 if the company discloses an environmental profit and loss, and 0 otherwise.
Framework	Categorical variable, that is 1 if the company uses the GRI standards, 2 if the company adopts The Sustainability Code, 3 if the company complies with the UN Global Compact or the UN Sustainable Development Goals, 4 if the company uses an overarching or an individual approach, and 0 otherwise.
Form of publication	Categorical variable, that is 1 if the sustainability report or the non-financial statement is a separate element of the company's annual or management report, 2 if the sustainability report or the non-financial statement is integrated in the company's management report annual or, 3 if the company publishes a separate sustainability report, and 0 otherwise.

Note: (*) marks those environmental categories' assessment criteria that are included in the disclosure score.

Table 2, Panels A to C, provides the descriptive statistics for our disclosure score that is, for the seven environmental categories considered, the sum of the following four assessment criteria: 1. mentioned at all, 2. detailed information, 3. targets defined, and 4. monetisation. We choose these four assessment criteria, because these are available for all seven environmental categories. As can be seen from Panel A, the mean disclosure score of the full sample (TOTAL SCORE) is 37.99 % indicating that the sampling companies provide, on average, information on only approximately eleven out of the 28 items (seven environmental categories $\times$ four assessment criteria).

Table 2: Descriptive statistics

DISCLOSURE SCORE	Mean [Prop.]	Standard deviation	Lower Quartile	Median	Upper Quartile	Number of observations
<i>Panel A: Total descriptive statistics</i>						
TOTAL SCORE	0.3799	0.1912	0.2500	0.4286	0.5357	157
<i>Panel B: Descriptive statistics by stock exchange index</i>						
DAX	0.5155	0.1651	0.5000	0.5357	0.6429	30
MDAX	0.3965	0.1846	0.2500	0.4643	0.5357	59
SDAX	0.3057	0.1726	0.1964	0.3036	0.4643	68
<i>Panel C: Descriptive statistics by industry</i>						
OIL & GAS	0.5357	0.0505	0.5000	0.5357	0.5714	2
BASIC MATERIALS	0.4918	0.1195	0.4643	0.5000	0.5357	13
INDUSTRIALS	0.3993	0.1550	0.2857	0.4286	0.5000	39
CONSUMER GOODS	0.4786	0.1665	0.4464	0.5357	0.5714	20
HEALTH CARE	0.4156	0.1997	0.3571	0.4643	0.5357	11
CONSUMER SERVICES	0.3095	0.1906	0.2143	0.2857	0.5357	18
TELECOMMUNICATIONS	0.4107	0.2072	0.2500	0.3750	0.5714	4
UTILITIES	0.6071	0.0714	0.5714	0.6429	0.6429	4
FINANCIALS	0.2548	0.2099	0.0357	0.2321	0.4643	30
TECHNOLOGY	0.3237	0.1631	0.2143	0.3393	0.4464	16

Figure 1: Summary statistics by stock exchange index**Panel A: Mentioned at all****Panel B: Detailed information**

Panel C: Targets defined

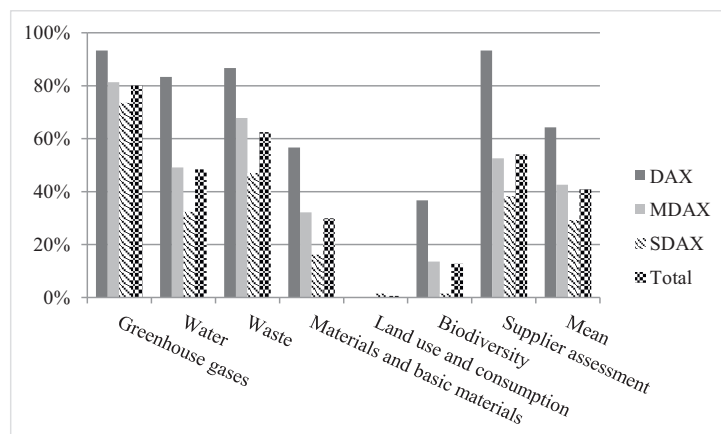
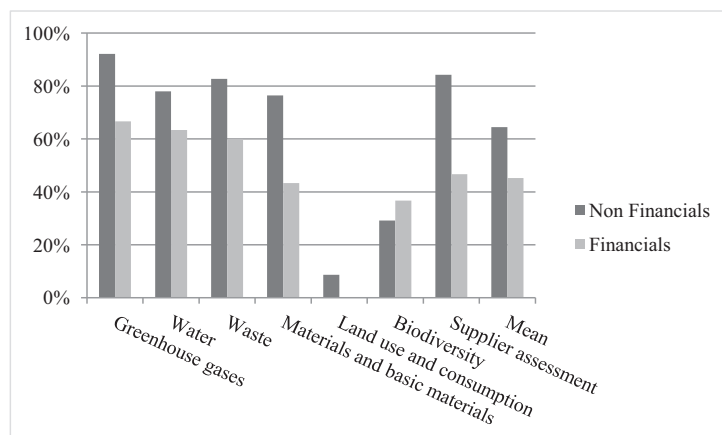


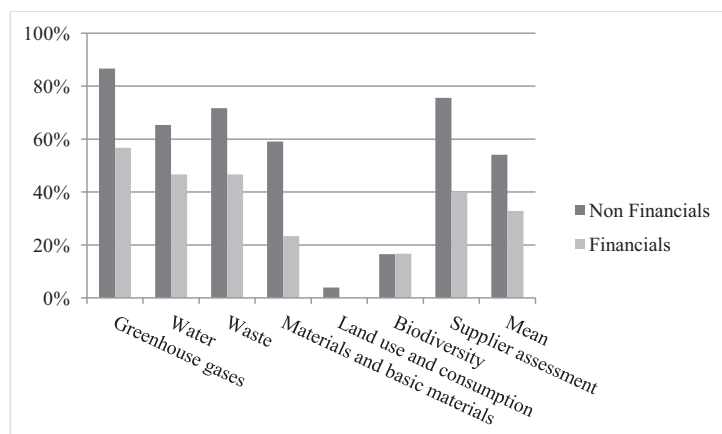
Table 2, Panel B, presents and Figure 1, Panels A to C, illustrates the descriptive summary statistics by stock exchange index for the environmental categories and assessment criteria used. The proportion of companies that disclose environmental data fluctuates considerably with respect to the individual topics. For example, almost no company gives account of its land use, but relatively many companies report on greenhouse gas emissions. Specifically, only 7.01 % of the companies refer to the environmental category “land use and consumption”, 3.18 % provide detailed information and 0.64 % plan to change their land use and consumption. By contrast, 87.26 % of the companies refer to greenhouse gas emissions in their annual or sustainability reports, 80.89 % disclose background information (e.g., detailed description of achievements) and 80.25 % aim at reducing their greenhouse gas emissions. The prevalence of greenhouse gas disclosures in corporate sustainability reporting reflects the contemporary political debate on climate change and the heightened interest in climate-related information (Depoers, Jeanjean, and Jérôme 2016, 448; Florini and Saleem 2011, 144–50). For example, the Carbon Disclosure Project (CDP), the Task Force on Climate-related Financial Disclosures (TCFD) and, for the financial sector, the Climate Principles have been established to motivate reductions in corporate greenhouse gas emissions, to turn “climate change into a business risk” (Pattberg 2012, 618), and thus to allow investors to better understand climate-related financial risks (Liesen, Figge, Hoepner, and Patten 2017, 36).

The proportion of companies reporting on environmental subject matters is also relatively high for the GRI topics materials and basic materials, environmental assessment of the suppliers, waste and water. The comparison of the stock exchange indices in Figure 1, Panels A to C, shows that, as expected, the percentage of companies reporting is highest in the DAX and lowest in the SDAX across all environmental categories. 73.81 % (68.10 %) of the DAX30 companies mention (particularise) the environmental categories in their annual or sustainability reports, while only 53.15 % (39.08 %) of the SDAX companies do so. Likewise, whereas 64.29 % of the DAX30 companies aim at reducing their environmental impact with regard to the environmental categories, less than one third of the SDAX companies (29.23 %) report on such plans or present specific environmental targets. The DAX30 constitutes the largest and – based on free float market capitalisation – most liquid companies in the German stock market with the highest public and stakeholder scrutiny. When comparing different industries (Table 2, Panel C, and Figure 2, Panels A to C), companies in the basic materials, consumer goods and utilities industries tend to disclose the desired information, while companies in the financial industry often do not make environmental information available. In detail, 64.45 % (54.11 %) of the companies in the non-financial sector refer to (specify achievements on) the environmental categories, while 45.24 % (32.86 %) of the companies in the financial sector mention similar environmental information. The percentage of companies that disclose targets to reduce their environmental impacts is almost more than twice as high in the non-financial sector as in the financial sector (45.22 % vs. 23.81 %). A possible explanation of this is that financial companies predominantly take up office space and do not operate their own commercial production or manufacturing activities. The environmental impact of the companies in this sector can therefore be classified as rather low, and there is accordingly less to report. As opposed to this, companies in the utility sector are more likely to emit environmentally detrimental substances and pollute the environment in a variety of ways. For example, of all external costs of air pollution in the US totalling \$ 184 billion (approximately € 165 billion), the utilities sector alone causes costs of \$ 62.6 billion (approximately € 56.4 billion) (Muller, Mendelsohn, and Nordhaus 2011, 1664–66). Companies related to such carbon-intensive industries may also benefit from greenwashing by posing as “environmentally-friendly” in order to influence stakeholders’ perceptions of these companies’ environmental performance (Clarkson, Li, Richardson, and Vasvari 2008, 303–05; Hassan and Guo 2017, 425f.).

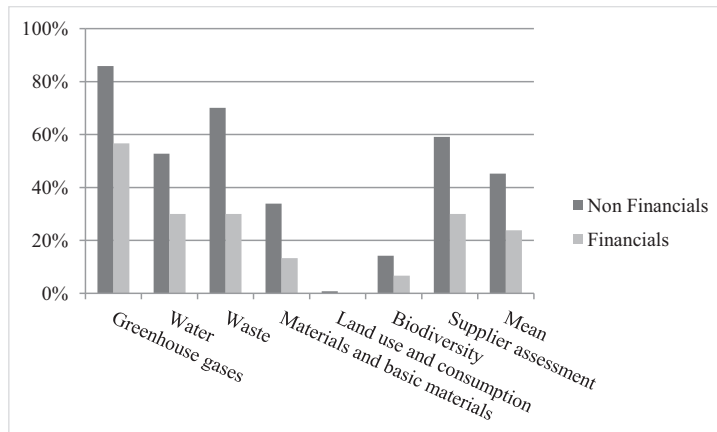
Moreover, companies that use the GRI standards (see Figure 3, Panel A) and publish standalone sustainability reports (see Figure 3, Panel B) disclose significantly more environmental information than companies that do not – a finding that is consistent with prior research (e.g., Mahoney, Thorne, Cecil, and LaGore 2013, 356; Michelin, Pilonato, and Ricceri 2015, 71). That is, 60.88 % of the companies that align their sustainability reporting to the GRI standards disclose environmental information and specify targets to improve their environmental impacts concerning the seven environmental categories, while only 21.83 % of the companies without a sustainability re-

Figure 2: Summary statistics by industry**Panel A: Mentioned at all**

Note: Within the non-financial sector the different industries (ICB code) have the following environmental reporting shares with respect to the assessment criterion “mentioned at all”: basic materials (72.5 %), industrials (64.8 %), consumer goods (72.9 %), health care (61.0 %), consumer services (47.6 %), telecommunications (65.3 %), utilities (85.7 %), technology (57.1 %) and gas & oil (100.0 %).

Panel B: Detailed information

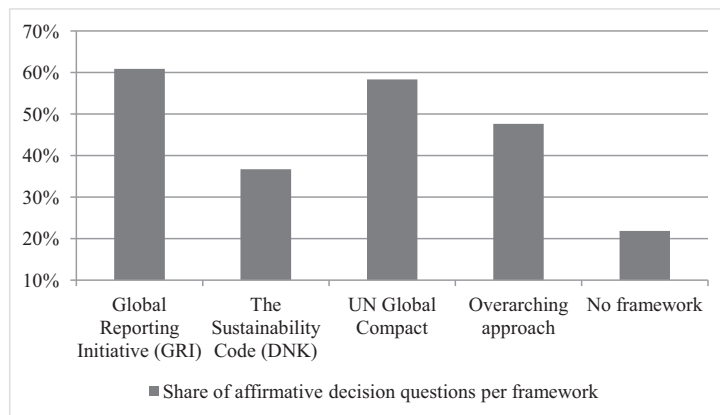
Note: Within the non-financial sector the different industries (ICB code) have the following environmental reporting shares with respect to the assessment criterion “detailed information”: basic materials (64.8 %), industrials (54.2 %), consumer goods (64.3 %), health care (59.7 %), consumer services (38.9 %), telecommunications (51.0 %), utilities (82.1 %), technology (37.5 %) and gas & oil (71.4 %).

Panel C: Targets defined

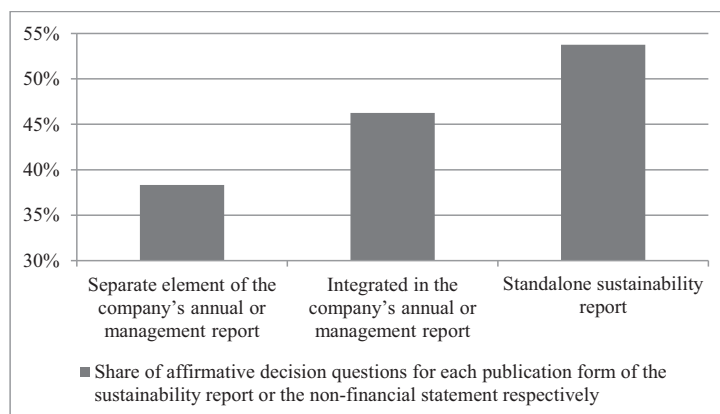
Note: Within the non-financial sector the different industries (ICB code) have the following environmental reporting shares with respect to the assessment criterion “targets defined”: basic materials (56.0 %), industrials (41.8 %), consumer goods (54.3 %), health care (45.5 %), consumer services (37.3 %), telecommunications (47.1 %), utilities (75.0 %), technology (34.8 %) and gas & oil (42.9 %).

porting framework do so. Furthermore, more than half of the companies (53.76 %) that publish a standalone sustainability report present environmental information and specific target figures concerning the seven environmental categories. As opposed to this, companies that resort to integrated reporting (46.25 %) or include the non-financial statement within their annual or management report (38.32 %) disclose less. Most strikingly, no sampling company monetises its externalities concerning the considered seven environmental categories – at least not for its published annual or sustainability reports.¹³ We infer that, despite the various theoretical measurement techniques and monetisation approaches, there is no best practice to reliably and understandably assess companies’ external effects. Despite their potential long-term negative impacts, these externalities are unlikely to be internalised and reflected in a company’s internal bookkeeping records or in its financial statement (van den Bergh and Botzen 2014, 253).

¹³ It should be noted that Puma uses and publishes an EP&L (see chapter 2), but not every year. The last time the EP&L was published was in 2017 for the year 2016 (see <https://about.puma.com/de-de/sustainability/environment> for further details). In its integrated report, BASF AG refers to its “value to society” approach to monetise environmental impacts, among other things, even though it does not present values in its report, but only on its website (http://report.basf.com/2018/en/servicepages/downloads/files/BASF_Report_2018.pdf, 37). In its sustainability report, Metro AG mentions that it monetised its social impacts in a white paper for the first time in 2018 (sustainability report: https://reports.metroag.de/corporate-responsibility-report/2017-2018/servicepages/downloads/files/entire_metro_crr1718.pdf, 13; white paper: https://www.metroag.de/~assets/metro/documents/responsibility/201808-white-paper-sustainable-value-creation_en.pdf). (All links were last updated on 5.8.2020). Although these companies do not report their monetised values in their annual or sustainability reports, these cases underline the topicality and relevance of this issue.

Figure 3: Descriptive statistics of the framework used and the form of publication**Panel A: Framework**

Note: Panel A presents, depending on the application of a framework, a company's environmental disclosure level. We differentiate between the following five frameworks and approaches: (1) GRI standards, (2) The Sustainability Code, (3) UN Global Compact or UN Sustainable Development Goals, (4) overarching or individual approach, and (5) no framework or sustainability reporting approach used.

Panel B: Form of publication

Note: Panel B presents, depending on the form of publication, a company's environmental disclosure level. We differentiate between the following three publication forms: (1) separate element of the company's annual or management report, (2) integrated element of the company's annual or management report, and (3) standalone sustainability report.

As to climate change, the biggest market failure worldwide (van den Bergh and Botzen 2014, 253), many studies have been performed to estimate its economic costs – with more than 300 estimates now available (Tol 2012, 98). A study by the German Environment Agency concludes that in 2016 emitting an additional ton of CO₂-equivalent in the atmosphere caused a damage of € 180 (Bünger and Matthey 2019, 8). The costs are expected to rise to € 240 per ton of CO₂-equivalent by 2050. When calculating the damage costs, all future global damage is discounted to the year of emission. According to other studies, the costs vary between \$ 10 and \$ 1,000 (approximately € 9 and € 900) per ton of CO₂-equivalent (Hepburn 2017, 389). The considerable variance in damage costs rates shows the problem that it is anything but easy to monetise externalities. This difficulty in assigning a monetary value on externalities may be a major reason why companies shy away from reporting environmental impacts in monetary units. Instead, companies mostly rely on qualitative disclosures or quantitative information in biophysical units that could constrain meaningful aggregation and comparisons between various impacts. It is easier for investors to benchmark and assess monetary results across industries or markets than results in non-monetary terms. Moreover, unlike biophysical or other non-monetary quantitative units, stakeholders can intuitively understand monetary units. The investor, for example, is more familiar with a euro or dollar figure than with a CO₂-equivalent, the consumption of cubic litres or mega-watt hours, so that monetary indicators are likely to facilitate the understanding – or tangibility – of the published sustainability information. We will resume these points in the next chapter: while regarding the benefits of monetised value estimates, the EEVF also reflects the difficulties of deriving them.

4 Environmental Externality Valuation Framework

4.1 Characteristics of the Framework and Methodology of the Analysis

In this chapter an environmental externality valuation framework (EEVF) will be developed. There has been significant progress in the measurement of a company's environmental and social impacts stemming from its operations, with an increasing number of monetisation frameworks, methodologies and harmonisation projects emerging in the recent past. The primary objective of concepts like PWC's (2013) Total Impact Management and Measurement (TIMM) tool, KPMG International's (2014) True Value methodology, BASF's (2018) Value-to-Society approach, the Integrated Profit and Loss (IP&L) of True Price (2016), the Impact Weighted Accounts concept (Serafeim, Zochowski, and Downing 2019), and the Value Balancing Alliance's (2020) project is to guide the integration of a company's monetised positive and negative environmental and social impacts in decision-making and/or external reporting. The growth in efforts ultimately aims at valuing (i.e., monetising), managing and integrating impacts in accounting statements to illustrate and improve their value impli-

cations (Serafeim et al. 2019, 6; Serafeim and Trinh 2020, 2). Furthermore, most of these concepts include the management of a company's societal impacts by considering them in the creation of business cases. Beyond this integration, the Value Balancing Alliance (2020) works on standardising the measurement and monetisation of corporate societal impacts, and Serafeim and Trinh (2020) suggest a concrete valuation technique that is often feasible with already publicly available data. Approaches like the EP&L of Puma (2011) and Kering (2015 in cooperation with PWC (2015) and Trucost (2015)) are likely to be among the most popular methodologies to monetise environmental externalities. The Natural Capital Protocol (NCC 2016) is a framework for integrating natural capital into business decisions but does not focus on external reporting and contains monetisation as one out of several possible valuation approaches.

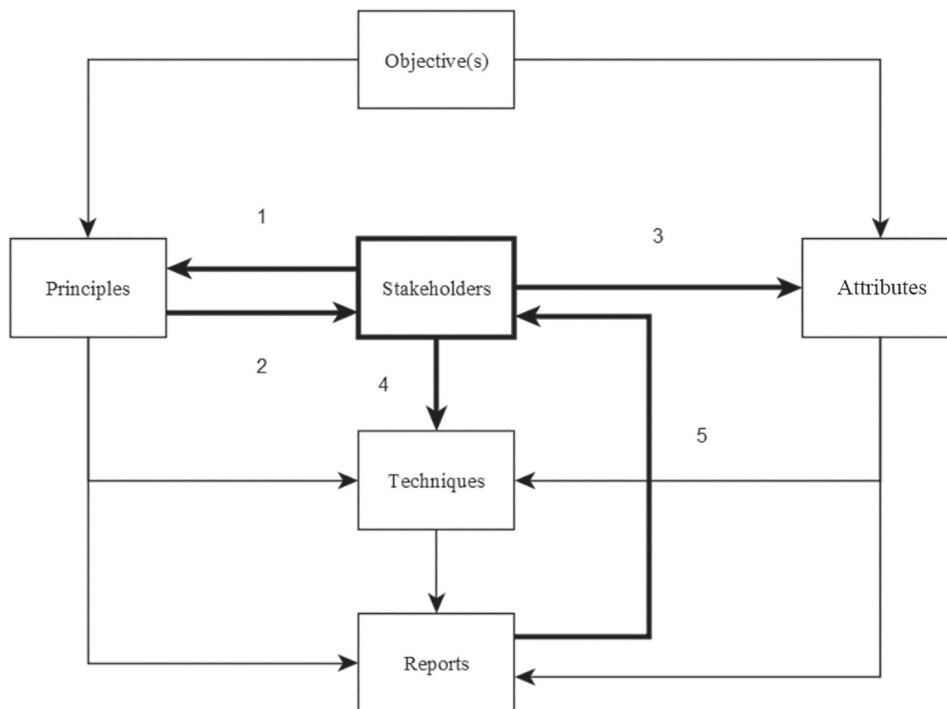
In contrast to these concepts and approaches, the EEVF focuses on the monetisation process itself (i.e., converting non-monetary impacts into monetary units) and, due to complexity, narrows its scope to environmental externalities to ensure a high level of detail and rigour (O'Dwyer and Unerman 2016, 38f.). Despite these foci, it *does* include connections to financial capital as, for example, evidenced by our discussion about integrated performance indicators demonstrating the problem of comparing monetised with "traditional" financial figures. The primary objective of the EEVF is to support the structuring and analysis of monetary valuation approaches and thus to encourage both further research and application projects for monetising environmental externalities. As conventional sustainability accounting based on biophysical units is well-established, the EEVF takes it as a common ground to highlight the differences between conventional and monetary sustainability accounting and focuses on the characteristics specific to monetisation. Some reporting standards (e.g., the ones of the SASB) define environmental and social indicators in monetary terms (e.g., a company's spending on renewable energy (Sustainability Accounting Standards Board 2018 (SASB EM-EP-420a.3)). However, in contrast to monetised (environmental) externalities, these monetary figures are completely reflected in a company's financial accounts.¹⁴ Monetising a company's (environmental) *impacts* is much more complex. Additionally, to increase stakeholders' acceptance of monetisation results, the EEVF strives for critically reflecting on the assumptions and decisions made in the valuation process and on their subsequent reporting. As our and other empirical studies (e.g., Fortanier, Kolk, and Pinkse 2011, 686; Torelli, Balluchi, and Furlotti 2020, 478f.; Ioannou and Serafeim 2017, 21) hint at a positive correlation between the existence of reporting frameworks or standards and the extent of disclosed sustainability information, the EEVF might inform and further promote both the scalability and quality of corporate monetisation approaches. While many

14 Note that by purchasing the (more expensive) electricity from renewable energies, for example, at least some of the company's external effects have already been internalised or the external effects themselves have been reduced. This means, by reporting on these expenses a company shows which previously external costs have already been internalised, but it does not show its current external costs.

companies support pioneering sustainability initiatives and quantify and communicate their biophysical outputs in sustainability reports in adherence to the GRI, efforts to monetise these environmental impacts are far fewer, at least for German companies as evidenced by our empirical analysis. Yet, Serafeim et al. (2019, 6) find that some companies have already experimented with monetary impact valuation in an attempt to monetise their environmental externalities. Our EEVF might give these initial attempts more substance and form, and might inspire others to start experimenting with monetary valuation.

Beyond traditional accounting principles, the EEVF is based on Lamberton's (2005) sustainability accounting framework as well as on other sustainability reporting guidelines such as the GRI standards and will be supplemented by insights, characteristics and problems identified in the scientific literature, methodology papers and scientific case studies. Specifically, since the EEVF focuses on the practical application of monetary valuation, the EP&L and the SAM are chosen for assessing the (sub-)components' suitability because both methods have been widely applied in practice and/or have inspired others to adopt and modify them (DEPA 2016; see for the EP&L: DEPA 2014c; Kering 2015; Philips 2018b; Puma 2011; see for the SAM: Baxter et al. 2002; Bebbington et al. 2007; Cavanagh, Frame, and Lennox 2006). That is, in contrast to most of the above-mentioned impact valuation methodologies or conceptual approaches, the EP&L and the SAM are tested and well-documented impact valuation methodologies. Furthermore, the EP&L extends to the entire supply chain, and includes environmental categories (e.g., emissions, waste, water and land use) also covered by our empirical analysis. Importantly, the EP&L can be used to both support internal decision-making processes (i.e., motivating managers to make more environmentally-friendly choices because the environmental consequences are translated into the same form and language of daily business activities) and for external accountability (i.e., complementing pure financial communications with environmental results and thus providing a synthetic view of economic and environmental performance) (Arena, Conte, and Melacini 2015, 627). In contrast to the EP&L, the SAM also considers social and economic impacts in addition to environmental externalities (Baxter et al. 2002, 3f.; Bebbington and Frame 2003, 3f.). Although the EEVF focuses on environmental external costs, we see the inclusion of multiple impacts in the SAM as a valuable characteristic: it can help shed light on possible relations and interactions between environmental externalities, social and economic capital.

The final EEVF is based on six main components (objectives, principles, techniques, attributes, reports and stakeholders), as presented in Figure 4 below. The components of the EEVF are refined further, and subsequently referred to as subcomponents (e.g., *reporting level* is a subcomponent of the component *principles*). The components and subcomponents of the EEVF are shown in Table 3 below.

Figure 4: Components of the Environmental Externality Valuation Framework

While many frameworks focus either on internal decision-making, most notably the Natural Capital Protocol (NCC 2016, 2), or on external reporting like the SASB (Sustainability Accounting Standards Board Conceptual Framework 2017, 9) or the Climate Disclosure Standards Board (CDSB) Framework (Climate Disclosure Standards Board 2015, 5), Lamberton's (2005) sustainability accounting framework comprises components relevant to both the accounting and the (internal and external) reporting process and therefore provides a more holistic point of view. Furthermore, the framework's division into five distinct components (Lamberton 2005, 15) covers multiple technical aspects of sustainability accounting and reporting. Thus, Lamberton's (2005) sustainability accounting framework provides a solid scientific base we leverage to design the EEVF. Since the former addresses general sustainability accounting processes rather than monetisation specifics, we will create the EEVF according to the following rules: if we do not identify any role of a subcomponent with importance beyond its relevance for conventional sustainability accounting, we do not transfer this subcomponent to the EEVF. Additionally, if a significant character-

Table 3: Comprehensive environmental externality valuation framework*

<i>Objectives of monetising environmental externalities</i>	<i>Principles for monetising environmental externalities</i>	<i>Techniques for monetising environmental externalities</i>	<i>Reporting monetary value estimates</i>	<i>Attributes to ensure decision-useful environmental externality measurements</i>	<i>Stakeholders</i>
Facilitate the comparison of various impacts [EP&L, SAM]	Reporting level [EP&L: company; SAM: project]	Choice of a monetary valuation method [inherent trade-off between impact measurement sophistication and rate of use]	Reporting formats ["integrated reporting", supplemental narrative disclosures of environmental impacts]	Transparency [GRI: primary aim]	
Facilitate internal and external communication of environmental externalities [EP&L]	Definition of sustainability [Brundtland Commission, triple-line concept, concept of capital maintenance, SAM: strong sustainability]	Discount rate [SDR according to the Ramsey model]		Accuracy [GRI, SASB]	
Estimate potential costs of internalisation [EP&L]	Accounting period [long-term perspective]	Integrated performance indicators [absolute metrics: sustainable cost, net value added, green net value added, corporate genuine savings; relative metrics: SAMi]		Reliability [GRI, SASB, CDSB, Integrated Reporting <IR> Framework]	
	Scope [EP&L and SAM: company's operations and its supply chain]			Materiality [GRI, SASB, CDSB, <IR> Framework]	
	Monetisation frontier ["If"-question, technical and ethical limitations]			Clarity [GRI, CDSB, <IR> Framework]	
Institutional theory				Sustainability context [GRI]	
Legitimacy theory					
Neoclassical economics: Prevention of market failure	Conservatism principle ["how"-question, EP&L: conservative accounting approach]				
					Stakeholder theory

* The grey additions state the concepts, methodologies, frameworks and theories behind each subcomponent.

istic of monetary valuation is not covered by any subcomponent yet, we will add a new subcomponent representing this characteristic.

In sum, building upon the accumulated knowledge and expertise of conventional sustainability accounting, the EEVF can be seen as an extension of Lamberton's (2005) framework to include issues central to monetary valuation of environmental externalities.

4.2 Development of the Environmental Externality Valuation Framework

4.2.1 Objectives

The central objective of sustainability accounting is to provide information enabling external stakeholders to evaluate a company's progress towards setting sustainability targets and/or to support the management with information to improve a company's sustainability performance (Daly 1990, 1-6; Lamberton 2005, 19). These broadly defined objectives are in line with the objectives of conventional accounting methods for monetary valuation (e.g., Atkinson 2000, 240; Cavanagh et al. 2006, 143).

The EEVF replaces these generic objectives by three objectives *specific* to monetary valuation of external effects in a corporate context. One central objective – and advantage – of monetary valuation is to *facilitate the comparison of various impacts* (Puma 2011, 5; Unerman et al. 2018, 507). Compared to conventional sustainability accounting, the comparison between different impacts is facilitated by monetisation since all impacts are translated into one unit (i.e., money) (Kering 2015, 8). As in the case of the EP&L this can relate to comparisons of different environmental externalities, e.g., to identify a company's most material environmental externalities (DEPA 2014c, 5, 2016, 18). Furthermore, monetisation simplifies comparisons between different impact categories (e.g., environmental vs. economic impacts) (Demeke, Ingwersen, Weisbrod, Ceja, and Weber 2018, 742). Therefore, monetisation is used in the SAM to evaluate the “overall” sustainability performance of projects across different sustainability dimensions (Baxter et al. 2002, 1). Second, monetary valuation can *facilitate internal and external communication of environmental externalities* by reducing the complexity behind environmental externalities to a few figures and translating them into the monetary language of business (Puma 2011, 4). This aims at making it easier for stakeholders with varying backgrounds to better understand the importance and the impact of different environmental externalities on society (Xing, Horner, El-Haram, and Bebbington 2009, 210). The third identified important objective is to *estimate potential costs of internalisation* a company would bear if external costs were internalised (PWC 2015, 9; Vodafone Netherlands 2015, 7). The primary motivation can be to use the information to estimate financial risks connected to internalisation of externalities (Hendriksen, Weimer, and McKenzie 2016, 480; Vodafone Netherlands 2015, 7) or, from a micro- and macroeconomic perspective, to diminish the market failure of externalities (Unerman et al. 2018, 507) and thereby

achieve a more efficient resource allocation (Antheaume 2004, 446; Forum for the Future 2003, 8). The estimation of financial risks of internalisation of externalities might be of viable interest, particularly for larger companies. A “size effect” is also documented by our study. Across all defined categories 64.29 % and for the categories of greenhouse gases, waste and water well above 80 % of the DAX companies report on reduction targets, while the corresponding percentages in the other stock exchange indices tend to be significantly lower.

With regard to the question whether internal or external stakeholders are the target group it should be noted that even if the primary objective for a certain assessment is internal decision-making, there are good arguments to publish the results. First and foremost because the gained information of a company's external costs may be relevant for its financial valuation and therefore their disclosure might be enforced legally (Coulson 2016, 522). Even if not enforced legally, consistent with institutional theory (Meyer and Rowan 1977, 349; Díez-Martín, Prado-Roman, and Blanco-González 2013, 1955), disclosing external costs might help foster the company's legitimacy.¹⁵ Second, as the aforementioned case of Exxon shows, not publishing private information about potential societal impacts may also lead to lawsuits initiated by stakeholders other than investors (Paddison 2017).

4.2.2 Principles

As for conventional corporate sustainability accounting, the focus of monetary valuation can be on various levels – ranging from the individual household to the organisational and to the national level (Lamberton 2005, 19f.). The EP&L has initially been developed for assessing external effects on company level (Kering 2015, 7, 12; Puma 2011, 2)¹⁶ whereas the SAM focuses on the project level (Baxter et al. 2002, 2). Furthermore, monetary valuation can also be applied at process or product level (Antheaume 2004, 444; Demeke et al. 2018, 743; Puma 2013, 39f.). Due to the larger amount of data, a higher reporting level (e.g., on corporate level) may result in a less detailed assessment of environmental externalities (NCC 2016, 31). With respect to gathering the raw data, this problem occurs with sustainability accounting in general, irrespectively whether the data will be monetised or not. However, considering that some valuation methods are cheaper and less time-consuming than others (Brouwer 2000, 138; United Nations 2014, 20) it is likely that the reporting level and the respective amount of data will also influence the choice of the valuation method. Since different valuation methods can yield different results (Antheaume 2004, 455–57), the reporting level may have an indirect impact on the monetary value which is attached to environmental externalities. Given the potential valuation consequences of choosing a certain reporting level for monetisation (e.g., single projects,

15 While this might be true, the publication could also jeopardise the company's social license to operate if external costs are unreasonably high.

16 Afterwards, the EP&L approach has also been applied at other reporting levels, e.g., to single products (Puma 2013, 39f.).

processes or products), the EEVF's first principle is the determination of the *reporting level*.

Generally, monetary valuation facilitates the comparison and trade-off between impacts on different sustainability dimensions and different types of capital (DEPA 2014c, 10; Demeke et al. 2018, 742). Therefore, the second principle of the EEVF is the *definition of sustainability*. It refers to the discussion among different stakeholder groups about whether or how to prioritise certain sustainability dimensions of the triple bottom line concept (Lamberton 2005, 19f.). There is a clear content-related overlap with the concept of capital maintenance which, as defined by Gray and Bebbington (2001, 307–10), is mainly concerned with the relative importance of various kinds of capital. Therefore, we shift the discussion about the substitutability of capital to the definition of sustainability.

The initial version of the SAM requires each of four capital impact categories (economic, social, environmental and resource usage) to be positive to designate the assessed project as “sustainable”. Hereby positive impacts can compensate for negative impacts within one capital impact category but not across different capital impact categories. However, this compensation is only possible if no degradation of non-substitutable natural capital is involved (Bebbington et al. 2007, 230). The SAM relates the assessed impacts (flows) to the respective capitals based on the assumption that a positive figure of an impact category implies that the respective capital has not been degraded (Baxter et al. 2002, 4f.). Since this definition does not allow the substitution of critical natural capital by other types of capital, it is clearly linked to the concept of strong sustainability. As opposed to this, the EP&L does not deal with the substitutability of different capital categories indicating that the *definition of sustainability* is not specifically important to monetary valuation within an EP&L approach. However, considering the Brundtland Commission's seminal focus on intergenerational equity (World Commission on Environment and Development 1987, 41), characteristic elements of monetary valuation like the choice of a discount rate are strongly connected to how one defines sustainability (Bebbington et al. 2007, 233). Since the EEVF should live up to various valuation approaches, we include the *sustainability definition* as a principle in the EEVF.

With regard to the *accounting period*, providing insights into a company's performance beyond the short-term periods of financial accounting is central to sustainability accounting. As we stated above, the choice of a discount rate is an example of the specific importance of considerations related to a company's long-term societal impact in monetary valuation. Hence, we include the subcomponent *accounting period* in the EEVF.

The *scope* of monetisation can be limited to only the company's own operations (Huizing and Dekker 1992, 451) or the company's own operations and its supply chain like the original EP&L (Kering 2015, 7, 12; Puma 2011, 2). In the case of the SAM and most EP&Ls the scope also comprises, apart from the organisation's opera-

tions, externalities of suppliers and externalities generated by the use and disposal of their products (Baxter et al. 2002, 2; Philips 2018b, 2). Likewise, recently released impact valuation approaches (BASF 2018; PWC 2013) consider a company's environmental and societal externalities along the entire supply chain and analyse their economic, social, and environmental interdependencies.

The question whether to include the whole value chain or to just include the company's own operations is a controversial issue. From a theoretical point of view, an argument for solely focusing on a company's operations is that if every company included their whole value chain this would lead to double counting of environmental externalities (Huizing and Dekker 1992, 451). However, published EP&L accounts demonstrate that it is still possible to report the impacts of a company's operations and the ones of its suppliers separately (Kering 2015, 10; Philips 2018b, 2).¹⁷ Hence, if the goal was to calculate the total costs of environmental externalities on a national level on the basis of the figures reported by each company, as suggested by BSO/Origin (Huizing and Dekker 1992, 451) this could be realised. Moreover, the fact that a company usually only has limited control over impacts beyond its own operations is another argument to solely include the company's own environmental externalities and not those caused by suppliers or customers (DEPA 2014a, 36). However, only scoping the company's own operations creates the opportunity to outsource activities associated with high environmental externalities (Bebbington et al. 2001, 118). Furthermore, as the example of the lawsuits against Exxon and other companies (Paddison 2017) shows, stakeholders may also hold a company responsible for environmental externalities beyond their direct operations. Therefore, especially when it is the objective of monetisation to monitor the risk of potential internalisations of external costs or when reporting to external stakeholders, we suggest including as many parts of the value chain in the assessment as possible. Most sampling companies already mention (77.71 %), provide details about (68.79 %) or define targets (54.14 %) for the impact of their suppliers in their reports, which shows that many of them obtained data which might be used for monetising at least parts of their supply chain's environmental impacts. Nonetheless, it should be considered that both the reporting level and the scope influence the amount of data which need to be valued and thus may have an impact on the choice of the valuation methods and the monetary results. The *scope* principle in the EEVF systematically accounts for these considerations.

Although monetary values are the primary reporting unit, both methods, the EP&L and the SAM, provide the possibility to supplement financial figures with further information. The methodology of the EP&L requires to report both monetary and biophysical units (Kering 2016, 10) while in the SAM qualitative information can be

17 If a company monetised the environmental externalities of its suppliers and the suppliers monetised their own environmental externalities as well, this practice would provide an interesting opportunity to compare both valuation results to learn more about the differences of the chosen approaches and to derive monetisation standards.

added to the monetary figures (Bebbington and Frame 2003, 9). Since there are major concerns about monetary valuation (Lamberton 2005, 20), several experts believe that in some cases it is inappropriate to place a monetary value on certain impacts (Baxter et al. 2002, 3). Thus, companies may consider developing criteria to decide if an impact should be monetised or not. To discuss this question, we leverage on the so-called *monetisation frontier* (Faucheux and O'Connor 2001, 253). This principle rejects monetisation in two respects: first, if the uncertainty of the final monetisation results is too high due to a too high complexity of the assessed aspects or systems, and second, if placing a monetary value is strongly connected to deep ethical beliefs (O'Connor 2006, 290). The principle of the *monetisation frontier* considers natural capital only as (technically) appropriate for monetisation if market values can be obtained. It further links ethical valuation dilemmas mainly to social capital (O'Connor 2006, 289f.). Relaxing these strict boundaries for monetary valuation in the original principle, the two critical aspects of technical and ethical limitations of monetisation might be meaningful starting points for companies to discuss under which circumstances monetary metrics should be replaced by non-monetary ones. As practical experiences show, various stakeholder groups often have opposing opinions about which externalities can or should be monetised (Bebbington et al. 2007, 231f.). Hence, we argue that including internal and external stakeholders in the discussion about a company-specific or project-specific *monetisation frontier* might improve their acceptance of the overall valuation results.

Apart from that general question of *if* to account for company impacts under uncertainty, accounting for environmental externalities in monetary units specifically poses the question of *how* to value them under uncertainty (NCC 2016, 96). The Natural Capital Protocol recommends using the most reasonable assumptions, especially if different impacts are compared with each other because tending to more optimistic or pessimistic assumptions might lead to biased decisions. However, at the same time the Natural Capital Protocol acknowledges that, e.g., if it is possible that impacts exceed certain ecological thresholds, more conservative assumptions are justified (NCC 2016, 96). Particularly if large global supply chains are assessed we doubt if all situations with critical thresholds will always be identified. Monetary valuation includes the uncertainty of both the biophysical impact assessment and the subsequent monetary valuation (DEPA 2014a, 30). Furthermore, it is connected to a high level of subjectivity (Jasinski et al. 2015, 1125) and subject to controversial ideological discussions (see chapter 5). To account for these critical issues and to keep the acceptance of monetisation among sceptical stakeholders as high as possible, we suggest adopting a generally conservative accounting approach. Thus, the *conservatism principle*, known from financial accounting, extends the EEVF's principles. This principle aims at avoiding the undervaluation of liabilities but still requires the underlying assumptions to be reasonable (American Institute of Certified Public Accountants 2017, 4). One might consider switching to less strict assumptions in situations in which this first can be clearly justified, and second in which sensitiv-

ity analyses at the end of the assessment reveal that this may have a significant impact on the valuation result. Examples of the potential application of the conservatism principle are the choice of Puma (2011, 20) to categorically assume that used land does not provide any public ecosystem services anymore or the process of choosing a discount rate discussed in the *techniques* component.

4.2.3 Techniques

Several problems and uncertainties are linked to the choice of a valuation technique including the significant impact a *valuation method* could have on the monetary value estimates. Recently, scientific studies have provided empirical evidence that there is a correlation between the choice of the monetisation method and the valuation outcome (e.g., Quintas-Soriano et al. 2016; Schild, Vermaat, and van Bodegom 2018). In their study Schild et al. (2018, 19) observe that for example for services of biological regulation the contingent valuation method yields significantly lower monetary values than market pricing methods. The authors suspect that in this case the difference between both methods might have appeared because it may have been hard for participants to place a monetary value on these relatively abstract services.

In general, there are three main potential reasons for the influence of valuation methods on the results. First, different monetisation methods might value different aspects. Kering (2015, 63f.) explicitly notes in its EP&L methodology document that due to the goal of valuing the impact of operations on human welfare the EP&L does *not* use market prices or costs of abatement for monetary valuations. Market prices would be based on imperfect markets and abatement costs would strongly depend on technological progress in abatement technologies. Therefore, both methods would not value impacts on human welfare and thus are rejected. Also Frame and Cavanagh (2009, 198) admit that the high number of available monetary valuation methods and their broad variety of measures often lead to problems in understanding what the monetised results reflect.

Second, the way a specific valuation technique is applied can influence the final outcome. Sinden (2004, 210) points out that if the willingness to pay for a wildlife protection area is calculated, the result of the valuation might highly depend on whether only local people are asked or if the willingness to pay of people from other regions will be included in the valuation.

The third methodological problem is connected to the value or benefit(s) transfer. The central advantages of this approach are mainly its relatively low costs and time requirements compared to conducting primary studies (Brouwer 2000, 138; United Nations 2014, 20). However, although transfer functions can be calculated to adjust the results from primary studies as much as possible to the actual study site (United Nations 2014, 23), this popular method frequently used by companies is highly vulnerable to multiple transfer errors (Koetse, Brouwer, and van Beukering 2015, 123).

Because of these and other methodological problems, monetised results should always be considered critically as it is easy to argue for an increase or decrease in the figures, depending on one’s interests (Frame and Cavanagh 2009, 205; Sinden 2004, 210). Going one step further, especially the observed influence of the choice of valuation methods on the monetary results might be misused for manipulating calculated external costs downwards. However, based on our empirical finding that especially smaller companies often provide less detailed sustainability reporting compared to their bigger counterparts, we argue that value transfer might be a suitable tool to also encourage companies with lower sustainability accounting capacities to apply monetary valuation.

An important part of the monetisation process is the choice of a *discount rate* which relates to the intertemporal aspect of valuation (Bebbington et al. 2007, 233; Costanza and Daly 1992, 42). To include the preferences of all stakeholders, instead of using a market discount rate, a social (or societal) discount rate (SDR) is applied (NCC 2016, 91). A widely accepted model for calculating an SDR is the Ramsey model (PWC 2015, 108) which defines the SDR (r) as the sum of the rate of pure time preference (ρ) and the product of the elasticity of the marginal utility of consumption (η) and the future growth rate of per capita income (g) (The Economics of Ecosystems and Biodiversity 2012, 264f.):¹⁸

Table 4: Symbol directory

g	Future growth rate of per capita income
η	Elasticity of the marginal utility of consumption
ρ	Rate of pure time preference
r	Social (or Societal) Discount Rate (SDR)

$$r = \rho + \eta \times g$$

Positive values of the rate of pure time preference would imply that the current generation’s wealth is regarded as more important than the wealth of future generations (PWC 2015, 108). Although wide ranges for this variable exist (The Economics of Ecosystems and Biodiversity 2012, 264), due to ethical considerations, the chosen value for the rate of pure time preference in the EP&L methodology is zero (PWC 2015, 109). Also, Ramsey (1928, 543) himself designates positive rates as ethically inap-

18 The symbol directory in Table 4 also defines the formula’s elements.

appropriate. With a view to the EEVF, the specific sustainability definition determined in the *principle* component may influence the choice of a rate of pure time preference.

The product of the elasticity of the marginal utility of consumption and the future growth rate of per capita income expresses the expectations concerning a society's future well-being (The Economics of Ecosystems and Biodiversity 2012, 265). While the EP&L methodology uses a low positive total SDR (PWC 2015, 109), the SAM with reference to ethical and practical concerns generally uses a total SDR of zero (Bebbington et al. 2007, 233).

Depending on the specific case and the underlying assumptions, the application of a positive SDR, an SDR of zero or even a negative SDR can be justified (Costanza and Daly 1992, 43). Following the *conservatism principle* and its goal of preventing underestimation of liabilities, it might be reasonable to reject strong positive SDRs and instead choose either a slightly positive SDR or an SDR of zero or below. Another argument for an SDR within this range is that the diminishing effect of strong positive SDRs on the present value of external costs may be suspected of being misused for green washing. We acknowledge that depending on the circumstances there is a wide range of reasonable SDRs. Yet, given these wide ranges of possible SDRs, the great impact a discount rate can have on the present value and the resulting additional uncertainty in the valuation results (Costanza and Daly 1992, 43) we argue that an SDR of zero or slightly above or below zero generally appears to be most appropriate: conforming to the *conservatism principle* hedges against uncertainty and subjectivity in monetary valuation. Independent of the final rate, since the selection of an SDR is strongly affected by ideologies, transparency regarding the selection process is crucial (Bebbington et al. 2007, 233). Therefore, and especially because the SDR is supposed to reflect stakeholders' time preferences we clearly argue in favour of involving a company's stakeholders in the discussion. As choosing a discount rate specifically applies to monetary valuation, we create the subcomponent *discount rate* for the EEVF.

With respect to *performance indicators* both methods, the SAM and the EP&L, subdivide environmental externalities into multiple categories (Baxter et al. 2002, 4). The EP&L, for example, assesses a company's impacts in the six categories of air pollution, greenhouse gases, land use and biodiversity, waste, water consumption and water pollution (PWC 2015, 8) that are also covered by our empirical analysis in chapter 3.

As one way to cope with competing views on the relative importance of different sustainability dimensions, Lamberton (2005, 19) recommends the application of integrated performance indicators. Regarding monetised environmental externalities, absolute and relative integrated metrics exist with examples listed and described in Table 5.

Table 5: Integrated Performance Indicators

Name	Author and Source	Description	Pros and Cons
<i>Absolute Integrated Metrics</i>			
I. Sustainable cost	Gray (1992, 419), AOS	The cost a company would need to pay to remedy all its negative environmental externalities caused during an accounting period	Both described approaches of calculating an integrated metric are highly questionable for two reasons if the goal is the calculation of societal costs: first, both approaches calculate abatement costs which have been criticised for being an inappropriate measure of societal costs (see chapter 3.2.1). Second, the approach used by BSO/Origin excludes the parts of external costs which society is willing to accept and therefore does not reflect the full external environmental costs attributed to the company.
II. Net value added	BSO/Origin (Huizing and Dekker 1992, 451–54), AOS	The value lost deducted from the value added The value lost are the costs of reducing the company's environmental pollution to a level accepted by society minus the costs the company has spent on mitigating these effects	
III. Corporate genuine savings	Atkinson (2000, 245), J. Environ. Plan. Manag.	The damage costs caused deducted from the company's net profit A positive figure indicates that a company creates more benefits than costs to society, especially if extended to social impacts.	
			If, as in the case of the SAM, negative environmental externalities are assumed to be linked to a degradation of natural capital (Baxter et al. 2002, 4), comparing corporate genuine savings may be used to assess whether a company's performance meets the requirements of weak sustainability. As externalities can impact a company's social license to operate (NCC 2016, 33), presenting a net negative impact on society in the form of such a striking figure might be a strong incentive to improve sustainability performance. However, it is questionable if in the case of a high net negative impact this would be published in the form of integrated performance indicators.

The monetisation of environmental costs clearly facilitates the comparison of two sustainability dimensions (i.e., the economic and the environmental dimension) by using one measuring unit. However, we assume that different production processes for one product and respectively their external effects are unlikely to differ fundamentally from each other (for example, the difference between the external costs of the two processes assessed in Demeke et al. (2018, 747f.) amounts to about 9 %). Considering this assumption against the background of the discussed methodological weaknesses of monetary valuation raises the question if monetisation is an appropriate decision support tool in cases in which minor changes in the calculated figures may change decisions.

Compares the economic and environmental impacts of different production processes for one product. This indicator is calculated by deducting the environmental external costs of a process from the respective net value added.

IV. Green net value added
Demeke et al. (2018, 745f.), J. Clean. Prod.

Relative Integrated Metrics

V. Sustainability Assessment Model indicator (SAMi)	Baxter et al. (2002, 1), SPE International Conference on Health, Safety and Environment in Oil and Gas Exploration and Production	The sum of all four capital categories (economic, social, environmental and resource usage) divided by the absolute sum of all categories. Since a project designated as “sustainable” needs an SAMi of 100 %, the proximity of the score to 100 % shows a project’s level of sustainability (Bebbington 2006, 4).	If the SAMi is used for comparing multiple SAMs as suggested by Bebbington (2006, 4) this indicator might facilitate the comparison. However, since the SAMi includes four capital categories, differences between different SAMs can exist for significantly more reasons compared to the other presented indicators. Therefore, we question the additional information value of providing an aggregated sustainability indicator over all capital categories.

By way of illustration, as examples of absolute integrated metrics, Gray (1992, 419) suggests adjusting a company's accounting profit by subtracting the so-called sustainable cost (Gray 1992, 419), and BSO/Origin calculates a "net value added" by deducting the value lost from the value added (Huizing and Dekker 1992, 451–54). Recently emerged impact valuation approaches (e.g., Serafeim et al. 2019; Value Balancing Alliance 2020) extend the idea of integrated performance indicators, adopting an integrated business thinking: a company's environmental and social impacts should be converted into monetary units and included in integrated P&Ls and balance sheets to illustrate and steer their (financial) performance implications.

From an environmental perspective it should be noted that, unless any restricting rules are set up, the value of integrated indicators can be improved despite increasing societal costs as long as the achieved marginal increase of societal value is higher than the marginal societal costs (Atkinson 2000, 247). This is also valid for the SAMi (see Table 5, row V.) although the SAMi cannot reach 100 % (i.e., full sustainability) as long as at least one of the four categories yields negative figures (Bebbington 2006, 4). Due to this, besides the questionable reliability of the monetised results, the utility of integrated indicators in decision making depends on one's attitude towards the compensability of environmental externalities by financial gains.

Given these opposing views which apply specifically to monetised figures, we extend the EEVF by the subcomponent *integrated performance indicators*.

4.2.4 Reporting

With regard to the *reporting format* it may be appropriate to follow the recommendations in the EP&L methodology and to report the results in both monetary and non-monetary units (Kering 2016, 10). Furthermore, companies may supplement monetary value estimates of environmental impacts with explanatory notes if useful. This may be one step towards increasing the requested transparency. To facilitate a clear presentation of monetary value estimates and environmental targets, companies may use tables, graphics or charts. The results of recently emerged impact valuation approaches (e.g., BASF 2018; KPMG International 2017; PWC 2013) are also usually visualised to help managers compare the company's total earnings (including its socio-economic and environmental impacts) to its financial earnings – indicating corporate and societal value creation or destruction (i.e., integrated business view). In view of the uncertainties in the valuation process it is, however, questionable if on company level monetary accounting and reporting methods such as the EP&L will replace conventional sustainability reports. Conversely, companies like Philips (2018a, 26f.) integrate the EP&L in their existing sustainability reporting. Others (e.g., Serafeim et al. 2019) seek to integrate sustainability aspects (e.g., environmental externalities) into financial reporting and thus to create financial statements that transparently reflect a company's sustainability performance. The discussed diverse weaknesses of monetary valuation may cause various concerns among stakeholders (Herbohn 2005,

528). However, since sustainability reporting can only have an impact if the provided information is accepted and used by stakeholders (Unerman et al. 2018, 515), involving stakeholders in the accounting process and establishing a high level of transparency in reporting are crucial (Vodafone Netherlands 2015, 47f.). Providing methodologies with information about techniques and assumptions is one way of improving transparency, applied by several companies (e.g., DEPA 2014b; Philips 2018b). In cases in which a monetisation frontier has been established this might raise questions about how to report about it in a transparent way. Companies might simply state when they refrain from monetary valuation or they might report on potential principles underlying their monetisation frontier.

Furthermore, since full cost figures may contain strategic information, companies may have reservations about reporting them (Bebbington et al. 2001, 114). In these cases, a potential compromise might be to alienate the calculated figures. For example, when reporting on the green net value added of two production processes, Demeke et al. (2018, 747f.) present all revenue and cost figures relative to one dollar of total financial costs of one process. Even if the real monetary figures get lost by doing this, at least the weights assigned to different societal impacts by monetary valuation persist.

We include the subcomponent *reporting formats* due to the discussed particular requirements for reporting on monetary valuation which are likely to reach beyond the reporting requirements for conventional sustainability accounting.

4.2.5 Attributes

The attributes of the EEVF are predominantly drawn from the GRI's reporting principles which are designed to ensure that reported sustainability matters are useful for stakeholders' decision-making – both in terms of report content and report quality (Global Reporting Initiative 2018 (GRI 101)). These attributes are also found in other conceptual reporting frameworks (e.g., Sustainability Accounting Standards Board 2017; Climate Disclosure Standards Board 2015; International Integrated Reporting Council 2013) and should be applied to determine, quantify and present environmental impacts in accordance with the EEVF.

Drawing on the two main criteria of the monetisation frontier, whether stakeholders will perceive the valuation results as relevant information is likely to depend on their acceptance of monetising (certain) environmental externalities from an ethical and a technical perspective. While ethical concerns about monetisation may lead to including certain aspects just in non-monetary quantitative or qualitative terms, the technical appropriateness may require a trade-off between the *accuracy* and the *transparency* of valuation methods. For example, Herbohn (2005, 526, 534) reports that participants in her full cost accounting study noted that for obtaining more precise valuation results more complex methods would need to be applied. On the other

hand, this complexity would endanger the stakeholders' acceptance of the valuation outcomes as they are expected to require the underlying processes to be comprehensible and transparent. This is termed the "valuation dilemma" (Herbohn 2005, 526). This trade-off shows that the reduction of complexity of sustainability issues via monetisation only seems to be achievable if on the other hand highly complex valuation methods are used.

With *accuracy* being one of two criteria of the monetisation frontier, which can be used to evaluate whether an externality should be monetised or not, this attribute is central for monetary valuation. Consequently, we will include it in the EEVF.

Furthermore, the different meanings of valuation results based on different valuation methods or the influence of discount rates indicate that understanding the valuation process is crucial to draw no wrong conclusions from its outcomes. Thus, we consider both the *transparency* of the applied methods and assumptions as well as the *clarity* of the results' actual meaning, as particularly important for reporting on monetised external effects. Therefore, we transfer both attributes to the EEVF. Since the discussed points show that ensuring the *materiality* of monetary valuation results for stakeholders is connected to several considerations specifically applying to monetisation, we also include this attribute in the EEVF.

Although monetary valuation is used to increase the comparability of externalities (Demeke et al. 2018, 742; Puma 2011, 5), due to the variety of monetisation approaches it is hardly possible to compare monetised externalities between different companies (Hendriksen et al. 2016, 483; Unerman et al. 2018, 502). The attribute *comparability* as defined by the GRI Reporting Principles aims at intertemporal comparability but also at comparability between companies (Global Reporting Initiative 2018 (GRI 101), 14). Hence, we drop this attribute because to date, monetary valuation cannot fully comply with it. However, there are increasing attempts at standardisation, such as the development of the first accounting principles for the EP&L (Kering 2016, 9–11) or the foundation of the Value Balancing Alliance (2020) aiming at the standardisation of monetisation approaches. The development of generally accepted accounting principles for monetising environmental impacts might be a crucial step towards better comparability of monetised figures of different companies. Moreover, we do not add the attributes *completeness* and *timeliness* to the EEVF because we did not identify any specific importance of these attributes for monetisation reaching beyond their importance for conventional sustainability accounting.

Monetisation following the *conservatism principle* as suggested in the EEVF will tend to overvalue negative environmental externalities. Because of this, the multiple necessary assumptions and the subjective nature of monetary valuation (Jasinski et al. 2015, 1125) do not comply with the *balance* attribute as defined in the GRI Reporting Principles (Global Reporting Initiative 2018 (GRI 101), 13). Thus, we do not introduce this attribute into the EEVF.

With respect to the high uncertainty connected to monetary valuation we argue that *reliability* is particularly important for monetary valuation to promote the trust in at least the technical aspects of the valuation process. Stakeholders should be confident that the valuation approach is technically accurate (i.e., free from error). Reliability requires a company to gather, record, compile, analyse, and report information. These processes should enable independent assurance providers to attest the quality and materiality of the information. That is, the decision-making processes underlying the valuation approach are to be documented such that the company can provide robust evidence to support assumptions or complex calculations. Stakeholders should be able to easily understand how the company has derived the monetary values from the original data to the final valuation result with uncertainties associated with the latter made transparent. To promote external legitimacy, companies can resort to different governance mechanisms including external assurance providers, the capital markets supervision, the supervisory board, an eco-risk management or audit system, and/or internal auditors (Trotman and Trotman 2013, 200–03). In Germany, especially the Eco-Management and Audit Scheme (“Eco-Audit” or EMAS) has a long tradition. EMAS registrants must issue an environmental statement that communicates their environmental impacts and that is also externally verified (Kolk 2005, 160).

Credibility-enhancing assurance in the valuation process seems particularly important with a view to greenwashing or the risk of incomplete, misleading or inaccurate environmental disclosures (Simnett, Vanstraelen, and Chua 2009, 939; Lyon and Maxwell 2011, 8). The current discussions at EU level highlight the problem that the credibility of non-financial information has declined sharply in recent years. Investors and other stakeholders tend to be sceptical of published sustainability information, regarding them as public-relation plays (Kanter 2009; Talbot and Boiral 2018, 368; Casey and Grenier 2015, 98–102). Since reliability is vital for the monetary values to be useful for investors, it is logical to extend the EEVF by this attribute. The EP&L of Philips (2018a, 215) which has been externally audited shows that monetised results can comply with this attribute. However, this argumentation should not hide the fact that monetary valuation is per definition highly subjective and that there can be no full certainty about the valuation results’ accuracy. An auditor can verify whether the assumptions are within a reasonable range, whether the valuation steps are consistent or whether the calculations and computed metrics are technically correct. However, an auditor cannot certify the monetary valuation results per se because there is no objectively correct monetisation (i.e., no agreed-upon approach).

The consideration of the *sustainability context* of a company’s performance such as the relation of its impacts to ecological thresholds (Global Reporting Initiative 2018 (GRI 101), 9) is specifically relevant to monetary valuation because a proximity to ecological thresholds can increase the uncertainty of the valuation results (NCC

2016, 96). Moreover, we assume that contextual information (e.g., about the proximity to thresholds) might strengthen concerns about the technical and ethical appropriateness of monetisation. Thus, we consider this attribute as particularly important for monetary valuation and include it in the EEVF. The attribute *stakeholder inclusiveness* will be discussed in the following subchapter.

4.2.6 Final Environmental Externalities Valuation Framework

The analysis of monetary valuation of environmental externalities shows that stakeholder involvement is a key component of the valuation process. To make this visible, in the EEVF the attribute *stakeholder inclusiveness* is transformed to a new component: *stakeholders*. All six components with the respective subcomponents of the final EEVF are presented in Table 3.

Due to the unavoidable uncertainties connected to monetary valuation it is advisable to include stakeholders in the discussions about the design of valuation processes (Bebbington and Larrinaga 2014, 406f.). Furthermore, multiple subjective decisions need to be made within monetary valuation (Bebbington et al. 2001, 118; Bebbington et al. 2007, 232). Not involving stakeholders in these decisions would mean that the damage or benefits caused by externalities which by definition affect others than the originator (Organisation for Economic Co-operation and Development 1993, 44), are solely determined by the latter. Therefore, we argue that stakeholder involvement in monetary valuation of externalities is important enough to be represented in the EEVF by a component in its own right.

By way of illustration, it is likely that most of a company's stakeholders agree that the amount of hazardous chemicals discharged by a production plant into a river can be calculated and monitored quite accurately. The situation is likely to be different with monetary value estimates for these hazardous chemicals as they are the most condensed figures for a company's impact. The stakeholders' opinions about the question whether the resulting environmental impact – water pollution – can and/or should be monetised may differ widely. Negative effects on fish stocks and the health of residents using this water are examples of potential societal impacts of water pollution that can be measured and monetised (PWC 2015, 353). The costs that different stakeholders attribute to these impacts are likely to be very dispersed. Some stakeholders may be generally reluctant to monetise environment-related externalities (e.g., because of ideological concerns, personal preferences or methodological scepticism). With regard to biodiversity, for example, the ethically justified concern could arise as to whether threatened species living in the polluted river should be assessed in monetary units at all. Given these illustrations, it becomes obvious that estimating a company's environmental impact in monetary terms is highly complex and subjective and therefore requires an intense dialogue with stakeholders.

Engaging with internal and external stakeholders can influence the design of the principles (arrow 1 in Figure 4), e.g., by determining the scope of the assessment (Forum for the Future 2003, 20) or the monetisation frontier. Conversely, the principles will also affect stakeholders (arrow 2), for example, the chosen reporting level might have an impact on the importance of stakeholder involvement (NCC 2016, 35). Moreover, the specific group of stakeholders and their attitude towards monetisation of externalities might also have an impact on the relative importance of trade-offs between qualitative attributes (arrow 3) such as transparency and accuracy. Given the various results and implications of different valuation methods (Kering 2015, 63f.; Schild et al. 2018, 19), the selection of valuation techniques as well as of the underlying measurement techniques is likely to be influenced by the targeted stakeholder groups (DEPA 2014a, 19) (arrow 4). Finally, the success of sustainability accounting is based on the use of the reported information by stakeholders (Unerman et al. 2018, 515) (arrow 5). We assume that this is likely to be influenced by their acceptance of monetisation, which in turn might be affected by their participation in the valuation process.

But in practice it is observed that stakeholders are not always willing to contribute to the valuation process and sometimes just consider favourable outcomes (Frame and Cavanagh 2009, 204). This is reason for concern because results of methods strongly relying on stakeholder involvement like the SAM can be skewed due to the influence of a few stakeholders if there is no broad stakeholder engagement (Bebbington et al. 2007, 233).

Generally, it may be technically possible to perform monetary valuation without any considerable involvement of (external) stakeholders. The underlying principles, the choice of methods as well as possible trades-off between qualitative attributes can theoretically be solely determined by experts and the company's management. However, especially if the monetised figures are supposed to reflect societal costs of the company's environmental externalities, no or low stakeholder involvement in the accounting process would mean to present stakeholders "their" values without seriously considering their opinion. This may reduce the credibility of the results as well as their acceptance among stakeholders. To give further examples which topics may arise in critical discussions about monetisation, several arguments against monetary valuation will be discussed in the following chapter.

5 Discussion of Fundamental Arguments against Monetary Valuation

5.1 Complexity and Subjectivity

Both the *complexity* of the environmental effects to account for, leading to uncertainty of the biophysical impact assessments, as well as the complexity of the ac-

counting methods themselves are causing the central problem of uncertainty of monetised figures discussed above. This makes it worthwhile taking a closer look at the arguments of critics regarding this concern.

A pivotal concern is that monetisation of nature, blind to the highly complex environmental systems and the interdependencies among them, will reduce nature to the utility of its ecosystem services and will not account for all values provided by it (Kill 2015, 7, 9). Since valuation implicates comparing the value of a good or a service with a single type of reference value (e.g., financial utility or beauty), monetary valuation of nature cannot include the variety of all values connected to it (Neuteleers and Engelen 2015, 254, 259). Schaltegger and Burritt (2010, 380) also support the view that attempts to capture all facets of sustainability in one single measure unit are bound to fail. One of the reasons why Herbohn's (2005) full cost accounting experiment failed was that several involved managers doubted that complex decision-making situations can be solely expressed in economic terms (Herbohn 2005, 526). Even proponents of the SAM like Bebbington et al. (2007, 226) share doubts whether the combination and expression of strongly diverse values in monetary units will lead away from the initial goal of supporting sustainable development.

However, in practice one potential objective of the monetisation of environmental externalities is reducing the complexity of sustainability issues and facilitating their communication (Puma 2011, 4; Unerman et al. 2018, 507). Although condensing sustainability performance into few metrics cannot provide a comprehensive notion of the situation, it can be used as additional information for assessing sustainability issues (Schaltegger and Burritt 2010, 380). Full cost accounting approaches like the EP&L and the SAM provide space to present sustainability aspects outside the monetary frame (Kering 2016, 10; Bebbington and Frame 2003, 9). Ultimately, one can argue that not valuing external costs at all would assign a value of zero to these costs, which would reflect them the least (Xing, Horner, El-Haram, and Bebbington 2007, 15).

Monetisation of environmental impacts is necessarily *subjective*, because there is no first-best solution to determine such impacts like ecological health scientifically. The perceived costs of environmental or health damages (e.g., disability-adjusted life years) are likely to vary between different people. Monetisation is also strongly parameter-dependent, i.e., conclusions of any monetisation process depend on the selected estimates and valuation techniques (van den Bergh and Botzen 2014, 253). Bebbington et al. (2007, 232) report with regard to the SAM that the danger of figures calculated on the basis of subjective values is that they are perceived as objective. However, by involving stakeholders in the sustainability assessment process it is possible to lower the risk of unjustified objectivity assumptions (Frame and Cavanagh 2009, 205). Moreover, some critics argue that people might perceive monetised values wrongly as a sign of substitutability of the underlying constructs (Bebbington et al. 2007, 226).

5.2 Potential Misuse

Conducting monetary valuation of environmental externalities is usually justified by supporting a company's efforts to become more (environmentally) sustainable (Baxter et al. 2002, 1; Puma 2011, 4). However, although the presence of diverse obscure interests and the danger of greenwashing apply to sustainability accounting and reporting in general (Jones 2010; Lamberton 2005, 16) there is a potential for misuse which applies both to the discussed complexity and the subjectivity of monetary valuation.

Through monetisation critical political questions about capitalism as the cause of multiple societal problems might be shifted to a rather technical debate about improving the measuring and precision of accounting approaches. Kill (2015) mentions this argument with focus on environmental politics and legislation. However, we argue that also in a corporate context the presentation of sophisticated valuation techniques (for example the EP&L methodology of PWC (2015) comprises more than 400 pages) could distract from questions about how to eliminate the environmental externalities behind the presented figures. This bears the potential threat of misusing monetary valuation to deliberately distract from the debate about how to actually reduce the calculated externalities.

The technical complexity and the subjective nature also raise concerns among external stakeholders about the possible manipulation of monetary results by management (Herbohn 2005, 531). Considering the previously mentioned potential of unobtrusively influencing the valuation result by choosing a certain valuation method or by using a high discount rate, these fears seem reasonable. Just like other areas of management, recognition of external benefits can lead to a focus on accounting and reporting of those externalities that are most readily amenable to quantification. This risks “crowding out” from externalities that are less readily quantifiable (Unerman et al. 2018, 507). Furthermore, one might argue that since integrated performance indicators like Atkinson's (2000) corporate genuine savings have a clear threshold (zero), companies which demonstrate a positive figure will be perceived as having a good environmental performance even in cases in which they are responsible for high external costs.

The best way for a reporting company to counter all mentioned concerns will be to focus on transparency and clarity. From a stakeholder's perspective, assessing monetised externalities may require a higher level of attention and scrutiny than assessing conventional sustainability accounting information.

5.3 Commodification of Nature and Ethical Concerns

As previously mentioned, the probably most frequently used argument for monetising external effects is their translation into the language of decision-makers, which might make these external costs more tangible (Bebbington et al. 2007, 231; Forum

for the Future 2003, 36; Hendriksen et al. 2016, 475f., 490; Kering 2015, 7; Unerman et al. 2018, 507; Trucost 2015, 3; PWC 2013, 19). Beyond that, Bebbington et al. (2007, 232) accuse strict opponents of monetisation of having a limited perspective on decision processes and of ignoring the crucial factors on which decisions in the real world are usually based. In support of these theoretical arguments, Kering (2015, 16) confirms that monetary valuation of external environmental costs within the scope of the EP&L increases the acceptance of the discussion about its societal impact within the company. Even among environmental conservationists there are demands for monetising environmental externalities to ensure their inclusion in decision processes (Herbohn 2005, 529). On the one hand, summing up the discussed points, presenting sustainability figures in monetary units might help to justify their consideration in decision making (Forum for the Future 2003, 36).

On the other hand, designation of nature as “natural capital” and its monetary valuation are often connected to the fear of nature being transformed into a (tradable) commodity (Barter 2015, 366–71; Coulson, Adams, Nugent, and Haynes 2015, 306; Herbohn 2005, 531). Commodification is the transformation of non-market goods into market goods (Neuteleers and Engelen 2015, 255). Monetary valuation belongs to the subcategory “commodification in discourse” (Neuteleers and Engelen 2015, 254) in which non-market goods are not actually traded (like e.g., emission certificates), but rather valued by creating hypothetical markets for them (Neuteleers and Engelen 2015, 254).

Yet, commodification in the discourse of natural capital is likely to increase the probability of its commodification on real markets (Neuteleers and Engelen 2015, 257). Furthermore, monetary valuation and commodification in discourse may shift nature to an economic frame in people’s minds in which it is perceived as a commodity (Neuteleers and Engelen 2015, 257f.). Some critics are concerned that monetised values or even the mere designation of nature as natural capital will promote thinking about nature solely as an economic and hence substitutable good (Barter 2015, 366, 371). Hines (1991, 28f.) warns that including nature in the accounting system and the accounting language would objectify it and possibly cause commercial framing. Therefore, not appearing in any account would harm nature less than quantifying or monetising it.

Framing nature as a commodity is suspected to have a negative effect on the intrinsic motivation for nature conservation. If this is true, this might lead to less environmental protection because extrinsic motivation is assumed to be less persistent and more dependent on external circumstances than intrinsic motivation (Neuteleers and Engelen 2015, 258f.). This raises the question whether the stronger awareness of environmental externalities through monetisation comes at the cost of shifting the underlying motivation from an intrinsic to an extrinsic one.

Scientists like Xing et al. (2007, 16) stress that the application of monetary valuation is usually based on technical reasons and should not be interpreted ideologically in

terms of subordinating everything to money. Similarly, Kering (2015, 20) emphasises that monetary valuation of environmental externalities in their EP&L does not imply that nature can or should be treated as a commodity. Some scientists also argue that we already implicitly value intangible impacts on society like on human health, e.g., when determining safety standards in construction which connect a certain level of safety to a certain amount of costs. Therefore, the only question is whether to make these valuations implicitly or explicitly (Costanza et al. 1997, 255).

On the one hand many people would perceive using the tools and the capitalistic logic which has contributed to multiple social and environmental problems not as a good choice to fight the same (Baxter et al. 2002, 3; Bebbington and Frame 2003, 2; Cavanagh et al. 2006, 143). On the other hand, if one accepts the prevalence of the capitalistic school of thought, it bears some logic to account for external costs in monetary terms to “get the price right” (Bebbington et al. 2001, 7; Xing et al. 2007, 16). The hope is that, as a final step, the internalisation of current external costs will lead to a more effective resource allocation on markets (Forum for the Future 2003, 8).

To sum up: It is at least partially contradictory to justify monetisation with facilitating comparability and translating environmental externalities into the language of business on the one hand and stressing on the other hand that in this language monetised values of environmental externalities do not have the same meaning as conventional monetary figures. This issue becomes even more relevant if integrated performance indicators are calculated since without any differentiation, both conventional and monetised monetary figures are combined in one single metric. A central problem remains: the existing knowledge gap about this topic. Although there is little empirical evidence regarding the discussed concerns, due to their potentially serious consequences on the relationship between human beings and nature, caution is necessary in this field (Neuteleers and Engelen 2015, 259f.). However, given the massive and strongly increasing destruction of nature within the last decades (World Wide Fund for Nature 2016, 6), the current and past level of intrinsic motivation for environmental conservancy has been far from being sufficient. Furthermore, in decision-making processes in both management and policy, financial aspects still prevail (Bebbington et al. 2007, 231). Hence, and because there is a need for a rapid decline in negative environmental externalities (Unerman et al. 2018, 515), we believe that it is worthwhile applying monetary valuation and carefully assessing whether this will have a positive or a negative effect on the environment.

6 Conclusion

Companies must decide how much to invest in natural capital (e.g., water, air, or land) that they depend on for their economic survival. But how do they project and disclose their external costs and benefits under conditions of scientific and legisla-

tive uncertainty? This key question posed by Rubenstein (1994, preface) is as topical as never before.

A framework in which critical monetisation issues are addressed is needed. The EEVF provides the toolkit for dealing with critical issues specific to monetary valuation both in theory and practice, offering more nuanced valuation decisions. Furthermore, its components may be helpful for reporting on assumptions and decisions made in the monetisation process. To reduce the problems connected to subjectivity, the EEVF suggests to intensively involve relevant internal and external stakeholders in important monetisation issues. By recommending a conservative accounting approach and by suggesting the determination of a monetisation frontier as agreed upon with stakeholders, the EEVF acknowledges ideological concerns and the high level of uncertainty.

Our critical review further identifies the facilitation of comparisons between various impacts, the facilitation of communicating environmental externalities and the estimation of costs connected to potential internalisations as the main opportunities of monetary valuation. The subjectivity and the uncertainty of the results as well as ethical concerns of stakeholders are identified as the core problems. Besides technical concerns, these pros and cons of monetising environmental externalities stem from two fundamental ideological perspectives: supporters of monetisation try to include monetary values of environmental externalities as much as possible in the existing power structures and decision-making patterns and hope that this will lead to more environmentally-friendly decisions (Serafeim et al. 2019, 5; Herbohn 2005, 529). Opponents of monetisation fear that by placing a monetary value on nature the predominance of economic rationality on the individual and the societal level will be even more reinforced, which will harm the environment more than it will benefit it (Hines 1991, 29).

Currently, the European Union (2014) plans to amend the CSR-directive (2014/95/EU), since public consultation reveals that the contemporary non-financial disclosure practices do not adequately meet stakeholders' information needs (European Commission 2020). Specifically, disclosed non-financial information is not sufficiently comparable or reliable yet. The non-financial reporting requirements are highly discretionary and not detailed. Our empirical findings provide corroborating evidence that concurrent corporate reporting on environmental externalities lacks standardised and transparent information. As currently practiced, companies listed in the German Prime Standard concentrate on qualitative and non-monetary quantitative environmental disclosures that are difficult to compare. No sampling company monetises its environmental impacts *and* reports the valuation results in its published sustainability report, suggesting that monetary figures on a company's externalities are, with only very few exceptions, virtually not publicly available today. Based on this observation, this paper is intended to provide a road map of what cor-

porate sustainability accounting practice could be in order to more fully and transparently report on cost calculation estimates with a much higher general acceptance.

To date, from a *corporate accounting perspective*, there appear to be no generally accepted valuation approaches and reporting formats for external effects, but recently launched standardisation projects such as the Value Balancing Alliance (2020) strive to close this gap. From a *regulatory perspective*, although the EU does not intend to mandate monetary valuation, it considers requiring a common non-financial reporting standard (with sector-specific elements) for all companies falling within the scope of the CSR-directive. Such a common non-financial reporting standard may be the first step towards standardisation, and thus towards comparability indeed. However, from an *investor's perspective*, compared to monetary units, quantitative information in biophysical units could impede comparisons and comprehensibility between various impacts. For example, a company's environmental footprint that measures CO₂ emissions in tons is not instantly comparable to that of a company that measures CO₂ emissions in CO₂-equivalents or hectares. Moreover, it is easy for stakeholders to interpret a euro, dollar or other currency figure that indicates the economic significance at once, whereas the interpretation of a CO₂-equivalent, the consumption of cubic litres, mega-watt hours or life-cycle assessment metrics often requires expert knowledge. Freiberg, Park, Serafeim, and Zochowski (2020, 3) suggest that a monetisation of environmental impacts from operations may be practically feasible using, for example, conversion rates that are applied to environmental outputs (e.g., emissions or water use). However, we believe that until such impact measurements will become large-scale, further harmonisation is necessary (e.g., which conversion rates to apply).

While our study focuses on the theoretical benefits and concerns of monetary valuation but is silent on the “real” welfare effects, it cannot inform the debate on whether the EU *should* mandate monetary valuation but leave the final decision up to the companies: they should individually weigh the benefits of evaluating their externalities monetarily (e.g., improved understanding – or tangibility – of the published sustainability information) against their implementation and reporting costs. A further limitation of our study is that the EEVF recommends intensive stakeholder engagement but in practice the resources available for the valuation process are likely to be limited (DEPA 2014a, 34). Moreover, by focusing on environmental externalities, the EEVF covers only one out of multiple sustainability dimensions and therefore does not reflect the full complexity of monetary valuation of externalities. A potential area for future research is to examine if and how the EEVF actually contributes to a systematic discussion about monetary valuation between a company and its stakeholders. Against the background of the release of the Social Capital Protocol (World Business Council for Sustainable Development 2017) and emerging efforts in valuing a company's impacts, future research is also warranted to assess to what extent the EEVF can be applied to monetary valuation of social externalities. Finally, it should

be mentioned that the logical next step for managers would be to compare and integrate different impacts into business decisions, e.g., to allow for more efficient management of risk and return and resource allocation. Such an integrated business thinking is already a core element of emerging impact measurement projects. Regulatory efforts have also recently pointed to the integration of environmental and social impacts into financial reporting instead of a standalone sustainability reporting (e.g., Sustainable Finance Disclosure Regulation (European Union 2019), G20's TCFD recommended disclosures (TCFD 2017)). But before a company can take on an integrated view of performance and manage its total impacts, it must find a way how to measure them – in agreement with its stakeholders. Given that on the one hand monetary valuation is still in its infancy and that on the other hand a company's impacts have become a more important societal consideration, it remains to be seen how measuring, management and reporting on a company's overall (financial and sustainability) performance will develop. We advocate further work on how to compare and comprehensively value a company's impacts on society, the economy and the environment. We believe that showing monetisation results alongside financial accounting statements is a crucial step towards an integration of all sustainability dimensions into business steering. This study's aspiration is to examine challenges and pathways of monetising environmental externalities, including the decision to internalise environmental costs and to report on the results, and thus to advance the field of sustainability accounting and reporting.

Considering the methodological weaknesses and the uncertainty of the calculations, it must be admitted that making strong efforts and investing a lot of resources in monetising environmental externalities can be perceived as barely useful for internal and external reporting. However, supporters of monetary valuation are convinced that sustainability accounting in general is about obtaining figures precise enough to support steering the sustainable development of an organisation, rather than focusing on the next to impossible calculation of exact figures (Forum for the Future 2003, 36 f.). Following this position, we believe that monetary valuation can help better understand the broad magnitude and distribution of external effects but is questionable if minor deviations in the results might change a decision. In our opinion, getting a (subjective) feeling for the environmental impacts might be more important than to calculate precise (or objective) valuation figures. Moreover, the process of assessing and monetising environmental externalities often comprises significant positive side effects such as supporting discussions with stakeholders (Bebbington et al. 2007, 231) and giving valuable insights into a company's operations and supply chain (Kering 2015, 8).

All in all, besides several downsides, monetary valuation of environmental externalities has the potential to be beneficial to business as well as to the environment and to society. Finally, independent of one's personal attitude towards monetary valuation it must be acknowledged that the discussion about monetary valuation approaches raises the awareness of companies' externalities and their social responsibility.

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Zusammenfassung

Die monetäre Bewertung von ökologischen Externalitäten ist ein sehr umstrittenes Gebiet der Nachhaltigkeitsrechnung (engl. Sustainability Accounting). Zu ihren Chancen zählen die bessere Vergleichbarkeit verschiedener umweltbezogener Auswirkungen, die Erleichterung der Kommunikation externer Effekte auf die Umwelt und die Abschätzung der Kosten potenzieller Internalisierungen. Zentrale Herausforderungen sind neben ideologischen Belangen der Stakeholder die Subjektivität und Unsicherheit der monetären Bewertungsergebnisse. Eine empirische Analyse der Nachhaltigkeitsberichterstattung deutscher börsennotierter Unternehmen zeigt zum einen eine hohe Heterogenität in den überwiegend qualitativen Angaben zu Umweltbelangen und zum anderen erhebliche Mängel bei den quantitativen Angaben, insbesondere bei Geldwerten. Basierend auf diesen Befunden entwickeln wir einen Berichtsrahmen für die Bewertung externer Umwelteffekte (EEVF). Das EEVF hebt die Unterschiede zwischen konventioneller Nachhaltigkeitsbilanzierung in biophysischen Einheiten und der monetären Bewertung externer Umwelteffekte hervor. Es berücksichtigt die Hauptkritikpunkte an der Monetarisierung externer Umwelteinflüsse und schlägt eine intensive Einbindung von Stakeholdern, einen konservativen Rechnungslegungsansatz sowie die Entwicklung einer Monetarisierungsgrenze

als mögliche Lösungen vor. Durch seine Zielsetzung, sowohl Diskussionen in Wissenschaft und Praxis als auch die Berichterstattung von Unternehmen über die im Bewertungsprozess getroffenen Annahmen und Entscheidungen zu strukturieren, leistet das EEVF einen Beitrag zur hochaktuellen Diskussion über die monetäre Bewertung externer Umwelteffekte.

B4 Der neue Standard zur bilanziellen Abbildung von Versicherungsverträgen (IFRS 17) – Eine kritische Analyse der Auswirkungen auf die Versicherungsbranche

Study no.	8			
Title	Der neue Standard zur bilanziellen Abbildung von Versicherungsverträgen (IFRS 17) – Eine kritische Analyse der Auswirkungen auf die Versicherungsbranche			
Authors	Corinna Ewelt-Knauer, Ariane Kraft, Julia Schneider			
Author contribution		Ewelt-Knauer	Kraft	Schneider
	<i>Numeric share</i>	<i>0.1</i>	<i>0.1</i>	<i>0.8</i>
	Conceptual development of research question			✓
	Development of theory			✓
	Methodology			
	Acquisition of data			✓
	Analysis/interpretation of data	✓		✓
	Writing the manuscript		✓	✓
Publication status	Published (2018) <i>Zeitschrift für die gesamte Versicherungswissenschaft, 107 (2): 193 – 226. (VHB-Journal 3: C)</i>			
Research approach	Normative study (critical conceptual evaluation)			
Language	German			
Abstract	<i>German version:</i> Der neue Standard zur Bilanzierung von Versicherungsverträgen (IFRS 17) bringt gravierende Änderungen für die Versicherungsbranche mit sich. In diesem Beitrag werden die künftigen Ansatz-, Bewertungs- und Ausweisvorschriften nach IFRS 17 kritisch analysiert. Insbesondere wird auf das künftige Bewertungsmodell, den sog. Bausteinansatz (building block approach) eingegangen, nach dem sich die Rechnungslegung aller Versicherungsverträge innerhalb des Anwendungsbereichs von IFRS 17 richten wird. (Für bestimmte Versicherungsverträge, insbesondere für solche, die eine direkte Überschussbeteiligung vorsehen, oder für wenig komplexe – im Sinne einer geringen Variabilität der Zahlungsströme – oder kurzlaufende Versicherungsgeschäfte, gibt es gewisse Modifikationen.) Im Einzelnen sieht IFRS 17 mit dem Erfüllungsbetrag (fulfilment value) einen unternehmensspezifischen Wertansatz vor. Dieser wird anhand von vier Bewertungsbausteinen (Erfüllungs-Zahlungsströme, Diskontierungszinssatz, Risikozuschlag und Servicemarge) ermittelt, die im nachfolgenden Beitrag im Detail vorgestellt und gewürdigt werden. Dabei wird gezeigt, mit welchen teilweise erheblichen Neuerungen die Versicherungsbranche konfrontiert ist und an welchen Stellen Unternehmen ihre bisherige Bilanzierungspraxis anpassen müssen.			

	<i>English version:</i> The new standard for the accounting of insurance contracts (IFRS 17) will entail substantial changes for the insurance industry. In the following article the new standard is critically analyzed. First and foremost the coming valuation model, the so-called building block approach, is presented which will be the basis for all insurance contracts within the scope of IFRS 17. (For certain insurance contracts, especially those with direct participation features, or for less complex or short-term insurance contracts, there are some modifications.) To be more precise, IFRS 17 introduces an enterprise-specific valuation approach that is grounded on the so-called fulfilment value. This fulfilment value is determined by four separate building blocks (fulfilment-cashflow, discount rate, risk margin and contractual service margin) which will be addressed in detail. Finally, major changes in performed accounting practices that insurance enterprises are confronted with and will have to adapt to in their financial statements and accounts are examined.

Der neue Standard zur bilanziellen Abbildung von Versicherungsverträgen (IFRS 17) – Eine kritische Analyse der Auswirkungen auf die Versicherungsbranche

**Corinna Ewelt-Knauer, Ariane Kraft &
Julia Schneider**

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Corinna Ewelt-Knauer · Ariane Kraft · Julia Schneider

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Zusammenfassung Der neue Standard zur Bilanzierung von Versicherungsverträgen (IFRS 17) bringt gravierende Änderungen für die Versicherungsbranche mit sich. In diesem Beitrag werden die künftigen Ansatz-, Bewertungs- und Ausweisvorschriften nach IFRS 17 kritisch analysiert. Insbesondere wird auf das künftige Bewertungsmodell, den sog. Bausteinansatz (building block approach) eingegangen, nach dem sich die Rechnungslegung aller Versicherungsverträge innerhalb des Anwendungsbereichs von IFRS 17 richten wird (Für bestimmte Versicherungsverträge, insbesondere für solche, die eine direkte Überschussbeteiligung vorsehen, oder für wenig komplexe – im Sinne einer geringen Variabilität der Zahlungsströme – oder kurzlaufende Versicherungsgeschäfte, gibt es gewisse Modifikationen). Im Einzelnen sieht IFRS 17 mit dem Erfüllungsbetrag (fulfilment value) einen unternehmensspezifischen Wertansatz vor. Dieser wird anhand von vier Bewertungsbausteinen (Erfüllungs-Zahlungsströme, Diskontierungszinssatz, Risikozuschlag und Servicemarge) ermittelt, die im nachfolgenden Beitrag im Detail vorgestellt und gewürdigt werden. Dabei wird gezeigt, mit welchen teilweise erheblichen Neuerungen die Versicherungsbranche konfrontiert ist und an welchen Stellen Unternehmen ihre bisherige Bilanzierungspraxis anpassen müssen.

The new international accounting standard for insurance contracts (IFRS 17) – A critical analysis of its impact on the insurance industry

Abstract The new standard for the accounting of insurance contracts (IFRS 17) will entail substantial changes for the insurance industry. In the following article the new standard is critically analyzed. First and foremost the coming valuation model,

C. Ewelt-Knauer (✉) · A. Kraft · J. Schneider
Professur für Financial Accounting, Justus-Liebig-Universität Gießen, Licher
Straße 62, 35394 Gießen, Deutschland
E-Mail: Corinna.Ewelt-Knauer@wirtschaft.uni-giessen.de

the so-called building block approach, is presented which will be the basis for all insurance contracts within the scope of IFRS 17. (For certain insurance contracts, especially those with direct participation features, or for less complex or short-term insurance contracts, there are some modifications.) To be more precise, IFRS 17 introduces an enterprise-specific valuation approach that is grounded on the so-called fulfilment value. This fulfilment value is determined by four separate building blocks (fulfilment-cashflow, discount rate, risk margin and contractual service margin), which will be addressed in detail. Finally, major changes in performed accounting practices that insurance enterprises are confronted with and will have to adapt to in their financial statements and accounts are pointed out.

1 Problemstellung und Überblick

Der neue Standard zur Bilanzierung von Versicherungsverträgen, IFRS 17, wurde am 18. Mai 2017 veröffentlicht. Der internationale Standardsetzer hat in den letzten Jahren mit Hochdruck an einem konzeptionell einheitlichen Standard für die Versicherungsbranche gearbeitet, da IFRS 4 keine konsistente konzeptionelle Basis zur bilanziellen Behandlung von Versicherungs- und Rückversicherungsverträgen bietet. So besitzt IFRS 4 bspw. keine eigenen Bewertungsvorschriften, sondern enthält lediglich Definitionen und, in einem geringen Umfang, Ansatzkriterien für die Erfassung von aus Versicherungsverträgen resultierenden Vermögenswerten und Schulden.¹ Folglich war es bislang gängige Praxis, dass die Versicherungsbranche auch für ihre IFRS-Abschlüsse regelmäßig auf Bewertungsregelungen nach HGB oder US-GAAP zurückgegriffen hat, was zu erheblichen Ermessensspielräumen für die Unternehmen und einer nur stark eingeschränkten Vergleichbarkeit von Abschlüssen für die Berichtsadressaten wie Investoren geführt hat.² So ist in IFRS 4 explizit vorgesehen, dass bei Regelungslücken die Auslegungsvorschriften des IAS 8³ ausgesetzt werden (IFRS 4, Tz. 13) und Versicherer ihre jeweiligen lokalen Rechnungslegungsgrundsätze für die Abbildung von Versicherungsverträgen anwenden dürfen. Der Standardsetzer macht jedoch deutlich, dass IFRS 4 lediglich als Übergangslösung konzipiert war.⁴ IFRS 17 regelt nun neben dem Anwendungsbereich, dem Ansatz sowie den diesbezüglichen Ausweis- und Offenlegungspflichten von Versicherungsverträgen vor allem auch deren Bewertung.⁵ Durch die Einführung internationaler Grundsätze für die Bilanzierung von Versicherungsprodukten wird die Berichterstattung innerhalb der Versicherungsbranche formal auf eine einheitliche Regelungsbasis gestellt. Dies ist insbesondere mit Blick auf den starken Verflech-

¹ Vgl. Weng (2013, S. 23).

² Vgl. Asche und Hartung (2011, S. 1189).

³ IAS 8 wird unter anderem bei der Auswahl und Anwendung von Bilanzierungs- und Bewertungsmethoden herangezogen, falls kein IFRS ausdrücklich für einen Sachverhalt maßgeblich ist.

⁴ Vgl. International Accounting Standards Board (IASB) (2004, im Folgenden: IFRS 4, Tz. IN1 (a) und IN2); International Accounting Standards Board (IASB) (2017a, im Folgenden: IFRS 17a, Tz. IN4); Hasenburg und Drinhausen (2005, S. 642).

⁵ Vgl. DRSC (2017a).

tungsgrad der Branche sehr zu begrüßen,⁶ wenngleich dies für einige Unternehmen zu erheblichen Anpassungen ihrer (bilanziellen) Rechenwerke führen dürfte.

IFRS 17 wird ab dem 01.01.2021 für alle kapitalmarktorientierten Versicherungsunternehmen verpflichtend anzuwenden sein.⁷ Eine frühere freiwillige Anwendung ist allerdings möglich, sofern das Versicherungsunternehmen sowohl IFRS 9 „Finanzinstrumente“ als auch IFRS 15 „Erlöse aus Verträgen mit Kunden“ anwendet.⁸ Um ein zeitliches Auseinanderfallen der Erstanwendungszeitpunkte von IFRS 9 und IFRS 17 zu vermeiden, können Versicherer die Anwendung von IFRS 9 bis zum 1. Januar 2021 hinauszögern und bis dahin weiterhin IAS 39 „Finanzinstrumente: Ansatz und Bewertung“ anwenden (sog. deferral approach).⁹ Hierdurch können Versicherer mitunter einen doppelten Umstellungsaufwand und die damit verbundene zusätzliche Kostenbelastung umgehen.¹⁰ Alternativ ist es einem Versicherer, der erstmals nach IFRS 9 bilanziert, gestattet, temporäre Volatilitäten sowie Bewertungsinkonsistenzen, die aus der Anwendung von zwar IFRS 9, aber noch nicht IFRS 17 resultieren, erfolgsneutral ins Other Comprehensive Income (OCI) zu buchen. Ohne das Amendment in IFRS 4, Tz. 35B müssten Versicherer diese volatilen Schwankungen erfolgswirksam im Gewinn und Verlust zeigen (sog. overlay approach).¹¹

Der neue Standard zur Bilanzierung von Versicherungsverträgen folgt überwiegend dem sog. asset-liability-approach: Vereinbarte Prämien und Verpflichtungen sind stichtagsbezogen anzusetzen und zu bewerten,¹² wobei der konkrete Ausweis in der Bilanz auf aggregierter Ebene erfolgt (net insurance contract asset or liability). Ein- und Auszahlungen verschiedener Gruppen von Versicherungsverträgen dürfen allerdings nicht miteinander verrechnet werden.¹³ Während die vertraglich vereinbarten Prämien i. d. R. relativ leicht quantifiziert werden können, gestaltet sich die Bewertung der versicherungstechnischen Verpflichtungen deutlich schwieriger.¹⁴ Zum einen ist die Bewertung der künftigen Verpflichtungen aus Versicherungsverträgen per definitionem mit Unsicherheit behaftet, u. a. weil die Bewertungsparameter (z. B. Schadenhöhen, Diskontierungszinssätze, Stornohäufigkeiten) für Jahrzehnte im Vorhinein ermittelt werden müssen¹⁵ oder – wie im Schaden- und Unfallbereich – die mögliche Auszahlungshöhe und -frequenz von Fall zu Fall stark variieren können. Zum anderen mangelt es an beobachtbaren Marktparametern, die in das Schätzmodell integriert werden können, da es typischerweise keinen aktiven Markt für Versicherungsverträge gibt.¹⁶ Folglich müssen die versicherungstechnischen Ver-

⁶ Vgl. Wipf et al. (2011, S. 142).

⁷ Vgl. IFRS 17, Tz. IN2.

⁸ Vgl. Deloitte (2016a).

⁹ Vgl. International Accounting Standards Board (IASB) (2015, ED/2015/11, Tz. 20 A).

¹⁰ Vgl. EFRAG (2016, Appendix 1, Tz. 1 (c)).

¹¹ Vgl. International Accounting Standards Board (IASB) (2015, ED/2015/11, Tz. 35 A); DRSC (2017b); EFRAG (2016, Appendix 1, Tz. 2).

¹² Vgl. Altenburger (2011, S. 673), (2015, S. 6).

¹³ Vgl. IFRS 17, Tz. 78 und BC328.

¹⁴ Vgl. hier und folgend Hommel et al. (2013, S. 404 f.).

¹⁵ Vgl. Bittermann (2004, S. 297 f.).

¹⁶ Vgl. Wagner und Warth (2005, S. 256 f.); Schweinberger und Horstkötter (2010, S. 546).

pflichtungen auf Basis versicherungsmathematischer Kalküle (komponentenweise) für die Bilanzierung geschätzt werden. Konkret ist dabei auf eine unternehmensspezifische Erfüllungsperspektive abzustellen, was der wirtschaftlichen Realität des Geschäftsmodells entspricht: Versicherer sind daran interessiert, die aus einem Vertragsverhältnis resultierenden Verpflichtungen vertragsgemäß zu erfüllen.¹⁷

Im Folgenden werden die unter IFRS 17 anzuwendenden Ansatz-, Bewertungs- und Ausweisvorschriften dargestellt. Ein besonderes Augenmerk wird dabei auf dem neuen Bewertungsmodell liegen, was künftig auf sämtliche Versicherungsverträge anzuwenden sein wird und das aus vier Bewertungselementen besteht (sog. Bausteinansatz). Aufgrund der divergierenden Zielsetzung von passiven Rückversicherungen, der Reduktion des durch die Originalpolicen ausgelösten Versicherungsrisikos bzw. ihrer Einstufung als Instrument der sekundären Risikoteilung,¹⁸ werden die für das passive Rückversicherungsgeschäft vorzunehmenden Modifikationen nach IFRS 17 nicht thematisiert.¹⁹ Außerdem sind direkt überschussberechtigende Versicherungsvereinbarungen, deren Rückstellungshöhe (auf der Passivseite) von den Erträgen bestimmter Vermögenswerte (auf der Aktivseite) bzw. anderer zugrundeliegender Sachverhalte oder Positionen²⁰ abhängig ist, nicht Gegenstand dieser Abhandlung. Diese direkt überschussberechtigenden Versicherungsverträge sehen nämlich, neben der Pflicht zur Ausgleichszahlung im Falle eines Schadenergebnisses, auch eine Verpflichtung zur Beteiligung des Versicherungsnehmers an erfolgs(un)abhängigen Gewinnanteilen des Versicherers vor.²¹ All jene überschussberechtigenden Versicherungsverträge, die künftig den Variable-Fee-Scope in IFRS 17, Tz. B101 im Zeitpunkt des Erstansatzes bestehen,²² bedürfen aufgrund ihrer direkten Kopplung an bestimmte Vermögenswerte einer „Sonderbehandlung“ und werden nach dem sog. Variable-Fee-Approach (VFA) bilanziert.²³ Vor dem Hintergrund des gesetzlichen Anspruchs auf Überschussbeteiligung im Lebensversicherungsbereich gemäß § 153 VVG sind die nachstehenden Ausführungen primär für Erstversicherungspolicen aus dem Bereich Nichtleben von Interesse (z.B. Vertragsgestaltungen im Bereich der Schaden- und Unfallversicherung).

¹⁷ Vgl. Kölschbach und Engländer (2009, S. 1495); Ellenbürger und Kölschbach (2010b, S. 1145).

¹⁸ Vgl. Biermann und Brinkman (1988, S. 39); Liebwein (2009, S. 35).

¹⁹ Vgl. IFRS 17, Tz. 60 und 98.

²⁰ Insbesondere deutsche Lebensversicherungsverträge, die für den Variable-Fee-Approach (VFA) qualifizieren, sehen häufig eine Partizipation des Versicherungsnehmers am HGB-Rohüberschuss vor. Somit variieren vor allem im Lebensversicherungsbereich die Versicherungsleistungen oftmals in Abhängigkeit von den jeweiligen erwirtschafteten Erträgen des Versicherers, wobei allerdings die Glättungsfunktion der Rückstellung für Beitragsrückerstattung zu beachten ist (vgl. Reiff 2015, VVG § 153 Rn. 20; Langheid 2016, VVG § 153 Rn. 33). Vgl. International Accounting Standards Board (IASB)/Financial Accounting Standards Board (FASB) (2011b, Tz. 9 und 11 (a)) für eine Übersicht, welche zugrundeliegenden Positionen als Vertragsgestaltungen grundsätzlich in Frage kommen können.

²¹ Vgl. Lüdenbach et al. (2017, § 39 Tz. 35).

²² Vgl. IFRS 17, Tz. BC239–BC242. Einschlägig für diesen Test sind alleine die Vertragsklauseln, d.h., es ist nicht erforderlich, dass das Versicherungsunternehmen die zu deckenden Vermögenswerte (underlyings) auch physisch in den Büchern hält (vgl. IFRS 17, Tz. BC246).

²³ Vgl. IFRS 17, Tz. B102 und Appendix A „insurance contract without direct“.

2 Definition eines Versicherungsvertrags – Anwendungsbereich

Ein Versicherungsvertrag ist gemäß IFRS 17, Appendix A definiert als eine vertragliche Vereinbarung, durch die ein Versicherungsgeber ein *wesentliches Versicherungsrisiko* eines Versicherungsnehmers *übernimmt*, durch das der Versicherungsnehmer *nachteilig* betroffen ist.²⁴ Die Übertragung eines Versicherungsrisikos an sich ist demnach nicht ausreichend für die Einstufung als insurance contract; die übernommene Risikoposition muss zudem auch wesentlich sein. Im Falle des Eintretens eines zum Zeitpunkt des Vertragsabschlusses ungewissen, indes genau umschriebenen – für den Versicherungsnehmer nachteiligen – Versicherungsschadens ist der Versicherer zur Entschädigung des eingetretenen Schadens verpflichtet.²⁵ Damit sind die Definitionsmerkmale eines Versicherungsvertrags nach IFRS 17 identisch mit jenen nach den bislang gültigen Regelungen von IFRS 4.²⁶ Neu ist hingegen, dass kein Zahlungszeitpunktisiko als explizite Komponente für die Bilanzierung als Versicherungsvertrag gefordert wird.²⁷ Der Grund hierfür liegt darin, dass das Zahlungszeitpunktisiko indirekt in Form des „Zeitwertes des Geldes“ (siehe Abschn. 4.4) zum Ausdruck gebracht wird. Folglich wird eine explizite Prüfung des Zahlungszeitpunktisikos zur Beurteilung, ob ein wesentliches Versicherungsrisiko vorliegt, obsolet. Das veränderte Risikoverständnis nach IFRS 17 könnte Implikationen für bestimmte versicherungstechnische Verbriefungstransaktionen haben.²⁸

Ein Versicherungsrisiko nach IFRS 17, Tz. B18 wird unterstellt, wenn der Versicherer im Bewertungszeitpunkt fürchtet, einen Verlust aus dem Versicherungsgeschäft erleiden zu können, die Höhe des Verlusts nicht vernachlässigbar gering ist und das Szenario wirtschaftliche Substanz besitzt.²⁹ Analog zu IFRS 4, Tz. B25 muss auch nach IFRS 17, Tz. B18 dafür die Entschädigungsleistung im Versicherungsfall mit der Leistung des Versicherungsunternehmens bei Nicht-Eintritt (Nichtversicherungsfall) verglichen werden.³⁰

Risiko für den Versicherer = Entschädigungsleistung im Versicherungsfall – Leistung bei Nicht-Eintritt des Versicherungsfalls

Die Gegenüberstellung hat gemäß IFRS 17, Tz. B22 und hatte gemäß IFRS 4, Tz. B25 auf Einzelvertragsebene zu erfolgen (contract by contract basis), sodass Risikokompensationseffekte innerhalb eines Versichertenkollektivs keine Auswirkungen auf die *Wesentlichkeitsprüfung* haben können.³¹ Ob das so quantifizierte Risiko des Versicherers wesentlich ist, wird vom internationalen Standardsetzer nicht mit einem quantitativen Schwellenwert belegt, um bilanzielle Gestaltungen

²⁴ Vgl. IFRS 17, Appendix A.

²⁵ Vgl. IFRS 17, Tz. IN6 (a) und B3–B7; Nguyen und Molinari (2012, S. 105).

²⁶ Vgl. Lüdenbach et al. (2017, § 39 Tz. 8–11) i. V.m. IFRS 17, Appendix A.

²⁷ Vgl. IFRS 17, Tz. BC67 (a).

²⁸ Vgl. Angermann und Hartung (2016, S. 115).

²⁹ Vgl. IFRS 17, Tz. BC67 (b) und BC78.

³⁰ Vgl. auch Lüdenbach et al. (2017, § 39, Tz. 12). Allerdings wird der Barwertperspektive unter IFRS 17, Tz. B19–B21, deutlich stärkere Aufmerksamkeit geschenkt.

³¹ Vgl. Hasenburg und Drinhausen (2005, S. 644).

zu vermeiden.³² Allerdings eröffnet der Verzicht auf eine Quantifizierung der Wesentlichkeit andere umfangreiche Gestaltungsspielräume, da mangels eines vorgegebenen Anhaltspunkts die Auslegung der Wesentlichkeit stark im Ermessen des Bilanzierenden liegt.³³ Relativierend muss indes hinzugefügt werden, dass die fehlende Vorgabe eines quantitativen Schwellenwerts zur Feststellung der Wesentlichkeit für Erstversicherungsverträge im Bereich der Schaden- und Unfallversicherung keine gravierenden Abgrenzungsschwierigkeiten erwarten lässt. So ist eine Abweichung von der bisherigen Berichterstattungspraxis hier eher unwahrscheinlich, da grundsätzlich von einem hohen Schadenpotenzial auszugehen ist, sodass die Wesentlichkeit regelmäßig gegeben sein dürfte. Illustrativ sei auf Privathaftpflichtversicherungsverträge verwiesen, die regelmäßig zahlreiche Schadenereignisse abdecken, woraus immense Entschädigungsleistungen für die Versicherer resultieren können.³⁴

Ferner sind überschussbeteiligte Kapitalisierungsgeschäfte nun im Anwendungsbereich von IFRS 17 verankert, vorausgesetzt, dass der Versicherer selbst die Verträge abschließt.³⁵ Folglich bezieht sich der neue Standard generell auch auf von deutschen Lebensversicherern abgeschlossene überschussberechtigte Verträge inklusive der Kapitalisierungsverträge.³⁶ Explizit vom Anwendungsbereich ausgenommen ist jedoch die Bilanzierung von Versicherungsvereinbarungen seitens der Erstversicherungsnehmer – Kunden von Versicherungsunternehmen müssen also IFRS 17 regelmäßig nicht anwenden (es sei denn, passive Rückversicherungsverträge werden in die Betrachtung miteingeschlossen).³⁷ Zudem sei darauf hingewiesen, dass IFRS 17 lediglich die eigentliche Versicherungsleistung, d.h. die Übernahme der Gefahrtragung, adressiert. Mögliche weitere Vertrags Elemente sind – falls es die spezifischen Entflechtungsvorschriften vorsehen – zu separieren und im Falle der Entflechtung gemäß den jeweils einschlägigen Rechnungslegungsstandards zu erfassen (sog. unbundling).³⁸ Exemplarisch können hier Sparkomponenten sowie eingebettete Derivate genannt werden, die nicht eng mit der Versicherungsleistung als Grundgeschäft verknüpft sind (not closely related).³⁹

3 Ansatz nach IFRS 17

Als schwebende Geschäfte sind profitable Versicherungsverträge erstmalig beim Versicherungsunternehmen bilanziell mit Beginn der Deckungsperiode zu erfassen oder, falls zeitlich vorgelagert, zu dem Zeitpunkt, zu dem die erste Prämie fällig ist.⁴⁰ Dabei ist grundsätzlich zu beachten, dass sich bei Vertragsabschluss die Ansprüche

³² Vgl. IFRS 17, Tz. BC78 i. V.m. IFRS 4, Tz. BC33.

³³ Vgl. hier und folgend Gallasch (2014, S. 60f.).

³⁴ Vgl. Surrey (2006, S. 94f.).

³⁵ Vgl. IFRS 17, Tz. 3 (c).

³⁶ Vgl. IFRS 17, Tz. 3 (c) und BC84.

³⁷ Vgl. IFRS 17, Tz. 7 (g).

³⁸ Vgl. IFRS 17, Tz. 10.

³⁹ Vgl. IFRS 17, Tz. 11; siehe auch Schweinberger und Horstkötter (2010, S. 548).

⁴⁰ Vgl. IFRS 17, Tz. 25 (a) und (b); zu schwebenden Geschäften vgl. Lüdenbach et al. (2017, § 1, Tz. 114).

und Verpflichtungen in aller Regel nicht in gleicher Höhe gegenüberstehen, wenn man von der sog. Servicemarge abstrahiert (zum Charakter und zur Funktion der Servicemarge siehe Abschn. 4.6).⁴¹ In Ausnahmefällen kann ein früherer Ansatz von Versicherungsverträgen geboten sein, wenn die Vertragsgruppe, dem der jeweilige Vertrag zugeordnet ist, insgesamt defizitär ist.⁴² Für die Prüfung, ob eine Gruppe von Verträgen im Ansatzzeitpunkt defizitär ist, wird der erwartete Barwert ihrer künftigen Auszahlungen zzgl. einem Risikozuschlag⁴³ (siehe Abschn. 4.5) ihren diskontierten künftigen Einzahlungen gegenübergestellt (onerous test). Stellt sich vor Beginn der Deckungsperiode im Zuge dieses onerous test heraus, dass die Gruppe von Verträgen insgesamt defizitär ist, muss aufwandswirksam eine (Drohverlust-)Rückstellung gebildet werden.⁴⁴

Auch nach IFRS 4 war es bisher gängige Praxis, dass Schaden- und Unfallversicherer ihre Versicherungsverträge mit Beginn des Deckungszeitraums angesetzt haben.⁴⁵ Ebenfalls werden defizitäre Versicherungsverträge sowohl nach US-GAAP als auch nach HGB imparitätisch behandelt, indem diese in Form einer zusätzlichen (Drohverlust-)Rückstellung unter Umständen schon vor Beginn der Versicherungsdeckung angesetzt werden.⁴⁶ Es ist anzunehmen, dass es durch die Neuregelung zum Ansatz in IFRS 17, Tz. 25 regelmäßig zu keiner vorzeitigen Aufwandserfassung kommen wird. In Bezug auf den Ansatzzeitpunkt wird daher die Umstellung auf IFRS 17 zumeist keinen großen Anpassungsbedarf verursachen, bspw. mit Blick auf die bislang implementierte Systemlandschaft oder die Datenverarbeitung.⁴⁷

4 Erst- und Folgebewertung nach IFRS 17

4.1 Bewertungseinheit

Nach IFRS 17, Tz. 24 müssen „gleichartige“ Versicherungsverträge zu Bewertungseinheiten zusammengefasst werden. Bei dieser Zusammenfassung ist zu beachten, dass die (im Beitrag noch genauer zu thematisierende) vertragsbezogene Servicemarge als vierter Bewertungsbaustein (siehe Abschn. 4.6) für eine Gruppe von Versicherungsverträgen berechnet wird.⁴⁸ IFRS 17, Tz. 16 unterscheidet zwei Aggregationsstufen für Bewertungseinheiten: eine Gruppe von Versicherungsverträgen (tiefere

⁴¹ Dass die vertraglichen Ansprüche und Verpflichtungen nicht bereits bei Vertragsschluss erfasst werden, entspricht auch der gängigen Praxis (vgl. Ellenbürger et al. 2013, S. 817), nicht allerdings der in IFRS 17 verfolgten asset-liability-Konzeption (vgl. Hommel et al. 2013, S. 408).

⁴² Vgl. IFRS 17, Tz. 16 (a) und 25 (c) i. V.m. Appendix A „group of insurance contracts“.

⁴³ Der Risikozuschlag gemäß IFRS 17 ist nicht zu verwechseln mit der Risikomarge bzw. der Risikoadjustierung, welche für aufsichtsrechtliche Zwecke gemäß Solvency II erhoben wird.

⁴⁴ Vgl. Nguyen und Grosche (2011a, S. 426).

⁴⁵ Vgl. Nguyen und Grosche (2011b, S. 529).

⁴⁶ Vgl. Ellenbürger und Kölschbach (2010a, S. 1230 f.).

⁴⁷ Vgl. Nguyen und Grosche (2011b, S. 529); International Accounting Standards Board (IASB)/Financial Accounting Standards Board (FASB) (2011, Tz. 14). Siehe zum Ansatzzeitpunkt auch Gallasch (2014, S. 68).

⁴⁸ Vgl. IFRS 17, Tz. 24 i. V.m. 32 (a), 40 (a) (i) und 40 (b).

Aggregationsstufe) und ein Portfolio von Versicherungsverträgen (höhere Aggregationsstufe). Ein Vertragsportfolio setzt sich aus einzelnen Versicherungsverträgen zusammen, die ähnliche Risiken aufweisen und gemeinsam als ein Portfolio gemanagt werden (IFRS 17, Tz. 14).⁴⁹ Folglich sind Verträge, bei denen zwar von ähnlichen Risiken ausgegangen wird, die aber in verschiedenen Produktlinien abgeschlossen und damit unabhängig voneinander gemanagt werden, in unterschiedliche Portfolios einzugruppieren.⁵⁰ Der internationale Standardsetzer konkretisiert indes nicht, was genau unter „Ähnlichkeit des Risikos“ zu verstehen ist und auf welche Aggregationsstufe sich diese Anforderung bezieht. Folglich besteht hier für die Bilanzierenden Auslegungs- bzw. Ermessensspielraum. So könnte als ein Extrem eine grobe Differenzierung in Lebens- sowie Schaden- und Unfallrisikoversicherungsverträge vorgenommen werden, und als anderes Extrem könnte eine granulare Gruppierung nach den einzelnen Risikocharakteristika der Versicherungsverträge erfolgen. Diese größtenteils dem bilanzierenden Versicherungsunternehmen überlassene Abgrenzung geht zulasten einer vergleichbaren Finanzberichterstattung über Versicherungsverträge, sofern die Kriterien für die Gruppierung nur pauschal oder in anderer Hinsicht unzureichend im Anhang beschrieben werden.⁵¹ Positiv zu beurteilen ist jedoch, dass durch die Aggregation gleichartiger Verträge dem Prinzip des Versicherernteilnehmenden Rechnung getragen wird: Versicherungsmathematische Annahmen mögen zwar im Einzelfall, d. h. von der einzelnen vertraglichen Vereinbarung, abweichen, im Mittel sollten sie allerdings aufgrund von Risikoausgleichseffekten auf das zu bewertende Vertragsportfolio zutreffen.⁵² Je nach gewählter Portfolioabgrenzung können sich positive und negative Erfolgsbeiträge der in das Portfolio einbezogenen Versicherungsverträge auf diese Weise ausgleichen. Auf Ebene des einzelnen Versicherungsvertrags (standalone basis) hätten unter Umständen bereits Verluste für eine Schadenrückstellung (post-claim)⁵³ ausgewiesen werden müssen.⁵⁴

Allerdings konkretisiert der IASB dahingehend, dass Versicherungsunternehmen für Zwecke der Gruppenbildung zum Zugangszeitpunkt die Versicherungsverträge anhand ihrer erwarteten Profitabilität voneinander abgrenzen müssen. So müssen die Versicherungsverträge innerhalb eines Portfolios zum Zeitpunkt des Erstansatzes wenigstens in folgende drei Vertragsgruppen unterteilt werden:⁵⁵

- eine Gruppe von Verträgen, die defizitär sind;
- eine Gruppe von Verträgen, bei denen keine wesentliche Wahrscheinlichkeit gegeben ist, nachträglich defizitär zu werden;
- eine Gruppe von im Portfolio verbleibenden Versicherungsverträgen.

⁴⁹ Vgl. Deloitte (2017, S. 6).

⁵⁰ Vgl. IASB (Hrsg.) (2016b, Tz. 29 (a)); IFRS 17, Tz. 14.

⁵¹ Vgl. Gallasch (2014, S. 88–90).

⁵² Vgl. EFRAG (Hrsg.) (2017, Tz. 3 und 4a).

⁵³ Vgl. zu den Rückstellungsarten unter IFRS (pre-claim und claim liability) DP Preliminary Views on Insurance Contracts (2007, Tz. 21).

⁵⁴ Siehe weiterführend zum Risikoausgleich im Kollektiv Farny (2011, S. 44–50).

⁵⁵ Vgl. IFRS 17, Tz. 16f.

Bei der Abgrenzung sind hinsichtlich der Wahrscheinlichkeit, defizitär zu werden, u.a. interne Berichtswege und die Erkenntnisse aus Szenario-Analysen zu berücksichtigen.⁵⁶ Außerdem dürfen in eine Vertragsgruppe lediglich solche Versicherungsverträge aufgenommen werden, die innerhalb desselben Jahres abgeschlossen werden (Einteilung in „Ein-Jahres-Kohorten“).⁵⁷

4.2 Überblick der Bewertungskonzepte

4.2.1 Erstbewertung

Zukünftig soll gemäß IFRS 17, Tz. 32 zum „Erfüllungsbetrag“ (fulfilment value) bilanziert werden. Demnach sind versicherungstechnische Rückstellungen mit jenem Betrag anzusetzen, der für die vertragsgemäße Erfüllung sämtlicher noch ausstehender Leistungsverpflichtungen zum jeweiligen Bilanzstichtag voraussichtlich aufgebracht werden muss.⁵⁸ Im *Zeitpunkt der Erstbewertung* bestimmt sich die Höhe der versicherungstechnischen Rückstellung als Differenz aus dem risikoangepassten Barwert der Mittelabflüsse und dem der Mittelzuflüsse, ggf. korrigiert um eine Servicemarge.⁵⁹ Abb. 1 illustriert die einzelnen Bestandteile des Erfüllungsbetrags, auf die im weiteren Verlauf dieses Beitrags eingegangen wird und die in ihrer Gesamtheit auch als sog. building block approach (Baustein- oder Margenansatz) geläufig sind.⁶⁰ Gemäß IFRS 17, Tz. 32 setzt sich die Wertermittlung für versicherungstechnische Rückstellungen aus vier Bausteinen zusammen:

- Baustein 1: Erwartete, für die Vertragserfüllung erforderliche Zahlungsströme (Erfüllungs-Zahlungsströme)
- Baustein 2: Diskontierungszinssatz zur Umrechnung der erwarteten Zahlungsströme in deren Barwert
- Baustein 3: Risikozuschlag (auch: Risikomarge, risk adjustment)
- Baustein 4: Vertragsbezogene Servicemarge (contractual service margin, kurz: CSM)

Die in der Bilanz anzusetzende versicherungstechnische Rückstellung, die durch die vier Bausteine abgebildet wird, teilt sich ihrerseits wiederum in die prospektive Rückstellung für die zukünftige Deckung (liability for remaining coverage) sowie in die Rückstellung für eingetretene Schäden (liability for incurred claims).⁶¹

⁵⁶ Vgl. IFRS 17, Tz. 19 und 21.

⁵⁷ Vgl. IFRS 17, Tz. 22 und 28.

⁵⁸ Vgl. Wipf et al. (2011, S. 143); Ellenbürger und Kölschbach (2010a, S. 1230).

⁵⁹ Vgl. IFRS 17, Tz. 32; Nguyen und Molinari (2012, S. 114).

⁶⁰ Vgl. Wipf et al. (2011, S. 144).

⁶¹ Vgl. IFRS 17, Tz. 41, BC25 (a) (liability for remaining coverage), 42 sowie BC25 (b) (liability for incurred claims); Ellenbürger et al. (2013, S. 814); Deloitte (2016b, S. 2).

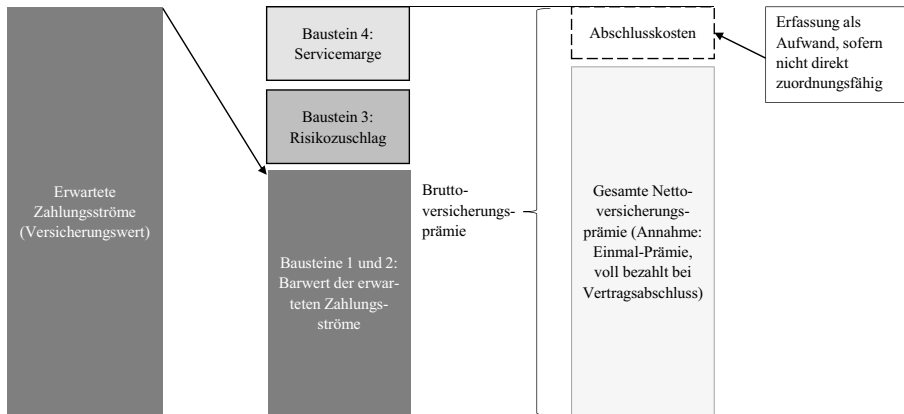


Abb. 1 Komponenten einer versicherungstechnischen Rückstellung. (In Anlehnung an Wipf et al. 2011, S. 144)

4.2.2 Folgebewertung

Der oben skizzierte Bausteinansatz ist nicht nur für die Bewertung im Zeitpunkt des Erstansatzes relevant, sondern auch in den Folgeperioden müssen versicherungstechnische Rückstellungen – komponentenweise – nach den vier Bausteinen bewertet werden. Im Rahmen der *Folgebewertung* wird eine Gruppe von Versicherungsverträgen (als Bewertungseinheit) mit dem am jeweiligen Bilanzstichtag aktuellen Erfüllungsbetrag sowie dem verbleibenden Betrag der Servicemarge bewertet.⁶² Eine Neubewertung der vertraglichen Ansprüche und Verpflichtungen aus dem Versicherungsschutzversprechen hat an jedem Bilanzstichtag – auf Basis aktueller Informationen – zu erfolgen.⁶³ In den jeweiligen Folgeperioden sind sämtliche durch die Gefahrtragung der vergangenen Geschäftsperiode verursachten Schadenzahlungen und die dazugehörigen Nebenkosten vom Versicherungsunternehmen als Aufwand zu buchen.⁶⁴ Die versicherungstechnische Rückstellung reduziert sich nach Maßgabe der Erbringung der Versicherungsleistung, was sich in der Gewinn- und Verlustrechnung in einem korrespondierenden Ertragsausweis als Umsatzerlöse niederschlägt. Entsprechend dem building block approach setzen sich die ergebniswirksam zu erfassenden Umsatzerlöse oder „verdienten Beiträge“ (earned premium; siehe Abschn. 6) aus folgenden Margen-Bestandteilen zusammen:⁶⁵

⁶² Vgl. IFRS 17, Tz. 40 i. V. m. 33–37 und B36–B92 (fulfilment cash flows) sowie 43–46 (contractual service margin).

⁶³ Vgl. IFRS 17, Tz. 33 (c).

⁶⁴ Vgl. IFRS 17, Tz. 42 (a), 84, B97 (b) und BC343f. sowie hier und folgend Hommel et al. (2013, S. 408 f.).

⁶⁵ Vgl. IFRS 17, Tz. 83 und B123–B125.

- der Entschädigung für die im Geschäftsjahr erwarteten Schadenzahlungen,⁶⁶
- der Unsicherheit für die übernommene Gefahrtragung bzw. der damit einhergehenden Zahlungsströme (Risikozuschlag)⁶⁷ sowie
- der Vergütung für die geleisteten Dienste im Zusammenhang mit der Erbringung des Versicherungsschutzes (vertragsbezogene Servicemarge).⁶⁸

Ein weiterer Bestandteil der Umsatzerlöse ist die ertragswirksame Erfassung desjenigen Prämienanteils, der die Akquisitionskosten abdeckt. So sieht IFRS 17 einen periodisierten Ansatz der direkt der jeweiligen Vertragsgruppe zuordenbaren Akquisitionskosten konstant über die Deckungsperiode vor.⁶⁹ Darüber hinaus ist zu beachten, dass allein durch Zeitablauf – und damit auch der Näherung an die Fälligkeit der Vertragszahlungen – der Barwert der vertraglichen Ansprüche und Leistungsverpflichtungen ansteigt und die Zinsmarge entsprechend abnimmt (sog. unwinding).⁷⁰ Die Umsatzerlöse werden aufgrund der Barwertbetrachtung erhöht (insurance service result) und das versicherungstechnische Finanzergebnis (insurance finance result) durch den anfallenden Zinsaufwand verringert.⁷¹

4.3 Baustein 1: Erwartete, für die Vertragserfüllung erforderliche Zahlungsströme (Erfüllungs-Zahlungsströme)

Die erwarteten, für die Vertragserfüllung erforderlichen Zahlungsströme umfassen all jene Ein- und Auszahlungen, die direkt mit der Begleichung der aus dem Versicherungsschutzversprechen resultierenden Verpflichtungen und Ansprüche einhergehen.⁷² Mit Blick auf die Einzahlungen sind hier primär alle Beiträge zu erfassen, auf die der Versicherer einen juristisch einklagbaren Rechtsanspruch hat. Hinsichtlich der Auszahlungen sind alle Gegenleistungen zu berücksichtigen, denen sich der Versicherer nicht mehr entziehen kann, insbesondere Zahlungen an die Versicherungsnehmer für eingetretene oder für in Zukunft erwartete Schäden oder dem Vertragsportfolio direkt zurechenbare Akquisitionskosten.⁷³ Ausgehend von der Betrachtungsperspektive des Versicherers finden alle – in IFRS 17, Tz. B65 abschließend aufgeführten – erwarteten Zahlungsströme, welche innerhalb der definierten Vertragsgrenzen entstehen, Eingang in die Berechnung, unabhängig von dem konkreten Zeitpunkt des Schadeneintritts oder dem Fälligkeitstermin bzw. dem Erhalt der Prämienzahlung.⁷⁴ Auch sind eingebettete Derivate (options and guarantees) zu erfassen, sofern sie nicht von der eigentlichen Versicherungsleistung

⁶⁶ Vgl. IFRS 17, Tz. 84 und B121 (a) (i).

⁶⁷ Vgl. IFRS 17, Tz. B121 (a) (ii).

⁶⁸ Vgl. IFRS 17, Tz. B121 (a) (iii).

⁶⁹ Vgl. IFRS 17, Tz. B121 (b) i. V.m. B65 (e) und B125.

⁷⁰ Vgl. IFRS 17, Tz. 87 (a) und (b) sowie B120 (a).

⁷¹ Vgl. IFRS 17, Tz. B120 (a).

⁷² Vgl. IFRS 17, Tz. B65. Vor dem ED/2010/8 wurde für lange Zeit der exit value als „fiktiver“ Verkaufswert verfolgt.

⁷³ Vgl. IFRS 17, Tz. B65.

⁷⁴ Vgl. IFRS 17, Tz. B61 i. V.m. 2; Asche (2012, S. 171).

separierbar sind.⁷⁵ Dies steht in einem deutlichen Gegensatz zur bisher üblichen Bilanzierungspraxis, da viele Versicherungsunternehmen bislang Derivate nicht in die Bewertung einbezogen haben.⁷⁶ In der Schätzung des Erfüllungsbetrags nicht berücksichtigt werden dürfen hingegen die in IFRS 17, Tz. B66 abschließend aufgelisteten Zahlungsströme, wie z. B. solche, die voraussichtlich aus künftigen, noch nicht im Bestand gehaltenen Vertragsabschlüssen anfallen werden.⁷⁷

Da es sich um einen unternehmensspezifischen Erwartungswert handelt, sind mehrere Szenarien zu modellieren, um die projizierten Cash Flows mit ihren Eintrittswahrscheinlichkeiten zu gewichten.⁷⁸ In die Erwartungswertkonzeption sind – unter Beachtung eines angemessenen Kosten-Nutzen-Verhältnisses – alle plausiblen sowie belastbaren Informationen zum Bewertungszeitpunkt miteinzubeziehen. In IFRS 17, Tz. B41 wird ausdrücklich erwähnt, dass auf unternehmensindividuelle Eingangsparameter (u. a. historische Schadenansprüche, versicherungstechnische Annahmen, relevante Merkmale der Versicherungsnehmer, aktuelle Preisinformationen) zurückgegriffen werden soll. Sofern allerdings beobachtbare Kapitalmarktdaten verfügbar sind, sind diese vorrangig als Eingangsparameter zu verwenden.⁷⁹ Zum Ende einer Berichtsperiode hat ein Versicherer seine Schätzungen im Hinblick auf die zukünftig erwarteten Zahlungen zu überprüfen und ggf. auf Basis neuer Informationen anzupassen.⁸⁰ So ändern sich z. B. die Erfüllungs-Zahlungsströme, wenn sich die Prognosen hinsichtlich Sterblichkeitsraten verändern oder die Schadeneintrittswahrscheinlichkeiten und -höhen abweichend zum Zugangszeitpunkt geschätzt werden (siehe Abschn. 5.1).

4.4 Baustein 2: Diskontierungszinssatz zur Umrechnung der erwarteten Zahlungsströme in deren Barwert

IFRS 4 kennt das Konzept des „Zeitwerts des Geldes“ nicht, d. h., der Zeitpunkt, wann Ein- und Auszahlungen angefallen sind, war bislang für viele Versicherer in bilanzieller Hinsicht irrelevant.⁸¹ So war eine Diskontierung der Erfüllungs-Zahlungsströme im Rahmen der in der Bilanzierung von Versicherungsverträgen nach IFRS 4 angewandten US-GAAP-Regelungen (als eine Möglichkeit der IFRS 4-Anwendung) bisher für manche Versicherungsprodukte nicht explizit gefordert.⁸² Davon wendet sich IFRS 17 nun ab und sieht generell eine Diskontierung der zukünftigen Zahlungsströme vor.⁸³ Zur Ableitung des Diskontierungszinssatzes sollen aktuelle am Markt beobachtbare Preise von (Finanz-)Instrumenten möglichst als Referenz dienen.⁸⁴

⁷⁵ Vgl. IFRS 17, Tz. B65 (d) i. V. m. 11 (a) und B66 (h).

⁷⁶ Vgl. IASB (2017b, S. 2).

⁷⁷ Vgl. IFRS 17, Tz. B66 (c) und 34–35.

⁷⁸ Vgl. Wipf et al. (2011, S. 143); IFRS 17, Tz. B38.

⁷⁹ Vgl. IFRS 17, Tz. B44.

⁸⁰ Vgl. IFRS 17, Tz. B54.

⁸¹ Vgl. IFRS 4, Tz. BC126; Kreeb (2010, S. 56).

⁸² Vgl. Angermann und Hartung (2016, S. 110).

⁸³ Vgl. IFRS 17, Tz. 32 (a) (ii), 33 (d) und 36.

⁸⁴ Vgl. IFRS 17, Tz. B78 (a) und (b).

Welcher Zinssatz konkret anzuwenden ist, richtet sich nach den Eigenschaften der zu diskontierenden Zahlungsströme sowie nach den Ausgestaltungsmerkmalen des spezifischen Versicherungsvertrags, wie z. B. dem zeitlichen Anfall der Zahlungsströme, der Währung oder auch der Liquidität.⁸⁵ Zudem ist das Risiko aus der Deckungsvereinbarung bei der Bestimmung des Diskontierungszinssatzes zu berücksichtigen.⁸⁶ Nicht zu antizipieren und in die Bewertung von Versicherungsverträgen einzubeziehen ist hingegen das Bonitätsrisiko des Versicherungsunternehmens,⁸⁷ da die Verpflichtung zur Gefahrtragung nicht dadurch abnimmt, dass ein Zahlungsausfall des Versicherers wahrscheinlicher wird und die Gläubiger eine höhere Verzinsung verlangen könnten.⁸⁸ Solche Einflussfaktoren des beobachtbaren Marktpreises, die nicht auf die aus den versicherungstechnischen Verpflichtungen resultierenden Zahlungsströme einwirken (wie bspw. das Kreditrisiko), sind konsequenterweise als Spread-Komponenten aus der Referenzverzinsung zu extrahieren.⁸⁹ Umgekehrt sind all jene Einflussfaktoren, die nicht in den am Markt beobachteten Renditen eingepreist sind, jedoch den Zahlungsstromcharakteristika der versicherungstechnischen Verpflichtungen zugrunde liegen, einzubeziehen.⁹⁰ Explizit erwähnt der IASB abweichende Liquiditätseigenschaften zwischen den (illiquiden) Versicherungsverträgen einerseits und den (häufig relativ fungiblen) (Finanz-)Instrumenten andererseits, auf deren am Markt beobachtbare Renditen zurückgegriffen werden soll.⁹¹

Prinzipiell sind zwei Ansätze für die Ermittlung des marktkonsistenten Diskontierungszinssatzes denkbar: Der Zinssatz kann entweder ausgehend von der Rendite eines Referenzportfolios von Vermögenswerten (Top-down-Ansatz)⁹² oder aber ausgehend von einer als risikolos erachteten Zinsstrukturkurve (Bottom-up-Ansatz)⁹³ festgelegt werden.⁹⁴ In der Praxis werden beim Bottom-up-Ansatz z. B. Swaps oder Staatsanleihen bester Bonität als „risikolose“ Ausgangsbasis herangezogen,⁹⁵ deren Zinsstrukturkurve an die Zahlungsstromcharakteristika der Versicherungsverträge angepasst wird. In Anbetracht der Tatsache, dass es vollkommen risikolose Finanzinstrumente am Markt nicht gibt, wird der Diskontierung der Zahlungsströme jedoch stets eine gewisse, wenn auch konzeptionell unerwünschte, Ausfallwahrscheinlichkeit zugrunde gelegt.⁹⁶ Beim Top-down-Ansatz werden aus einer gewählten Aktivverzinsung eines Referenzportfolios sämtliche Zinskomponenten bzw. Einflussfaktoren extrahiert, die für die Versicherungsverträge nicht relevant sind.⁹⁷ Hierbei kann

⁸⁵ Vgl. IFRS 17, Tz. 36 (b); Ellenbürger und Kölschbach (2010a, S. 1303).

⁸⁶ Vgl. Wipf et al. (2011, S. 143).

⁸⁷ Vgl. IFRS 17, Tz. B83 (b) und B85.

⁸⁸ Vgl. IFRS 17, Tz. BC197; Rockel und Sauer (2007, S. 748); Nguyen und Molinari (2012, S. 120).

⁸⁹ Vgl. IFRS 17, Tz. B78.

⁹⁰ Vgl. IFRS 17, Tz. B80.

⁹¹ Vgl. IFRS 17, Tz. B79.

⁹² Vgl. IFRS 17, Tz. B81.

⁹³ Vgl. IFRS 17, Tz. B80.

⁹⁴ Vgl. Weng (2013, S. 30).

⁹⁵ Vgl. Ellenbürger und Kölschbach (2010a, S. 1303).

⁹⁶ Vgl. Asche (2012, S. 182); GDV (2009, S. 10); Abbink und Saker (2002, S. 16).

⁹⁷ Vgl. IFRS 17, Tz. BC196 (b).

entweder auf die gegenwärtige Markttrendite der zu deckenden Kapitalanlagen, die den Zahlungsstromcharakteristika der Versicherungsverträge durch Abschläge anzugleichen ist, oder auf ein selbst zusammengestelltes Portfolio von Referenztiteln abgestellt werden.⁹⁸ Um das Ausmaß der vorzunehmenden Anpassungen zu minimieren, sollten die Referenzwerte so gewählt werden, dass sie bereits ex ante bestmöglich die Eigenschaften der zu bewertenden Versicherungsverträge repräsentieren.⁹⁹ Es ist allerdings zu beachten, dass die erwartete Rendite der zu deckenden Kapitalanlagen zumindest nicht unreflektiert zur Diskontierung verwendet werden darf, falls die erwarteten, aus den Versicherungsverträgen resultierenden Zahlungsströme nicht von den Wertveränderungen dieser zu deckenden Aktiva abhängen.¹⁰⁰ Der IASB lässt indes offen, welche Instrumente als Ausgangsbasis gewählt werden sollen bzw. welcher Ermittlungsansatz (Bottom-up- vs. Top-down-Ansatz) verwendet werden soll, um den maßgeblichen Diskontierungszinssatz zu berechnen. Zugleich räumt er ein, dass beide Ermittlungsansätze aufgrund der erforderlichen Zinsaufschläge bzw. -abschläge bzw. diesbezüglicher Schätzunwägbarkeiten rein technisch durchaus zu unterschiedlichen Ergebnissen gelangen können.¹⁰¹

Mit Blick auf die Schaden- und Unfallversicherungen begründet die nach IFRS 17, Tz. 36 bzw. IFRS 17, Tz. B72 künftig vorgesehene Diskontierungspflicht einen Paradigmenwechsel, da für diese bisher – entsprechend den US-GAAP-Vorschriften – der zurückzustellende nominale Endwert der Schadenrückstellung bilanziert worden ist.¹⁰² Um den erwarteten Erfüllungswert zu bilden, müssen die Versicherungsunternehmen die zukünftigen Zahlungsströme aus dem Versicherungsvertrag mit laufzeitkongruenten Zinssätzen diskontieren. Daher ist mit Blick auf die Erwartungswertkonzeption beinahe die komplette Zinsstrukturkurve zu verwenden, um ein Portfolio von Versicherungsverträgen zu bewerten.¹⁰³ Somit wird auch durch die Anforderung laufzeitkongruenter Zinssätze nochmals eine Komplexitätssteigerung auf die Versicherungsunternehmen zukommen.

4.5 Baustein 3: Risikozuschlag (auch: Risikomarge, risk adjustment)

Die Unsicherheit der zukünftigen Zahlungsströme spiegelt sich nach IFRS 17, Tz. 37 im Risikozuschlag wider. So ist die Schätzung der erwarteten Cash Flows unweigerlich mit Zufalls-, Änderungs- und Irrtumsrisiken verbunden.¹⁰⁴ Der Risikozuschlag wirkt als Puffer für ungünstige Entwicklungen der versicherungstechnischen Verpflichtung. Konkret ist der Versicherer dem Risiko ausgesetzt, dass die tatsächlichen Zahlungen für Versicherungsverluste die geschätzten Entschädigungen betragsmäßig

⁹⁸ Vgl. IFRS 17, Tz. B85. Ausführlicher zu den möglichen Ausgangsverzinsungen IASB (2013, Tz. B70 (a)).

⁹⁹ Vgl. Gallasch (2014, S. 146).

¹⁰⁰ Vgl. IFRS 17, Tz. BC201; Asche und Hartung (2011, S. 1194).

¹⁰¹ Vgl. IFRS 17, Tz. B84.

¹⁰² Vgl. Sanner und Oecking (2012, S. 53); Asche und Hartung (2011, S. 1189).

¹⁰³ Vgl. Engeländer und Kölschbach (2007, S. 394).

¹⁰⁴ Vgl. Asche (2012, S. 188–190).

übersteigen und zu anderen als den geplanten Zeitpunkten auftreten.¹⁰⁵ Der Risikozuschlag stellt das Versicherungsunternehmen indifferent zwischen der Erfüllung der unsicheren Vertragsverpflichtung und der Erfüllung einer sicheren Verpflichtung, die denselben Barwert der zukünftigen Auszahlungen aufweist.¹⁰⁶ Zur Quantifizierung des Risikozuschlags kann z. B. ein Value at Risk-Ansatz, die bedingte Erwartungswertmethode oder die Kapitalkostenmethode verwendet werden. Ein bestimmtes Verfahren zur Berechnung des Risikozuschlags ist dabei in IFRS 17 nicht vorgeschrieben.¹⁰⁷ Der IASB fordert lediglich, dass der Risikozuschlag eine gerechte Kompensation für die Übernahme der Unsicherheit in Bezug auf das nicht-finanzielle Risiko, welches mit dem Leistungsversprechen einhergeht, darstellen soll.¹⁰⁸ Etwaige (risikomindernde) Diversifikationseffekte können vom Versicherer in die Berechnung des Risikozuschlags einbezogen werden.¹⁰⁹ Risiken, die auf marktbezogene Inputgrößen zurückzuführen sind, dürfen jedoch nicht integriert werden.¹¹⁰ Vielmehr wird in IFRS 17 mehrfach betont, dass sich der Risikozuschlag – im Gegensatz zum Diskontierungszinssatz (2. Baustein) – auf nicht-finanzielle Risikofaktoren wie z. B. auf Änderungen in der Mortalitätsrate, der Schadeneintrittshäufigkeit oder der -höhe bezieht.¹¹¹ Das gewählte Sicherheitsintervall, auch Konfidenzniveau genannt, ist im Anhang anzugeben.¹¹²

Für Investoren sind Informationen über die individuelle Risikosituation und -einstellung eines Versicherungsunternehmens von größter Bedeutung,¹¹³ sodass der Bemessung des Risikozuschlags eine hohe Aufmerksamkeit in der Berichterstattung geschenkt werden sollte. Schließlich kommt durch den Risikozuschlag die Einschätzung des Managements über den Risikogehalt künftiger Einzahlungsüberschüsse zum Ausdruck.¹¹⁴ Im Einklang mit dem unternehmensspezifischen Erfüllungskonzept wird der Risikozuschlag auf Basis der individuellen Risikoeinschätzung des Versicherungsunternehmens zumeist auf einer relativ globalen Bewertungsebene erhoben, um Diversifikationseffekte zu berücksichtigen.¹¹⁵ Im Anschluss wird der auf einzelfallspezifischem Aggregationsniveau ermittelte Betrag für den Risikozuschlag auf die einzelnen Vertragsgruppen heruntergebrochen.¹¹⁶

In der *Folgebewertung* ist der Risikozuschlag selbst unter der – völlig unrealistischen – Annahme gleichgebliebener Zukunftseinschätzungen erfolgswirksam aufzulösen.¹¹⁷ Folglich wird ein Gewinn proportional zu der in der Deckungspe-

¹⁰⁵ Vgl. IFRS 17, Tz. BC206, BC209 (b) und 211 (c).

¹⁰⁶ Vgl. IFRS 17, Tz. B87 und BC214; Hommel et al. (2013, S. 407); Molinari und Nguyen (2009, S. 286).

¹⁰⁷ Vgl. IFRS 17, Tz. B91, BC210 (a) und BC213 (a).

¹⁰⁸ Vgl. IFRS 17, Tz. BC208 und Appendix A „risk adjustment for non-financial risk“.

¹⁰⁹ Vgl. Wipf et al. (2011, S. 143); IFRS 17, Tz. B88 (a) und BC214.

¹¹⁰ Vgl. hier und folgend IFRS 17, Tz. B86 i. V.m. B14.

¹¹¹ Vgl. IFRS 17, Tz. B90 und BC208.

¹¹² Vgl. IFRS 17, Tz. BC215.

¹¹³ Vgl. Gallasch (2014, S. 152); Heller (2009, S. 182).

¹¹⁴ Vgl. Asche (2012, S. 190 und 200).

¹¹⁵ Vgl. Schlüter und Bonin (2016, Rn. 84).

¹¹⁶ Vgl. IFRS 17, Tz. BC209 (a), BC213 (b) und BC214.

¹¹⁷ Vgl. hier und folgend Gallasch (2014, S. 154).

riode (zzgl. im ggf. anschließenden Zeitraum der Schadenabwicklung) erbrachten Leistung der Risikoübernahme realisiert.¹¹⁸ Mithin wird über den Einbezug einer expliziten Risikomarge die Erfolgsrealisierung stärker an die ökonomischen Treiber angelegt, anstatt den Effekt der Unsicherheit über die im nächsten Abschnitt noch näher zu erörternde vertragsbezogene Servicemarge abzubilden.¹¹⁹ An dieser Stelle ist nochmals hervorzuheben, dass es sich bei der Auflösung des Risikozuschlags der Rückstellung für die zukünftige Deckung um eine Komponente der Umsatzerlöse handelt.¹²⁰ Daher ist an der (planmäßigen) Veränderung des Risikozuschlags abzulesen, welchem Anteil des ursprünglichen nicht-finanziellen (oder versicherungstechnischen) Risikos das Versicherungsunternehmen nicht mehr ausgesetzt ist, was eine leistungsgerechte Erfolgsvereinnahmung gestattet. Bezüglich des Erfolgsausweises ist eine Trennung in eine finanz- und eine versicherungstechnische Komponente bei Veränderungen des Risikozuschlags nicht obligatorisch (IFRS 17, Tz. 81). So ist nach Auffassung des IASB den Unternehmen nicht zuzumuten, die Auswirkungen von Zinsänderungen auf den Risikozuschlag von versicherungstechnischen Änderungen vor dem Hintergrund der Methodenvielfalt zur Bemessung des Risikozuschlags zu isolieren.¹²¹ Unterbleibt die Trennung, ist die komplette Änderung innerhalb des versicherungstechnischen Ergebnisses abzubilden.¹²²

Dass weder im Standard selbst noch in der Basis for Conclusions eine Ermittlungsmethode für den Risikozuschlag detailliert beschrieben wird, schränkt die Vergleichbarkeit der Abschlüsse von Versicherungsunternehmen bspw. für Finanzinvestoren ein. So können zwei Versicherungsunternehmen lediglich aufgrund unterschiedlicher Ermittlungsmethoden verschiedene Ergebnisse ausweisen, obwohl die wirtschaftliche Situation dieser Unternehmen und die Unsicherheit des eingegangenen Versicherungsrisikos identisch sind. Relativierend muss jedoch erstens hinzugefügt werden, dass sich selbst im Falle der obligatorischen Verwendung eines vorgegebenen Ermittlungsmodells das Versicherungsunternehmen mangels beobachtbarer Marktdaten nicht einer Schätzung der erforderlichen Inputparameter entziehen könnte. Folglich könnten bilanzpolitische Spielräume nur durch eine einheitliche Vorgabe der notwendigen Eingangsparameter verhindert werden, was jedoch der vom IASB verfolgten grundsatzorientierten Regelungstechnik entgegenstehen würde.¹²³ Zweitens sind Versicherer zu umfangreichen Offenlegungspflichten im Anhang, wie vor allem dem Konfidenzniveau, angehalten, anhand derer die Abschlussadressaten die unternehmensspezifische Risikoeinstellung und das daran geknüpfte Bewertungsergebnis besser nachvollziehen können.¹²⁴ Insgesamt kann das Erfordernis, die mit den Versicherungsverträgen einhergehende Unsicherheit als separaten Baustein dar-

¹¹⁸ Vgl. Nguyen und Molinari (2012, S. 121).

¹¹⁹ Vgl. IFRS 17, Tz. BC211 (b).

¹²⁰ Vgl. IFRS 17, Tz. 44 (a), B124 (b) und weiterführend BC344.

¹²¹ Vgl. IASB (2016a, Tz. 5).

¹²² Vgl. IFRS 17, Tz. 81.

¹²³ Vgl. Molinari und Nguyen (2009, S. 299f.); Ellenbürger und Kölschbach (2010a, S. 1304–1307). Grundsatzorientiert meint in diesem Zusammenhang vor allem, dass es keine Einzelregelung gibt, sondern bestimmte Kriterien vorhanden sind, nach denen für den Einzelfall entschieden werden soll.

¹²⁴ Vgl. Abschn. 9 sowie IFRS 17, Tz. BC349 (f) (ii) und (g), BC354 (b).

zustellen und im Anhang über das Risiko zu berichten,¹²⁵ im Sinne der Transparenz und Nachvollziehbarkeit positiv beurteilt werden.¹²⁶

4.6 Baustein 4: Vertragsbezogene Servicemarge (contractual service margin, kurz: CSM)

Die vertragsbezogene Servicemarge neutralisiert erwartete Gewinne im Zugangszeitpunkt. Rechnerisch entspricht die Servicemarge einem Ausgleichsposten für eine sich zum Zeitpunkt des Vertragsabschlusses ergebende *positive Differenz* zwischen dem Beitragsbarwert auf der einen Seite und dem Verpflichtungsbarwert einschließlich des Risikozuschlags auf der anderen Seite.¹²⁷ Auf diese Weise verhindert die vertragsbezogene Servicemarge sog. day-one-gains. Nach dem Prinzip no gain at inception darf ein Vertragsabschluss nicht mit einem sofortigen Gewinnausweis einhergehen.¹²⁸ Ergibt sich eine negative Differenz im Sinne eines erwarteten Verlusts (sog. day-one-loss), so wird dieser direkt aufwandswirksam durch Bildung einer Drohverlustrückstellung erfasst.¹²⁹

Anschaulich ausgedrückt entspricht dieser vierte Baustein – im Falle gewinnbringender Verträge und sofern noch keine Zahlungen geleistet wurden – dem risikoadjustierten Barwert der Nettozahlungen, in dessen Höhe das Versicherungsunternehmen noch Dienstleistungen schuldet.¹³⁰ Dienstleistungen sind in diesem Kontext solche Leistungen, die die internen Rahmenbedingungen für die Gefahrtragung zur Verfügung stellen.¹³¹ Exemplarisch wurden vom IASB die Vermögensverwaltung, die Produktentwicklung und die Steuerung des Gefahrenkollektivs genannt.¹³² Vor diesem Hintergrund ist die vertragsbezogene Servicemarge von dem Risikozuschlag abzugrenzen, welcher eine umfassende Entschädigung für die Gefahrtragung konstituiert.

Vor dem Hintergrund des wirtschaftlichen Ziels der Gewinnsteigerung dürften die Prämien, die profitorientierte Versicherungsunternehmen ihren Kunden in Rechnung stellen, regelmäßig mit einem Gewinnanteil kalkuliert werden.¹³³ Dieser Überschuss der Prämien über die Kosten schlägt sich in bilanzieller Hinsicht in einer (positiven) Servicemarge nieder. Neben solchen primär gewinnpolitischen Überlegungen können die Höhe der vertragsbezogenen Servicemarge sowie ihre Erfolgsvereinbarung in der Deckungsperiode auch wettbewerbspolitisch motiviert sein. Um den eigenen Marktanteil zu vergrößern, könnten Versicherer bspw. gezielt niedrige

¹²⁵ Vgl. IFRS 17, Tz. 100 (c) (iii) und 101 (b) sowie BC211 f.

¹²⁶ Vgl. Gallasch (2014, S. 153). Zu Schätz- und Erwartungsänderungen den vergangenen und zukünftigen Versicherungsschutz betreffend siehe Abschn. 5.1.

¹²⁷ Vgl. IFRS 17, Tz. 32 i. V. m. 38.

¹²⁸ Vgl. hier und folgend Weng (2013, S. 24 f.).

¹²⁹ Vgl. Bächler (2010, S. 383); IFRS 17, Tz. BC219.

¹³⁰ Vgl. IFRS 17, Tz. 38, BC218 und BC223.

¹³¹ Vgl. hier und folgend Hommel et al. (2013, S. 408).

¹³² Vgl. ED/2013/7, Tz. BC26; ED/2010/8, Tz. BC125.

¹³³ Vgl. Bächler (2010, S. 383).

Prämien in der internen Kalkulation ansetzen.¹³⁴ Außerdem könnte unter Einbezug möglicher Cross-Selling-Effekte intern mit Verlusten kalkuliert werden.¹³⁵ So ist bspw. denkbar, dass ein Versicherungsunternehmen zukünftig gewinnbringende Vertragsabschlüsse mit dem Kunden erwartet und daher aus Gründen der Kundenbindung zunächst niedrige Versicherungsprämien vereinbart. Derartige wettbewerbspolitische Überlegungen bzw. Motive sollten zukünftig zugleich auch stets auf ihre bilanziellen Auswirkungen hin überprüft werden. Grund hierfür ist, dass die intern kalkulierte und vertraglich vereinbarte Prämie den Buchwert der vertragsbezogenen Servicemarge zum Zeitpunkt der Erstbewertung determiniert, mit dem wiederum die Erfolgsvereinnahmung in den Folgeperioden verbunden ist.¹³⁶

Gewinne aus Versicherungsverträgen sollen systematisch über den Deckungszeitraum des ausstehenden Versicherungsschutzversprechens verteilt werden,¹³⁷ wobei das Versicherungsunternehmen die Verteilung grundsätzlich für Gruppen von Versicherungsverträgen vornehmen soll.¹³⁸ Konkret bestimmt IFRS 17, dass die vertragsbezogene Servicemarge nach Fortschritt der Leistungserbringung (der Übernahme des Deckungsrisikos) erfolgswirksam für eine Gruppe von Versicherungsverträgen aufzulösen ist. Durch die Festlegung und Verteilung der Servicemarge auf Gruppenebene sei es den Versicherungsunternehmen möglich, Versicherungsverträge mit ähnlichem Abschlussdatum, gleichartigen Deckungsperioden sowie Leistungsprofilen zusammenfassen.¹³⁹ Dadurch könne die Auflösung der vertragsbezogenen Servicemarge bestmöglich den verbleibenden Leistungstransfer aus den jeweiligen Versicherungsverträgen reflektieren,¹⁴⁰ sodass eine Quersubventionierung profitabler und defizitärer Versicherungsverträge vermieden werden könne.¹⁴¹ IFRS 17, Tz. B119 präzisiert, dass der durch die Servicemarge abgegrenzte Prämienüberschuss auf Basis von sog. Deckungseinheiten (coverage units), aus denen sich die jeweilige Vertragsgruppe zusammensetzt, im Gewinn und Verlust zu verrechnen ist. Im Einzelnen sind von den Versicherern drei Schritte zu durchlaufen:¹⁴² Zunächst sind die Deckungseinheiten der Vertragsgruppe zu identifizieren. Die Deckungseinheiten der Vertragsgruppe müssen in Summe den Umfang an Deckungsschutz, der von den einzelnen Versicherungsverträgen der Vertragsgruppe gewährt wird, ergeben, wobei sowohl die Vorteile aus jedem einzelnen Leistungsversprechen als auch die erwartete Deckungsdauer jedes einzelnen Versicherungsvertrags zu berücksichtigen sind.¹⁴³ In einem zweiten Schritt wird in jeder Periode die vertragsbezogene Servicemarge auf Basis der Deckungseinheiten, die in der gegenwärtigen Periode

¹³⁴ Vgl. International Accounting Standards Board (IASB)/Financial Accounting Standards Board (FASB) (2010a, Tz. 12).

¹³⁵ Vgl. Zons (2006, S. 332); Gallasch (2014, S. 189).

¹³⁶ Vgl. Asche (2012, S. 203–208).

¹³⁷ Vgl. IFRS 17, Tz. 44 (e), Tz. B119 und B124 (c).

¹³⁸ Vgl. IFRS 17, Tz. BC119f. und B279.

¹³⁹ Vgl. IFRS 17, Tz. BC121f.

¹⁴⁰ Vgl. IFRS 17, Tz. 43, Tz. 44 (e), B279 und BC282.

¹⁴¹ Vgl. IFRS 17, Tz. BC123–B125.

¹⁴² Vgl. auch IFRS 17, Tz. BC279 (a). Siehe auch IFRS 17, Tz. BC280 für überschussberechtigte Verträge.

¹⁴³ Vgl. IFRS 17, Tz. B119 (a).

erbracht worden sind und die erwartungsgemäß in den zukünftigen Perioden erbracht werden, neu bemessen.¹⁴⁴ In einem dritten Schritt ist der Betrag, der auf die geleisteten Deckungseinheiten der aktuellen Periode entfällt, in die Gewinn- und Verlustrechnung einzustellen.¹⁴⁵ Faktisch dürfte eine Auflösung der Servicemarge pro rata temporis über die Deckungsperiode dieser Anforderung regelmäßig am ehesten gerecht werden.¹⁴⁶ Mit Ablauf des Versicherungsschutzes soll die vertragsbezogene Servicemarge eines einzelnen Versicherungsvertrags restlos in die Gewinn- und Verlustrechnung überführt worden sein.¹⁴⁷ Zusätzlich wird die Servicemarge jede Periode aufgezinst. Der resultierende Aufzinsungseffekt fließt umgehend in den Aufwand.¹⁴⁸ Im Gegensatz zur Bewertung der Cash Flows und des Risikozuschlags, auf die der aktuelle Marktzins angewendet wird, wird bei der Servicemarge der Zins des Ersterfassungszeitpunkts über die gesamte Vertragslaufzeit festgeschrieben („locked in“-Zinssatz).¹⁴⁹

Den risikoadjustierten, erwarteten Prämienüberschuss als separaten Baustein in die Berechnung der versicherungstechnischen Rückstellung einzubeziehen, ihn planmäßig nach Maßgabe der erbrachten Leistung aufzulösen und in korrespondierender Höhe als Gewinn zu vereinnahmen,¹⁵⁰ entspricht der bilanziellen Behandlung langfristiger Fertigungsaufträge gemäß IFRS 15.¹⁵¹ Auch in diesem Standard, der die Erfassung von Umsatzerlösen regelt, wird der Gewinn entsprechend des Leistungsfortschritts vereinnahmt, um entscheidungsnützliche Informationen über den Stand der Leistungserbringung zu vermitteln. Hier wie dort würde eine Gewinnrealisierung zum Zeitpunkt des Vertragsabschlusses der Realität widersprechen, da die Gewinne in unmittelbarem Zusammenhang mit den noch zu erfüllenden Leistungsverpflichtungen stehen und sie ergo erst noch über die ausstehende Deckungsperiode erwirtschaftet werden müssen.¹⁵² Die Servicemarge stößt allerdings auf Kritik. So wird bemängelt, dass die Servicemarge als „kalkulierter Gewinn“ auf der Passivseite wie eine Verbindlichkeit ausgewiesen wird. So erscheint es in konzeptioneller Hinsicht mit den Definitionsanforderungen, welche das Conceptual Framework an eine Schuld stellt, unvereinbar, einen erwarteten Gewinn als eine eigenständige Rückstellung in der Bilanz zu zeigen.¹⁵³

¹⁴⁴ Vgl. IFRS 17, Tz. B119 (b).

¹⁴⁵ Vgl. IFRS 17, Tz. B119 (c).

¹⁴⁶ Vgl. IFRS Foundation (2016, S. 12).

¹⁴⁷ Vgl. IFRS 17, Tz. BC 121 und BC123 (b).

¹⁴⁸ Vgl. IFRS 17, Tz. 44 (b).

¹⁴⁹ Vgl. IFRS 17, Tz. 36 i. V.m. B72 (b). Abweichend davon wird bei Anwendung des VFA die vertragsbezogene Servicemarge mit dem aktuellen Marktzinssatz fortgeschrieben (vgl. Deloitte 2017, S. 13).

¹⁵⁰ Vgl. Schlüter und Bonin (2016, Rn. 85).

¹⁵¹ Vgl. Gallasch (2014, S. 187).

¹⁵² Vgl. Geib (2001, S. 118); Abbink und Saker (2002, S. 13).

¹⁵³ Vgl. Gallasch (2014, S. 186–188); International Accounting Standards Board (IASB)/Financial Accounting Standards Board (FASB) (2010b), Tz. 41 (b); IASB (2011, Tz. 48 (a)). Vgl. zu den an eine Schuld gestellten Definitionsanforderungen Conceptual Framework (CF), Tz. 4.4 (b).

In den Folgeperioden müssen der *Erfüllungsbetrag* sowie der ggf. verbleibende Betrag der *Servicemarge* eines Vertragsportfolios zu jedem Bilanzstichtag *neu bewertet* werden.¹⁵⁴ Da die Schätzungen der Zahlungsströme stets zu aktualisieren sind,¹⁵⁵ müssen die *Bewertungsparameter* an jedem Bilanzstichtag neu beurteilt und an die veränderten Erwartungen und Verhältnisse angepasst werden.¹⁵⁶ Wie diese Schätzabweichungen und Erwartungsänderungen bilanziell behandelt werden, wird im Folgenden adressiert.

5 Bilanzielle Behandlung von Schätz- und Parameteränderungen

5.1 Änderungen nicht-finanzieller Schätzparameter

Nicht-finanzielle Schätzparameter beziehen sich auf technische Annahmen, d. h. solche, die im Zusammenhang mit der zukünftigen Leistungserbringung (Gewährung zukünftigen Versicherungsschutzes) stehen. Dies können bspw. Sterblichkeits-, Kündigungs- oder Stornoquoten sein. Das nicht-finanzielle Risiko, welches daraus erwächst, dass die aus einem Versicherungsvertrag erwarteten Zahlungsströme (Baustein 1) in anderer Höhe oder zu anderen Zeitpunkten eintreten, wird über den Risikozuschlag (Baustein 3) abgedeckt.¹⁵⁷ Bei einem solchen außerplanmäßigen Verlauf der aus einem Versicherungsvertrag erwarteten Zahlungsströme (Baustein 1) werden durch die Servicemarge die Schätzdifferenzen der auf die zukünftige Gefahrtragung entfallenden Zahlungsbarwerte zunächst erfolgsneutral aufgefangen.¹⁵⁸ Zu berücksichtigen ist jedoch, dass sich der Erfolg des aktuellen Geschäftsjahres durch diese Umgliederung aufgrund des Auflösungseffekts der vertragsbezogenen Servicemarge der abgelaufenen Periode verändert.¹⁵⁹ So ist in einem ersten Schritt der Buchwert der Servicemarge um alle Auflösungseffekte bzw. Anpassungen zu verändern, bevor die Servicemarge selbst anteilig erfolgswirksam aufgelöst wird. Dieser Auflösungsmechanismus der Servicemarge stellt sicher, dass die Erfolgsbeiträge aus der Leistungserbringung – inklusive aller („up-to-date“-)Schätzänderungen – der abgelaufenen Periode bereits im Gesamtergebnis des aktuellen Geschäftsjahres enthalten sind.¹⁶⁰ Die Schätzänderungen werden dementsprechend jeweils anteilig sowohl auf die aktuelle Periode als auch auf die noch verbleibende Vertragsdauer verteilt, indem das Auflösungsmuster der Servicemarge entsprechend angepasst wird.¹⁶¹ Da die Servicemarge den zukünftigen kalkulierten Gewinn des Versicherers darstellt, der in Abhängigkeit der Erfüllung der vertraglichen Verpflichtungen über die ausstehende Deckungsdauer gewinnwirksam wird, werden Erfolge nach

¹⁵⁴ Vgl. IFRS 17, Tz. 40.

¹⁵⁵ Vgl. Weng (2013, S. 25).

¹⁵⁶ Vgl. IFRS 17, Tz. BC223.

¹⁵⁷ Vgl. IFRS 17, Tz. B86 i. V. m. B14 sowie B88.

¹⁵⁸ Vgl. IFRS 17, Tz. 44 (c) und 45 (c) sowie BC224.

¹⁵⁹ Vgl. hier und folgend IFRS 17, Tz. BC224 (e).

¹⁶⁰ Vgl. IFRS 17, Tz. B119 (b) und BC279 (b).

¹⁶¹ Vgl. Altenburger (2015, S. 6).

Maßgabe der Leistungserbringung vereinnahmt und nicht bereits dann, wenn die Annahmeänderung eintritt.¹⁶² Einschränkung gilt jedoch, dass negative Abweichungen höchstens bis zu einer Servicemarge von Null mit dieser verrechenbar sind. Der darüber hinausgehende Betrag der Schätzabweichung wird aufwandswirksam verbucht bzw. ihm wird in Form einer Rückstellung Rechnung getragen.¹⁶³ Kommt es in den Folgeperioden wieder zu einer positiveren Einschätzung des Erwartungsbarwerts der Zahlungen, ist die Umkehrung bis maximal zur Höhe des zuvor erfassten Aufwands durch Auflösung der gebildeten Rückstellung erfolgswirksam zu berücksichtigen. Darüber hinausgehende positive Schätzänderungen resultieren in einem „Wiederaufleben“ der Servicemarge und sind nicht mehr über die Gewinn- und Verlustrechnung ertragswirksam abzubilden.¹⁶⁴

Verändert sich die Einschätzung in Bezug auf Zahlungsströme für die Abdeckung historischer Schadenansprüche (incurred claims), ist die Schätzdifferenz unmittelbar ertrags- bzw. aufwandswirksam zu berücksichtigen.¹⁶⁵ Die strikte Differenzierung zwischen Parameteränderungen, die ausschließlich die vergangenen Perioden bzw. die gegenwärtige Periode betreffen, und solchen, die im Zusammenhang mit dem künftigen Deckungsschutz stehen, ist eine notwendige Bedingung, um den innerhalb der laufenden Periode verdienten Erfolg glaubwürdig darzustellen. Nur wenn prospektive Parameteränderungen in die Servicemarge aufgenommen werden, wird den Bilanzadressaten ein für Prognosezwecke aussagekräftiger und nachhaltiger Periodenerfolg vermittelt.¹⁶⁶

5.2 Änderungen finanzieller Schätzparameter

Der zentrale finanzielle Schätzparameter ist der Diskontierungszinssatz, der auf die erwarteten Zahlungsströme aus den Versicherungsverträgen angewendet wird. Für den Effekt aus Zinsänderungen auf die erwarteten Zahlungsströme, d.h. den Aufzinsungseffekt der Versicherungsverpflichtung, besteht ein Ausweismahlrecht (accounting policy choice). Unter IFRS 17 können Versicherer versicherungstechnische Finanzerträge und -aufwendungen der abgelaufenen Periode:

1. entweder in die Gewinn- und Verlustrechnung einstellen
2. oder teilweise im Gewinn und Verlust und teilweise im OCI ausweisen (Disaggregation).¹⁶⁷

¹⁶² Vgl. IASB (Hrsg.) (2014c, S. 2); IFRS 17, Tz. 43, 46 und B96.

¹⁶³ Vgl. IFRS 17, Tz. 44 (c) (i), 48 (a) und BC224 (b).

¹⁶⁴ Vgl. IFRS 17, Tz. 48–49; Deloitte (2016b, S. 7); IASB (2014a, Tz. 2, 4 und 13 (a)).

¹⁶⁵ Vgl. IFRS 17, Tz. B97 (b), BC24 (b), BC232–BC236.

¹⁶⁶ Vgl. IFRS 17, Tz. BC24, BC60 und BC224 (c); IASB (2012, Tz. 12). Zu Änderungen der Risikomarge siehe auch IASB (2014b, Tz. 10 und 16); IFRS 17, Tz. BC223 (a).

¹⁶⁷ Vgl. IFRS 17, Tz. 88 f. und B129; IASB (2014c, S. 2 f.). Abweichend werden zinsinduzierte Wertänderungen bei Versicherungsverträgen behandelt, die unter den VFA fallen: Falls der Versicherer selbst die dazugehörigen Aktiva im Bestand hält, wird der Anteil, der im Gewinn und Verlust berücksichtigt wird, in der Weise festgelegt, dass keine Bewertungsinkonsistenz mit den Finanzerträgen und -aufwendungen der Aktiva entsteht.

Tab. 1 Wahlrecht zur Erfassung von Zinseffekten gemäß IFRS 17, Tz. 88. (In Anlehnung an Ernst und Young 2015, S. 16)

Abbildung des Effekts aus Änderungen des Diskontierungzinssatzes	Vollständige Erfassung in der Gewinn- und Verlustrechnung (Alternative (1))	Erfassung aufgeteilt: Gewinn- und Verlustrechnung und OCI (Alternative (2))
Zinsaufwand (Gewinn- und Verlustrechnung)	Aktueller Diskontierungzinssatz	Historischer („locked-in“) Diskontierungzinssatz
Other Comprehensive Income	–	Differenz zwischen dem mit dem aktuellen Diskontierungzinssatz und dem mit dem historischen Diskontierungzinssatz ermittelten Zinsergebnis

Die Ausübung des Wahlrechts hat jeweils für ein Portfolio von Versicherungsverträgen zu erfolgen. Bei der Wahl für eine Bilanzierungsalternative soll der Versicherer, unter Beachtung des Stetigkeitsgebots, die in den eigenen Büchern gehaltenen Vermögenswerte sowie deren Bewertung für das jeweilige Portfolio berücksichtigen.¹⁶⁸ Im Falle der vollständig erfolgswirksamen Erfassung der Zeitwertänderungen (Alternative (1)) wird das Zinsergebnis unter Verwendung des aktuellen laufzeitkongruenten Zinssatzes erhoben. Wird die OCI-Variante (Alternative (2)) genutzt, wird die Aufzinsung der Versicherungsverpflichtung zur Feststellung des Periodenergebnisses auf Basis des historischen Diskontierungzinssatzes ermittelt und die Bewertungsdifferenz zu dem mit dem aktuellen Zinssatz berechneten Erfüllungsbewertungswert in das OCI eingestellt. Zur Bestimmung des Betrags, der im OCI ausgewiesen wird, muss also die Versicherungsverpflichtung zweimal bewertet werden, und zwar einmal mit dem aktuellen Zinssatz und einmal mit dem historischen Zinssatz. Werden die ermittelten Barwerte anschließend miteinander verglichen, ergibt sich in Höhe der Bewertungsdifferenz der OCI-Ausweis (siehe Tab. 1).¹⁶⁹

Vor dem Hintergrund, dass die Bilanzen von Versicherungsunternehmen regelmäßig von versicherungstechnischen Rückstellungen und Finanzinstrumenten dominiert werden, kommt einem abgestimmten asset-liability-management (Matching-Strategie) im Versicherungsgeschäft zukünftig eine deutlich zentralere Rolle zu.¹⁷⁰ Insbesondere bei Versicherungsverträgen mit relativ langen Deckungsperioden oder langen Schadenabwicklungszeiträumen wird der Diskontierungseffekt einen wesentlichen Anteil an den Erfüllungs-Zahlungsströmen ausmachen.¹⁷¹ Daher sollte in erster Linie im Lebensversicherungsbereich die Entscheidung, ob Zinsänderungseffekte erfolgswirksam oder erfolgsneutral berücksichtigt werden, mit den Folgebewertungsvorschriften der deckenden Vermögenswerte abgestimmt werden. Nur durch eine kongruente Bewertung von Aktiva (Kapitalanlagen) und Passiva (Versi-

¹⁶⁸ Vgl. IFRS 17, Tz. B129 i. V. m. IAS 8, Tz. 13.

¹⁶⁹ Vgl. Altenburger (2015, S. 7); IFRS 17, Tz. B72 (e) (i).

¹⁷⁰ Vgl. Nguyen und Molinari (2012, S. 119).

¹⁷¹ Vgl. Gallasch (2014, S. 227).

cherungsverpflichtungen) kann eine Bewertungsinkonsistenz (accounting mismatch) und somit eine durch Zinsänderungseffekte ausgelöste, nicht sachgerechte Ergebnisvolatilität vermieden werden.¹⁷² Dies ist insofern zu begrüßen, als eine marktzinsbedingte Ergebnisvolatilität nicht zu dem langfristigen und stabilen Geschäftsmodell von Versicherungsunternehmen passt.¹⁷³ Auch wenn eine solche Matching-Strategie aus konzeptioneller Sicht anzustreben ist, führt sie nichtsdestotrotz für Versicherungsunternehmen zu zusätzlicher Komplexität. Der Grund für den erwarteten Komplexitätsanstieg liegt darin, dass einem Portfolio von Versicherungsverträgen die zu deckenden Kapitalanlagen zumindest gedanklich zugeordnet werden müssen, um ein Matching sicherzustellen.¹⁷⁴

6 Ausweis in der Gewinn- und Verlustrechnung

Mit IFRS 17 verankert der IASB mittels dem sog. „earned-premium-approach“ eine neue Ausweislogik. Nach dieser werden die vertragsgemäß übernommenen Schadenzahlungen und Schadennebenkosten des abgelaufenen Geschäftsjahres als Aufwand (insurance service expense) präsentiert, und die verdienten Versicherungsprämien (earned premium) werden als Ertrag ausgewiesen.¹⁷⁵ Die verdienten Versicherungsprämien fließen in die Gewinn- und Verlust-Position „insurance revenue“, was mit „Umsätze aus Versicherungsverträgen“ übersetzt werden kann. Diese bilden den erbrachten, im Versicherungsvertrag versprochenen Deckungsschutz und die dazugehörigen sonstigen Leistungen ab.¹⁷⁶ Die Umsätze aus Versicherungsverträgen sind gesondert nach Vertragsgruppen auszuweisen. Entsprechendes gilt für versicherungstechnische Aufwendungen, sodass z. B. die Aufwendungen infolge eingetretener Schäden separat für einzelne Gruppen der ausgegebenen Versicherungsverträge ermittelt werden müssen. Die Umsätze aus Versicherungsverträgen zusammen mit den versicherungstechnischen Aufwendungen bilden das versicherungstechnische Ergebnis (insurance service result). Die einzelnen Ertrags- und Aufwandskomponenten des versicherungstechnischen Ergebnisses – die Risiko- und Kostenbeiträge der Periode, die Veränderungen der Risikomarge, die Auflösung der Servicemarge sowie andere Auflösungen aus der Deckungsrückstellung – sind im Anhang separat auszuweisen (siehe Abschn. 9). In den Versicherungsprämien enthaltene Sparbeiträge des Versicherungsnehmers sind allerdings nicht in den „Umsatz aus Versicherungsverträgen“ zu integrieren¹⁷⁷ und werden künftig nur noch über eine Bilanzbuchung ersichtlich. Die sich bisher häufig in Gewinn- und Verlustrechnungen von Versicherungsunternehmen zu findenden Bruttoprämien (premiums) sind indes nicht mit

¹⁷² Vgl. International Accounting Standards Board (IASB)/Financial Accounting Standards Board (FASB) (2012, Tz. 8); Asche und Hartung (2011, S. 1187); Ellenbürger und Kölschbach (2010c, S. 51).

¹⁷³ Vgl. Baltzer (2013, S. 8); Ellenbürger et al. (2013, S. 816); IFRS 17, Tz. BC340.

¹⁷⁴ Vgl. Gallasch (2014, S. 232).

¹⁷⁵ Vgl. IFRS 17, Tz. 83 f. i. V. m. B120.

¹⁷⁶ Vgl. IFRS 17, Tz. 83.

¹⁷⁷ Vgl. IFRS 17, Tz. B120.

Tab. 2 Performance-Ausweis. (IFRS Foundation 2017, S. 12)

IFRS 4	IFRS 17	Zentrale Neuerungen
Bruttoprämien (premiums)	Versicherungstechnischer Umsatz (insurance revenue)	Insurance revenue beinhaltet keine Spar- und Einlagenkomponenten.
Versicherungstechnische Finanzerträge	Versicherungstechnische Aufwendungen (u. a. für Schadenauszahlungen)	Erträge und Aufwendungen werden erfasst, wenn sie vereinnahmt werden bzw. wenn sie getätigt werden.
Ansprüche für eingetretene Schäden und Aufwendungen	<i>Versicherungstechnisches Ergebnis</i>	Versicherungstechnische Finanzaufwendungen werden vom versicherungstechnischen Ergebnis separiert und entweder
Veränderung der versicherungstechnischen Verpflichtungen	Versicherungstechnische Finanzerträge	(1) vollständig im P/L oder
<i>Gewinn oder Verlust (P/L)</i>	Versicherungstechnische Finanzaufwendungen	(2) teilweise im P/L und im OCI erfasst (accounting policy choice).
–	<i>Versicherungstechnisches Finanzergebnis</i>	
	<i>Gewinn oder Verlust (P/L)</i>	
	Änderungen des Diskontierungszinssatzes, der auf die versicherungstechnische Rückstellung angewendet wird (optional)	
	<i>Gesamtergebnis</i>	

dem „Umsatz aus Versicherungsprämien“ vergleichbar.¹⁷⁸ Dass Sparbeiträge nicht in den verdienten Beiträgen berücksichtigt werden können,¹⁷⁹ wird insbesondere für kapitalbildende Lebensversicherungen Bewandnis haben.¹⁸⁰ In diesem Punkt wird ggf. Umstellungsbedarf auf die Versicherungsbranche zukommen, da bisher einige Versicherungsunternehmen Sparbeiträge als Umsatz ausgewiesen haben.¹⁸¹ Falls ein Versicherungsunternehmen durch die neue Ausweisvorschrift einen „Umsatzrückgang“ verzeichnet, empfiehlt es sich, auch die Auswirkungen auf zentrale Erfolgskennzahlen zu überprüfen. Unter IFRS 17 werden die Prämien zwar über die „Entnahme“ aus der Rückstellung für die verbleibende Deckung im Zeitablauf ertragswirksam, ein zeitlicher Zusammenhang mit der tatsächlichen Prämienzahlung besteht jedoch nicht zwingend. Als Maßstab für den Vertriebs Erfolg ist die neue Umsatzgröße offensichtlich ungeeignet. Einmalbeitragsprämien für Rentenversicherungen wären bspw. über den Rentenbezugszeitraum zu verteilen.¹⁸² Tab. 2 stellt die zentralen Änderungen bezüglich des Erfolgsausweises überblicksartig gegenüber.

¹⁷⁸ Vgl. Hommel et al. (2013, S. 408).

¹⁷⁹ Vgl. IFRS 17, Tz. B120 (b) und B123 (a) (ii).

¹⁸⁰ Vgl. Hommel et al. (2013, S. 408); Ellenbürger et al. (2013, S. 815 f.).

¹⁸¹ Vgl. IASB (2017b, S. 3).

¹⁸² Vgl. Ellenbürger et al. (2013, S. 816).

Tab. 3 Erstbewertung. (In Anlehnung an Gallasch 2014, S. 82)

Alle Werte in GE	t = 0	t = 0 ^a	t = 1	t = 2	Summe
Akquisitionskosten	Zugangszeitpunkt	120,00	–	–	120,00
Schadenzahlungen		–	1150,00	1150,00	2300,00
Erwarteter Barwert der Auszahlungsströme		120,00	1105,77	1063,24	2289,01
Risikozuschlag		–	88,46	106,32	194,79
Prämienzahlungen		3500,00	–	–	3500,00
Erfüllungsbetrag = 1105,77 GE + 1063,24 GE + 194,79 GE + 120 GE – 3500 GE = –1016,21 GE → positive vertragsbezogene Servicemarge					
→ Das negative Vorzeichen deutet auf erwartungsgemäß gewinnbringende Versicherungsverträge hin.					
Versicherungstechnische Rückstellung unmittelbar nach Zugang = 1105,77 GE + 1063,24 GE + 194,79 GE + 1016,21 GE = 3380,00 GE					

^aKennzeichnet den Zeitpunkt direkt nach der Zugangsbewertung, zu dem die Prämienzahlungen und die Akquisitionskosten anfallen

7 Anwendungsbeispiel

Zur Illustration soll im Folgenden kurz die grundsätzliche Systematik der Erst- und Folgebewertung aufgezeigt werden.¹⁸³ Betrachtet wird eine Gruppe von Versicherungsverträgen, die eine Deckungsperiode (entspricht hier dem Abwicklungszeitraum für sämtliche Schadenzahlungen) von zwei Jahren aufweist. Zeitgleich mit dem Vertragsabschluss beginnt der Zeitraum des Versicherungsschutzes. Eine gedankliche Sekunde nach dem Bilanzansatz wird eine Einmalprämie von 3500 GE fällig und es fallen direkt den Versicherungsverträgen zurechenbare Akquisitionskosten von 120 GE an. Mit der Einmalprämie sind alle Leistungen der Versicherungsnehmer abgedeckt. Der Versicherer erwartet in jeder künftigen Deckungsperiode Schadenzahlungen von 1150 GE (nachsüssig), die ex post auch exakt wie erwartet eintreten. Der einheitliche Diskontierungszinssatz beträgt für alle Zahlungsströme konstant 4%. Es wird in Periode t = 1 mit einem Risikozuschlag von 8% des erwarteten Barwerts der Schadenzahlungen kalkuliert (t = 2: 10%).

Wie in Tab. 3 ausgewiesen, stellt sich im Zugangsbewertungszeitpunkt ein unternehmensspezifischer Erfüllungsbetrag von –1016 GE ein. Dieser Wert repräsentiert den erwarteten Gewinn und ist in Form der vertragsbezogenen Servicemarge als Bestandteil der versicherungstechnischen Rückstellung bilanziell abzugrenzen.

Unter den getroffenen Annahmen verändert sich der Buchwert der versicherungstechnischen Rückstellung unmittelbar nach Erstansatz nach Maßgabe der geleisteten Zahlungen. Während sich der Erfüllungsbetrag um die erhaltenen Einmalprämien von 3500 GE unmittelbar nach dem Erstansatz erhöht, verringert er sich um die geleisteten Akquisitionskosten in Höhe von 120 GE. Diese Akquisitionsauszahlungen werden voraussichtlich in der Zukunft nicht mehr anfallen.¹⁸⁴ Die versiche-

¹⁸³ Dieses Anwendungsbeispiel (inklusive der diesbezüglichen Erläuterungen) lehnt sich an das von Gallasch (2014, S. 81–83 und 212–219); sowie an Hommel et al. (2013, S. 406–410); und an IFRS 17, Tz. IE4–23 an. Zum Erfolgsausweis siehe IFRS 17, Tz. IE29–37.

¹⁸⁴ Vgl. IFRS 17, Tz. BC177.

Tab. 4 Folgebewertung. (In Anlehnung an Gallasch 2014, S. 212)

Alle Werte in GE	t = 0	t = 0 ^a	t = 1	t = 2	Summe
Akquisitionskosten	Zugangszeitpunkt	–	–	–	–
Schadenzahlungen		–	–	1150,00	1150,00
Erwarteter Barwert der Auszahlungsströme		–	–	1105,77	1105,77
Risikozuschlag		–	–	110,58	110,58
Prämienzahlungen		–	–	–	–
Erfüllungsbetrag = 1105,77 GE + 110,58 GE = 1216,35 GE					
Buchwert der vertragsbezogenen Servicemarge (31.12.t1) = 518,07 GE (siehe Tab. 5)					
Versicherungstechnische Rückstellung (31.12.t1) = 1216,35 GE + 518,07 GE = 1734,41 GE					

^aKennzeichnet den Zeitpunkt direkt nach der Zugangsbewertung, zu dem die Prämienzahlungen und die Akquisitionskosten anfallen

versicherungstechnische Rückstellung für die verbleibende Deckung beläuft sich somit auf 3380 GE, welche sich aus dem positiven Erfüllungsbetrag (2169 GE + 195 GE) und der vertragsbezogenen Servicemarge (1016 GE) zusammensetzt. Unmittelbar nach dem Zugangszeitpunkt ($t = 0^a$) sind noch keine Leistungen im Zusammenhang mit der Gefahrtragung erbracht, sodass den erhaltenen Prämienzahlungen abzüglich der geleisteten Akquisitionskosten in entsprechender Höhe (erfolgsneutral) eine versicherungstechnische Rückstellung gegenübergestellt wird.

Wie Tab. 4 zu entnehmen ist, wird am Bewertungsstichtag 31.12.t1 nur mit den Schadenzahlungen für die nächste Periode gerechnet. Annahmegemäß haben auch nur diese einen Einfluss auf den Erfüllungsbetrag. Der Erfüllungsbetrag in Höhe von 1216 GE umfasst den erwarteten Barwert der verbleibenden Auszahlungsströme zuzüglich der Risikomarge für $t = 2$, welche hier 10 % des Barwerts der Schadenzahlungen entspricht. Die versicherungstechnische Rückstellung zum Bewertungsstichtag stellt die Summe aus Erfüllungsbetrag (1216 GE) und dem aktuellen Wert der um eine Periode aufgelösten Servicemarge (518 GE) dar. Eine Veränderung des Erfüllungsbetrags ergibt sich dadurch, dass zum einen vertraglich vereinbarte Zahlungen in der abgelaufenen Periode geleistet wurden. In Höhe der geleisteten Schadenzahlungen inklusive des hierauf entfallenden Risikozuschlags der abgelaufenen Periode ist die Rückstellung für die verbleibende Deckung in der Bilanz aufzulösen und ein entsprechender Umsatzerlös in der Gewinn- und Verlustrechnung auszuweisen.¹⁸⁵ Dem Zinseffekt ist jeweils (unter Berücksichtigung der in IFRS 17, Tz. 81 gewährten Erleichterung)¹⁸⁶ zusätzlich Rechnung zu tragen, und dieser ist innerhalb des versicherungstechnischen Finanzergebnisses auszuweisen.¹⁸⁷

Um den aktuellen Wert der Servicemarge zu ermitteln, ist unter Anwendung des Annuitätenfaktors zuvor der verdiente Prämienanteil der gegenwärtigen Periode zu erheben. Dieser verdiente Prämienanteil stellt die Umsatzerlöse in der Gewinn- und Verlustrechnung dar. Zusätzlich ist die Servicemarge um den Zinsaufwand aus der Aufzinsung zu reduzieren. Diese Zinsaufwandskomponente wird ausweistechisch

¹⁸⁵ Vgl. auch Kreeb (2010, S. 135–140); IFRS 17, Tz. B124 (a) und (b).

¹⁸⁶ Siehe Abschn. 4.5.

¹⁸⁷ Vgl. IFRS 17, Tz. 87.

Tab. 5 Entwicklung der vertragsbezogenen Servicemarge über die Deckungsperiode. (In Anlehnung an Gallasch 2014, S. 213)

Alle Werte in GE	Perioden-anfangs-wert	Bildung der Service-marge	Verdienter Prämienanteil (Zinseffekt)	Verdienter Prämien-anteil (Service-marge)	Netto-erfolgs-wirkung	Perioden-endwert
–	(1)	(2)	(3) = (1) × 0,04	(4)	(5) = (4) – (3)	(6) = (1) – (5)
31.12.t0	–	1016,21	–	–	–	1016,21 ^a
31.12.t1	1016,21	–	40,65	538,79 ^b	498,14	518,07
31.12.t2	518,07	–	20,72	538,79 ^b	518,07	0,00

^aEntspricht dem Betrag der Servicemarge zum Zugangszeitpunkt

^bVerdienter Prämienanteil = $1016,21 \text{ GE} / [(((1 + 0,04)^2) - 1) / (((1 + 0,04)^2) \times 0,04)] = 538,79 \text{ GE}$ (Annuität entspricht „anfängliche Servicemarge dividiert durch Rentenbarwertfaktor“)

in das versicherungstechnische Finanzergebnis eingestellt. Die Entwicklung der vertragsbezogenen Servicemarge über die Deckungsperiode und die damit verbundenen Erfolgswirkungen sind Tab. 5 zu entnehmen.¹⁸⁸

Am Bewertungsstichtag 31.12.t2 – entspricht dem Ende der Deckungsperiode und hier auch dem Ende des Zeitraums der Schadenabwicklung – sind jegliche Leistungsverpflichtungen aus den Versicherungsverträgen erfüllt und alle eingetretenen Schäden vollständig reguliert. Im Zusammenhang mit den Versicherungsverträgen sind folglich keine Zahlungsströme mehr zu erwarten. Die vertragsbezogene Servicemarge ist gänzlich aufgelöst und die versicherungstechnische Rückstellung sowie der Erfüllungsbetrag belaufen sich zum 31.12.t2 auf null.

8 Vereinfachter Ansatz für kurzlaufende Verträge (premium allocation approach)

Die vereinfachte Bewertungsmethodik, der premium allocation approach, wird in erster Linie im Bereich der Schadenversicherung anzuwenden sein. Der premium allocation approach ersetzt die (komplexe) Bewertung nach dem Bausteine-Prinzip durch mit deutschem Handelsrecht vergleichbare Beitragsüberträge, um die Rückstellung für die verbleibende Deckung zu ermitteln.¹⁸⁹ Voraussetzung für die Zulässigkeit der Bewertungsvereinfachung ist, dass die Beitragsüberträge eine hinreichende Approximation für die vier Bausteine darstellen *oder* dass die Versicherungslaufzeit maximal zwölf Monate beträgt.¹⁹⁰

¹⁸⁸ Ferner ist zu berücksichtigen, dass die Akquisitionskosten analog zur Servicemarge linear über die Deckungsperiode aufwandswirksam zu allokieren und aufzuzinsen sind (vgl. IFRS 17, Tz. B125). In korrespondierender Höhe sind Prämien als Umsatzerlöse zu vereinnahmen, wodurch die verbuchten Akquisitionsaufwendungen neutralisiert werden. Zur Berechnungssystematik im Einzelnen siehe Gallasch (2014, S. 215).

¹⁸⁹ Vgl. Ellenbürger und Kölschbach (2010b, S. 1145).

¹⁹⁰ Vgl. IFRS 17, Tz. 53.

Bei erstmaliger Bewertung bemisst sich die Rückstellung für die verbleibende Deckung als anfängliche Prämien abzüglich anfänglicher Akquisitionskosten, sofern diese nicht sofort aufwandswirksam werden.¹⁹¹ In den Folgeperioden werden die erhaltenen Prämien der Rückstellung für die verbleibende Deckung zugeführt und der auf die laufende Periode entfallende Prämienanteil ertragswirksam entnommen.¹⁹² Liegen Hinweise vor, dass die nach dem Bausteinansatz berechneten Erfüllungs-Zahlungsströme den Beitragsübertrag übertreffen, so ist in Höhe der Differenz eine zusätzliche Rückstellung für die verbleibende Deckung anzusetzen und das Periodenergebnis in äquivalenter Höhe zu belasten. Die Bilanzierung dieser (Drohverlust-)Rückstellung richtet sich nach den üblichen Bewertungs- und Ausweisvorschriften.¹⁹³ Für bestimmte Vertragsgestaltungen werden vom Standardsetzer weitere Erleichterungen zugestanden: Zum einen darf die periodisierte Berücksichtigung der Akquisitionskosten bei kurzfristigen Versicherungsverträgen, d. h. bei solchen mit einer Versicherungsdauer von höchstens zwölf Monaten, unterbleiben und diese können direkt aufwandswirksam verrechnet werden.¹⁹⁴ Zum anderen kann auf eine Aufzinsung der Beitragsüberträge und entsprechend auf eine Diskontierung der Erfüllungs-Zahlungsströme verzichtet werden, wenn Beitragszahlung und Deckung zeitlich nah beieinander liegen (innerhalb der Zwölf-Monats-Grenze). In diesem Falle mangelt es an einer wesentlichen Finanzierungskomponente.¹⁹⁵

Allerdings ist fraglich, ob die mit der Verwendung des vereinfachten Ansatzes verbundene Kostenentlastung den Verlust an entscheidungsnützlichen Informationen rechtfertigt. So darf bei Anwendung des premium allocation approach auf Angaben die einzelnen Bewertungsbausteine betreffend (Barwert der erwarteten Zahlungsströme, Risiko- und Servicemarge) verzichtet werden.¹⁹⁶ Dabei kann gerade die vertragsbezogene Servicemarge, die die erwartete Profitabilität des Versicherungsgeschäfts anzeigt, als hochgradig entscheidungsnützlich für die Abschlussadressaten angesehen werden.¹⁹⁷

Künftige Standardanwender sollten vor allem im Schaden- und Unfallversicherungsgeschäft überprüfen, ob die Verträge überwiegend eine kurze Deckungsperiode aufweisen und sich entsprechend für das vereinfachte Bewertungsmodell qualifizieren. Damit könnten wesentliche Erleichterungen – auch bei den Ausweisvorschriften – erzielt werden und das Reporting und die damit verbundenen internen Abläufe entsprechend verschlankt werden.

¹⁹¹ Vgl. IFRS 17, Tz. 55 (a).

¹⁹² Vgl. IFRS 17, Tz. 55 (b).

¹⁹³ Vgl. IFRS 17, Tz. 57–58.

¹⁹⁴ Vgl. IFRS 17, Tz. 59 (a).

¹⁹⁵ Vgl. IFRS 17, Tz. 56 und 59 (b).

¹⁹⁶ Vgl. IFRS 17, Tz. 97 und 101.

¹⁹⁷ Vgl. Gallasch (2014, S. 247).

9 Angaben im Anhang

Die Vorschriften zu geforderten Anhangangaben, die sich in IFRS 17, Tz. 93–132 finden, teilen sich in drei Bereiche auf:

1. Betragsmäßige Angaben,
2. Angaben zu Schätzungen und Annahmen sowie
3. Angaben zu Risiken.

So sind mit Blick auf die betragsmäßigen Angaben (1) künftig die einzelnen Berechnungsschritte zur Herleitung der versicherungstechnischen Rückstellungen im Detail zu erläutern (IFRS 17, Tz. 93 (a)). Dazu gehört insbesondere auch eine detaillierte Überleitungsrechnung, die auf der Aggregationsstufe der einzelnen Bausteine durchzuführen ist. Konkret müssen im Anhang die Wertansätze des Barwerts der erwarteten Zahlungsströme, des Risikozuschlags sowie der vertragsbezogenen Servicemarge separat zu Periodenbeginn und -ende offengelegt werden¹⁹⁸ – inklusive der jeweiligen Auswirkungen auf die Gewinn- und Verlustrechnung.¹⁹⁹ Es ist zu erwarten, dass vor allem diese differenzierten Überleitungsrechnungen in der Praxis die Komplexität enorm steigern werden. Zum einen müssen zahlreiche Effekte in den Überleitungsrechnungen getrennt voneinander gezeigt werden, zum anderen müssen die Daten auf vergleichsweise granularer Ebene generiert und gespeichert werden.

Während aus der oben genannten Überleitungsrechnung gesondert hervorgeht, in welcher Höhe sich jeweils die geschätzten Cash Flows, der Diskontierungszinssatz sowie der Risikozuschlag im Zuge der Schätzanpassungen geändert haben, liegt im zweiten Teilbereich (2) der Fokus auf den Inputgrößen, den Annahmen sowie Bewertungstechniken und -ansätzen selbst.²⁰⁰ Einen besonderen Stellenwert nimmt die Beschreibung der Bewertungsmethoden zur Ermittlung der versicherungstechnischen Rückstellung und der Prozesse ein, die zur Festlegung der Eingangsparameter verwendet werden.²⁰¹ Ferner sind die gesamte Zinsstrukturkurve zur Ermittlung des historischen Diskontierungszinssatzes²⁰² sowie das Konfidenzintervall zur Berechnung des Risikozuschlags²⁰³ als Inputgrößen explizit anzugeben.

Allgemeine Angaben und Annahmen zu wesentlichen Risiken (darunter fallen u. a. Kredit-, Marktpreis- und Liquiditätsrisiken) und zum Risikomanagement (3) vervollständigen nach IFRS 17, Tz. 93 (c) das Bild über die wirtschaftliche Lage des Versicherungsunternehmens. In diesem Kontext ist ebenfalls darzulegen, wie die Risiken gesteuert werden (inklusive der Ziele, Prozesse und internen Richtlinien) und wie sensitiv das Ergebnis auf eine Veränderung zentraler Einflussgrößen reagiert.²⁰⁴

¹⁹⁸ Vgl. IFRS 17, Tz. 100 f. und IE17, IE20, IE22 sowie IE26 f.

¹⁹⁹ Vgl. IFRS 17, Tz. 103 und IE33, IE35 f. sowie IE39 f.

²⁰⁰ Vgl. IFRS 17, Tz. 117.

²⁰¹ Vgl. IFRS 17, Tz. 117 (a).

²⁰² Vgl. IFRS 17, Tz. 117 (c) (iii) und 120.

²⁰³ Vgl. IFRS 17, Tz. 119.

²⁰⁴ Vgl. IFRS 17, Tz. 121–132.

Damit folgt der IASB auch weiterhin dem Trend, durch eine Vielzahl von Anhangangaben die bilanzielle Berichterstattung für die Adressaten so transparent und nachvollziehbar wie möglich zu machen. Diese Vielzahl an Offenlegungspflichten steht jedoch der Zielsetzung „Sage knapp, klar, nur Wesentliches“²⁰⁵ der vom IASB geführten Disclosure Initiative diametral entgegen.²⁰⁶ Die Informationsflut wird durch IFRS 17 vielmehr eher zu- als abnehmen, denn auch unter dem zukünftigen Standard zur Bilanzierung von Versicherungsverträgen sind umfangreiche Angabepflichten im Anhang vorgesehen. Die Angabepflichten sind indes insofern positiv zu bewerten, als der Finanzinvestor ausführliche Erläuterungen hinsichtlich des unternehmensspezifisch ermittelten Barwerts der erwarteten zukünftigen Cash Flows (Bausteine 1 und 2), des Risikozuschlags (Baustein 3) sowie des erwarteten Prämienüberschusses (Baustein 4) erhält. Da der IASB auf präzise Methodenvorgaben verzichtet, sollten durch die umfänglichen Angabepflichten die Nachvollziehbarkeit und Transparenz der Finanzberichterstattung der Versicherungsbranche tendenziell steigen. Nichtsdestoweniger muss dem kritisch hinzugefügt werden, dass die Grenze zum information overload sicherlich fließend ist.

10 Abschließende Würdigung

Insgesamt ist zu erwarten, dass die Anwendung von IFRS 17 im Vergleich zu IFRS 4 zu einer realitätsgetreueren und konsistenteren Bilanzierungs- und Bewertungsmethodik führen wird, die wesentliche stochastische und versicherungsmathematische Überlegungen enthält. Die nach IFRS 4 vorgesehene Anwendung nationaler Bilanzierungs- und Bewertungsregeln kann nur als Interimslösung angesehen werden. Bisher konnten mitunter innerhalb eines Konzerns unterschiedliche Bilanzierungspraktiken zwischen den einzelnen Tochterunternehmen beobachtet werden, welche dann im Rahmen der Zusammenführung zum Konzernabschluss beseitigt werden mussten.²⁰⁷ Proklamiertes Ziel des IASB ist, dass durch die reformierten Vorgaben zur Abbildung von Versicherungsverträgen eine bessere Vergleichbarkeit sowohl zwischen verschiedenen Versicherungskonzernen als auch zwischen verschiedenen Tochterunternehmen eines Konzerns bereits auf Ebene ihrer Einzelabschlüsse sichergestellt wird.²⁰⁸ Künftig werden die Versicherer ihre abgeschlossenen Versicherungsverträge i. d. R. nach einem einheitlichen Bewertungsmodell, dem Bausteinansatz, bilanzieren müssen.²⁰⁹ Als Wertmaßstab dient ein unternehmensspezifischer Erfüllungsbetrag, der in den Folgeperioden an neue Zukunftserwartungen und veränderte Parameterausprägungen anzugleichen ist, um stets die wirtschaftliche Belastung der versicherungstechnischen Verpflichtungen realitätsnah widerzuspiegeln. Im Vergleich zu einer Cost-Bilanzierung dürften den Finanzinvestoren künftig erheblich

²⁰⁵ Heintges (2016, S. 1454).

²⁰⁶ Kritisch zur Disclosure Initiative siehe von Keitz und Gloth (2016, S. 418).

²⁰⁷ Vgl. Geib (2001, S. 113).

²⁰⁸ Vgl. IASB Foundation (2017a, S. 2).

²⁰⁹ Jedoch kann der premium allocation approach als vereinfachtes Bewertungsmodell für wenig komplexes oder kurzlaufendes Versicherungsgeschäft verwendet werden.

aktuellere Schätzungen des Versicherungsunternehmens bezüglich der Höhe und des zeitlichen Anfalls der erwarteten Ein- und Auszahlungen aus Versicherungsverträgen für Analysezwecke zur Verfügung stehen.²¹⁰ Dies dürfte detailliertere Einblicke in die Risikotragfähigkeit der Versicherungsunternehmen und das Risikoexposure ihrer abgeschlossenen Versicherungsgeschäfte erlauben.

Änderungen in den Bewertungsparametern, die die zukünftigen Cash Flows für die Leistungsverpflichtung betreffen, werden prospektiv über die vertragsbezogene Servicemarge – bis auf den Auflösungseffekt der gegenwärtigen Periode – in die Erfolgsrechnung eingestellt und nicht (en bloc) dann, wenn der Versicherer Kenntnis über die Schätzänderung erlangt.²¹¹ Durch die Fortschreibung der Servicemarge über die Dauer des Versicherungsschutzes wird die statische Rechnungslegungstheorie mit dynamischen Elementen verknüpft.²¹² Anstatt Versicherungsgeschäfte in strenger Auslegung des asset-liability-Ansatzes rein als „Absatz von Versicherungsschutz“ zu interpretieren, wird durch die Abgrenzung des noch nicht realisierten Prämienüberschusses die Risikotragung über den gesamten Vertragszeitraum als Hauptleistung eines Versicherers zunehmend betont.²¹³ Allerdings ist insgesamt das Instrumentarium der vertragsbezogenen Servicemarge zu begrüßen, da sie gewährleistet, dass bislang noch nicht verdiente (unsichere) Gewinnbestandteile erst mit dem Grad der Leistungserbringung vereinnahmt werden. Übersteigt hingegen der risikoadjustierte erwartete Barwert künftiger Auszahlungen den risikoadjustierten erwarteten Barwert künftiger Einzahlungen, so werden die drohenden Verluste unmittelbar aufwandswirksam durch eine Rückstellung antizipiert.

Insgesamt bleibt festzuhalten, dass mit IFRS 17 auf alle kapitalmarktorientierten Versicherungsunternehmen ein verbindlich anzuwendender Rechnungslegungsstandard zukommt. Damit gehen nicht nur Veränderungen wesentlicher Finanz- und Erfolgskennzahlen sowie Änderungen in der Berichterstattung einher, sondern es ändern sich auch interne Bewertungsverfahren und Abläufe.

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²¹⁰ Vgl. Weng (2013, S. 23f.).

²¹¹ Vgl. IFRS Foundation (2016, S. 1f.).

²¹² Vgl. Altenburger (2015, S. 6).

²¹³ Vgl. Zimmermann und Schweinberger (2005, S. 68).

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**B5 Schafft die Frauenquote Transparenz für Investoren? –
Geschlechterverteilung im Aufsichtsrat und auf den zwei Führungsebenen
unterhalb des Vorstands**

Study no.	9			
Title	Schafft die Frauenquote Transparenz für Investoren? – Geschlechterverteilung im Aufsichtsrat und auf den zwei Führungsebenen unterhalb des Vorstands			
Authors	Corinna Ewelt-Knauer, Ann Hofmann, Julia Schneider			
Author contribution		Ewelt-Knauer	Hofmann	Schneider
	<i>Numeric share</i>	0.1	0.4	0.5
	Conceptual development of research question	✓		✓
	Development of theory		✓	✓
	Methodology		✓	✓
	Acquisition of data		✓	✓
	Analysis/interpretation of data			✓
	Writing the manuscript	✓		✓
Publication status	Published (2018) <i>Die Wirtschaftsprüfung, 10: 649 – 656. (VHB-Jourqual 3: C)</i>			
Research approach	Empirical (descriptive) and normative (conceptual analysis) study			
Language	German			
Abstract	<i>German version:</i> Am 25.04.2015 trat das Gesetz für die gleichberechtigte Teilhabe von Frauen und Männern an Führungspositionen in der Privatwirtschaft und im öffentlichen Dienst in Kraft. Vor diesem Hintergrund skizziert der Beitrag erstens, wie häufig derzeit Frauen in die verschiedenen Ausschüsse des Aufsichtsrats eingebunden sind. Zweitens wird mit Blick auf die „gläsernen Decken“ die Beteiligung von Frauen auf der ersten und zweiten Führungsebene unterhalb des Vorstands empirisch analysiert. Dabei zeigt sich, dass Unternehmen sehr inhomogen sowie zum Teil intransparent und unvollständig über ihre konkreten Ziele und den Status Quo hinsichtlich einer stärkeren Beteiligung von Frauen berichten. Deshalb schlagen wir einen „Quotenspiegel“ vor. <i>English version:</i> On April 25, 2015, the Act for Equal Participation of Women and Men in Leadership Positions in the Private and Public Sector came into force. Against this background, the article first outlines how frequently women are currently involved in the various committees of the supervisory board. Second, with a view to the "glass ceilings," it empirically analyzes the participation of women at the first and second management levels below the board. This shows that companies report very inhomogeneously and, in some cases, non-transparently and incompletely on their concrete goals and the status quo with regard to greater participation of women. We therefore propose a "quota mirror".			

Keywords	Frauenquote · Corporate Governance · Aufsichtsrat · Vorstand · Investor.

Keywords:

Frauenquote
Corporate Governance
Aufsichtsrat
Vorstand
Investor

ANALYSE

Schafft die Frauenquote Transparenz für Investoren?

Geschlechterverteilung im Aufsichtsrat und auf den
zwei Führungsebenen unterhalb des Vorstands

Von Prof. Dr. Corinna Ewelt-Knauer, Julia Schneider, MSc., und Ann Hofmann, BSc.

Am 25.04.2015 trat das Gesetz für die gleichberechtigte Teilhabe von Frauen und Männern an Führungspositionen in der Privatwirtschaft und im öffentlichen Dienst in Kraft. Vor diesem Hintergrund skizziert der Beitrag erstens, wie häufig derzeit Frauen in die verschiedenen Ausschüsse des Aufsichtsrats eingebunden sind. Zweitens wird mit Blick auf die „gläsernen Decken“ die Beteiligung von Frauen auf der ersten und zweiten Führungsebene unterhalb des Vorstands empirisch analysiert. Dabei zeigt sich, dass Unternehmen sehr inhomogen sowie zum Teil intransparent und unvollständig über ihre konkreten Ziele und den Status Quo hinsichtlich einer stärkeren Beteiligung von Frauen berichten. Deshalb schlagen wir einen „Quotenspiegel“ vor.

1 Einleitung

In den letzten Jahren hat die Bedeutung der nichtfinanziellen Berichterstattung kontinuierlich zugenommen. So erhöht der Gesetzgeber beispielsweise mit der Umsetzung der sog. CSR-Richtlinie 2014/95/EU die Mindestberichterstattungspflichten der Unternehmen hinsichtlich ökonomischer, ökologischer und sozialer Belange. Die Offenlegung nichtfinanzieller Informationen soll Impulse für eine nachhaltige Unternehmensführung setzen und die soziale Verantwortung der Unternehmen stärken.¹ Der Fokus der nichtfinanziellen Berichterstattung liegt u. a. auf einer angemessenen Beteiligung von Frauen in Führungspositionen.² Sowohl in der Gesellschaft als auch in

der politischen Diskussion spielen die Themen „gläserne Decke“ oder „Gender Gap“ eine zentrale Rolle.³ Beides sind Phänomene, die auf eine Ungleichbehandlung von Frauen in der Arbeitswelt hindeuten.

Initiativen zur stärkeren Repräsentanz von Frauen in Führungspositionen – Notwendigkeit einer gesetzlichen Regelung

Ursprünglich handelte es sich bei der Beteiligung von Frauen in Führungsetagen um eine privatwirtschaftliche Aufgabe der Unternehmen. So hatten sich die DAX-30-Unternehmen im Jahr 2011 zu Maßnahmen bekannt, die auf eine intensivere Beteiligung von Frauen in Führungsrol-

¹ Vgl. Richtlinie 2014/95/EU, Erwägungsgrund 3; Böcking, DB 12/2017, S. M5; Fleischer, Der Aufsichtsrat 2017, S. 65; Richter/Johne/König, WPg 2017, S. 566; Interview mit Haase, WPg 2017, S. 697; IDW Positionspapier: Pflichten und Zweifelsfragen zur nichtfinanziellen Erklärung als Bestandteil der Unternehmensführung (Stand: 14.06.2017) (www.idw.de; Abruf: 11.10.2017). ² Vgl. Groszold/Brammer/Rayton, Business Ethics: A European Review 2007, S. 344. ³ Vgl. Hundertmark, SOEPpapers on Multidisciplinary Panel Data Research 2013, S. 35 (www.diw.de; Abruf: 11.10.2017); Bachmann, BB 6/2015, S. I; Teichmann/Rüb, BB 2015, S. 259; Pütz/Weckes, WSI Mitteilungen 8/2014, S. 639 (www.boeckler.de; Abruf: 11.10.2017); Stüber, BB 2015, S. 2243. Generell ist die Öffentlichkeit sensibler für nicht-monetäre Leistungsindikatoren geworden; vgl. Haase, WPg 2017, S. 697; Böcking/Althoff, Der Konzern 2017, S. 246.



len abzielten.⁴ Darüber hinaus sah der Deutsche Corporate Governance Kodex (DCGK) als eine Art quasi-freiwilliges Regelwerk der Unternehmen bereits frühzeitig vor, dass Aktiengesellschaften zumindest Ziele zur angemessenen Berücksichtigung von Frauen im Vorstand und Aufsichtsrat benennen müssen.⁵ Konkret enthielt der DCGK i. d. F. vom 26.05.2010 eine Empfehlung zur angemessenen Beteiligung und Förderung von Frauen an Führungspositionen.⁶ Für diese Empfehlung galt das Comply-or-Explain-Prinzip gemäß § 161 Satz 1 AktG. Allerdings reichte die „Vernunft der freien Wirtschaft“ in puncto Frauenquote, Selbstkontrolle und Eigenverantwortung nicht aus: Auch wenn einige Konzerne die Selbstverpflichtung ernst nahmen und dieser vollständig Folge leisteten, entsprachen andere Unternehmen nur eingeschränkt der Empfehlung des DCGK zur Vielfalt bei Gremienzusammensetzungen. Letztere blieben somit hinter der (politischen) Erwartung im Hinblick auf die stärkere Teilhabe von Frauen an Führungspositionen zurück.⁷ Mit dem Gesetz zur Gleichstellung von Frauen und Männern in Führungspositionen versuchte der Gesetzgeber, diese Problematik zu lösen.

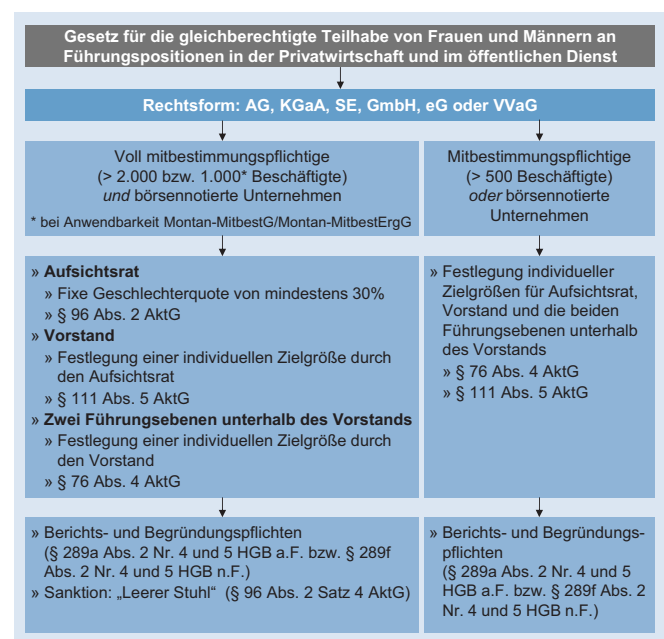
Gang der Untersuchung

Im Folgenden wird dieses Gesetz zunächst kurz dargestellt.⁸ Sodann werden Ergebnisse einer empirischen Analyse hinsichtlich der Beteiligung von Frauen in den Aufsichtsratsausschüssen von im Prime Standard gelisteten Unternehmen für die Jahre 2014 bis 2016 vergleichend erläutert,⁹ gefolgt von einer analogen Betrachtung der ersten beiden Führungsebenen unterhalb des Vorstands. Sodann schlagen wir einen sog. „Quotenspiegel“ vor, um die Berichterstattung zur Beteiligung von Frauen künftig transparenter zu gestalten.

2 Gesetzliche Grundlagen

Angesichts zunehmenden gesellschaftlichen Drucks entwickelte die Bundesregierung ein Konzept zur Stärkung der Vielfalt (Diversität) und zur Erhöhung der Frauenprä-

senz in den Führungsetagen von Unternehmen. Verankert wurde dies im „Gesetz zur gleichberechtigten Teilhabe von Frauen und Männern an Führungspositionen in der Privatwirtschaft und im öffentlichen Dienst“ vom 24.04.2015 (bekannt auch als „Gesetz zur Frauenquote“).¹⁰ Betroffen von diesem Gesetz sind Vorstände, Aufsichtsräte und die ersten beiden Führungsebenen unterhalb des Vorstands in bestimmten Unternehmen. Die konkrete Umsetzung der gesetzlichen Neuregelung ist davon abhängig, ob ein Unternehmen börsennotiert ist und inwieweit es der Mitbestimmung unterliegt¹¹ (vgl. Übersicht 1¹²).



Übersicht 1 » Gleichberechtigte Teilhabe an Führungspositionen bei Unternehmen in der Privatwirtschaft

Wer ist von der gesetzlichen Quotenregelung betroffen?

Ist ein Unternehmen sowohl börsennotiert als auch paritätisch mitbestimmt, gilt für Neuwahlen, Entsendungen und gerichtliche Bestellungen der Aufsichtsratsmitglieder seit dem 01.01.2016 eine fixe Quote von jeweils 30% für Frauen und Männer (§ 96 Abs. 2 AktG). Erfasst von dieser

⁴ Vgl. „Frauen in Führungspositionen“ – Gemeinsame Erklärung der DAX-30-Unternehmen vom 30.03.2011 (z.B. unter www.bmwgroup.com; Abruf: 11.10.2017); „Frauen in Führungspositionen“ – Status quo und Zielsetzungen der 30 DAX-Unternehmen“ (www.bmfsfj.de; Abruf: 11.10.2017); „Wirtschaft stellt Selbstverpflichtung für mehr Frauen in Führungspositionen vor“ – BMFSFJ vom 17.10.2011 (www.bmfsfj.de; Abruf: 11.10.2017); Brösel/Bull, BOARD 2012, S. 111. ⁵ Vgl. v. Werder/Bartz, DB 2015, S. 1577f. ⁶ Vgl. Ziffer 4.1.5 DCGK 2010 (Führungspositionen unterhalb des Vorstands), Ziffer 5.1.2 DCGK 2010 (Vorstand) und Ziffer 5.4.1 DCGK 2010 (Aufsichtsrat); Wollmert/Oser/Orth, DB 2011, S. 1436.

⁷ Vgl. MLP AG, Geschäftsbericht 2014, S. 102; BayWa AG, Corporate-Governance-Bericht 2014, S. 3f.; STRABAG AG, Entsprechenserklärung 2014; Phoenix Solar AG, Geschäftsbericht 2014, S. 17; Gesetzesentwurf der Bundesregierung vom 20.01.2015, BT-Drucks. 18/3784, S. 1; Teichmann/Rüh, BB 2015, S. 259. ⁸ Vgl. Kajüter, KoR 2016, S. 231. ⁹ Ausnahme: Unternehmen mit Sitz außerhalb Deutschlands sowie Banken und Versicherungen aufgrund ihres abweichenden Geschäftsmodells. ¹⁰ BGBl. I 2015, S. 642. Ein weiterer richtungsweisender Schritt zur Stärkung der Position von Frauen ist das Gesetz zur Förderung der Transparenz von Entgeltstrukturen vom 30.06.2017 (BGBl. I 2017, S. 2152), das am 06.07.2017 in Kraft getreten ist; vgl. www.bmfsfj.de (Abruf: 11.10.2017); vgl. bereits Kuhn/Schwindling, DB 2017, S. 785; Langeman/Wilking, BB 2017, S. 502. In der Tat belegen die aktuellen Zahlen des Statistischen Bundesamts für das Jahr 2016 einen unbereinigten Gender Pay Gap von 21%. So liegt der durchschnittliche Bruttostundenverdienst von Männern mit 20,71 € über dem von Frauen (16,26 €); vgl. www.destatis.de (Abruf: 11.10.2017) sowie Weibler, AuA 2017, S. 173. ¹¹ Vgl. etwa EAF/KPMG AG, Praxisleitfaden zum Quotengesetz des Bundesministeriums für Familie, Senioren, Frauen und Jugend „Zielsicher – Mehr Frauen in Führung“ vom 22.09.2015, S. 7 (www.bmfsfj.de/zielsicher; Abruf: 11.10.2017); Schiefer, DB 2015, S. 1782.

¹² In Anlehnung an BMFSFJ, Meldung von 11.12.2014 „Kabinett beschließt Gesetzentwurf zur Quote“ (www.bmfsfj.de; Abruf: 11.10.2017), und EAF/KPMG AG, a.a.O. (Fn. 11), S. 13.

Quotenregelung sind daher nur bestimmte Rechtsformen, nämlich die Aktiengesellschaft, die Kommanditgesellschaft auf Aktien und die Europäische Gesellschaft (SE). Der fixen Regelung zur Geschlechterquote unterliegen demnach große Publikumsgesellschaften mit im Regelfall mehr als 2.000 Arbeitnehmerinnen und Arbeitnehmern. Sind die Ergebnisse einer Neuwahl des Aufsichtsrats quotenwidrig, müssen die Stühle des unterrepräsentierten Geschlechts rechtlich unbesetzt bleiben („leere Stühle“; § 96 Abs. 2 Satz 4 AktG).¹³

Vorgabe von Zielgrößen zur gleichgeschlechtlichen Teilhabe an Führungspositionen

Ferner müssen Unternehmen, die entweder paritätisch mitbestimmt oder börsennotiert sind, Zielgrößen zur Steigerung des Frauenanteils im Aufsichtsrat, Vorstand und in den beiden Führungsebenen unterhalb des Vorstandes festlegen (§§ 76 Abs. 4 und 111 Abs. 5 AktG, vorbehaltlich § 111 Abs. 5 Satz 5 AktG). Von dieser gesetzlichen Verpflichtung zur Festlegung von Zielgrößen werden Aktiengesellschaften, Kommanditgesellschaften auf Aktien, Gesellschaften mit beschränkter Haftung, eingetragene Genossenschaften sowie Versicherungsvereine auf Gegenseitigkeit mit regelmäßig mehr als 500 Arbeitnehmerinnen und Arbeitnehmern erfasst. Entsprechendes gilt auch für die SE. Abweichend von der 500-Beschäftigten-Grenze unterliegen auch Aktiengesellschaften, die vor dem 10.08.1994 eingetragen worden sind und keine Familiengesellschaften sind, der Regelung zur Zielgrößenangabe unabhängig von der Beschäftigtenzahl (§ 1 Abs. 1 Nr. DrittelbG). Um die Anforderungen des Gesetzes zur Frauenquote zu erfüllen, müssen die genannten Unternehmen sowohl über die Zielgrößen als auch über deren Erreichung berichten. Zu beachten ist, dass für diese Unternehmen keine Mindestzielgrößen gelten; vielmehr können sie sich individuelle Ziele setzen. Einschränkend gilt lediglich die Regelung, dass keine Ziele gesetzt werden dürfen, die den Status Quo unterschreiten, falls dieser weniger als 30 % beträgt. Die Fristen der Zielerreichung für das Aufsichts- und Leitungsorgan sowie die beiden Führungsebenen unterhalb des Vorstands dürfen nicht länger als fünf Jahre betragen. Abweichend davon darf die Frist der ersten Quoten- bzw. Zielgrößensetzung den 30.06.2017 nicht über-

schreiten.¹⁴ Die konkreten Berichts- und Begründungspflichten für die gesetzten Ziele und deren Erreichung, die im Lagebericht auszuführen sind, finden sich in § 289 a Abs. 2 Nr. 4 und 5 HGB a.F. bzw. in § 289 f Abs. 2 Nr. 4 und 5 HGB n.F.¹⁵

Kritische Würdigung des Gesetzes zur Frauenquote

Dass der Gesetzgeber im Gesetz zur Frauenquote eine verbindliche Mindestquote nur für den Aufsichtsrat,

Mit dem Ziel, die Teilhabe von Frauen in Führungspositionen zu optimieren, wurde für Aufsichtsräte bestimmter Unternehmen eine fixe Geschlechterquote von 30% eingeführt.

nicht aber für die Unternehmensleitung und die Hierarchiestufen darunter explizit vorgeschrieben hat, ist durchaus kritisch zu sehen. So lässt sich z. B. nicht schätzen, welche Frauen in den Führungsebenen unter dem Vorstand künftig für Vorstandsaufgaben in Frage kommen könnten. Auch ist kritisch anzumerken, dass sich das Gesetz nur indirekt auf die Zusammensetzung in den einzelnen Ausschüssen des Aufsichtsrats bezieht. Für die Zusammensetzung der Ausschüsse des Aufsichtsrates gibt es bezüglich des Frauenanteils keine konkreten gesetzlichen Vorgaben. Aufgrund der Komplexität der Unternehmensumwelt sind Ausschusstätigkeiten für eine effektive Arbeit des Kontrollgremiums aber essentiell.¹⁶ Demnach erscheint es sinnvoll und wichtig, die Auswirkungen des Gesetzes auch auf die Zusammensetzung von häufig gebildeten Ausschüssen der Aufsichtsräte zu analysieren (dazu Kap. 3).

3 Frauenanteile in den Aufsichtsratsausschüssen von Unternehmen des Prime Standard

3.1 Bildung von Ausschüssen

Die bisherige empirische Forschung zum Gesetz zur Frauenquote betrachtet vor allem Vorstände und Aufsichtsräte der vier großen deutschen Aktienindizes (DAX 30, MDAX, SDAX, TecDAX),¹⁷ wobei ein besonderes

¹³ Vgl. Röhm-Kottmann/Gundel, WPg 2015, S. 1111. ¹⁴ Vgl. EAF/KPMG AG, a.a.O. (Fn. 11), S. 9. ¹⁵ Mit Umsetzung der CSR-Richtlinie 2014/95/EU (CSR-Richtlinie-Umsetzungsgesetz) wurde aus § 289 a Abs. 2 Nr. 4 und 5 HGB („a.F.“) § 289 f Abs. 2 Nr. 4 und 5 HGB („n.F.“). Materiell ändern sich allerdings die handelsrechtlichen Berichts- und Begründungspflichten innerhalb der Erklärung zur Unternehmensführung nicht. ¹⁶ Vgl. Zieseniß/van der Heide, WPg 2015, S. 1252; Lutter, DB 2009, S. 777. ¹⁷ Vgl. Stüber, Being Public 2017, S. 26f.; Frauen in die Aufsichtsräte e.V. (FidAR), Women-on-Board-Index (WoB 160), Berlin 2016 (www.fidar.de; Abruf: 11.10.2017); Holst/Kirsch, DIW Wochenbericht Nr. 4/2015, S. 47 (www.diw.de; Abruf: 11.10.2017).



Augenmerk auf der gesetzlich explizit vorgeschriebenen Quote für Aufsichtsräte liegt.¹⁸ Auch der Bericht der Bundesregierung zur Frauenquote vom August 2017 adressiert nicht die Beteiligung von Frauen in Ausschüssen.¹⁹ Allerdings ist die Zahl der Mitglieder in Aufsichtsräten von Gesellschaften, die der Mitbestimmung unterliegen, oft zu hoch, um eine effiziente Arbeit zu ermöglichen. Daher empfiehlt der DCGK dem Aufsichtsrat, Ausschüsse für spezifische Aufgaben zu bilden,²⁰ etwa um Verhandlungen und Beschlüsse des Aufsichtsrats vorzubereiten und deren Umsetzung zu überwachen.²¹ Auch der Gesetzgeber weist in § 107 Abs. 3 AktG auf die Möglichkeit hin, Ausschüsse zu bilden; dabei hebt er explizit den Prüfungsausschuss hervor. Darüber hinaus sind mitbestimmte Unternehmen gesetzlich dazu angehalten, einen Vermittlungsausschuss zu bilden (§ 27 Abs. 3 MitbestG i.V. mit § 31 Abs. 3 Satz 1 MitbestG).

In der Praxis bilden Aufsichtsräte häufig einen Vermittlungs-, Prüfungs-, Personal- und Nominierungsausschuss sowie ein Präsidium. Diese Ausschüsse werden im Folgenden hinsichtlich der Geschlechterverteilung analysiert. Die Datenerhebung basiert auf den Abschlüssen der jeweiligen Unternehmen ergänzt um Informationen auf deren Website.

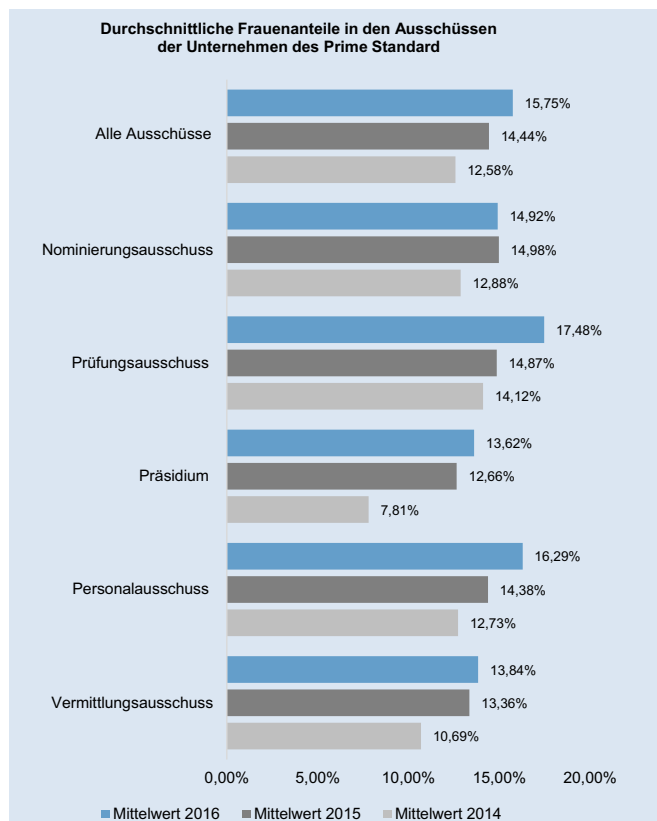
3.2 Empirische Erhebung

Die Übersichten 2 bis 6 zeigen die Entwicklung der durchschnittlichen Frauenanteile in den benannten Ausschüssen für den Prime Standard insgesamt bzw. für die einzelnen Aktienindizes (DAX 30, MDAX, TecDAX und SDAX) von 2014 bis 2016. Ausnahmslos zeigt sich für den Prime Standard über alle Ausschüsse und alle Jahre, dass weniger als jede fünfte Ausschussposition von Frauen besetzt wird (Übersicht 2). Beim Vergleich der Zahlen von DAX 30, MDAX und SDAX (2016) wird ferner deutlich, dass der durchschnittliche Frauenanteil über alle Ausschüsse mit abnehmendem Börsenindex geringer wird. So sinkt der durchschnittliche Frauenanteil über alle Ausschüsse von 18,60 % bei den DAX-30-Unternehmen auf 10,62 % bei den Unternehmen des SDAX (MDAX: 16,99 %). Die Durchschnittswerte für die einzelnen Ausschüsse zeigen ein ähnliches Bild: So liegt die Frauenquote bei den Unternehmen des SDAX in der

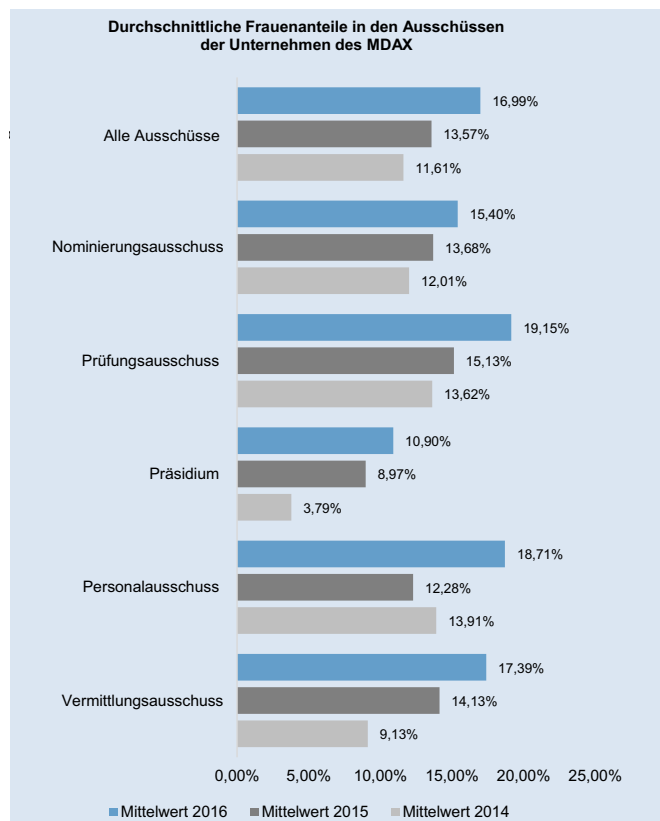
Regel unter der Quote für den DAX 30 und den MDAX (Übersichten 3 bis 5). Ferner werden Frauen bei den Unternehmen des MDAX und des SDAX deutlich geringer an der Ausschussarbeit beteiligt als bei den Unternehmen des DAX 30. Außerdem weichen die Durchschnittswerte für die Frauenanteile beim MDAX und SDAX sowohl zwischen den einzelnen Geschäftsjahren 2014 bis 2016 als auch zwischen den einzelnen Ausschüssen erheblich stärker voneinander ab als beim DAX 30. Am stärksten variiert die Frauenquote bei den Unternehmen des MDAX. Dort stieg der durchschnittliche Anteil von Frauen über alle Ausschüsse von 2014 bis 2016 mit 5,38 Prozentpunkten stärker an als bei den DAX-30-Unternehmen, liegt aber mit einem Wert von 16,99 % im Jahr 2016 weiter hinter der Frauenquote für die DAX-30-Unternehmen. Eine bemerkenswerte Sonderrolle nehmen die Unternehmen des TecDAX ein (Übersicht 6). Beispielsweise ist die höchste Beteiligung von Frauen an der Ausschussarbeit mit 23,61 % beim Personalausschuss der TecDAX-Unternehmen zu finden. Beim Vergleich von TecDAX und SDAX fällt auf, dass die TecDAX-Unternehmen in allen Ausschüssen eine höhere Frauenquote aufweisen als die Unternehmen des SDAX.

Abseits der grundsätzlich geringen Quoten sind auch positive Trends zu erkennen. So ist beim Präsidium des Aufsichtsrats eine deutliche Steigerung des Frauenanteils über alle Aktienindizes zu beobachten – mit Ausnahme des TecDAX. So kletterte die Frauenquote über alle Indizes von 7,81 % (2014) um rund 6 Prozentpunkte auf 13,62 % im Jahr 2016 (Übersicht 2). Allerdings stieg im TecDAX beim Personalausschuss der Frauenanteil um fast 10 Prozentpunkte an. Mit einem Wert von 23,61 % im Jahr 2016 (Übersicht 6) überstieg der Frauenanteil im Personalausschuss für den TecDAX auch den Durchschnitt des Personalausschusses für den Prime Standard (Übersicht 2). Eine hohe Frauenquote im Personalausschuss ist tendenziell zu begrüßen, da Grund für die Annahme besteht, dass eine intensivere Teilhabe von Frauen an unternehmerischen Personalentscheidungen unter sonst gleichen Bedingungen langfristig auch zu einer stärkeren Teilhabe von Frauen in Führungspositionen führt.

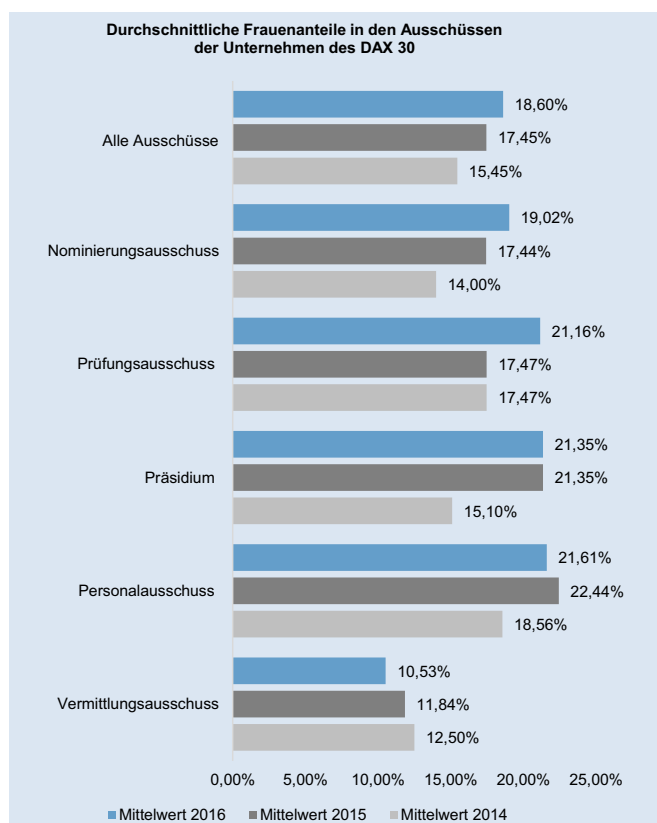
¹⁸ Auch ist die Diskussion um „Gender Diversity“ nicht auf Deutschland begrenzt. So haben viele Länder ihre Gesetzgebung angepasst, um die „Board Gender Diversity“ zu erhöhen, sodass der Frauenrepräsentanz in Aufsichtsgremien verstärkte Aufmerksamkeit gewidmet wird; vgl. Holst/Kirsch, a.a.O. (Fn. 17), S. 56; Boulouta, *Journal of Business Ethics* 2013, S. 185; Weber-Rey u.a., DB 2010, S. 41 f. ¹⁹ Vgl. Bundesregierung, Bericht über den Frauen- und Männeranteil an Führungsebenen und in Gremien der Privatwirtschaft und des öffentlichen Dienstes (www.bmfsfj.de; Abruf: 11.10.2017). ²⁰ Vgl. Ziffern 5.3.1, 5.3.2, 5.3.3 DCGK i.d.F. vom 07.02.2017. ²¹ Vgl. Zieseniß/van der Heide, WPg 2015, S. 1252 f.



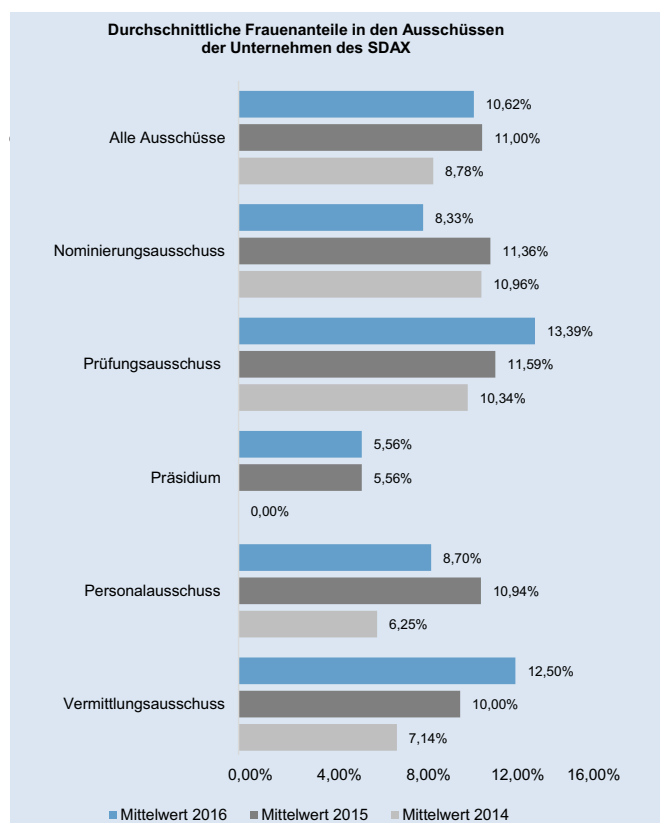
Übersicht 2 » Durchschnittliche Frauenanteile in den Ausschüssen des Prime Standard



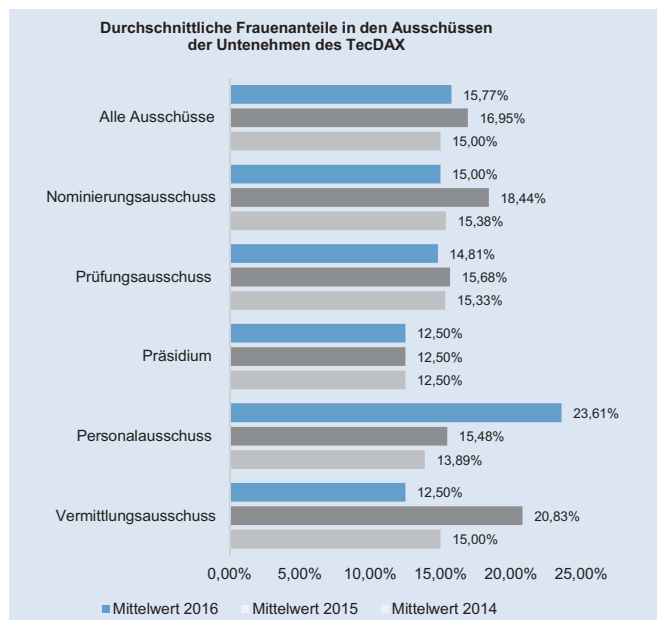
Übersicht 4 » Durchschnittliche Frauenanteile in den Ausschüssen der Unternehmen des MDAX



Übersicht 3 » Durchschnittliche Frauenanteile in den Ausschüssen der Unternehmen des DAX 30



Übersicht 5 » Durchschnittliche Frauenanteile in den Ausschüssen der Unternehmen des SDAX



Übersicht 6 » Durchschnittliche Frauenanteile in den Ausschüssen der Unternehmen des TecDAX

Zwischenergebnis

Im betrachteten Zeitraum nahm der Anteil von Frauen sowohl in Bezug auf einzelne Ausschüsse als auch beim Durchschnitt über alle Ausschüsse kontinuierlich zu, obwohl ein Anstieg um ca. 3 Prozentpunkte über alle Ausschüsse wohl hinter den politischen Erwartungen zurückbleibt.

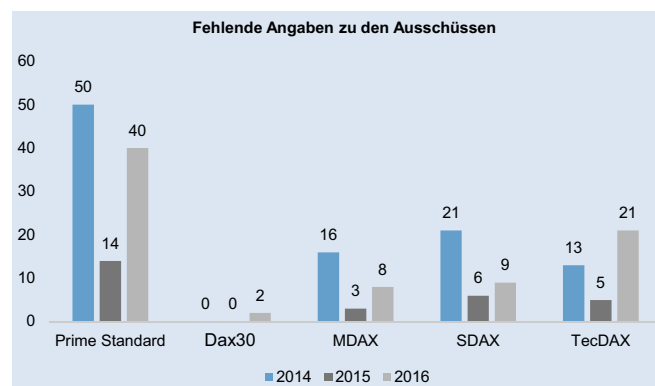
Grenzen der Untersuchung

Zum Teil war es nicht möglich, eine sichere Aussage hinsichtlich der Gremienzusammensetzung zu treffen bzw.

Die empirische Analyse lässt deutliches Optimierungspotenzial in der Berichterstattung über die gesetzten Zielgrößen erkennen.

den Frauenanteil zu ermitteln (Übersicht 7). Besonders erstaunt, dass im Jahr 2016 (verglichen mit dem Vorjahr) die Zahl der fehlenden Angaben für alle Indizes sogar noch steigt, und zwar vor allem bei den TecDAX-Unternehmen. Dort konnte die Zusammensetzung der Gremien

für das Jahr 2016 in 21 Fällen nicht eindeutig ermittelt werden (im Jahr 2015 hingegen „nur“ in fünf Fällen).



Übersicht 7 » Fehlende Angaben zu den Ausschüssen

4 Frauenanteile in den beiden Führungsebenen unterhalb des Vorstands

4.1 Hierarchieebenen

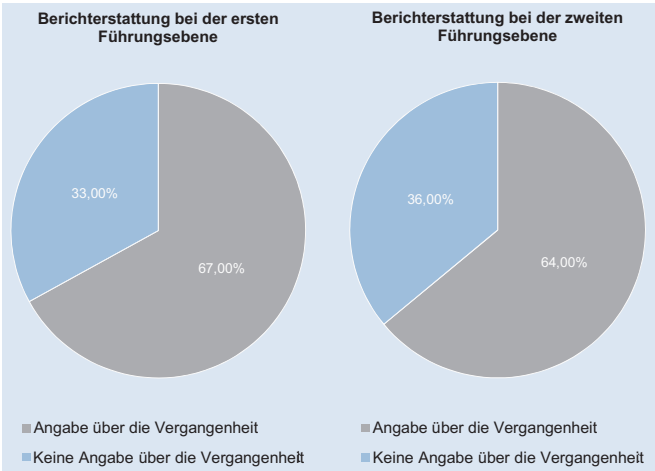
Für die beiden Führungsebenen unterhalb des Vorstands besteht lediglich die Pflicht, für einen bestimmten Zeitraum Zielgrößen für das unterrepräsentierte Geschlecht zu definieren (§ 76 Abs. 4 AktG). Dabei ist zu beachten, dass sich die Zielgrößen auf die tatsächlichen Hierarchieebenen im Unternehmen beziehen. Besteht eine der Führungsebenen in einem Unternehmen nicht, weil z. B. die Leitungshierarchie sehr flach ist, so muss bzw. kann der Zielgrößenfestlegung für eine weitere Führungsebene nicht nachgekommen werden.²² Damit kann dieses Unternehmen – in einem nächsten Schritt – auch nicht über etwaige Zielgrößen für eine zweite Führungsebene berichten. Auch fordert der Gesetzgeber keine konzernweite Betrachtung.

4.2 Empirische Erhebung

141 der 160 untersuchten Unternehmen definieren die erste Führungsebene unterhalb des Vorstands; 128 Unternehmen verfügen zudem über eine zweite Führungsebene. Im Jahr 2015 berichteten lediglich 67% (64%) der Unternehmen über ihren Frauenanteil auf der ersten (zweiten) Führungsebene (Übersicht 8); jedes dritte Unternehmen macht diese freiwillige Angabe nicht. Wird aber ausschließlich den gesetzlichen Mindestanforderungen entsprochen und lediglich die gesetzte Zielgröße kommuniziert, können die Berichtsadressaten z. B. nicht beurteilen, ob sich das Unternehmen ein eher ambitioniertes Ziel ge-

²² Vgl. Winter/Marx/de Decker, DB 2015, S. 1333; BT-Drucks. 18/3784, S. 119.

setzt hat oder ob es wenig Ehrgeiz zeigt, die Diversität auf den oberen Führungsebenen zu erhöhen.



Übersicht 8 » Berichterstattung über die Frauenanteile innerhalb der ersten beiden Führungsebenen im Jahr 2015

5 Möglichkeiten zur Verbesserung der Transparenz: „Quotenspiegel“

Die Auswertungen zeigen, dass Unternehmen in Bezug auf die Frauenquote deutlich transparenter berichten könnten. Vor diesem Hintergrund schlagen wir einen „Quotenspiegel“ – vergleichbar mit dem Anlagenspiegel für Sachanlagen – vor, aus dem hervorgeht, wie hoch der Frauenanteil in Bezug auf die Belegschaft ist und wie viele Frauen auf welcher Führungsebene bzw. in welchem Unternehmensorgan arbeiten bzw. welche Zielgrößen angestrebt werden (Übersicht 9); Vorjahreszahlen könnten ergänzt werden. Dem „Quotenspiegel“ sollte die Geschlechterverteilung in der Gesamtbelegschaft nicht nur für das betrachtete Unternehmen, sondern auch für den Konzern entnommen werden können. So dürften die jeweiligen Zielgrößen vor allem vor dem Hintergrund des aktuellen Frauenanteils in der Belegschaft bzw. in bestimmten Bereichen zu beurteilen sein – je höher dieser ist, desto hö-

her sollte die Zielgröße sein. Vor allem die absolute Zahl von Frauen in Führungspositionen könnte für einen Zeitvergleich interessant sein, nicht zuletzt weil bereits geringe personelle Veränderungen die prozentuale Zusammensetzung von Unternehmensorganen/-gremien erheblich beeinflussen können.

6 Fazit

Das Gesetz zur Frauenquote strebt – neben einer tatsächlichen geschlechterspezifischen Gleichstellung – eine transparente Berichterstattung in Bezug auf die Förderung von Frauen an. Die empirischen Auswertungen zeigen indes, dass die bislang implementierten gesetzlichen Regelungen beide Ziele nur eingeschränkt erreichen.

Im Hinblick auf die tatsächliche Frauenförderung in den Ausschüssen des Aufsichtsrats ist zu bemängeln, dass die Beteiligung von Frauen noch nicht weiter ausgebaut worden ist. „Mildernd“ ist zu berücksichtigen, dass das Gesetz zur Frauenquote erst im Jahr 2015 in Kraft getreten ist und aufgrund laufender Aufsichtsratsmandate

	Vorstand	Aufsichtsrat (auch differenziert für gebildete Ausschüsse)	Erste Führungsebene		Zweite Führungsebene		Frauenanteil in der Belegschaft	
			Ebene des Unternehmens	Konzern-ebene	Ebene des Unternehmens	Konzern-ebene	Ebene des Unternehmens	Konzern-ebene
Anteil bei Beschlussfassung (XX.XX.2017)								
Anteil am Bilanzstichtag (XX.XX.2017)								
Zielgröße* (XX.XX.2017)								
Anteil bei Beschlussfassung (XX.XX.2018)								
Anteil am Bilanzstichtag (XX.XX.2018)								
Zielgröße* (XX.XX.2018)								

* Angabe jeweils in relativen/prozentualen und absoluten Werten

Anhand eines „Quotenspiegels“ könnten Unternehmen ihre Ambitionen bezüglich einer angemessenen Integration von Frauen in Führungspositionen in transparenter Form offenlegen.

» Schafft die Frauenquote Transparenz für Investoren?

zum Teil noch keine Änderungen in der geschlechterspezifischen Zusammensetzung vorgenommen werden konnten. Auch zeigen die Ergebnisse, dass die Entwicklung des Frauenanteils sowie die absolute Zahl der Frauen in den unterschiedlichen Aktienindizes stark schwanken. Hinsichtlich der Berichterstattung über die Besetzung der Aufsichtsratsausschüsse mangelt es an einheitlichen und klaren gesetzlichen Vorgaben. So war nur bei einzelnen Unternehmen die Zusammensetzung der Ausschüsse deutlich zu erkennen. Auch Änderungen im Laufe des Geschäftsjahrs wurden nur zum Teil transparent gemacht.

Hinsichtlich der Regelungen für die ersten zwei Führungsebenen unterhalb des Vorstands zeigt sich ein ähnliches Bild. Auch hier könnten Unternehmen ein weitaus größeres Engagement zur Frauenförderung zeigen. Auch lassen die Qualität und die Quantität der Berichterstattung hier deutlich nach, was Vergleiche zwischen Unternehmensorganen oder Unternehmen nahezu unmöglich macht.

Insgesamt entsteht der Eindruck, dass Unternehmen einer stärkeren Berichterstattung über die Beteiligung von Frauen an der Arbeit in leitenden Unternehmensorganen eher abgeneigt gegenüberstehen.²³ Aus unserer Sicht zu fordern ist eine einheitliche Berichterstattung, nicht zu-

Umfängliche Bemühungen und eine transparente Darstellung der Initiativen zur Frauenförderung dürften Investoren zu schätzen wissen.

letzt, um zwischenbetriebliche oder zeitliche Vergleiche zu ermöglichen. Konkret anzustreben wäre eine tabellarische Darstellung der Quoten für das laufende Geschäftsjahr samt Zielgrößen für die einzelnen Ebenen des Unternehmens bzw. des Konzerns. Dazu wurde hier ein „Quotenspiegel“ vorgeschlagen.

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» Prof. Dr. Corinna Ewelt-Knauer
Inhaberin der Professur für Financial Accounting der Justus-Liebig-Universität Gießen



» Julia Schneider
Wissenschaftliche Mitarbeiterin an der Professur für Financial Accounting der Justus-Liebig-Universität Gießen



» Ann Hofmann
Studentische Mitarbeiterin an der Professur für Financial Accounting der Justus-Liebig-Universität Gießen

²³ Vgl. Köthner, Zeitschrift für Planung & Unternehmenssteuerung 2005, S. 421; ähnlich Heidemann/Landherr/Müller, Zfbf 2013, S. 504.

B6 Eine kritische und vergleichende Analyse der Nachhaltigkeitsberichterstattung nach den Standards der GRI und des SASB

Study no.	10			
Title	Eine kritische und vergleichende Analyse der Nachhaltigkeitsberichterstattung nach den Standards der GRI und des SASB			
Authors	Corinna Ewelt-Knauer, Julia Blaß, Julia Schneider			
Author contribution		Ewelt-Knauer	Blaß	Schneider
	<i>Numeric share</i>	<i>0.1</i>	<i>0.4</i>	<i>0.5</i>
	Conceptual development of research question	✓		✓
	Development of theory			✓
	Methodology		✓	✓
	Acquisition of data		✓	
	Analysis/interpretation of data	✓	✓	✓
	Writing the manuscript		✓	✓
Publication status	Published (2018) <i>Der Betrieb</i> , 29: 1677 – 1685. (VHB-Jourqual 3: D)			
Research approach	Normative study (critical conceptual evaluation)			
Language	German			
Abstract	<i>German version:</i> Heutzutage sind die unternehmerische Nachhaltigkeit – d.h. die Corporate Social Responsibility (CSR) – sowie die Nachhaltigkeitsberichterstattung zentrale Themen in der öffentlichen und medialen Diskussion. In dem Beitrag wird die Nachhaltigkeitsberichterstattung anhand der Vorgaben der Global Reporting Initiative (GRI) sowie des Sustainability Accounting Standards Board (SASB) untersucht und gewürdigt. Hierzu werden die Berichtsthemen und -indikatoren gem. GRI und SASB anhand der individuellen Zielsetzungen und Berichtsgrundsätze dieser Standardsetter einander gegenübergestellt und kritisch analysiert. Da in Deutschland gem. § 289d HGB Wahlfreiheit hinsichtlich der Anwendung eines bestimmten Rahmenwerks besteht, dürfte dieser kritische Vergleich insbesondere für die Berichtsersteller von Bedeutung sein. <i>English version:</i> Nowadays, corporate sustainability – i.e., Corporate Social Responsibility (CSR) – and sustainability reporting are central topics discussed in the public and in the media. In this article, sustainability reporting is examined and assessed on the basis of the requirements of the Global Reporting Initiative (GRI) and the Sustainability Accounting Standards Board (SASB). For this purpose, the reporting topics and indicators according to GRI and SASB are compared and critically analyzed on the basis of the individual objectives and reporting principles of these standard setters. As there is freedom of choice with regard to the application of a specific framework in Germany pursuant to Section 289d of the German Commercial Code (HGB), this critical comparison is likely to be of particular importance for report preparers.			

Prof. Dr. Corinna Ewelt-Knauer / Julia Schneider, M.Sc., beide Gießen / Julia Blaß, M.Sc., Stuttgart

Eine kritische und vergleichende Analyse der Nachhaltigkeitsberichterstattung nach den Standards der GRI und des SASB

Prof. Dr. Corinna Ewelt-Knauer ist Inhaberin des Lehrstuhls Financial Accounting an der Justus-Liebig-Universität in Gießen und **Julia Schneider, M.Sc.** ist Doktorandin an diesem Lehrstuhl. **Julia Blaß, M.Sc.** ist Wirtschaftsprüfungsassistentin bei Deloitte in Stuttgart.
Kontakt: autor@der-betrieb.de

Heutzutage sind die unternehmerische Nachhaltigkeit – d.h. die Corporate Social Responsibility (CSR) – sowie die Nachhaltigkeitsberichterstattung zentrale Themen in der öffentlichen und medialen Diskussion. In dem Beitrag wird die Nachhaltigkeitsberichterstattung anhand der Vorgaben der Global Reporting Initiative (GRI) sowie des Sustainability Accounting Standards Board (SASB) untersucht und gewürdigt. Hierzu werden die Berichtsthemen und -indikatoren gem. GRI und SASB anhand der individuellen Zielsetzungen und Berichtsgrundsätze dieser Standardsetter einander gegenübergestellt und kritisch analysiert. Da in Deutschland gem. § 289d HGB Wahlfreiheit hinsichtlich der Anwendung eines bestimmten Rahmenwerks besteht, dürfte dieser kritische Vergleich insb. für die Berichtsersteller von Bedeutung sein.

I. Einleitung

Um eine größere Transparenz und Vergleichbarkeit von „Corporate Social Responsibility-Reports“ (kurz: CSR-Reports) zu schaffen und die Nachhaltigkeitsberichterstattung zu harmonisieren, haben sich zahlreiche Initiativen und Organisationen die Entwicklung von Standards und Umsetzungsleitfäden zum Ziel gesetzt. Während der Berichtsrahmen der Global Reporting Initiative (GRI) global eine große Akzeptanz erfährt und auch von Unternehmen in Deutschland mehrheitlich angewandt wird, sind im US-amerikanischen Raum die Standards des Sustainability Accounting Standards Board (SASB) von großer Bedeutung. Da beide Standardsetter thematisch das Feld der Nachhaltigkeitsberichterstattung abdecken, sind zwar gewisse Parallelen in den nichtfinanziellen Leistungsindikatoren zu erwarten, an einem systematischen Vergleich beider Frameworks mangelt es jedoch bisher. Dabei dürften gerade für Praktiker die Unterschiede zwischen den nichtfinanziellen Leistungsindikatoren bzw. Angaben beider Frameworks interessant sein – zumal in Deutschland gem. § 289d HGB Wahlfreiheit hinsichtlich der Anwendung eines bestimmten Rahmenwerks besteht. Zwar orientiert sich – bezogen auf die Nachhaltigkeitsberichterstattung – die Mehrzahl der Unternehmen an den Berichtsempfehlungen der GRI,¹ allerdings könnten sie alternativ ihre nichtfinanziellen Informationen auch auf Basis der SASB-Standards offenlegen.

1 Vgl. Haller/Durchschein, KoR 2016 S. 189.

II. Die Nachhaltigkeitsberichterstattung in Deutschland und den USA

Am 18.04.2017 wurde das CSR-Richtlinie-Umsetzungsgesetz (CSR-RUG) im BGBl. verkündet.² Die Umsetzung der CSR-RL resultierte in einer materiell-inhaltlichen und formal-strukturellen Änderung des Dritten Buches des HGB. Insb. haben die §§ 289, 315 HGB wesentliche Modifikationen und Ergänzungen im Zuge der nichtfinanziellen Regulierungsbestrebungen erfahren.³ Mit der Umsetzung der CSR-RL wurde für bestimmte deutsche Unternehmen und Konzerne von öffentlichem Interesse die Berichterstattung über CSR für Geschäftsjahre, die ab dem 01.01.2017 beginnen, verpflichtend.⁴ Konkret müssen die betroffenen Unternehmen und Konzerne eine nichtfinanzielle Erklärung abgeben, die u.a. neben einer Beschreibung ihres Geschäftsmodells eine Stellungnahme zu Umwelt-, Sozial- und Arbeitnehmerbelangen enthält (§289c Abs. 1 und 2 HGB i.V.m. §315c Abs. 1 HGB).⁵ Jedoch werden durch das CSR-RUG (lediglich) die Mindestberichtsinhalte der nichtfinanziellen Erklärung festgelegt. Die Frage, wie Unternehmen konkret über ihre unternehmerische Verantwortung gegenüber der Gesellschaft zu berichten haben, bleibt offen.⁶ Vielmehr ist das CSR-RUG bewusst prinzipienorientiert ausgestaltet, damit sich Unternehmen aktiv mit den für ihre Geschäftstätigkeit maßgeblichen nichtfinanziellen Themen auseinandersetzen müssen.⁷ Ferner gestattet § 289d HGB explizit die Verwendung anerkannter Rahmenwerke zur CSR-Berichterstattung für Zwecke der Erstellung der nichtfinanziellen Erklärung.⁸ I.S. einer „Apply-or-Explain“-Vorgabe ist in der nichtfinanziellen Erklärung entweder anzugeben, welches Rahmenwerk verwendet wurde oder aber, warum kein Rahmenwerk genutzt wurde. Damit verleiht der deutsche Gesetzgeber der Nutzung von Rahmenwerken mehr Nachdruck – wenn auch die finale Entscheidung über deren Nutzung bei den Unternehmen verbleibt.⁹

Eine der CSR-RL vergleichbare Direktive gibt es in den USA bis dato noch nicht. Allerdings wurde auch dort die Forderung nach einer gesetzlich verpflichtenden CSR-Berichterstattung (mandatory sustainability reporting) stärker. Für an der SEC-gelistete Unternehmen ist die Berichterstattung

2 BGBl. I 2017 S. 802-814.

3 Vgl. hier und folgend Böcking/Althoff, DK 2017 S. 248; Schmotz/Schmidt, DB 2017 S. 2877 ff.

4 Vgl. BT-Drucks. 18/9982 S. 20; CSR-RL, 2014, Art. 4 Abs. 1.

5 Weitergehend zur nichtfinanziellen Erklärung i.S. des CSR-RUG Kajüter, IRZ 2016 S. 507 ff.

6 Vgl. Blöink/Halbeib, DK 2017 S. 182 f.; Mock, DB 2017 S. 2144.

7 Vgl. Blöink/Halbeib, DK 2017 S. 185; Kajüter, KoR 2016 S. 230 (235).

8 Vgl. Günther/Muchallik, KoR 2017 S. 421. In diesem Zusammenhang ist erwähnenswert, dass die SASB-Standards – neben ihrer Nutzung im Zusammenhang mit den SEC filings – auch von der EU-Kommission als ein angemessenes Rahmenwerk für Zwecke der Offenlegung nichtfinanzieller Informationen i.S. der CSR-RL angesehen werden. Vgl. SASB, 2018; <http://hbfm.link/3880> (Stand: 02.01.2018).

9 Vgl. Kajüter, DB 2017 S. 623.

über wesentliche Nachhaltigkeitsaspekte in Form der „Management's Discussion and Analysis of Financial Condition and Results of Operations“ (MD&A) bereits verbindlich. Mit dem Securities Exchange Act von 1934 schreibt die S-K Regulation US-börsennotierten Unternehmen vor, dass diese der SEC entweder ihren Jahresabschluss oder ein 10-K filing zur Verfügung stellen müssen und auf diesem Wege ihre geprüften Jahresabschlüsse, eine Beschreibung der Unternehmensstruktur und -historie, ihre wesentlichen Risikofaktoren sowie die MD&A bei der SEC einzureichen haben.¹⁰ Die MD&A dient der Berichterstattung jahresabschlussbezogener Informationen, die den *Investoren* beim Verständnis der Geschäftstätigkeiten sowie der Finanz- und Ertragslage helfen sollen.¹¹

Analog zur CSR-Richtlinie in der EU blieb lange Zeit offen, in welcher Form die Unternehmen ihre Nachhaltigkeitsinformationen preisgeben sollen, da weder durch die Form 10-K noch mittels MD&A genaue Vorgaben bezüglich der Nachhaltigkeitsindikatoren gemacht werden. Der Mangel an regulatorischen Vorgaben führt(e) zu einem sehr inhomogenen Bild der Nachhaltigkeitsberichterstattung in den USA, sowohl in Bezug auf inhaltliche Gesichtspunkte als auch hinsichtlich des Berichtsformats.¹²

III. Rahmenwerke und Berichterstattungsprinzipien

1. Das Rahmenwerk und die Berichterstattungsprinzipien der GRI

Der GRI-Berichtsrahmen, dessen erste Version (G1) im Jahr 2000 verabschiedet worden ist und mittlerweile in der vierten Überarbeitung vorliegt,¹³ umfasst sowohl die Prinzipien der Berichterstattung als auch themenspezifische Angaben aus dem ökonomischen, ökologischen und sozialen Bereich.¹⁴ In ihrer Gesamtheit werden die drei Dimensionen der nachhaltigen Entwicklung „Wirtschaft, Umwelt und Soziales“ häufig als Triple-Bottom-Line oder „The 3 P's of Sustainability“ (People, Planet & Profit) bezeichnet.¹⁵ Nachhaltigkeitsberichterstattung i.S. der GRI beinhaltet die Ermittlung, Veröffentlichung sowie Rechenschaftslegung „zu ökonomischen, ökologischen und/oder sozialen Auswirkungen [einer Organisation] und somit zu positiven/negativen Beiträgen zum Ziel der nachhaltigen Entwicklung.“¹⁶

Die GRI unterscheidet zwischen allgemeinen und themenspezifischen Angaben. Mit den allgemeinen Angaben werden kontextuelle Informationen sowie die Anforderungen an die Nachhaltigkeitsberichterstattung einer Organisation kommuniziert. Der Standard „GRI 102: Allgemeine Angaben“ kann branchen- und länderübergreifend von Organisationen jeglicher Art und Größe verwendet werden. Er thematisiert folgende sechs Bereiche:¹⁷

- Organisationsprofil (102-1 bis 102-13),
- Strategie (102-14 bis 102-15),
- Ethik und Integrität (102-16 bis 102-17),
- Führung (Corporate Governance) (102-18 bis 102-39),
- Stakeholdereinbeziehung (102-40 bis 102-44),
- Vorgehensweise bei der Berichterstattung (102-45 bis 102-56).

Die themenspezifischen Angaben umfassen die drei Dimensionen Wirtschaft, Umwelt und Soziales. Zu jeder Dimension gibt es mehrere Aspekte, zu welchen die Organisation mittels diverser Indikatoren Stellung nehmen soll, sofern die Aspekte als wesentlich identifiziert werden (sog. wesentliche Themen). Themen sind dann wesentlich, wenn sie zentrale wirtschaftliche, ökologische oder soziale Auswirkungen der Organisation widerspiegeln oder die Entscheidungen der Stakeholder maßgeblich beeinflussen.¹⁸

2. Der Berichtsrahmen und die Berichterstattungsprinzipien des SASB

Das SASB entwickelt seit dem Jahr 2012 branchenspezifische Standards zur Nachhaltigkeitsberichterstattung. Der Großteil der Standards fokussiert auf materielle Nachhaltigkeitsaspekte, welche an der SEC gelistete Unternehmen bereits in der Form 10-K oder 20-F adressieren müssen. Ziel der branchenspezifischen SASB-Standards ist es darzulegen, *wie* wesentliche Nachhaltigkeitsbelange erfasst und offengelegt werden.¹⁹ Die SASB-Standards sind ausdrücklich dafür vorgesehen, in den bisherigen Berichtsmechanismus, wie die SEC filings, integriert zu werden und sie normieren keine zusätzlichen Berichtselemente. In materiell-inhaltlicher Hinsicht decken die SASB-Standards die sog. ESG-Kriterien ab („E“ für Environmental, „S“ für Social und „G“ für Governance). Im März 2016 hat das SASB insofern einen Meilenstein erreicht, als es seinen vorläufigen Standardsetzungsprozess für insgesamt 79 Branchen bzw. elf Wirtschaftssektoren abgeschlossen hat.²⁰ Beurteilungsmaßstab bildeten im Standardsetzungsprozess folgende drei Hauptziele (core objectives): Wesentlichkeit, Entscheidungsnützlichkeit und Kosteneffektivität.²¹ Darüber hinaus hat das SASB Grundsätze definiert, die den Themenfindungsprozess lenken sollen. Dementsprechend sollte jedes Berichtserfordernis:²²

- auf die Wertschaffung und Risikoreduktion ausgerichtet sein;
- für alle Investoren von Belang sein;
- für die gesamte Branche Bedeutung haben und für die meisten ihr zugehörigen Unternehmen wesentlich sein;
- von allen Unternehmen anwendbar sein und sich in ihrem Einflussbereich wiederfinden.

IV. Vergleich der Nachhaltigkeitsthemen gem. GRI und SASB

1. Allgemeine Angaben zur Nachhaltigkeitsleistung

Das SASB sowie die GRI sprechen unterschiedliche Stakeholder-Gruppen an und sind für verschiedene Zwecke konzipiert worden. Während das SASB-Framework einen Mindestkatalog an Nachhaltigkeitskriterien umfasst, die wesentlich für Inves-

10 Vgl. IRRCI, Integrated Financial and Sustainability Reporting in the United States, 2013, S. 9.

11 Vgl. Coenenberg/Haller/Schultze, Jahresabschluss und Jahresabschlussanalyse, 24. Aufl. 2016, S. 948.

12 Vgl. Herzig/Schaltegger, Nachhaltigkeit in der Unternehmensberichterstattung: Gründe – Probleme – Lösungsansätze, 2004, S. 6; <http://hbfn.link/3873> (Abruf: 04.03.2018).

13 Am 19.10.2016 wurden die GRI-Standards veröffentlicht, welche die GRI G4-Leitlinien ersetzen und vom Global Sustainability Standards Board (GSSB) entwickelt wurden, <http://hbfn.link/3879> (Abruf: 24.01.2018). Aus Gründen der Leserfreundlichkeit wird in dem Beitrag einheitlich von der „GRI“ gesprochen.

14 Vgl. GRI 101: Grundlagen 2016, S. 4; Haller/Durchschein, KoR 2016 S. 189.

15 Vgl. Elkington, Cannibals with Forks, 1999, S. 69 ff.

16 GRI 101: Grundlagen 2016, S. 3.

17 Vgl. GRI 102: Allgemeine Angaben 2016, S. 7-42.

18 Vgl. Glossar der GRI-Standards 2016, S. 19.

19 Vgl. IRRCI, a.a.O. (Fn. 10), S. 31; Nagel-Jungo/Affolter, IRZ 2016 S. 430.

20 Vgl. Ellis, Financial Advisor 04/2017; <http://hbfn.link/3874> (Abruf: 21.03.2018); SASB, 2018; <http://hbfn.link/3878> (Abruf: 02.01.2018).

21 Vgl. SASB, Conceptual Framework 2017, S. 9-11.

22 Vgl. SASB, a.a.O. (Fn. 21), S. 18.

toren und Unternehmen sind und einen klaren Branchenbezug haben, sollen die GRI die Erstellung (freiwilliger) Nachhaltigkeitsberichte für einen breiten Adressatenkreis unterstützen. In Tab. 1 sind die zentralen Unterschiede und Gemeinsamkeiten zwischen den SASB- und den GRI-Standards gegenübergestellt.²³

Tab. 1: Vergleich der SASB- und der GRI-Standards

Vergleichskriterium	SASB	GRI
Art der Berichtsvorgaben	Standards	Standards
Geografische Reichweite	USA	Global
Anwendungsbereich	Branchenspezifisch	Universell
Offenlegung	Verpflichtende Abgabe	Freiwilliger Bericht
Berichterstatter	US-börsennotierte Unternehmen	Börsennotierte und nicht-börsennotierte Unternehmen
Zielgruppe	Investoren	Alle Stakeholder
Art der Organisation	501(c)(3) organization ^{a)}	NGO
Definition von Wesentlichkeit	Eine Information ist dann wesentlich, wenn ihre Offenlegung höchstwahrscheinlich für einen rationalen Investor eine signifikante Bedeutung hat.	Information, die nach vernünftiger Einschätzung relevant für die Beurteilung der wirtschaftlichen, ökologischen und sozialen Auswirkungen der berichtenden Organisation ist oder die Entscheidungen der Stakeholder beeinflusst.

^{a)} Hinter einer 501(c) organization verbirgt sich in den USA eine gemeinnützige Organisation zur Förderung von religiösen, erzieherischen, wissenschaftlichen, sozialen, sportlichen oder künstlerischen Zwecken. Auch Kinder- und Tierschutz werden durch ihren Förderkreis abgedeckt. Dieser Typ gemeinnütziger Organisationen ist in den USA teilweise einkommensteuerbefreit.

Die Allgemeingültigkeit der GRI-Standards auf der einen Seite und der Branchen- sowie Investorenfokus der SASB-Standards auf der anderen Seite mögen auch den wesentlich geringeren Umfang der SASB-Indikatoren relativ zu dem des GRI-Rahmenwerks erklären: So stellt die GRI allgemeine Angaben den eigentlichen Angaben zur Nachhaltigkeit voran – in Summe sind dies 56 Angaben.²⁴ Bei den SASB-Standards handelt es sich hingegen um eine integrierte Berichtsform innerhalb der Form 10-K, bei welcher allgemeine Informationen über das Unternehmen und dessen Prozesse bereits in der Form 10-K erfasst werden. Folglich erübrigt sich eine nochmalige Erwähnung dieser allgemeinen Unternehmensinformationen im SASB-Berichtsformat. Angesichts der Tatsache, dass die allgemeinen Angaben mit mehr als 40% einen erheblichen Anteil der Gesamtzahl der GRI-Angaben ausmachen, jedoch keine originäre Nachhaltigkeitsleistung widerspiegeln, stellt sich die Frage, ob eine integrierte Berichterstattung wie nach SASB nicht effizienter wäre. Im Folgenden wird geprüft, ob die allgemeinen Angaben der GRI auch vom SASB bzw. in der Form 10-K adressiert werden.

Innerhalb der allgemeinen Angaben sind nach GRI zunächst 13 Angaben zum Thema *Organisationsprofil* zu machen, um wichtige Charakteristika des Unternehmens zu erfassen (vgl. 102-1 bis 102-13). Informationen wie Name, Produktportfolio, Hauptsitz, Rechtsform, belieferte Länder und Märkte sowie finanzielle Daten werden ebenfalls in der Form 10-K erfasst.²⁵ Das SASB weist außerdem darauf hin, dass grundlegende Geschäftsdaten, die zur besseren Einschätzung und Vergleichbarkeit beitragen, offengelegt werden sollten, soweit diese in der Form 10-K nicht berichtet werden. Dazu zählen neben allgemeinen Angaben, wie der Anzahl der hergestellten Produkte, auch industriespezifische Indikatoren (z.B. die Anzahl der Krankenhausbett-Tage bei Gesundheitseinrichtungen).²⁶ Angaben zum Vorsorgeansatz oder Verpflichtungen gegenüber externen Initiativen (vgl. 102-11 bis 102-13) werden in der Form 10-K jedoch nicht adressiert.

Das Thema *Strategie* soll einen Überblick über die strategische Ausrichtung der Organisation in Bezug auf Nachhaltigkeit vermitteln.²⁷ Der höchste Entscheidungsträger der Organisation sollte die Bedeutung von Nachhaltigkeit für das Unternehmen aufzeigen, wobei auch die Vision und die Strategie des Unternehmens hinsichtlich Nachhaltigkeit sowie Herausforderungen und Zielen im kurz-, mittel- und langfristigen Zeitrahmen erläutert werden sollten (vgl. 102-14). Auswirkungen, Risiken und Chancen bezüglich Nachhaltigkeitsthemen sind zu berichten (vgl. 102-15). Das SASB fordert keine explizite Stellungnahme des Unternehmens zu seiner Nachhaltigkeitsstrategie. Der Verzicht auf die Erläuterung der Nachhaltigkeitsstrategie könnte darauf hinweisen, dass das SASB davon ausgeht, börsennotierte Unternehmen derselben Branche hätten ohnehin ein vergleichbares Geschäftsmodell und eine ähnliche strategische Ausrichtung, welche durch die branchenspezifischen Indikatoren bereits abgebildet werde. Darüber hinaus sind zum Thema Risiken, Chancen und Nachhaltigkeitstrends in der Sektion Item 1 der Form 10-K einige Nachhaltigkeitsaspekte zu nennen, wie z.B. wesentliche Auswirkungen von Umweltregelungen über die Entsorgung von Materialien sowie die von Unternehmen initiierten Umweltschutzmaßnahmen, wie auch ihre finanziellen Auswirkungen und Folgen für die Wettbewerbssituation des Unternehmens. Risikofaktoren des Unternehmens sind außerdem unter Item 1A der Form 10-K zu erläutern.

Zum Thema *Ethik und Integrität* sind nach GRI „Werte, Prinzipien, Standards und Verhaltensnormen“ der Organisation anzugeben (vgl. 102-16). Zusätzlich müssen Prozesse, die zur Konformität mit diesem erwünschten Verhalten beitragen, sowie die implementierten Verfahren zur Aufdeckung und Meldung von ethisch nicht vertretbarem oder rechtswidrigem Verhalten genannt werden (vgl. 102-17). Innerhalb der Form 10-K sind unter Item 10 analoge Angaben zum Ethikkodex zu machen.

Unter dem Thema *Führung* ist ein Überblick über die Struktur und Zusammensetzung der Unternehmensführung zu geben. Zudem sollen die Kompetenzen des höchsten Kontrollorgans erläutert sowie dessen Rolle in den Aufgaben der Zielsetzung und Strategieentwicklung, des Risikomanagements, der Nachhaltigkeitsberichterstattung und der Bewertung der Nach-

²³ Vgl. SASB, 2018; <http://hbfm.link/3877> (Abruf: 02.01.2018).

²⁴ Vgl. GRI 102: Allgemeine Angaben, S. 1-43.

²⁵ Vgl. Item 1, Item 2, Item 6, Item 8.

²⁶ Vgl. SASB, 2013, S. 5; <http://hbfm.link/3875> (Abruf: 02.05.2018).

²⁷ Vgl. GRI 102: Allgemeine Angaben 2016, S. 14.

haltigkeitsleistung dargelegt werden. Die Vergütungspolitik des höchsten Kontrollorgans und der leitenden Angestellten sowie diesbezügliche Meinungsäußerungen der Stakeholder sollten offengelegt werden (vgl. 102-18 bis 102-39).²⁸ Informationen zur Unternehmensleitung werden auch innerhalb der Form 10-K erfasst (vgl. Item 10 und Item 11). Innerhalb der Form 10-K werden jedoch primär persönliche Informationen über das oberste Kontrollorgan gefordert, während nach der GRI stärker auf die Aufgaben des obersten Kontrollorgans einzugehen ist. Meinungsäußerungen der Stakeholder zur Vergütung finden in der Form 10-K hingegen keine Beachtung. Investorenmeinungen zur Vergütungspolitik werden von der SEC generell beachtet, jedoch nicht in der Form 10-K veröffentlicht (sog. „say-on-pay vote im proxy statement“).²⁹ Wie die GRI fordert die SEC innerhalb der Form 10-K eine Darstellung des Verhältnisses der Vergütung des höchstbezahlten Mitarbeiters zum Median der Vergütung aller Angestellten (vgl. 102-38 bzw. Item 11).

Im Rahmen der GRI sollte darüber hinaus der Ansatz zur *Einbindung von Stakeholdern* geschildert werden (vgl. 102-40 bis 102-44). Da beim SASB Eigenkapitalinvestoren die primäre Adressatengruppe des Frameworks darstellen, sind besondere Verfahren zur Bestimmung und Auswahl weiterer Interessengruppen (vgl. 102-42) überflüssig.

Die Angaben zum Thema *Vorgehensweise bei der Berichterstattung* sollen nach GRI die Prozesse zur Ermittlung wesentlicher Themen enthalten. Neuformulierungen und signifikante Änderungen in Bezug auf Berichtsumfang sowie Themenabgrenzungen im Vergleich zu früheren Berichtsperioden sind ebenfalls zu publizieren (vgl. 102-48, 102-49). Aufgrund der genauen Vorgaben des SASB und der SEC sind diese Erläuterungen innerhalb der SASB-Standards nicht notwendig.

Des Weiteren sind grundlegende Informationen über den Bericht zur Verfügung zu stellen. Dazu zählen zeitliche Angaben, wie der Berichtszeitraum, das Datum des jüngsten Berichts und der Berichtszyklus (vgl. 102-50 bis 102-52). Für Fragen bezüglich des Berichts(-inhalts) muss das Unternehmen eine Kontaktstelle angeben (vgl. 102-53). Zudem müssen Informationen zur gewählten „In Übereinstimmung“-Option (Kern oder umfassend) angegeben werden sowie der GRI-Inhaltsindex, in welchem alle Angaben des Berichts aufgelistet sind und ein Verweis darauf (Seitenzahl(en) oder URL(s)), wo die Informationen zu finden sind (vgl. 102-54 bis 102-55). Falls eine Prüfung des Nachhaltigkeitsberichts durchgeführt wurde, sollte nach 102-56 eine Referenz zu dem externen Prüfungsbericht bereitgestellt werden. Da es sich bei der Nachhaltigkeitsberichterstattung nach SASB um einen integrierten Bericht innerhalb der Form 10-K handelt, stimmen der Berichtszeitraum und der Berichtszyklus mit denjenigen der Form 10-K überein, d.h. der Bericht ist jährlich einzureichen, je nach Marktkapitalisierung auf Basis des Streubesitzes spätestens 60, 75 oder 90 Tage nach Ende des Geschäftsjahres.³⁰ Das SASB befürwortet ebenfalls eine Prüfung, die wie bei der GRI freiwillig ist.³¹

Letztlich lässt sich feststellen, dass ein Großteil der Informationen, die bei der GRI mittels der allgemeinen Angaben berich-

tet werden, innerhalb der Form 10-K ebenfalls aufgenommen wird. Da die allgemeinen Angaben einen äußerst großen Teil der GRI-Indikatoren ausmachen, käme aus Effizienzgründen auch hier eine integrierte Berichterstattung in Frage – z.B. innerhalb des IFRS-Konzernabschlusses. Dazu müsste zunächst jedoch geprüft werden, ob die allgemeinen Angaben im IFRS-Konzernabschluss adressiert werden. Außerdem würde die GRI ihre Allgemeingültigkeit aufgeben bzw. ihren Anwenderkreis einschränken, da in einigen EU-Staaten nur kapitalmarktorientierte Konzerne verpflichtet sind, nach IFRS zu bilanzieren.³²

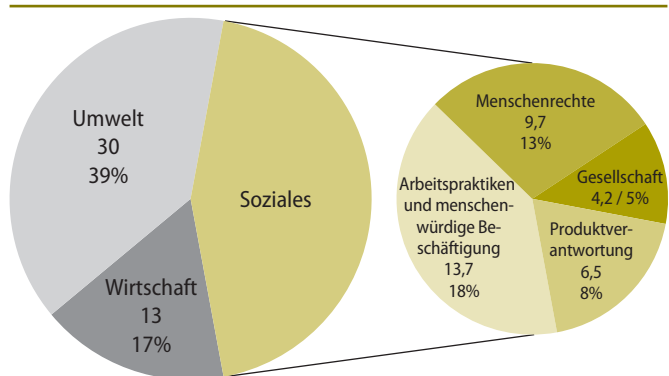
2. Spezifische Angaben der Nachhaltigkeitsleistung nach GRI und SASB im Vergleich

a) Umfang und Verteilung der spezifischen Angaben

Die themenspezifischen GRI-Standards, die sich in die Dimensionen Wirtschaft, Umwelt und Soziales unterteilen, sollen die eigentliche Nachhaltigkeitsleistung des berichtenden Unternehmens reflektieren. Jeder themenspezifische Standard enthält mehrere themenspezifische Angaben. Insgesamt gibt es 77 themenspezifische Angaben zuzüglich derjenigen, die unter den Managementansatz fallen (103-1 bis 103-3).

Die meisten themenspezifischen Angaben (im Folgenden vereinfacht: „Angaben“) konzentrieren sich auf die Dimension Soziales (44%), wobei die ökologische Ebene mit 39% der Angaben ebenfalls einen beachtlichen Anteil der Nachhaltigkeitsleistung abdeckt (vgl. Abb. 1³³). Auf die Dimension Wirtschaft entfallen nur 17% der Gesamtanzahl der Angaben. Die Angaben der Dimension Soziales können thematisch nochmals auf die Subkategorien Arbeitspraktiken und menschenwürdige Beschäftigung, Menschenrechte, Gesellschaft und Produktverantwortung aufgeteilt werden, wobei diese Aufteilung in den GRI-Standards – im Gegensatz zu den G4 GRI-Leitlinien – nicht mehr explizit vorgenommen wird. Die absoluten Werte in der nachstehenden Abb. 1 oberhalb der Prozentzahlen stellen die Anzahl an GRI-Angaben pro Dimension bzw. der Subkategorie „Soziales“ dar. So werden z.B. von der GRI 30 Angaben vorgeschlagen, die thematisch der Dimension „Umwelt“ zugewiesen werden. Dies entspricht den oben erwähnten 39% aller 77 Angaben.

Abb. 1: Anzahl der GRI-Angaben pro Dimension und Untergliederung der Kategorie „Soziales“



²⁸ Vgl. GRI 102: Allgemeine Angaben 2016, S. 18.

²⁹ Vgl. SEC, 2014; <http://hbfm.link/3876> (Abruf: 21.03.2018).

³⁰ Vgl. SEC, 2009; <http://hbfm.link/3881> (Abruf: 23.03.2018).

³¹ Vgl. z.B. SASB, 2014, S. 7; <http://hbfm.link/3882> (Abruf: 23.03.2018); Lackmann, Die Auswirkungen der Nachhaltigkeitsberichterstattung auf den Kapitalmarkt, 2010, S. 63 f.

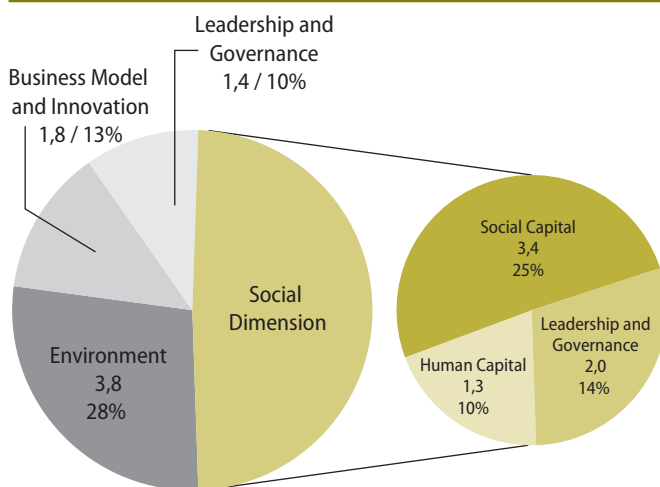
³² Vgl. zum Stand der Umsetzung der IAS-Verordnung (1606/2002) in der EU; <http://hbfm.link/3883> (Abruf: 11.01.2018).

³³ Da eine GRI-Angabe der sozialen Dimension mehrere Subkategorien ansprechen kann, summieren sich die Angaben im rechten Kreisdiagramm auf 34,1 (gerundeter Wert) und nicht, wie erwartet, auf 34.

Neben den Angaben, die für alle Unternehmen von Bedeutung sind, bietet die GRI für folgende Branchen spezifische Angaben (sog. Sector Disclosures): Airport Operators, Construction & Real Estate, Electric Utilities, Event Organizers, Financial Services, Food Processing, Media, Mining & Metals, NGO sowie Oil & Gas.³⁴ Diese Sector Disclosures enthalten Erweiterungen und Erläuterungen zu den bereits vorhandenen Angaben sowie zusätzliche Angaben, die nur für die spezifische Branche relevant sind. Letztere wurden in Abb. 1 nicht einbezogen.

Die Indikatoren³⁵ des SASB sind ausschließlich branchenspezifisch. Insgesamt werden 79 Branchen definiert, die sich auf die elf übergeordneten Wirtschaftszweige Health Care, Financials, Technology and Communication, Non-Renewable Resources, Transportation, Services, Resource Transformation, Consumption I & II, Renewable Resources & Alternative Energy sowie Infrastructure aufteilen.³⁶ Im Gegensatz zur Aufteilung der Dimensionen der GRI in Wirtschaft, Umwelt und Soziales spezifiziert das SASB mit folgenden Kategorien genauer: Environment, Social Capital, Human Capital, Business Model and Innovation sowie Leadership and Governance.³⁷ Die Kategorienwahl des SASB ist damit nicht nur spezifischer, sondern sie beschränkt sich auch auf ökologische und soziale Themen. In Abb. 2 wird die durchschnittliche Anzahl an Indikatoren pro (Sub-)Kategorie je Branche gezeigt. Analog zur Abb. 1 sind sowohl die absoluten als auch die relativen Werte dargestellt.

Abb. 2: Anzahl der SASB-Indikatoren pro Kategorie und Untergliederung der „Social Dimension“



Aus Abb. 2 wird ersichtlich, dass Unternehmen der 79 SASB-Branchen durchschnittlich über 13 bis 14 Indikatoren berichten müssen, was nur weniger als ein Fünftel des Angabenumfangs der GRI mit 77 Angaben ausmacht. Während die Kategorien Social Capital sowie Human Capital eindeutig der sozialen Dimension zuzuordnen sind, handelt es sich bei der Kategorie Leadership and Governance um eine Schnittmenge aus nach GRI „ökonomischen“,³⁸ sozialen und rudimentär auch

ökologischen Themen.³⁹ Analog enthält die Kategorie Business Model and Innovation sowohl ökologische als auch soziale Themen.⁴⁰

In quantitativer Hinsicht legt das SASB damit – ähnlich der GRI – den Schwerpunkt seiner Indikatoren auf die soziale Dimension. Im Hinblick auf diese Dimension fällt auf, dass die Unterkategorie Social Capital mit durchschnittlich 3,4 Indikatoren das 2,5-fache des Indikatorenumfangs der Unterkategorie Human Capital aufweist. Letztere macht – bezogen auf die durchschnittliche Gesamtanzahl der SASB-Indikatoren je Branche – nur ca. 10% der Nachhaltigkeitsleistung aus. Zahlreiche Branchen haben das Thema Humankapital nach SASB nicht zu thematisieren, was indes im Hinblick auf dessen häufige Behandlung als zentraler Produktionsfaktor in der Literatur schwer nachvollziehbar ist.⁴¹

Die Kategorie Environment beinhaltet durchschnittlich vier Indikatoren. Dabei haben Branchen des Wirtschaftszweigs Non-Renewable Resources, deren Unternehmenstätigkeit sich stark auf die ökologische Ebene auswirkt, umfangreicher über diese Kategorie zu berichten. Manche Branchen des Dienstleistungssektors, z.B. innerhalb der Wirtschaftszweige Financials, Services oder Consumption, weisen hingegen keinerlei Indikatoren in dieser Kategorie auf. Obwohl es plausibel ist, dass der ökologische Fußabdruck der energie- und rohstoffintensiven Branchen größer ist, was eine umfangreichere Berichterstattung rechtfertigt, ist es dennoch fraglich, inwiefern die Nachhaltigkeitsleistung mancher Dienstleistungsunternehmen bei Auslassung der ökologischen Ebene vollständig abgebildet werden kann.

Im Folgenden werden einige ausgewählte Indikatoren des SASB bzw. Angaben der GRI einander gegenübergestellt und anhand ihrer individuellen Zielsetzungen und anhand der Berichtsprinzipien kritisch gewürdigt.

b) Angaben bzw. Indikatoren der wirtschaftlichen Dimension

Die GRI fokussiert in der Dimension Wirtschaft auf die Auswirkungen des Unternehmens auf die ökonomische Lage der Stakeholder sowie auf das lokale, nationale und internationale Wirtschaftssystem. Dabei thematisiert sie nicht die Wirtschaftlichkeit des Unternehmens an sich – wie zunächst hätte vermutet werden können.⁴² Die ökonomischen Auswirkungen des Unternehmens werden in den sechs GRI-Standards wirtschaftliche Leistung (vgl. 201-1 bis 201-4), Marktpräsenz (vgl. 202-1, 202-2), indirekte ökonomische Auswirkungen (vgl. 203-1, 203,2), Beschaffungspraktiken (vgl. 204-1), Korruptionsbekämpfung (vgl. 205-1 bis 205-3) sowie wettbewerbswidriges Verhalten (vgl. 206-1) diskutiert.

Beim SASB werden die Themen derart gewählt, dass sie sich auf die finanzielle Lage des Unternehmens auswirken, womit die wirtschaftliche Leistung des Unternehmens in den Vordergrund gestellt wird. Eine ökonomische Dimension wie bei der GRI bietet das SASB nicht. Folglich bleiben die Auswirkungen des Unternehmens auf Wirtschaftssysteme sowie auf die wirt-

³⁴ Vgl. GRI, <http://hbfn.link/3884> (Abruf: 23.03.2018).

³⁵ Mit der Veröffentlichung der GRI-Standards wurden die „Indikatoren“ in die Terminologie „Angaben“ umbenannt. Das SASB verwendet den Begriff „disclosures.“

³⁶ Vgl. SASB, Conceptual Framework, 2017, S. 22.

³⁷ Vgl. SASB, Conceptual Framework, 2017, S. 4.

³⁸ Ökonomisch ist in Anführungszeichen gesetzt, da es die wirtschaftliche Dimension beim SASB i.S. der Triple-Bottom-Line nicht gibt.

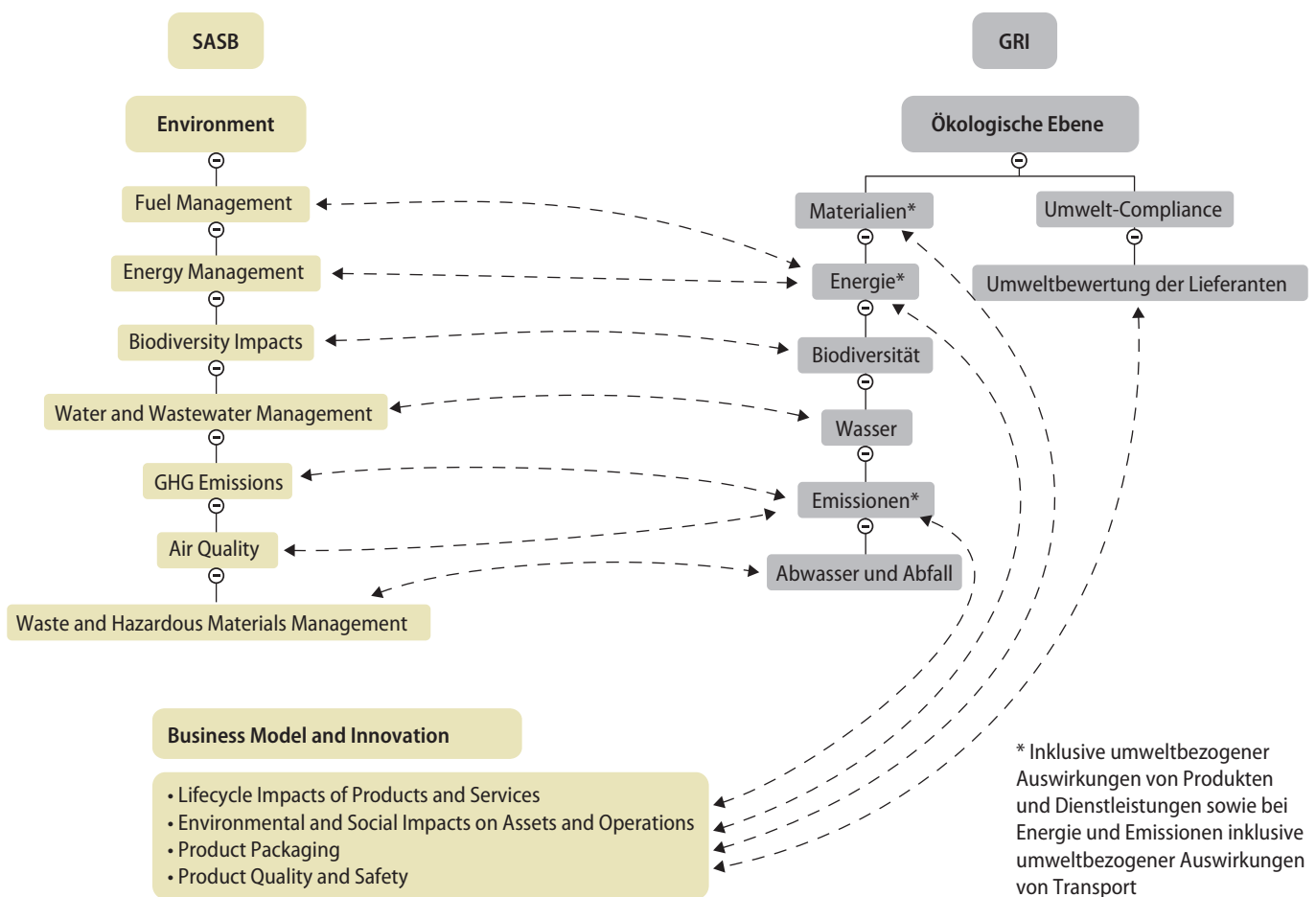
³⁹ Nach den GRI-Standards fallen die Themen Anti-Korruption und wettbewerbswidriges Verhalten unter die wirtschaftliche Dimension (205-1 bis 206-1), während diese Aspekte in den GRI G4-Leitlinien in der Dimension Soziales verortet sind (G4-S03 bis G4-S05, G4-S07).

⁴⁰ Da sich der Großteil der Indikatoren in der Kategorie Business Model and Innovation auf ökologische Themen bezieht, wird im Folgenden die gesamte Kategorie vereinfachend der Dimension Umwelt zugeordnet.

⁴¹ Vgl. Riley/Michael/Mahoney, SMJ 2017; Vomberg/Homburg/Bornemann, SMJ 2015; Israelsen/Yonker, JFQA 2017.

⁴² Vgl. z.B. GRI 201: Wirtschaftliche Leistung 2016, S. 4.

Abb. 3: Vergleich der Themen in der ökologischen Dimension



schaftliche Lage der Stakeholder unberücksichtigt. Jedoch werden einige wirtschaftliche Angaben der GRI, die für Investoren interessant sind, bereits in der Form 10-K erfasst. Z.B. sind Angaben zum erwirtschafteten und verteilten wirtschaftlichen Wert, etwa nach 201-1, sowie Chancen und Risiken i.V.m. dem Klimawandel gem. 201-2 in der Form 10-K unter Item 8 und Item 1 zu finden.

Einige Leistungsindikatoren, die bei der GRI der wirtschaftlichen Dimension angehören, befinden sich beim SASB unter der Subkategorie Leadership and Governance. Dabei handelt es sich insb. um Berichtsanforderungen im Zusammenhang mit Korruption (vgl. RT0201-11, HC0102-27) oder wettbewerbswidrigen Praktiken (vgl. TC0102-17). Beim Vergleich dieser Indikatoren fällt auf, dass sich die Kennziffern des SASB stärker an monetären Größen orientieren. Z.B. erfassen die Angaben der GRI die Gesamtzahl der bestätigten Korruptionsvorfälle (vgl. 205-3) sowie der Rechtsverfahren aufgrund von wettbewerbswidrigem Verhalten (vgl. 206-1), während die entsprechenden Indikatoren des SASB den Gesamtwert der Strafzahlungen⁴³ in Zusammenhang mit Korruption (vgl. RT0201-11, HC0102-27) oder wettbewerbswidrigen Praktiken (vgl. TC0102-17) aufzeigen. Die monetären Angaben des SASB bilden damit das Ausmaß der Straftaten, welches mit einem

43 Hervorzuheben ist jedoch, dass Unternehmen auch nach GRI den Gesamtgeldwert signifikanter Bußgelder wegen Nichteinhaltung von Gesetzen und/oder Vorschriften (vgl. 419-1) angeben müssen, worunter u.a. Strafzahlungen im Zusammenhang mit Korruptions- und Bestechungsvorfällen zu subsumieren sind.

Abfluss von finanziellen Ressourcen einhergeht, besser ab. Außerdem geht das SASB eher auf das Ausmaß, in dem das Unternehmen potenziell der Korruption ausgesetzt ist, ein, während die GRI stärker auf die Maßnahmen der Korruptionsbekämpfung fokussiert. So empfiehlt die GRI die Angabe der diesbezüglich stattgefundenen Kommunikation sowie Mitarbeiterschulungen im Unternehmen (vgl. 205-2) und rät zur Offenlegung der hinsichtlich Korruption geprüften Standorte (vgl. 205-1). Das SASB fordert hingegen, über das Produktionsvolumen und über den Umsatz in Ländern mit hohem Korruptionsrisiko⁴⁴ zu berichten (vgl. RT0201-12, NR0302-22). Durch die Angabe des Umfangs der Geschäftstätigkeit im jeweiligen Land wird das Risiko des Unternehmens quantifiziert (gemessen am Umsatz, Produktionsvolumen etc.). Jedoch könnte bei den Indikatoren des SASB kritisiert werden, dass die eigentliche Nachhaltigkeitsleistung für die Stakeholder in den Hintergrund rückt.

Abschließend lässt sich festhalten, dass das SASB den nachhaltigen finanziellen Unternehmenserfolg primär an ökologische und soziale Themen knüpft. Die finanzielle Lage des Unternehmens wird bereits innerhalb der Form 10-K dargestellt, weshalb das SASB auf die Kategorie Wirtschaft verzichtet. Bei der GRI kommt der finanziellen Lage des

44 Die Höhe des Korruptionsrisikos wird in der Branche Aerospace & Defense anhand des Transparency International's Government Defence Anti-Corruption Index und in der Branche Metals & Mining über den Transparency International's Corruption Perception Index gemessen.

Unternehmens ebenfalls keine zentrale Bedeutung zu, da sich die wirtschaftliche Dimension primär auf die Auswirkungen des Unternehmens auf Wirtschaftssysteme und Stakeholder bezieht.

c) Angaben bzw. Indikatoren der ökologischen Dimension

Beide Standardsetter fordern eine Berichterstattung über Auswirkungen auf die Umwelt. Wie aus Abb. 3 ersichtlich ist, gehören dazu der Einsatz von nicht erneuerbaren, natürlichen Ressourcen auf der Inputseite (Wasser-, Energie- und Materialverbrauch, Einflüsse auf die Biodiversität) und der Ausstoß von schädlichen Stoffen auf der Outputseite (Emissionen, Abwasser und Abfall).⁴⁵

Die GRI führt weiterhin die folgenden beiden Themen auf, die im SASB Berichtsformat keine Entsprechung finden: Environmental Compliance (307-1) sowie Umweltbewertung der Lieferanten (308-1, 308-2).⁴⁶

Beim Vergleich der wesentlichen Themen und Indikatoren der *ökologischen Dimension* lässt sich feststellen, dass der GRI-Berichtsrahmen durch einen größeren Angabenumfang, wie z.B. durch Intensitäts- und Reduktionskennzahlen, bei den Themen Energie und Emissionen ein vollständigeres Bild sowie eine bessere Vergleichbarkeit in Bezug auf die Unternehmensgröße und -effizienz im Vergleich zu den SASB-Standards gewährleistet.⁴⁷ So ist zu konstatieren, dass vor allem die zusätzlichen Indikatoren Energieintensität (u.a. Energieverbrauch je produzierter Einheit) und die Senkung des Energieverbrauchs eine bessere Vergleichbarkeit im Hinblick auf die effiziente Nutzung von Energie in Unternehmen verschiedener Größen zulassen (vgl. 302-3 und 302-4). Analoges gilt für (Treibhausgas-)Emissionen. Der Einbezug von Energieverbrauch und Emissionsausstoß auf vor- und nachgelagerten Wertschöpfungsebenen in den GRI-Standards (vgl. 302-2 und 305-2, 305-3) trägt ebenfalls zu einem vollständigeren Bild der Nachhaltigkeitsleistung innerhalb dieser Themen bei. Laut GRI können „[b]ei einigen Organisationen [...] die THG-Emissionen, die aus dem Energieverbrauch außerhalb der Organisation entstehen, deutlich ihre direkten THG-Emissionen (Scope 1) oder indirekten energiebedingten THG-Emissionen (Scope 2) übersteigen.“⁴⁸ Demnach liefere erst „die kombinierte Betrachtung von direkten und indirekten Emissionen [...] Informationen zum ökologischen Fußabdruck und zur Umweltleistung einer Organisation.“⁴⁹ Grund für die Auslassung dieser Berichtselemente im SASB Framework könnte ihre aufwendige Ermittlung sein, sodass analoge Indikatoren nur schwer dem Kosten-Nutzen-Verhältnis des SASB standzuhalten vermögen. Während die GRI die Angabe des Basisjahres oder der Basis/Referenz fordert (z.B. nach 305-5-c), werden die Indikatoren – konsistent mit SEC Rule 12b-20 – vom SASB generell

im Vergleich zu den drei letzten Vorjahreswerten dargestellt, was eine Vergleichbarkeit im Zeitablauf ermöglicht. Das SASB empfiehlt ferner, dass Unternehmen ihre Indikatoren bezüglich ihrer Nachhaltigkeitsleistung im Peervergleich offenlegen.⁵⁰

Darüber hinaus macht das SASB genauere Vorgaben zur Ausgestaltung der Kennzahlen, wie z.B. bei den einzubeziehenden Treibhausgasen⁵¹ (Scope-1-THG-Emissionen in der Einheit Tonnen)⁵² oder den durch eine Wasserentnahme beeinträchtigten Wasserquellen (nach den Angaben des World Resources Institute). Diese genaueren Vorgaben führen zu einer leichteren Umsetzung für das Unternehmen und verbessern die Vergleichbarkeit für die Berichtsadressaten. Gleichzeitig kann die Vollständigkeit der Themen durch die Standardisierung leiden und ein unvollständiges Bild der Nachhaltigkeitsleistung entstehen, da eine Anpassung an Unternehmensspezifika nicht möglich ist.

Des Weiteren führt die Branchenspezifität der SASB-Standards, insb. innerhalb der ökologischen Dimension, zu entscheidenden Unterschieden beim Indikatorenvergleich mit der GRI. Z.B. haben Unternehmen der Automobilindustrie nach SASB über die Anzahl der verkauften emissionsfreien Fahrzeuge, der Hybridfahrzeuge und der aufladbaren Hybridfahrzeuge zu berichten (vgl. TR0101-10) – eine Kennzahl, die hinsichtlich der Tendenzen in dieser Branche für das Unternehmen und seine Stakeholder von großer Relevanz sein mag. Da die GRI, abgesehen von den Branchen gem. Sector Disclosures, nicht auf die Themen eines spezifischen Geschäftsmodells eingeht, finden solche branchenspezifischen Faktoren keine entsprechende Berücksichtigung.

d) Angaben bzw. Indikatoren der sozialen Dimension

Nach GRI sind in der Dimension Soziales die Auswirkungen der Organisation auf das gesellschaftliche System zu berichten.⁵³ Die Dimension kann in vier Subkategorien unterteilt werden, wobei diese Unterteilung in den GRI-Standards nicht (mehr) explizit vorgenommen wird: Arbeitspraktiken und menschenwürdige Beschäftigung, Gesellschaft sowie Produktverantwortung.⁵⁴

Das SASB nennt die drei Subkategorien: Human Capital, Social Capital sowie Leadership and Governance, deren Indikatoren mehrheitlich der sozialen Dimension zugeordnet werden können.⁵⁵ Dabei weist die Subkategorienbezeichnung zunächst nicht eindeutig auf Nachhaltigkeitsthemen hin. Im Gegensatz zu den Standardbezeichnungen der GRI, die sich direkt nach gesellschaftlichen Belangen wie Vielfalt und Chancengleichheit, Sicherheitspraktiken oder Schutz der Kundendaten richten, spiegelt die Subkategorienbezeichnung des SASB den Mehrwert dieser Themen für das Unternehmen in Form von Human Capital und Social Capital wider. Dies weist erneut auf die Zielsetzung des

45 Vgl. z.B. GRI 302: Energie 2016, S. 4; SASB, a.a.O. (Fn. 20), S. 2.

46 Unter den GRI G4 Guidelines waren zusätzlich die beiden Themen Insgesamt zur Abbildung der gesamten Umweltschutzaufwendungen (G4-EN31) und Beschwerdeverfahren hinsichtlich ökologischer Aspekte (G4-EN34) unter der ökologischen Dimension subsumiert. Im Zuge der Veröffentlichung der GRI-Standards wurden diese Themen teilweise dem Managementansatz und teilweise anderen themenspezifischen GRI-Standards zugeordnet. Vgl. Mapping G4 to the GRI Standards – Complete (Excel); <http://hbfm.link/3886> (Abruf: 15.01.2018).

47 Im Bereich Energiemanagement z.B. sieht das SASB lediglich folgende Kennzahl vor: „Total energy [bzw. Operational energy] consumed, percentage grid electricity, percentage renewable“. Vgl. RT0201-01, CN0101-04, TR0102-01, CN0401-04, RO0104-01, NR0302-04, TC0102-01.

48 GRI 305: Emissionen 2016, Anleitung für Angabe 305-3, S. 12.

49 GRI, Umsetzungsanleitung der G4-Leitlinien, 2. Aufl. 2015, S. 111.

50 Vgl. u.a. SASB RR0104, 2015, S. 4.

51 Die Kennzahlen sollten die sechs Arten von Treibhausgasen einschließen, die auch im Kyoto-Protokoll Berücksichtigung finden. Dabei sind die Gase in CO₂-Äquivalente umzurechnen.

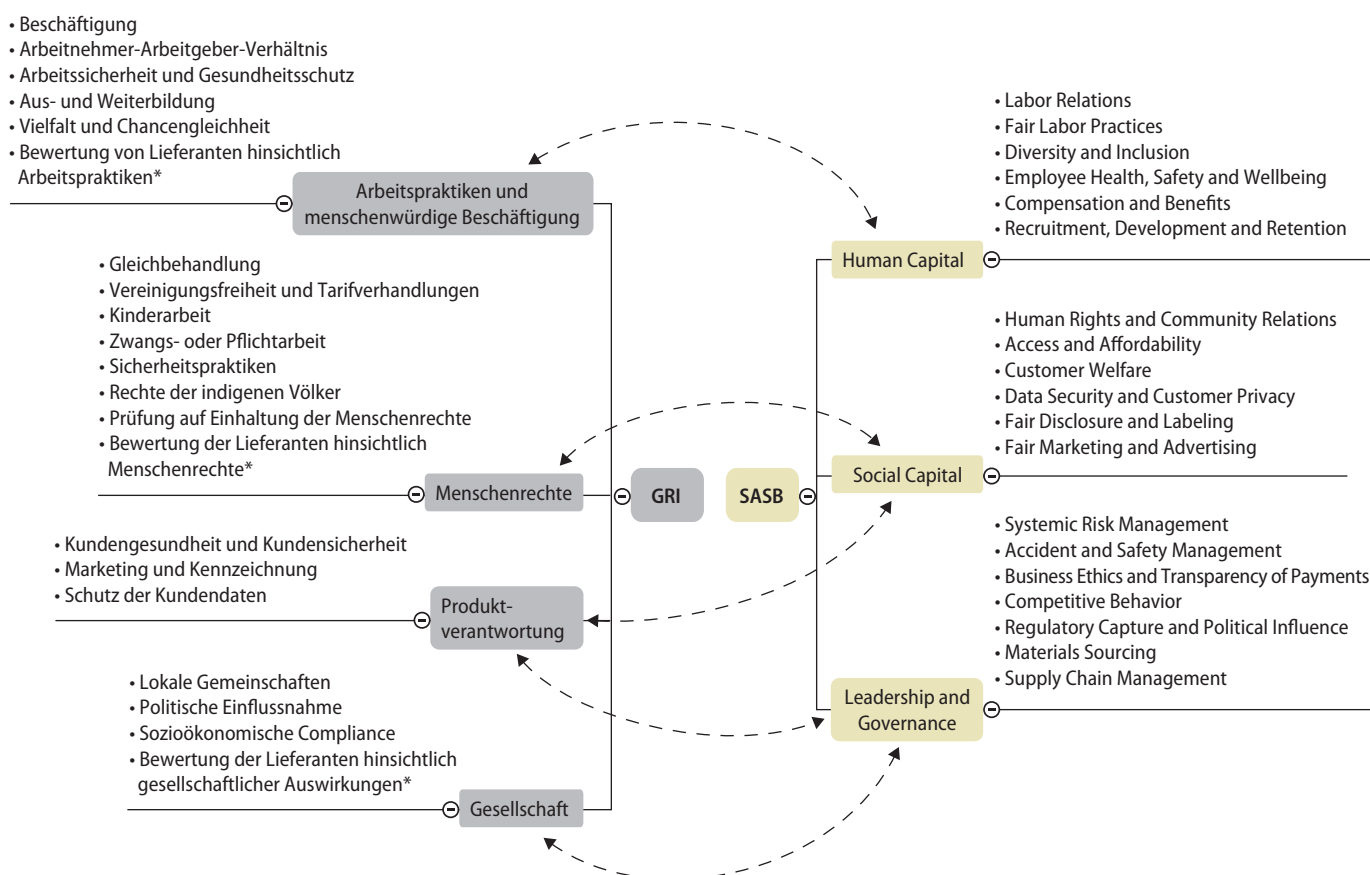
52 Vgl. IF0101-01, NR0302-01, CN0101-01, CN0401-01, SV0205-01.

53 Vgl. z.B. GRI 401: Beschäftigung 2016, S. 4.

54 Vgl., Hoffmann, Unternehmerische Nachhaltigkeitsberichterstattung, 2011, S. 166. Streng genommen umfasst der Begriff Menschenrechte menschenwürdige Arbeitsbedingungen, sodass die Subkategorie Arbeitspraktiken und menschenwürdige Beschäftigung nicht von der Subkategorie Menschenrechte abgegrenzt werden sollte. Für Systematisierungszwecke wurde hier die Kategorisierung der GRI G4-Leitlinien dennoch als zielführend angesehen und daher gewählt.

55 Vgl. SASB, Conceptual Framework 2017, S. 4.

Abb. 4: Vergleich der Themen in der sozialen Dimension



* Diese Themen werden durch die GRI-Angabe „414: Soziale Bewertung der Lieferanten“ erfasst.

SASB hin, nach welcher der Nutzen der Nachhaltigkeitsleistung für die Investoren im Mittelpunkt steht. In Abb. 4 sind die Subkategorien der beiden Standardsetter innerhalb der sozialen Dimension gegenübergestellt.

Wie Abb. 4 ausweist, enthält die Subkategorie Arbeitspraktiken und menschenwürdige Beschäftigung der GRI ähnliche Themen wie die Subkategorie Human Capital des SASB. Die Subkategorie Gesellschaft weist Angaben auf, die beim SASB Leadership and Governance zugeordnet werden. Angaben zur Produktverantwortung finden sich beim SASB sowohl innerhalb der Subkategorie Social Capital als auch ansatzweise in Leadership and Governance wieder.⁵⁶ Die Subkategorie Menschenrechte wird beim SASB nicht separat als solche erwähnt, sondern ist ein Aspekt von Social Capital.

Im Hinblick auf die *soziale Dimension* lässt sich feststellen, dass das SASB und die GRI ungeachtet der unterschiedlichen Subkategorienbezeichnungen ähnliche Themen behandeln. Wie es bereits bei den Indikatoren im Zusammenhang mit Korruption und wettbewerbswidrigen Praktiken (siehe ökonomische Dimension) der Fall ist, orientieren sich die Indikatoren des SASB stärker an finanziellen Größen. So erfasst die GRI-Angabe 404-1 der Subkategorie Arbeitspraktiken und menschenwürdige Beschäftigung die Summe

der durchschnittlichen Aus- und Weiterbildungsstunden pro Mitarbeiter im Jahr, während der entsprechende SASB-Indikator die Höhe der durchschnittlichen Gesamtausgaben für Weiterbildung pro Mitarbeiter (vgl. HC0102-15) aufzeigt. Der finanzielle Indikator des SASB bildet in diesem Fall den Umfang von Investitionen für Weiterbildung zutreffender ab.

Innerhalb der Subkategorie Produktverantwortung wird „Kundengesundheit und Kundensicherheit“ bei der GRI durch den Prozentsatz der maßgeblichen Produkt- und Dienstleistungskategorien, deren Auswirkungen auf Gesundheit und Sicherheit geprüft werden, um Verbesserungspotenziale zu ermitteln, abgebildet (vgl. 416-1) sowie durch die Gesamtzahl der Vorfälle, in denen Vorschriften oder freiwillige Verhaltensregeln bezüglich Produkt-/ Dienstleistungsgesundheit und -sicherheit nicht eingehalten wurden (vgl. 416-2). Nach SASB haben Branchen des Lebensmittelsektors bzw. diesem vor- oder nachgelagerte Branchen ebenfalls über Gesundheit und Sicherheit ihrer Produkte zu berichten. Die Branche Agricultural Products sollte auf die Übereinstimmung mit Audits der Global Food Safety Initiative eingehen (vgl. CN0101-13). Dabei ist die Anzahl der Abweichungen (jeweils differenziert nach erheblichen und geringfügigen Abweichungen) ins Verhältnis zur Gesamtzahl der überprüften Einrichtungen zu setzen. Die Fehlerkorrektur-Rate ist auf Basis der festgestellten Abweichungen zu berechnen und offenzulegen. Das SASB geht

⁵⁶ Konkret kommt in Leadership and Governance relativ häufig der Aspekt „Accident and Safety Management“ vor.

somit auf das Ergebnis der Prüfungen und auf durchgeführte Verbesserungsmaßnahmen ein, während sich die GRI mit der Angabe 416-1 lediglich auf das Vorhandensein einer Prüfung bezieht. Zudem werden beim SASB Abweichungen in Relation zum Prüfungsumfang gesetzt, womit eine bessere Interpretierbarkeit der Ergebnisse gewährleistet ist als bei der GRI-Angabe 416-2.

Die Branchenspezifität bei den SASB-Standards wirft bei der sozialen Dimension in Bezug auf die Auswahl der branchenrelevanten Themen Fragen auf. So ist Datenschutz nur für elf der 79 SASB-Branchen relevant,⁵⁷ eine Fluktuationsquote wird lediglich von neun Branchen gefordert⁵⁸ und nur einige Branchen, wie Agricultural Products, Metals & Mining, Electric Utilities, Fuel Cells & Industrial Batteries, haben über Verletzungs- und Todesfallraten zu berichten.⁵⁹ In Bezug auf die Gesamtaufwendungen für soziale Projekte, Spenden und freiwilliges Engagement machen beide Standardsetter keine Angaben. Vor dem Hintergrund des hohen gesellschaftspolitischen Stellenwerts von Unternehmensspenden im US-amerikanischen Raum ist der Verzicht auf die Angabe von Spenden insb. beim SASB fragwürdig.⁶⁰

V. Zusammenfassung

Dieser Beitrag stellt eine kritische und vergleichende Analyse der Nachhaltigkeitsberichterstattung nach den Standards der GRI und des SASB durch Vergleich der Zielsetzungen, der Berichtsprinzipien sowie der Berichtspflichten (Angaben bzw. Indikatoren) der beiden Standardsetter dar. Dieser kritische Vergleich sollte insb. für die unter das CSR-RUG fallende Unternehmen als potenzielle Standardanwender insofern interessant sein, als § 289d HGB ihnen explizit i.S. einer „Apply-or-Explain“-Vorgabe die Wahlfreiheit für ein bestimmtes Rahmenwerk für die Erstellung ihrer nichtfinanziellen Erklärung einräumt.

Resümierend zeigt die Analyse insb. folgende Unterschiede auf: Während sich die Standards der GRI an Unternehmen aller Branchen und Größen für die Berichterstattung an sämtliche Stakeholder richten, spezialisiert sich das SASB auf börsennotierte Unternehmen. Ferner gestaltet das SASB seine Standards branchenspezifisch und beschränkt sich auf Informationen, die für Investoren relevant sind. Da Unternehmen je nach Branche ihr Umfeld in unterschiedlichem Maße beeinflussen, ist i.S. der Vergleichbarkeit die Branchenspezifität des SASB positiv zu bewerten. Dennoch reduziert das SASB die relevanten Themen verschiedener Branchen in dem Umfang, dass einige von ihnen z.B. keinerlei Indikatoren über Umweltaspekte oder Arbeitnehmerbelange vorzulegen haben, wodurch die Vollständigkeit der Nachhaltigkeitsberichterstattung in Frage gestellt werden kann. Auch stellen rund 40% der Berichtsanforderungen der GRI allgemeine Angaben dar, während das SASB eine integrierte Berichterstattung i.V. mit Form 10-K verfolgt und die Berichterstattung über allgemeine Informationen somit entfällt. Folglich kommt eine Anwendung des SASB-Rahmenwerks

vor allem für jene deutschen Unternehmen in Betracht, die in den USA gelistet sind.

Die themenspezifischen Angaben der GRI folgen in ihrer Gliederung dem klassischen Nachhaltigkeitsverständnis der Triple-Bottom-Line (Wirtschaft, Umwelt, Soziales). Das SASB beschränkt sich indes auf ökologische und soziale Themen, bestimmt diese jedoch nach ihrem Einfluss auf die finanzielle Lage des Unternehmens. Dessen ungeachtet adressieren beide Standardsetter ähnliche Themen. Die Indikatoren des SASB bilden dabei primär potenzielle Chancen und Risiken für das Unternehmen ab, wohingegen die GRI die eigentliche Nachhaltigkeitsleistung und damit die Auswirkungen der Unternehmenstätigkeit auf die Gesellschaft in den Vordergrund stellt. Während das SASB viele Indikatoren in Geldgrößen angibt, um deren Einfluss auf die finanzielle Lage des Unternehmens zu verdeutlichen, sind monetäre Größen innerhalb der GRI-Standards weniger vertreten. Im Hinblick auf die spezifischen Angaben ist außerdem festzustellen, dass die GRI ausführlicher über die Themen berichtet, während das SASB sehr spezifische Indikatoren in einigen Branchen thematisiert.

Auch wenn Harmonisierungsbestrebungen zwischen den CSR-Frameworks verschiedener Initiativen zu beobachten sind,⁶¹ werden die GRI sowie das SASB als Standardsetter voraussichtlich aufgrund der unterschiedlichen Zielsetzungen, die u.a. auf kulturellen Vorstellungen und landesspezifischen Besonderheiten basieren, nebeneinander bestehen bleiben. Aufgrund der gestiegenen Erwartungshaltung der Stakeholder an die Nachhaltigkeitsleistung von Unternehmen lohnt sich jedoch eine intensive Auseinandersetzung mit den Unterschieden zwischen den nichtfinanziellen Angabeempfehlungen der beiden Rahmenwerke.

Redaktionelle Hinweise:

- Für eine Gegenüberstellung der ab dem 01.07.2018 anzuwendenden GRI-Standards mit den vorherigen GRI G4-Leitlinien vgl. *Stojanović-Blab/Blab*, KoR 2017 S. 307 = KOR1236227.
- Vgl. *Haller/Durchschein*, KoR 2016 S. 188 = KOR1193683, zur Entwicklung und Ausgestaltung der Prüfung von nach GRI-Normen erstellten Nachhaltigkeitsberichten in Deutschland.
- Zum CSR-RUG vgl. *Kajüter*, DB 2017 S. 617 = DB1232065; *Böcking/Althoff*, DK 2017 S. 246 = DK1236911; *Rimmelspacher/Schäfer/Schönberger*, KoR 2017 S. 225 = KOR1236293.
- Zur Praxis der Erstanwendung der nichtfinanziellen Berichterstattung nach dem CSR-RUG vgl. *Kajüter/Wirth*, DB 2018 S. 1605 = DB1271895.

⁵⁷ Vgl. z.B. CN0401-08 Food Retailers & Distributors, TC0102-09 Software & IT Services oder RT0201-04 Aerospace & Defense.

⁵⁸ Vgl. z.B. Pharmaceuticals HC0102-16, Restaurants SV0203-11, E-Commerce CN0404-11, Road Transportation TR0402-05.

⁵⁹ Vgl. CN0101-12, NR0302-18, IF0201-10, RR0104-02.

⁶⁰ Vgl. Fifka, *Corporate Citizenship in Deutschland und den USA*, 2011, S. 190 (192); Zülch/Kretzmann, DB 2017 S. 680.

⁶¹ Vgl. <http://hbfm.link/3887> (Abruf: 23.03.2018).

B7 Der Entgelttransparenzbericht gemäß §§ 21, 22 EntgTranspG – Vorschlag für einen Best-Practice-Bericht

Study no.	11		
Title	Der Entgelttransparenzbericht gemäß §§ 21, 22 EntgTranspG – Vorschlag für einen Best-Practice-Bericht		
Authors	Alana Sarina Pleger, Julia Schneider		
Author contribution		Pleger	Schneider
	<i>Numeric share</i>	0.5	0.5
	Conceptual development of research question	✓	✓
	Development of theory	✓	✓
	Methodology	✓	✓
	Acquisition of data	✓	✓
	Analysis/interpretation of data	✓	✓
	Writing the manuscript	✓	✓
Publication status	Published (2021) <i>Zeitschrift für Corporate Governance</i> , 4: 149 – 159. (VHB-Jourqual 3: D)		
Research approach	Empirical (descriptive) and normative study (critical analysis)		
Language	German		
Abstract	<i>German version:</i> Die Entgeltgleichheit und -transparenz unterliegt einer zunehmenden Regulierung. Durch das Entgelttransparenzgesetz (EntgTranspG) sind neue Unternehmensberichterstattungspflichten hinzugetreten. Aufbauend auf einer umfassenden empirischen Erhebung der Berichtsinhalte, der Form der Darstellung und der Verortung wird in dieser Studie erhebliches Verbesserungspotenzial in den Entgeltberichten der jüngsten Berichtssaison von im Prime Standard gelisteten Unternehmen identifiziert und ein Best Practice für den Entgeltbericht vorgeschlagen. Dieser kann den (nicht-)tarifgebundenen Unternehmen als Orientierungshilfe für die nächste Berichtssaison 2021 bzw. 2023 dienen und die bis dato auffindbaren Offenlegungsmängel hinsichtlich ihrer Maßnahmen zur Förderung der Gleichstellung und zur Herstellung der Entgeltgleichheit beheben. Die scheinbare Zurückhaltung verwundert, da die Unternehmen ein Eigeninteresse haben sollten ihre nichtfinanziellen Ambitionen in puncto Gleichstellung zwischen den Geschlechtern – auch in Abstimmung mit der nichtfinanziellen Erklärung sowie der Erklärung zur Unternehmensführung – den Stakeholdern zu kommunizieren. <i>English version:</i> Equal pay and pay transparency are subject to increasing regulation. The German Pay Transparency Act (EntgTranspG) has added new corporate reporting obligations. Building on a comprehensive empirical survey of report content, form of presentation and location, this study identifies considerable potential for improvement in the pay reports of the latest reporting season of Prime Standard-listed companies and proposes a best practice for the pay report. This can		

	serve as a guide for (non-)collectively bargained companies for the next reporting season in 2021 or 2023 and address the disclosure deficiencies found to date with regard to their measures to promote equality and achieve equal pay. The apparent reluctance is surprising, as companies should have a vested interest in communicating their nonfinancial ambitions in terms of gender equality to stakeholders - also in coordination with the nonfinancial statement as well as the corporate governance statement.

Der Entgelttransparenzbericht gemäß §§ 21, 22 EntgTranspG

Vorschlag für einen Best-Practice-Bericht

M.Sc. Alana Pleger / M.Sc. Julia Schneider*

Die Entgeltgleichheit und -transparenz unterliegt einer zunehmenden Regulierung. Durch das Entgelttransparenzgesetz (EntgTranspG) sind neue Unternehmensberichterstattungspflichten hinzugekommen. Aufbauend auf einer umfassenden empirischen Erhebung der Berichtsinhalte, Form der Darstellung und der Verortung wird in dieser Studie erhebliches Verbesserungspotenzial in den Entgeltberichten der jüngsten Berichtssaison von im Prime Standard gelisteten Unternehmen identifiziert und ein Best Practice für den Entgeltbericht vorgeschlagen. Dieser kann den (nicht-)tarifgebundenen Unternehmen als Orientierungshilfe für die nächste Berichtssaison 2021 bzw. 2023 dienen und die bis dato auffindbaren Offenlegungsmängel hinsichtlich ihrer Maßnahmen zur Förderung der Gleichstellung und zur Herstellung der Entgeltgleichheit beheben. Die scheinbare Zurückhaltung verwundert, da die Unternehmen ein Eigeninteresse haben sollten ihre nichtfinanziellen Ambitionen in puncto Gleichstellung zwischen den Geschlechtern – auch in Abstimmung mit der nichtfinanziellen Erklärung sowie der Erklärung zur Unternehmensführung – den Stakeholdern zu kommunizieren.

1. Einleitung

„Gleichstellung ist kein Naturgesetz“¹, sagte die mittlerweile ehemalige Bundesfamilienministerin Franziska Giffey in einer Bundestagsdebatte über die Gleichbehandlung der Geschlechter und rief dazu auf, aktiv Maßnahmen gegen die Benachteiligung von Frauen zu ergreifen. Insbesondere sollen neue Strukturen, Perspektiven und ein neues Rollenbild entwickelt werden, um das Ansehen der Frauen in der Gesellschaft und im Beruf zu stärken – so Giffey. Ein zentraler Stellhebel zur geschlechtsspezifischen Gleichstellung besteht in der Herstellung „fairer“ Entgeltstrukturen: Frauen und Männern soll das gleiche Entgelt bei gleicher oder gleichwertiger Arbeit gewährt werden. Schließlich

ist das Entgelt eine bedeutende Form der Anerkennung im Berufsleben.

Seit Jahren liegt der durchschnittliche Lohn von Männern in Deutschland etwa 20 Prozent über dem Durchschnittslohn der Frauen.² Indes ist fraglich, wie solch eine Diskrepanz entstehen konnte, denn gem. Art. 3 Abs. 3 GG ist festgeschrieben, dass „niemand [...] wegen seines Geschlechts [...] benachteiligt oder bevorzugt werden [darf]“. Um der Benachteiligung entgegenzuwirken, führte das Bundesministerium für Familie, Senioren, Frauen und Jugend (BMFSFJ) im Jahr 2017 das „Gesetz zur Förderung der Entgelttransparenz zwischen Frauen und Männern“³ ein. Dieses Gesetz stellt indes den vorerst letzten Entwicklungsschritt in puncto ge-

schlechtsbezogener Entgeltgleichheit und Förderung der diesbezüglichen Transparenz dar. Zu erwähnen ist aber an dieser Stelle, dass die Europäische Kommission einen Richtlinienentwurf zu dieser Thematik am 4.3.2021 vorgelegt hat.⁴ So erklärte die Präsidentin der Europäischen Kommission, Ursula von der Leyen, dazu: „Gleiche Arbeit verdient gleiches Entgelt. Und für gleiches Entgelt braucht man Transparenz.“⁵ Dieser Reformentwurf sieht bereits externe Berichterstattungspflichten im Hinblick auf geschlechtsspezifisches Lohngefälle für Unternehmen mit mindestens 250 Beschäftigten vor, wohingegen die derzeit gesetzliche Berichtsschwelle bei 500 Beschäftigten liegt.

Die Unternehmensberichterstattung über nichtfinanzielle Belange ist auch angetrieben durch die EU-CSR-Richtlinie 2014/95/EU, die immer stärker in den Fokus verschiedener Anspruchsgruppen gerückt ist.⁶ Dass ein Schwerpunkt dieser

* Alana Pleger und Julia Schneider sind wissenschaftliche Mitarbeiterinnen an der Professur für Financial Accounting an der Justus-Liebig-Universität Gießen, E-Mail: alana.pleger-2@wirtschaft.uni-giessen.de und julia.schneider@wirtschaft.uni-giessen.de.

1 Giffey, Rede zum Internationalen Frauentag vor dem Deutschen Bundestag, 2020, abrufbar unter <https://www.bundesregierung.de/breg-de/service/bulletin/rede-der-bundesministerin-fuer-familie-senioren-frauen-und-jugend-dr-franziska-giffey-1729300> (Abruf: 5.5.2021).

2 Vgl. Statistisches Bundesamt, Gender Pay Gap 2019, Pressemitteilung Nr. 097/2020, abrufbar unter https://www.destatis.de/DE/Presse/Pressemitteilungen/2020/03/PD20_097_621.html (Abruf: 5.5.2021).

3 Vgl. Gesetz zur Förderung der Transparenz von Entgeltstrukturen vom 30.6.2017, BGBl. I 2017, S. 2151-2158.

4 Vgl. Europäische Kommission, Richtlinie des Europäischen Parlaments und des Rates zur Stärkung der Anwendung des Grundsatzes des gleichen Entgelts für Männer und Frauen bei gleicher oder gleichwertiger Arbeit durch Lohntransparenz und Durchsetzungsmechanismen vom 4.3.2021, COM(2021) 93 final, abrufbar unter <https://eur-lex.europa.eu/legal-content/DE/TXT/PDF/?uri=CELEX:52021PC0093&from=EN> (Abruf: 29.6.2021).

5 von der Leyen, Lohntransparenz: Kommission schlägt Maßnahmen für gleiches Entgelt bei gleicher Arbeit vor, Pressemitteilung vom 4.3.2021, abrufbar unter https://ec.europa.eu/commission/presscorner/detail/de/ip_21_881 (Abruf: 22.6.2021).

6 Vgl. Hinze, „Nichtfinanzielle Leistungsindikatoren“ in der Berichterstattung, WpG 21/2016 S. 1168 f.

► Unternehmen sind verpflichtet, in einem gesonderten Bericht auf die Gleichstellung und Entgeltgleichheit von Frauen und Männern einzugehen. ◀

Entwicklung auf der Berichterstattung über geschlechterbezogene Arbeitnehmerbelange liegt, wird schon mit Blick auf die im vergangenen Jahrzehnt eingeführten Berichtsinhalte in der deutschen Rechnungslegung⁷ deutlich.⁸ Zu den bereits bestehenden Pflichten ist durch das am 6.7.2017 in Kraft getretene EntgTranspG eine weitere Berichtspflicht hinzugekommen.⁹ Neben Maßnahmen zur Realisierung der Entgeltgleichheit von Frauen und Männern enthält das Gesetz die Pflicht zur Erstellung eines Berichtes zur Gleichstellung und Entgeltgleichheit (im Folgenden: Entgeltbericht), die unmittelbar an die Rechnungslegung nach dem Handelsgesetzbuch (HGB) und an den Lagebericht als handelsrechtlicher Veröffentlichungsform anknüpft.¹⁰ Durch die so geschaffene Verbindung sind Unternehmen verpflichtet, zusätzlich zu ihren handelsrechtlichen Veröffentlichungen in einem gesonderten Bericht auf die Gleichstellung und Entgeltgleichheit von Frauen und Männern einzugehen.¹¹

Im Rahmen dieses Beitrags werden die erstmalig im Geschäftsjahr 2018 für das Kalenderjahr 2016 veröffentlichten Entgeltberichte von im Prime Standard börsennotierten Unternehmen hinsichtlich Veröffentlichungsform, Darstellung und Inhalt deskriptiv analysiert. Da die nächste Berichtssaison in Abhängigkeit von der Tarifgebundenheit erst wieder für 2021 bzw. 2023 datiert ist, stellen die im Geschäftsjahr 2018 veröffentlichten Entgeltberichte zugleich die jüngste „Berichtsaufgabe“ dar.¹² Resultierend aus der deskriptiven Analyse wird ein Best Practice für die Gestaltung eines Entgeltberichts vorgeschlagen.

2. Der Bericht zur Gleichstellung und Entgeltgleichheit nach §§ 21, 22 EntgTranspG

Gemäß § 21 Abs. 1 EntgTranspG betrifft die Pflicht zur Erstellung eines Entgeltberichts Unternehmen mit mehr als 500 Beschäftigten, sofern sie zur Erstellung eines Lageberichts nach §§ 264 und 289 HGB verpflichtet sind. Falls ein Tochterunternehmen aufgrund der Befreiungsvorschriften i. S. d. §§ 264 Abs. 3 bzw. 264b HGB keinen Lagebericht aufstellt, besteht

folgerichtig auch keine Erstellungspflicht für einen Entgeltbericht. Das EntgTranspG verweist nicht explizit auf §§ 290, 315 HGB zur Konzernlageberichterstattung, sodass auf Konzernebene keine Entgeltberichtspflicht besteht.

Die inhaltlichen Anforderungen des Entgeltberichts sind § 21 Abs. 1 und 2 EntgTranspG zu entnehmen. So haben Unternehmen zum einen *Maßnahmen zur Förderung der Gleichstellung* von Frauen und Männern und deren Wirkungen darzustellen (§ 21 Abs. 1 Nr. 1 EntgTranspG). Zum anderen sind gemäß § 21 Abs. 1 Nr. 2 EntgTranspG zugleich *Maßnahmen zur Herstellung von Entgeltgleichheit* für Frauen und Männer aufzuführen. Eine weitere Konkretisierung der jeweiligen Maßnahmen innerhalb des EntgTranspG unterbleibt allerdings, wenngleich das BMFSFJ mögliche Maßnahmen beispielhaft anführt.¹³ Werden hingegen keine Maßnahmen angegeben, ist dies im Sinne eines Comply-or-explain-Prinzips im Entgeltbericht zu begründen (§ 21 Abs. 1 EntgTranspG).

Des Weiteren sind *nach dem Geschlecht aufgeschlüsselte Angaben* (nachfolgend *statistische Angaben*) zur durchschnittlichen Gesamtzahl der Beschäftigten sowie zur durchschnittlichen Zahl der Voll- und Teilzeitbeschäftigten in den Entgeltbericht zu integrieren (§ 21 Abs. 2 Nr. 1 und 2 EntgTranspG). Nach § 22 Abs. 3 EntgTranspG beziehen sich diese statistischen Daten lediglich auf das jeweils letzte Kalenderjahr des Berichtszeitraums. In Folgeberichten sollen zudem Veränderungen in Relation zum vorherigen Bericht angegeben werden.

§ 22 EntgTranspG verweist auf den Berichtszeitraum und die Veröffentlichungsform des Entgeltberichts.¹⁴ Gemäß § 22 Abs. 1, 2 EntgTranspG ergeben sich für tarifgebundene bzw. tarifynwendende und nicht-tarifgebundene Unternehmen abweichende Berichtszeiträume sowie Veröffentlichungszeitpunkte. Tarifgebundene oder tarifynwendende Unternehmen müssen alle fünf Jahre einen Entgeltbericht veröffentlichen, der sich auf die vergangenen fünf Jahre bezieht (§ 22 Abs. 1 EntgTranspG), wohingegen nicht-tarifgebundene bzw. nicht-tarifynwen-

dende Unternehmen alle drei Jahre einen Entgeltbericht über die letzten drei Jahre veröffentlichen müssen (§ 22 Abs. 2 EntgTranspG). Hintergrund ist, dass Beschäftigte mit Tarifverträgen weniger von entgeltlichen Ungleichbehandlungen betroffen sind.¹⁵ Der Entgeltbericht ist als Anlage des Lageberichts im Bundesanzeiger zu veröffentlichen (§ 22 Abs. 4 EntgTranspG).

3. Empirische und theoretische Einordnung

Die Entgeltungleichheit zwischen Frauen und Männern in Unternehmen beschäftigt seit vielen Jahren den Gesetzgeber gleichermaßen wie den Akademiker. Auf

7 Beispielhaft zu nennen sind die nichtfinanzielle Erklärung nach § 289c HGB und die Erklärung zur Unternehmensführung nach § 289f HGB.

8 Vgl. Velte, Regulierungsdichte der (Gender) Diversity-Berichterstattung, WPg 8/2018 S. 477f.

9 Vgl. Kocher, Das Entgelttransparenzgesetz, AuR 1/2018 S. 13; Kolb/Niechcial, Verwirrende Vielfalt der neuen CSR-Berichterstattung, StuB 18/2017 S. 703.

10 Vgl. Philippsen/Sultana, Ausgewählte Zweifelsfragen zur Erstellung und Offenlegung eines Entgeltberichts als Anlage zum Lagebericht, KoR 3/2018 S. 135; Kolb/Heinek, Entgelttransparenzgesetz: Auskunftspflichten und neue Anlage zum Lagebericht, WPg 21/2017 S. 1245.

11 Vgl. Philippsen/Sultana, Ausgewählte Zweifelsfragen zur Erstellung und Offenlegung eines Entgeltberichts als Anlage zum Lagebericht, KoR 3/2018 S. 135.

12 Bei der Erstanwendung umfasst der Berichtszeitraum für den Bericht nur das letzte abgeschlossene Kalenderjahr, das dem Jahr 2017 vorausgeht. Ab der nächsten Berichtssaison müssen sich die Unternehmen dann auf die letzten 3 bzw. 5 Jahre beziehen (vgl. Übergangsbestimmung in § 25 Abs. 2 EntgTranspG).

13 Vgl. Bundesministerium für Familie, Senioren, Frauen und Jugend, Das Entgelttransparenzgesetz, 2017, abrufbar unter <https://www.bmfsfj.de/blob/118298/f9896570e6d9a5cf1afac0f5d192a834/das-entgelttransparenzgesetz-ein-leit-faden-fuer-arbeitgeber-sowie-fuer-betriebs-und-personalraete-data.pdf>, S. 67 f., (Abruf: 5.5.2021).

14 In der ersten Berichtssaison des Jahres 2018 (§ 25 Abs. 2 EntgTranspG) umfasst der Berichtszeitraum nur das letzte abgeschlossene Kalenderjahr, das 2017 vorausgeht (§ 25 Abs. 3 EntgTranspG). Der Berichtszeitraum der hier betrachteten Entgeltberichte bezieht sich somit auf 2016. Der Entgeltbericht wird in Verbindung mit dem Jahresabschluss und Lagebericht des Geschäftsjahres 2017 veröffentlicht.

15 Vgl. Gesetzesentwurf BT-Drucksache 18/11133 vom 13.2.2017, S. 73.

nationaler Ebene verlangt sowohl das Grund- als auch das Allgemeine Gleichbehandlungsgesetz explizit, die Gleichstellung von Frauen und Männern, auch in Bezug auf die Entgeltgleichheit, zu forcieren. Auf europäischer Ebene enthält der Vertrag über die Arbeitsweise der Europäischen Union ein auf das Geschlecht bezogenes Diskriminierungsverbot (Art. 157 AEUV). Das Entgelttransparenzgesetz schließt nahtlos an diesen staatlichen Bemühungen an und appelliert erneut an das bestehende Entgeltgleichheitsgebot. Da etwaige Selbstverpflichtungserklärungen aufseiten der Unternehmen „ins Leere liefen“, musste staatlich nachgeholfen werden, denn Arbeit verdient gebührende Anerkennung, Gleichbehandlung und Wertschätzung – unabhängig vom Geschlecht. Geschlechterbezogene Merkmale dürfen *theoretisch* nicht in Entgeltdifferenzen resultieren (§ 3 Abs. 1 EntgTranspG). Auf diese theoretischen Überlegungen gründen sich die Berichtspflichten, welche die Unternehmen in regelmäßigen Abständen dazu anhalten, Rechenschaft über die Einhaltung des Entgeltgleichheitsgebots abzulegen und somit der Entgeltlücke wirksam entgegenzutreten. Denn durch Transparenz erhalten Unternehmen den externen Anreiz, sich mit ihren Entgeltstrukturen intern auseinanderzusetzen und entsprechende Maßnahmen zur Förderung der Gleichstellung zu forcieren. Stakeholdern wird so ein Monitoring der Entgeltstrukturen und Entgeltdifferenzen ermöglicht, sodass vorhandene Informationsasymmetrien abgebaut werden.¹⁶ Allerdings dokumentiert die *Empirie* ein gegensätzliches Bild: Entgeltdiskriminierung, Undurchsichtigkeit bei der Entgeltpolitik und Ungleichbehandlung am Arbeitsplatz sind sowohl auf Führungsebenen als auch auf unteren Hierarchieebenen nach wie vor keine Seltenheit.¹⁷ Beispielsweise deuten Peichl und Schricker (2019) auf strukturelle und institutionelle Schwachstellen hin, angefangen bei einer oft kinderfeindlichen Unternehmenskultur über inflexible Arbeitszeitmodelle bis hin zu undurchsichtigen und starren Gehaltsschemata.¹⁸ Ebenso wenig sind Entgeltunterschiede und Differenzen bezüglich der Lebensarbeitszeit und Karrierewege kein rein deutsches

Phänomen, wie es der jährliche Global Gender Gap Report darlegt.¹⁹

Während die Berichterstattung über Elemente der Corporate Governance im Zuge des Deutschen Corporate Governance Kodex und der Entsprechenserklärung nach § 161 AktG in Deutschland etabliert ist, rückte auch mit der Verabschiedung des „Frauenquotengesetzes“²⁰ und des CSR-Richtlinie-Umsetzungsgesetzes²¹ die Berichterstattung über die Vielfalt bei der Besetzung der Unternehmensverwaltung (engl. Diversity Reporting) zusehends in den Mittelpunkt der Unternehmensberichterstattung. Die Vorschläge zur Umsetzung des Diversity Reporting beziehen sich bislang tendenziell auf die oberen Hierarchieebenen (Vorstand und Aufsichtsrat, erste und zweite Führungsebene unterhalb des Vorstands) und weniger auf die Gesamtbelegschaft. Zukünftig sollten vermehrt Aspekte zur Vielfalt und zu den Vergütungsstrukturen auf Ebene der Gesamtbelegschaft – auch in Relation zu den oberen Hierarchieebenen – Eingang in die externe Berichterstattung finden – allein um die gesetzlichen Publizitätspflichten zu erfüllen (§§ 21, 22 EntgTranspG). Darüber hinaus ist anzunehmen, dass die Unternehmen neben der gesetzlichen Verpflichtung (als Mindestanforderung an den Entgeltbericht) einen intrinsischen Anreiz haben, über solche Positivmerkmale wie ihre Ambitionen zur Reduzierung der Geschlechterdiskriminierung im öffentlichen Raum zu kommunizieren. So sollte ein Berichtsrahmen für einen transparenten Entgeltbericht, der auf die Entgeltstrukturen der Gesamtbelegschaft fokussiert, für den Anwenderkreis von Interesse sein.

Aus Sicht der Forschung und der Praxis stehen die Fragen nach einer konkreten Ausgestaltung einer in sich geschlossenen Entgelttransparenzpublizität sowie deren Einbettung in andere Publizitätsinstrumente (z. B. Lagebericht, Nachhaltigkeitsbericht, integrierter Bericht) noch am Anfang. Eine Orientierungshilfe für einen Entgeltbericht i. S. einer normativen Praxisempfehlung – analog der GRI Standards für die Nachhaltigkeitsberichterstattung – ist derzeit noch nicht existent. Ergo bedarf es einer idealtypischen Strukturierung und Bestimmung der Berichts-

inhalte durch ein empirisches Forschungsdesign. Die vorliegende Analyse strukturiert sich wie folgt:²² Auf Basis empirischer Befunde wird in einem ersten Schritt die Praxisrelevanz unterschiedlicher Inhaltskomponenten in puncto Entgelttransparenz abgelesen. In einem zweiten Schritt werden die Berichtsinhalte und deren Gewichtung (Anteil am Gesamtumfang) zur Ableitung von Mustergliederungen für Zwecke der externen Berichterstattung herangezogen.

- 16 Vgl. Arbeitskreis Corporate Governance Reporting der Schmalenbach-Gesellschaft für Betriebswirtschaft e.V., Weiterentwicklung der Unternehmensberichterstattung, DB 37/2016 S. 2131; vgl. auch zur Stakeholder-Agent-Theory Hill/Jones, Stakeholder-Agency-Theory, Journal of Management Studies, 29/1992, S. 131–154.
- 17 Vgl. Specht, 18 Prozent weniger Gehalt – die Gründe für die finanzielle Lücke zwischen Frau und Mann, Handelsblatt vom 8.3.2021, abrufbar unter <https://www.handelsblatt.com/politik/deutschland/gender-pay-gap-18-prozent-weniger-gehalt-die-gruende-fuer-die-finanzielle-luecke-zwischen-frau-und-mann/26982930.html?ticket=ST-4176682-FccejVOBuvDZe9pFA4BZ-ap5> (Abruf: 29.6.2021).
- 18 Vgl. Peichl/Schricker, Entgelttransparenzgesetz gegen Lohndiskriminierung: Viel Aufwand, wenig Nutzen?, ifo Schnelldienst 4/2019 S. 7.
- 19 Vgl. World Economic Forum, Global Gender Gap Report 2021, abrufbar unter <https://www.weforum.org/reports/global-gender-gap-report-2021> (Abruf: 29.6.2021); Der Bericht analysiert die Gleichstellung der Geschlechter sowie die Entwicklung der Einkommenslücke zwischen den Geschlechtern.
- 20 Vgl. Gesetz für die berechnete Teilhabe von Frauen und Männern an Führungspositionen in der Privatwirtschaft und im öffentlichen Dienst vom 24.4.2015, BGBl. I 2015, S. 642–662.
- 21 Vgl. Gesetz zur Stärkung der nichtfinanziellen Berichterstattung der Unternehmen in ihren Lage- und Konzernlageberichten (CSR-Richtlinie-Umsetzungsgesetz) vom 18.4.2017, BGBl. I 2017, S. 802–814.
- 22 Vgl. Arbeitskreis Corporate Governance Reporting der Schmalenbach-Gesellschaft für Betriebswirtschaft e.V., Diversity Reporting als Bestandteil des Corporate Governance Reportings, 2018, in: Krause/Pellens (Hrsg.), Betriebswirtschaftliche Implikationen der digitalen Transformation, ZfbF-Sonderheft 72/17 S. 366.

► **Insgesamt veröffentlichen 60 der 160 börsennotierten Unternehmen einen Entgeltbericht im Bundesanzeiger.** ◀

4. Empirische Analyse des Berichtes zur Gleichstellung und Entgeltgleichheit nach §§ 21, 22 EntgTranspG und Ableitung eines Best Practice

4.1 Datengrundlage und methodische Vorgehensweise der empirischen Analyse

In Ermangelung eines Rahmenwerks mit detaillierten Vorgaben zur Erstellung des Entgeltberichts fehlt den Unternehmen eine konkrete Orientierungshilfe hinsichtlich der inhaltlichen und formalen Ausgestaltung dieses Berichts. Aufbauend auf einer empirischen Analyse der Entgeltberichte der zum Erhebungszeitpunkt im Prime Standard gelisteten Unternehmen wird daher in einem ersten Schritt der aktuelle Status Quo der Umsetzung des EntgTranspG abgebildet, um in einem zweiten Schritt ein Best Practice abzuleiten. Die Ergebnisse repräsentieren die Erstanwendung der §§ 21, 22 des EntgTranspG der börsennotierten Unternehmen. Insgesamt veröffentlichten 60 der 160 börsennotierten Unternehmen einen Entgeltbericht im Bundesanzeiger. Die Verteilung hinsichtlich der drei Aktienindizes sieht wie folgt aus: DAX30 (23), MDAX (20) und SDAX (17). Das Fehlen von 100 Entgeltberichten liegt primär darin begründet, dass die für die Berichtspflicht erforderliche Beschäftigtenanzahl von 500 auf Einzelunternehmensebene (d. h. nicht auf Konzernunternehmensebene) unterschritten wird.²³

Die empirische Analyse wird – formal und inhaltlich – auf drei Ebenen durchgeführt, die sich aus den gesetzlichen Vorschriften des Entgelttransparenzgesetzes ergeben (§§ 21, 22 EntgTranspG). Zunächst wird ermittelt, auf welche Art und Weise die Entgeltberichte der Öffentlichkeit zugänglich gemacht werden (Veröffentlichungsform). Darauf folgend werden die inhaltlichen Bestandteile der jeweiligen Entgeltberichte i. S. v. § 21 Abs. 1, 2 HGB analysiert (empirische Auswertung) und abschließend wird dargelegt, wie die Entgeltberichte aufgebaut sind (Darstellungsform). Methodisch wird sich einer binären Kodierung („0“ vs. „1“) bedient, durch die die Entgeltberichte der Unternehmen hinsichtlich verschiedener Kriterien ausgewertet werden.

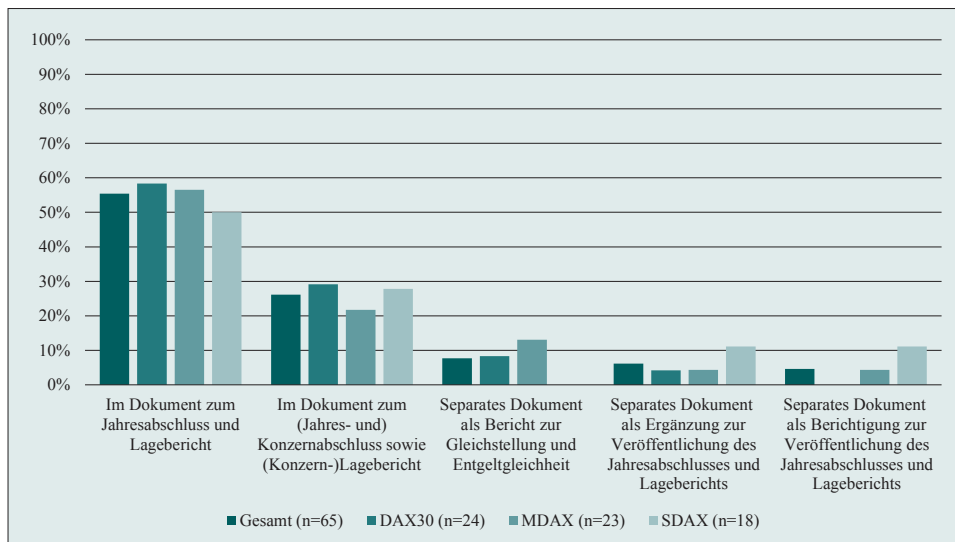


Abb. 1: Veröffentlichungsform innerhalb des Bundesanzeigers

4.2 Veröffentlichungsform des Entgeltberichts

Grundsätzlich veröffentlicht jedes der betrachteten Unternehmen seinen Entgeltbericht gesetzeskonform im Bundesanzeiger. Jedoch variiert die Veröffentlichungsform innerhalb des Bundesanzeigers zwischen den Unternehmen. Zwar suggeriert § 22 Abs. 4 EntgTranspG eine homogene Veröffentlichungsform als Anlage des Lageberichts, allerdings unterbleibt hier ein Verweis, in welchem Dokument und an welcher Stelle dies innerhalb des Bundesanzeigers erfolgen soll.

Abb. 1 zeigt, in welchem Dokument der Entgeltbericht im Bundesanzeiger veröffentlicht wird. Die Mehrheit der Unternehmen veröffentlicht diesen zusammen mit dem Jahresabschluss und Lagebericht in einem Dokument. Fünf dieser Unternehmen veröffentlichen ihren Entgeltbericht zusätzlich im Dokument zum Konzernabschluss und Konzernlagebericht, weshalb die Stichprobe in diesem Fall 65 Berichte umfasst. Ferner publizieren einige Unternehmen nur ein einziges Dokument, das den Jahres- und Konzernabschluss sowie den (Konzern-)Lagebericht enthält. Folglich veröffentlichen insgesamt 26 % der Unternehmen den Entgeltbericht innerhalb des Dokuments zum Jahres- und Konzernabschluss bzw. zusätzlich im Konzernabschluss sowie (Konzern-)Lagebericht.²⁴ Die restlichen Unternehmen (19 %) publizieren ihren

Entgeltbericht hingegen – erst nach der Veröffentlichung des (Konzern-)Jahresabschlusses und (Konzern-)Lageberichts – ausschließlich in Form eines separaten Dokuments als Bericht zur Gleichstellung und Entgeltgleichheit, als Ergänzung oder als Berichtigung zur Veröffentlichung des Jahresabschlusses und Lageberichts. Problematisch an den beiden letztgenannten Veröffentlichungsformen ist allerdings, dass potenzielle Adressaten den Bericht schwer finden bzw. leicht übersehen können. Adressatenfreundlicher ist es daher, das Dokument im Bundesanzeiger sichtbar als Entgeltbericht zu kennzeichnen, sofern der Entgeltbericht getrennt vom Dokument zum Jahresabschluss und Lagebericht publiziert wird.

53 % der 60 Unternehmen weisen explizit darauf hin, dass es sich beim Entgeltbericht um eine Anlage zum Lagebericht handelt. Der Entgeltbericht ist somit kein Bestandteil des Lageberichts.²⁵ Allerdings

²³ Als weitere Gründe sind anzuführen: Auslandsitz des Unternehmens (15), Gründung oder Umwandlung des Unternehmens nach 2016 (5) oder Befreiung von der Lageberichtspflicht nach § 264 Abs. 3 HGB (1).

²⁴ Einzig die Deutsche Pfandbriefbank AG veröffentlicht ihren Entgeltbericht nicht im Jahresabschluss, sondern ausschließlich im separaten Konzernabschluss; vgl. Deutsche Pfandbriefbank AG, Konzernabschluss 2017.

²⁵ Vgl. Rimmelpacher/Kliem, Der Entgeltbericht – die neue Anlage zum Lagebericht, DB 6/2018 S. 269; Kocher, Das Entgelttransparenzgesetz, AuR 1/2018 S. 13.

war der Entgeltbericht im damaligen Gesetzgebungsverfahren ursprünglich noch als Lageberichtselement geplant,²⁶ was einer einheitlichen Vorgehensweise zur nichtfinanziellen Berichterstattung wie der nichtfinanziellen Erklärung (§ 289b Abs. 1, 3 HGB) entsprochen hätte.²⁷ Im Rahmen der Gleichstellungsberichterstattung ergeben sich für den Entgeltbericht bereits Schnittstellen²⁸ zur nichtfinanziellen Erklärung sowie zur Erklärung zur Unternehmensführung im Sinne von § 289f HGB, wenngleich § 289c HGB – wie auch die Entgeltberichterstattung – vielmehr auf die Gesamtbelegschaft und nicht nur auf die Unternehmensverwaltung abzielt. Ferner räumt der Gesetzgeber grundsätzlich Gestaltungsspielräume hinsichtlich Struktur und Umfang des Lageberichts ein,²⁹ was dem eher prinzipienorientierten Entgeltbericht *nicht* entgegensteht.³⁰ Die Entscheidung des Gesetzgebers gegen die Integration des Entgeltberichts ist dennoch zu befürworten. Denn so kann der ursprüngliche Lageberichts-zweck aufrechterhalten werden,³¹ namentlich die Informationsvermittlung mit klarem Bezug zur wirtschaftlichen Unternehmenslage, um diese zu beurteilen.³² Schließlich sei der wesentliche Zusammenhang zwischen der wirtschaftlichen Lage und den Berichtselementen des Entgeltberichts zu gering.³³ Nichtsdesto-trotz finden sich im Lagebericht neben wirtschaftlichen auch nichtfinanzielle Aspekte, um sämtlichen Informationsbedürfnissen der Stakeholder gerecht zu werden.³⁴ Die Lageberichtsbestandteile stehen trotz ihrer Heterogenität in Verbindung zueinander, was für den Entgeltbericht nicht behauptet werden kann, da sich dieser weder einzelner Lageberichtsbestandteile bedient noch auf diese verweist.³⁵ Insofern ist die Veröffentlichungsform als Anlage zum Lagebericht durchaus sinnvoll, allerdings bleibt unklar, an welcher Stelle diese bspw. innerhalb des Dokuments, das den Jahresabschluss und Lagebericht enthält, zu platzieren ist.

Diese Problematik spiegelt sich auch in der heterogenen Berichtspraxis wider. So verorten 23 (10) der 36 (17) Unternehmen, die ihren Entgeltbericht im Dokument zum Jahresabschluss und Lagebericht (Jahres- und Konzernabschluss sowie (Kon-

zern-)Lagebericht) veröffentlichen, den Bericht am Ende des Dokuments. Bei 33 % (41 %) befindet sich der Entgeltbericht innerhalb des Jahresabschlusssdokuments (Jahres- und Konzernabschlusssdokuments). Die restlichen Unternehmen publizieren den Bericht am Anfang des Dokuments. Die unterschiedlichen Veröffentlichungsformen erhöhen den Suchaufwand für die Adressaten. Eine Veröffentlichung außerhalb des Bundesanzeigers wie z. B. innerhalb des Internetauftritts könnte diesbezüglich Erleichterung schaffen. 13 der 60 Unternehmen machen ihren Entgeltbericht auch außerhalb des Bundesanzeigers zugänglich. So wurde der Entgeltbericht viermal als einzelnes Dokument und neunmal im Geschäftsbericht auf der Internetseite des jeweiligen Unternehmens platziert. Wenngleich die Veröffentlichungsdichte außerhalb des Bundesanzeigers vergleichsweise gering ist, empfiehlt es sich dennoch, den Entgeltbericht auch an anderer Stelle der Öffentlichkeit zugänglich zu machen. Eine Wertung der Veröffentlichungsformen als Komplementäre anstatt als Substitute ist im Hinblick auf eine erleichterte Suche und einer damit einhergehenden Erweiterung des Adressatenkreises durchaus zielführend.

4.3 Inhalt des Entgeltberichts

4.3.1 Maßnahmen zur Förderung der Gleichstellung von Frauen und Männern und deren Wirkungen

Im Rahmen der Inhaltsanalyse wird untersucht, in welchem Umfang und in welcher Tiefe sich die Unternehmen i. S. v. § 21 EntgTranspG zu Maßnahmen zur Förderung der Gleichstellung (Abs. 1 Nr. 1) und zur Herstellung der Entgeltgleichheit (Abs. 1 Nr. 2) sowie zu statistischen Angaben (Abs. 2) im Entgeltbericht äußern. Dabei fällt bereits zu Beginn auf, wie vielfältig die beschriebenen Maßnahmen sind. So werden insgesamt 72 einzelne Maßnahmen erfasst (Nr. 1: 53; Nr. 2: 19). Dies erscheint insofern nicht überraschend, als die fehlende gesetzliche Konkretisierung der Maßnahmen vielfältige Berichtsoptionen eröffnet.

Hinsichtlich der *Maßnahmen zur Förderung der Gleichstellung* werden insgesamt 53 ver-

schiedene Aspekte in den 60 Entgeltberichten adressiert. Der Berichtsumfang liegt in der Gesamtheit (DAX30; MDAX; SDAX) zwischen 2 (4; 2; 3) und 37 (37; 26; 21) Maßnahmen, wobei im DAX30 über ein Drittel mehr Maßnahmen berichtet wird als in den anderen beiden Indices. Im Mittel sind 12 Maßnahmen im Entgeltbericht enthalten. Auf Basis der 53 einzelnen Maßnahmen werden im Rahmen der Auswertung entsprechende „Oberkategorien“ gebildet, um die erfassten individuellen Einzelmaßnahmen inhaltlich sinnvoll zu aggregieren und die thematischen Schwerpunkte verdichtet darzustellen. Einzelmaßnahmen, die inhaltlich zusammengehörige Themengebiete ansprechen, werden infolgedessen in eine

26 Vgl. Bundesministerium für Familie, Senioren, Frauen und Jugend, Entwurf eines Gesetzes für mehr Lohngerechtigkeit zwischen Frauen und Männern, 2015, abrufbar unter <https://www.mittelstandsverbund.de/media/84e1d811-efb7-4139-916de0436cca2455>, S. 15 (Abruf: 6.5.2021); Bundesministerium für Familie, Senioren, Frauen und Jugend, Entwurf eines Gesetzes für mehr Lohngerechtigkeit zwischen Frauen und Männern, 2016, abrufbar unter <https://www.bmfsfj.de/resource/blob/119342/887ad468840d80ec96332a6571883f46/entgelttransparenz-gesetz-data.pdf>, S. 15 (Abruf: 6.5.2021); Referentenentwürfe, § 22 Abs. 1 EntgGleichG, § 22 Abs. 4 EntgTransG.

27 Vgl. Hinze, „Nichtfinanzielle Leistungsindikatoren“ in der Berichterstattung, WPg 21/2016 S. 1168 f.

28 Vgl. bspw. § 289c Abs. 2 Nr. 2 HGB und § 289f Abs. 2 Nr. 6 HGB.

29 Vgl. Morck/Drüen, in: Handelsgesetzbuch Kommentar, 2019, § 289 HGB, Rn. 1.

30 Vgl. Fink/Schmidt, Neue Entwicklungen in der Lageberichterstattung, DB 38/2015 S. 2163.

31 Vgl. Fink/Schmidt, Neue Entwicklungen in der Lageberichterstattung, DB 38/2015 S. 2160.

32 Vgl. Grottel, in: Beck'scher Bilanzkommentar, 2020, § 289, Rn. 22, 24.

33 Vgl. Institut der Wirtschaftsprüfer (IDW), Schreiben an den BT-Ausschuss für Familie, Senioren, Frauen und Jugend, 2017, abrufbar unter <https://www.idw.de/blob/98410/f36d9c59b5299287317c7bc6c559ee2/down-bt-transparenz-entgeltstrukturen-data.pdf> (Abruf: 6.5.2021).

34 Vgl. IDW, Positionspapier: Zukunft der nichtfinanziellen Berichterstattung und deren Prüfung, 2020, S. 3f, abrufbar unter <https://www.idw.de/blob/127008/fe3ecc79b5ff9bfa52b715d7e44f0382/down-positionspapier-zukunft-nichtfinanzielle-be-data.pdf> (Abruf: 29.6.2021).

35 Vgl. Wulf/Niemöller, Offenlegung nichtfinanzieller und die Diversität betreffender Informationen im Lagebericht, PiR 4/2015 S. 111.; Rimmelpacher/Kliem, Der Entgeltbericht, DB 6/2018 S. 268.

► Die Mehrheit der Unternehmen macht zu einzelnen Kategorien wie dem Diversity Management keinerlei Angaben. ◀

thematisch passende Kategorie eingeteilt und mit einer aussagekräftigen Überschrift versehen. Die einzelnen Maßnahmen verteilen sich somit auf 10 Maßnahmen-Kategorien. Beispielsweise werden unter der Kategorie „Vereinbarkeit von Familie und Beruf (Work-Life-Balance)“ insgesamt 19 einzelne Maßnahmen wie u. a. Gleitzeit, (Alters-)Teilzeit, mobiles Arbeiten, Ferienbetreuung und Kinderbetreuungszuschüsse zusammengefasst.³⁶ Abb. 2 stellt die Maßnahmenanzahl (aufgegliedert von null bis mehr als sechs Maßnahmen)³⁷ der jeweiligen Maßnahmen-Kategorie prozentual auf Gesamtunternehmensebene dar (gestapelte Säulen). Zusätzlich ist die durchschnittliche absolute Maßnahmenanzahl pro Kategorie in Form einer Linie mit Datenpunkten angegeben. In der Gesamtheit zeigt sich, dass die Mehrheit der Unternehmen bei 6 der 10 Kategorien keinerlei Maßnahmen berichtet, was sich ebenfalls in einem Durchschnittswert von unter einer Maßnahme widerspiegelt. So werden beispielsweise Maßnahmen zu Auszeichnungen, Events und Vernetzung sowie zur

unternehmensinternen Kommunikation bei 75 % bzw. 85 % der Unternehmen nicht im Entgeltbericht thematisiert. Andererseits ist erkennbar, dass die Unternehmen im Rahmen der Berichterstattung vergleichsweise weniger in die Tiefe gehen, da primär nur eine Maßnahme pro Kategorie adressiert wird. Im Rahmen der insgesamt fünf erfassten Maßnahmen zur Rekrutierung berichten 32 % lediglich eine Maßnahme und nur 2 % insgesamt vier Maßnahmen. Überraschend ist, dass nur 15 % des MDAX, aber 65 % des SDAX mindestens eine Rekrutierungsmaßnahme berichten.

Im Bereich der Maßnahmen zur Vereinbarkeit von Familie und Beruf (Work-Life-Balance), zur Personalentwicklung sowie zur Frauenquote wird hingegen relativ umfassend berichtet. So integrieren beispielsweise 37 % der Unternehmen mehr als 6 Maßnahmen in ihren Entgeltbericht. Allerdings berichten nur 5 dieser Unternehmen zwischen 11 und 13 Maßnahmen, wobei 13 Maßnahmen das Berichtsmaximum innerhalb der Kategorie darstellen.

Grundsätzlich scheinen die Unternehmen nur vereinzelt und zu bestimmten Themen relativ umfassend Stellung zu nehmen, während in anderen Bereichen mehrheitlich keine einzige Maßnahme benannt wird. Fraglich ist, ob dies in der tatsächlich fehlenden Implementierung dieser Maßnahmen oder in der fehlenden gesetzlichen Konkretisierung der Maßnahmen begründet liegt. Beispielsweise äußern insgesamt 75 % der Unternehmen im Rahmen der Vereinbarkeit von Familie und Beruf (Work-Life-Balance) die Möglichkeit flexibler Arbeitszeit als Maßnahme. Davon belassen es allerdings 16 Unternehmen bei dieser allgemeinen Aussage, während die restlichen Unternehmen dies über weitere Maßnahmen in Form von Gleitzeit, (Alters-)Teilzeit o. Ä. zusätzlich präzisieren. Vor diesem Hintergrund erscheint es zielführend, die vorhandenen Maßnahmen durch konkret angewendete Maßnahmen oder Beispiele näher auszuführen, um den jeweiligen Maßnahmen Tiefe und Informationsgehalt zu verleihen. Generell ist es überraschend, dass die Mehrheit der Unternehmen zu einzelnen Kategorien wie dem Diversity Management keinerlei Angaben macht. Insbesondere in diesem Bereich waren einige Unternehmen des DAX30 bereits vor der Publikation des Entgeltberichts gut aufgestellt.³⁸ Die Siemens AG gründete bspw. bereits 2008 ein Chief Diversity Office zur Förderung der Gleichstellung,³⁹

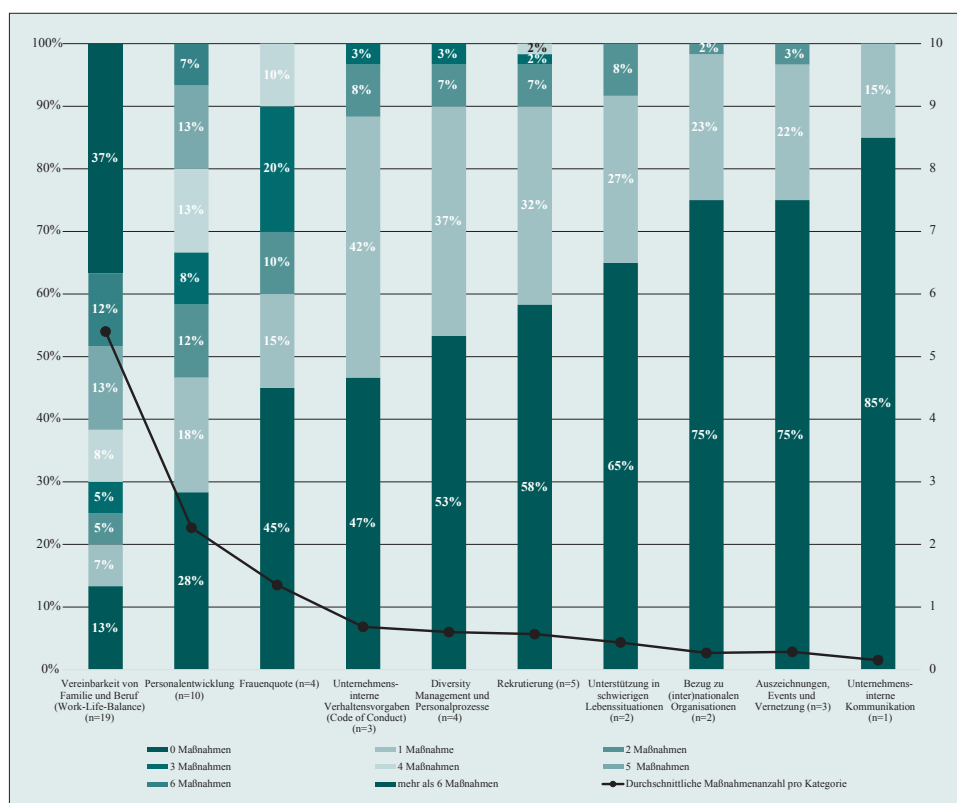


Abb. 2: Maßnahmen zur Förderung der Gleichstellung von Frauen und Männern und deren Wirkung auf Gesamtunternehmensebene

36 Die jeweilige Anzahl „n“ der Einzelmaßnahmen der einzelnen Kategorien ist in Abb. 2 enthalten.

37 Um Verzerrungen durch den hohen Anteil an „Nichtnennungen“ in diversen Kategorien vorzubeugen, wurde auf eine ausschließliche Darstellung von Durchschnittswerten verzichtet und eine Aufgliederung der Maßnahmenanzahl innerhalb der Abbildung vorgenommen. So kann detailliert nachvollzogen werden, in welchen Bereichen umfangreich berichtet wird.

38 Vgl. Köppel, Synergy Consult, Diversity Management in Deutschland: Benchmark 2014 – Strategie oder Alibi?, 2014, abrufbar unter https://www.synergyconsult.de/fileadmin/downloads/Benchmark_DM_2014.pdf (Abruf: 25.6.2021).

39 Vgl. Siemens AG, Frauen bei Siemens, Größere Vielfalt und bessere Gestaltungsmöglichkeiten, abrufbar unter <https://new.siemens.com/de/de/unternehmen/konzern/geschichte/specials/frauen-bei-siemens.html#Perspektivwechsel> (Abruf: 25.6.2021).

► Das Fehlen von Maßnahmen zu den mehrheitlich nicht berücksichtigten Themenbereichen deutet nicht zwangsläufig, dass sie nicht implementiert sind. ◀

machte zu dieser Thematik aber im Entgeltbericht keine Angaben.⁴⁰ Folglich bedeutet das Fehlen von Maßnahmen zu den mehrheitlich nicht berücksichtigten Themenbereichen nicht zwangsläufig, dass solche Maßnahmen nicht innerhalb des Unternehmens implementiert sind. Es entsteht der Eindruck, als würden sich die Unternehmen im Rahmen ihrer

externen Berichterstattung auf bestimmte Fokusthemen wie Maßnahmen zur Frauenquote konzentrieren, die bereits gesetzlich geregelt sind. Angesichts dessen erscheint es durchaus sinnvoll, die Berichterstattung nicht nur zu den besonders populären Kategorien in der Tiefe, sondern auch hinsichtlich der vielfältigen anderen Themenbereiche weiter

auszubauen – sofern Maßnahmen dazu vorhanden sind.

Aufbauend auf den empirischen Erkenntnissen stellt der nachfolgende Best Practice (vgl. Abb. 3) eine Orientierungshilfe für die kommende Berichtssaison dar und gibt einen Überblick über die Themenbereiche mit Einzelmaßnahmen, die i. S. d. § 21 Abs. 1 EntgTranspG angesprochen werden könnten. Dabei sind alle 53 erfassten Einzelmaßnahmen zur Förderung der Gleichstellung in der Abbildung enthalten. Einige Einzelmaßnahmen werden dabei häufiger in den Entgeltberichten der Unternehmen aufgeführt als andere. So führen 43 % der Unternehmen an, dass die Möglichkeit der Arbeit in (Alters-)Teilzeit besteht, während 18 % die Option der Gleitzeit nennen. Für die Ableitung des Best Practice werden daher zusätzlich jene Einzelmaßnahmen mit einem Sternchen (*) versehen, die mindestens von 18 % (Median) der Unternehmen im Entgeltbericht genannt werden. Dadurch werden jene 50 % der Einzelmaßnahmen ab dem Median als Berichtsmindestmaß empfohlen (sofern vorhanden). Darüber hinaus sind alle weiteren – weniger berücksichtigten – Einzelmaßnahmen im Best Practice enthalten, damit zum einen der Individualität der Unternehmen entsprochen und zum anderen Verbesserungspotenzial im Rahmen der Berichterstattung aufgezeigt wird. Es empfiehlt sich, dass die Unternehmen individuell auf die für sie wichtigsten Maßnahmen eingehen, wobei Wichtigkeit anhand der Praxisrelevanz (bspw. approximiert durch Investitionen in diese Maßnahme, Umfrageergebnisse und/oder zwischenbetriebliche Vergleiche) gemessen werden kann. Mit Blick auf den Anwenderkreis können Adressaten aber davon ausgehen, dass die genannten Oberkategorien unternehmensintern eine Rolle spielen und die interne Relevanz sich in einer mehr oder weniger detaillierten externen Berichterstattung widerspiegeln sollte.

Maßnahmen zur Förderung der Gleichstellung von Frauen und Männern und deren Wirkungen	
Unternehmensinterne Verhaltensvorgaben (Code of Conduct) - Nennung eines Verhaltenskodizes* - Bestehen von (Gesamt-)Betriebsvereinbarungen z.B. zur Frauenförderung* - Unterzeichnung einer freiwilligen Selbstverpflichtung zur Förderung von Frauen in Führungspositionen	Bezug zu (inter)nationalen Organisationen - Verpflichtung zur Einhaltung der Gleichstellung (z.B. Charta der Vielfalt, Grundsätze der Vereinten Nationen zur Stärkung der Frauen in Unternehmen)* - Beitritt zu oder Unterstützung von Organisationen (z.B. Women in Finance Charter)
Vereinbarkeit von Familie und Beruf (Work-Life-Balance) - Möglichkeit flexibler Arbeitszeit*: (Alters-)Teilzeit*; Gleitzeit*; Sabbaticals; Rückkehrgarantie zur Vollzeit (z.B. nach Elternzeit); Jobsharing/Shared Leadership (Selbstverständlichkeit der) Inanspruchnahme von Elternzeit* - Weitere Möglichkeiten der Gestaltung der Arbeitszeit (z.B. Vertrauensarbeitszeit, Arbeitszeitkonten, Bildungsauszeit)* - Möglichkeit des mobilen Arbeitens*: Ermöglichung von Home Office*; Einrichtung von Telearbeitsplätzen - Unterstützung bei der Kinderbetreuung*: Betriebseigene Kindertagesstätte*; Zusammenarbeit bei der Vermittlung von Kinderbetreuung*; Notfallbetreuung*; Ferienbetreuung*; betriebsnahe Krippen- und Kooperationsplätze*; Kinderbetreuungszuschüsse*; Coaching/Mentoring	
Frauenquote - Nennung des Ziels der Erhöhung des Anteils von Frauen allgemein bzw. in Führungspositionen* - Vorhandensein eines Zielwerts für Frauen in Führungspositionen* - Nennung der erreichten Frauenquote, auch in Führungspositionen* - Nennung der erreichten Frauen- bzw. Zielquote im Vorstand und Aufsichtsrat	Rekrutierung - Bestehen von Rekrutierungs- und Besetzungsrichtlinien* - Angebot von besonderen Programmen für Studentinnen/weibliche Auszubildende - Durchführung von Girls' Days - Bestehen von Schulpartnerschaften, Kooperationen mit Schulen, Vergabe von Schülerpraktika (vorw. an Frauen) - Gezielte Ausschreibung/Formulierung von Kampagnen (geschlechtsneutral oder gezielt für weibl. Absolventen)
Diversity Management und Personalprozesse - Hervorhebung des Diversity Managements, eigenständiger Bereich "Diversity", Diversity-Strategie (z.B. Gleichstellungsbeauftragte/r)* - Einbettung der Prinzipien bzgl. Diversity in Personalprozesse* - Personalprozesse hinsichtl. Diskriminierung/Sensibilisierung - Bestehen von Talentmanagement-Systemen, Talentpools	Auszeichnungen, Events und Vernetzung - Bestehen von unternehmensexternen und -internen Netzwerken, Arbeitskreisen und Plattformen (z.B. bzgl. Frauenförderung / Vereinbarkeit von Familie und Beruf) - Erhalt von externen Auszeichnungen für die Einhaltung der Chancengleichheit (z.B. Total-E-Quality-Prädikat) - Teilnahme an Events, Kooperationen (z.B. Women@work)
Personalentwicklung - Unterstützung der Führungskräftequalifizierung für Frauen*: Netzwerk für Frauen*; Mentoring-Programm für Frauen (intern/extern)*; Coaching-Programme für Frauen in Führungspositionen* - Angebot von Fach- und Führungsseminaren, Trainingsprogrammen, Förderung talentierter Frauen, Weiterbildungen* - Angebot von Workshops, Mitarbeiterveranstaltungen, Online-Kursen (bzgl. Denkmustern und Vorurteilen), Unconscious Bias Training* - Frauenförderung in technischen Berufen, in der Ausbildung oder in MINT-Berufen - Durchführung einer Nachfolgeplanung (Entwicklungsplan für Frauen, auch auf dem Weg in Führungsfunktionen) (Verpflichtende) Durchführung von Schulungen/Seminaren zum Allgemeinen Gleichbehandlungsgesetz (AGG) - Weitere (allgemeine) Personalentwicklungsmaßnahmen (z.B. Auslandsaufenthalte / Job-Rotation)	
Unterstützung in schwierigen Lebenssituationen - unterstützende Angebote/Beratung bzgl. der Pflege von pflegebedürftigen Angehörigen (z.B. Pflegezeit)* - Unterstützung durch Mitarbeiterzentrum mit Sozialberatung, Beratungsangebote im Unternehmen, Informationsplattform (z.B. pme Familienservice)	Unternehmensinterne Kommunikation Erhöhung der Transparenz der Angebote durch Kommunikationsmaßnahmen, regelmäßige "Gender-Berichterstattung" (z.B. über die Vereinbarkeit von Familie und Beruf, Förderung von Frauen)

Abb. 3: Best Practice zu Maßnahmen zur Förderung der Gleichstellung von Frauen und Männern und deren Wirkungen

40 Vgl. Siemens AG, Jahres- und Konzernabschluss 2017/18.

► Hinsichtlich der Maßnahmen zur Entgeltanalyse und -überprüfung sowie der implementierten Rahmenbedingungen zur Vergütung ist die Berichterstattung vielfältiger. ◀

4.3.2 Maßnahmen zur Herstellung von Entgeltgleichheit für Frauen und Männer

Bezüglich der Maßnahmen zur Herstellung der Entgeltgleichheit werden insgesamt 19 verschiedene Aspekte in den 60 Entgeltberichten adressiert. Der Berichtsumfang liegt in der Gesamtheit (DAX30; MDAX; SDAX) zwischen 1 (1; 2; 1) und 12 (12; 9; 8) Maßnahmen. Im Mittel sind 4 der 19 Maßnahmen im Entgeltbericht enthalten. Die einzelnen Maßnahmen verteilen sich auf 5 Maßnahmen-Kategorien. Die Strukturierung der Kategorien erfolgt hier analog zu Abb. 2 (Seite 154), indem die Einzelmaßnahmen zur Herstellung der Entgelt-

gleichheit in inhaltlich zusammengehörige Themengebiete gegliedert und mit einer entsprechenden Überschrift versehen werden. Abb. 4 stellt einerseits die Maßnahmenanzahl (aufgegliedert von null bis sechs Maßnahmen) der jeweiligen Kategorien prozentual auf Gesamtunternehmensebene (gestapelte Säulen) dar und gibt andererseits die durchschnittliche absolute Maßnahmenanzahl an (Linie mit Datenpunkten). Auch hier zeigt sich, dass viele Unternehmen zu den thematischen Schwerpunkten keine Maßnahmen im Entgeltbericht darstellen, wodurch im Mittel weniger als eine Maßnahme berichtet wird. Beispielsweise berücksichtigen

insgesamt 82 % der Unternehmen keine der zwei erfassten Aspekte zum Einbezug von Unternehmensorganen (z. B. Betriebsräte oder Führungskräfte) zur Herstellung von Entgeltgleichheit, während die restlichen Unternehmen immerhin eine Maßnahme in ihrem Entgeltbericht nennen. Die kleine Minderheit an Unternehmen, die zum Einbezug von Unternehmensorganen zur Herstellung von Entgeltgleichheit Stellung nimmt (18 %), greift zumeist auf die Beschreibung nur einer Maßnahme zurück. Hinsichtlich der Maßnahmen zur Entgeltanalyse und -überprüfung sowie der implementierten Rahmenbedingungen zur Vergütung ist die Berichterstattung hingegen vielfältiger (im Mittel zwei Maßnahmen). So berichten rund ein Fünftel der Unternehmen drei und 17 % zwischen vier und sechs implementierte Rahmenbedingungen zur Vergütung. In diesem Zusammenhang wird das Bestehen von Tarifverträgen oder Betriebsvereinbarungen am häufigsten genannt.

Bei den Maßnahmen zur Herstellung von Entgeltgleichheit zeigt sich ein ähnliches Bild wie bei den Maßnahmen zur Förderung der Gleichstellung. Betrachtet man beispielsweise die Angaben zur Entgeltanalyse und -überprüfung, fassen sich einige Unternehmen relativ kurz und beschreiben lediglich, dass sie die Entgelte hinsichtlich der Entgeltgleichheit regelmäßig analysieren bzw. überprüfen. Andere Unternehmen hingegen führen diese Angaben weiter aus. So erwähnen einige Unternehmen, dass sie die Entgeltuntersuchung mit Logib-D systematisch durchführen oder die Gehaltsstrukturen mittels Personalklausur mit Beratung und Bericht auswerten. Auch in diesem Zusammenhang erscheint es sinnvoll, die vorhandenen Maßnahmen durch konkret angewendete Beispiele zu präzisieren, um den dargelegten Informationen zusätzliche Tiefe zu verleihen. Abb. 5 (Seite 157) fasst die zu den jeweiligen Kategorien gehörenden Einzelmaßnahmen im Rahmen eines Best Practice zusammen, um Unternehmen eine Orientierungshilfe für Maßnahmen i. S. d. § 21 Abs. 2 EntgTranspG zu geben. Diesbezüglich sind sämtliche 19 Einzelmaßnahmen in der Abbildung aufgeführt. Einige Einzelmaßnahmen

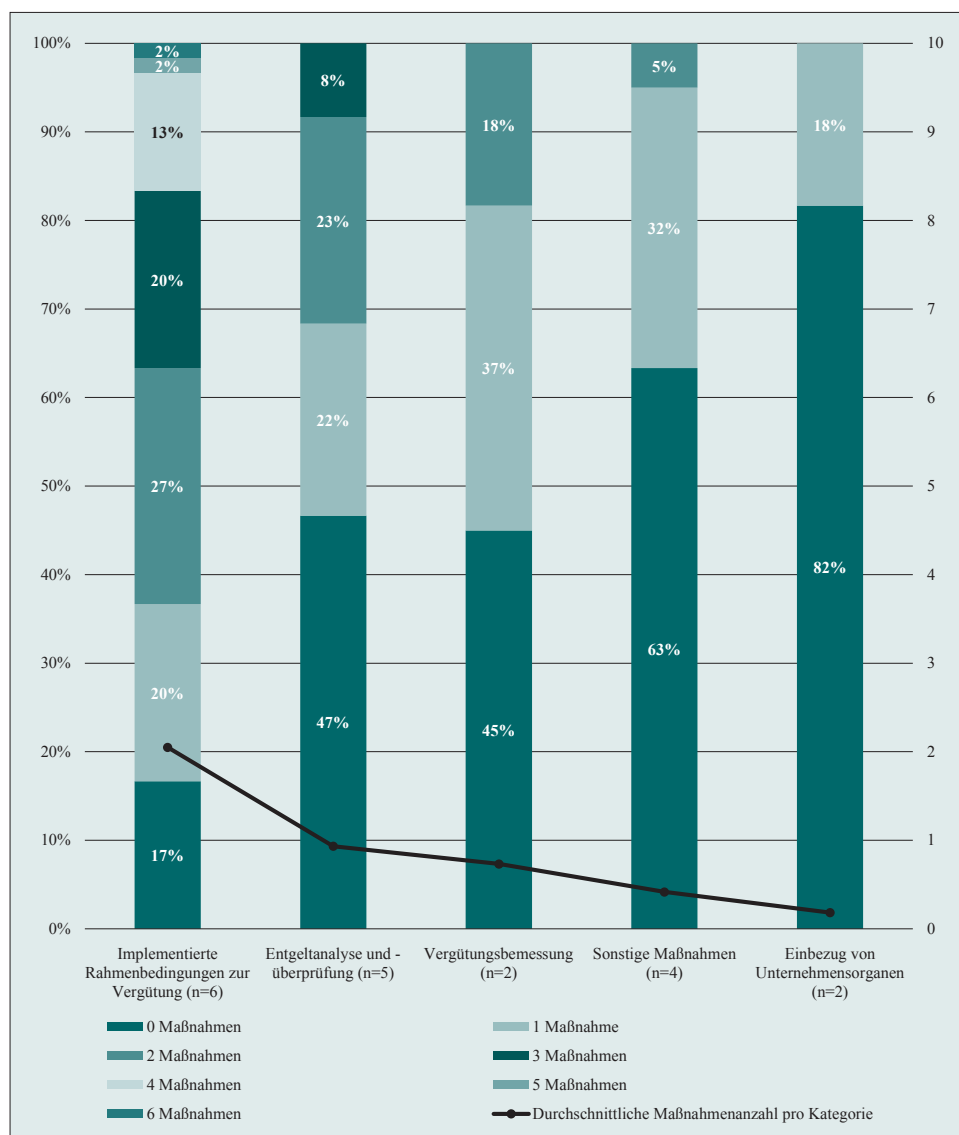


Abb. 4: Maßnahmen zur Herstellung von Entgeltgleichheit für Frauen und Männer auf Gesamtunternehmensebene

Maßnahmen zur Herstellung von Entgeltgleichheit für Frauen und Männer	
Implementierte Rahmenbedingungen zur Vergütung	
- Vergütung anhand von Tarifverträgen (durch Vereinbarungen im Tarifvertrag geschlechtsneutral gestaltet)* - Bestehen von Betriebs- oder Kollektivvereinbarungen (zum außertariflichen Gehaltsmanagement)* - Vergütung anhand eines globalen Vergütungs- bzw. Bewertungsprinzips (intern oder extern)* - Nutzung von (geschlechtsunabhängigen) Gehalts- und Entgeltbändern* (geplante) Nutzung von externen oder institutionalisierten Stellenbewertungs- bzw. Funktionsbewertungssystemen (positionsbasierter Ansatz) oder Grading* - Vorgaben durch individuelle oder unternehmensweite Ziele (Zielvereinbarungsstrukturen)	
Vergütungsbemessung	
- Nennung von Kriterien, anhand derer die Vergütung erfolgt (z.B. ausgeübte Tätigkeit, Qualifikation, Leistung)* - Nennung der Bestandteile der Vergütung (z.B. fix / variabel, Zusatzleistungen)*	
Entgeltanalyse und -überprüfung	
- Regelmäßige Analyse bzw. Überprüfung der Entgelte (Einhaltung des Gebots der Entgeltgleichheit)* - Aussage, dass auf Basis des Monitoring keine Unterschiede in der Vergütung zwischen Frauen und Männern bestehen* - Einkommensüberprüfungsrunden, Auswertung der Gehaltsstrukturen (z.B. Personalklausur mit Beratung und Bericht, externe Benchmark-Vergleiche)* - Systematische Entgeltuntersuchung (z.B. mit Logib-D) - Nennung möglicher Gründe für die Unterschiede des Gehaltes zwischen Frauen und Männern	
Einbezug von Unternehmensorganen	
- Beteiligung des Betriebsrates bei der Förderung der Gleichstellung zwischen Frauen und Männern (z.B. durch regelmäßige Gespräche), Beschwerde- und Reklamationsrechte (in Verbindung mit dem Betriebsrat) - Regelmäßige Gespräche zwischen Mitarbeitern/Führungskräften und der Personalabteilung (auch Entwicklungsgespräche)	
Sonstige Maßnahmen	
- Weitere Informationen über die Vergütung von Auszubildenden / Gesellen / leitenden Angestellten* - Transparenz über Gehalts- und Beförderungskriterien, Transparenz über das Vergütungssystem - Ausgleich von Erwerbsunterbrechungen (z.B. durch Elternzeit) bzw. Partizipation an Gehaltsrunden - Verbesserung der Entgeltgleichheit durch Bestehen oder Einführung eines Entgeltanpassungskonzeptes	

Abb. 5: Best Practice zu Maßnahmen zur Herstellung von Entgeltgleichheit für Frauen und Männer

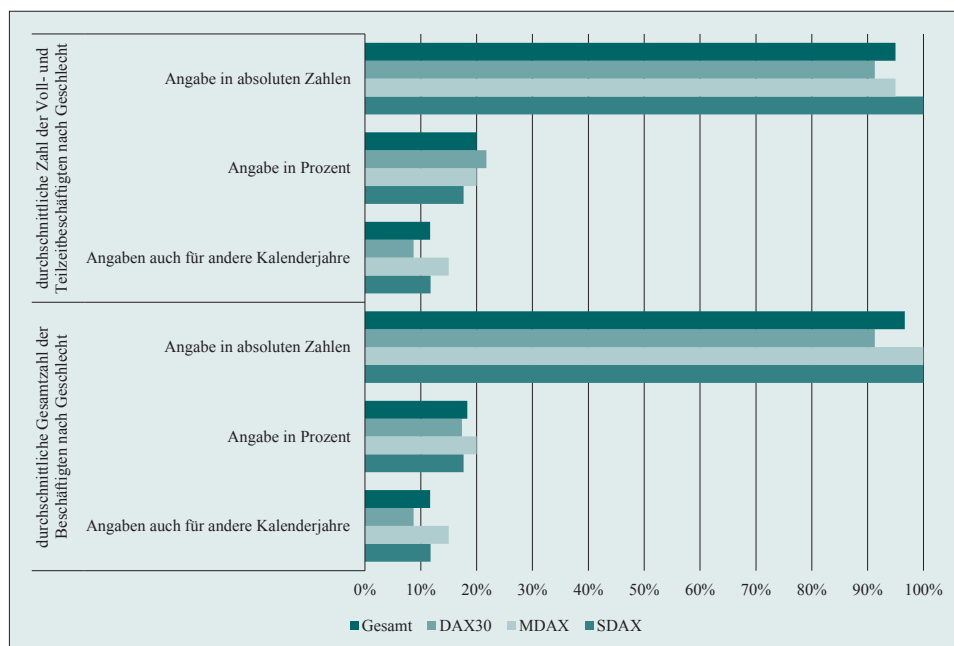


Abb. 6: Nach dem Geschlecht aufgeschlüsselte Angaben

werden im Entgeltbericht allerdings stärker berücksichtigt als andere. Bspw. nennt die Hälfte der Unternehmen im Rahmen der Vergütungsbemessung verschiedene Kriterien, anhand derer die Vergütung erfolgt (z.B. Leistung oder Qualifikation). Im Gegensatz dazu geben nur 23 % der Unternehmen die Bestandteile der Vergütung an (z.B. variabel, fix, Zusatzleistungen). Analog zur Ableitung des Best Practice in Kapitel 4.3.1 werden erneut jene Einzelmaßnahmen zur Herstellung der Entgeltgleichheit mit einem Sternchen (*) versehen, die mindestens 15 % (Median) der Unternehmen im Entgeltbericht offenlegen. Sofern diese Maßnahmen innerhalb des Unternehmens implementiert sind, empfiehlt es sich, diese als Berichtsmindestmaß in den Entgeltbericht aufzunehmen. Überdies verweisen die weiteren Einzelmaßnahmen auf zusätzliches Verbesserungspotenzial hinsichtlich der externen Berichterstattung.

4.3.3 Nach dem Geschlecht aufgeschlüsselte Angaben

Im Rahmen der Untersuchung der *nach Geschlecht aufgeschlüsselten (statistischen) Angaben* zur durchschnittlichen Gesamtzahl der Beschäftigten und zur Zahl der Voll- und Teilzeitbeschäftigten zeigt sich, dass die Angaben größtenteils in absoluten Zahlen erfolgen (vgl. Abb. 6). So greift bspw. der SDAX vollständig auf absolute Zahlen für die beiden statistischen Angaben zurück und etwa 18 % (12 %) der Unternehmen geben zusätzlich Prozentzahlen (die Zahlen für andere Kalenderjahre) an. Darüber hinaus machen die Unternehmen über alle Indices hinweg auch vereinzelt Angaben zu Auszubildenden, Leiharbeitnehmern oder zeitlich befristeten Beschäftigten.

4.4 Darstellungsform des Entgeltberichts

Bei der Analyse der Darstellungsform wird das Augenmerk auf den Aufbau und die Formatierung des Entgeltberichts gelegt. Es lässt sich deutlich erkennen (vgl. Abb. 7), dass sich die Unternehmen bei der Erstellung eines Entgeltberichts mehrheitlich an dem Gesetzestext i.S.v. § 21 Abs. 1, 2 EntgTranspG orientieren. Sie übernehmen größtenteils den Titel, die

► **Bezüglich der Darstellungsform der Entgeltberichte gibt es einige Punkte, auf die die Unternehmen besonderen Wert legen sollten.** ◀

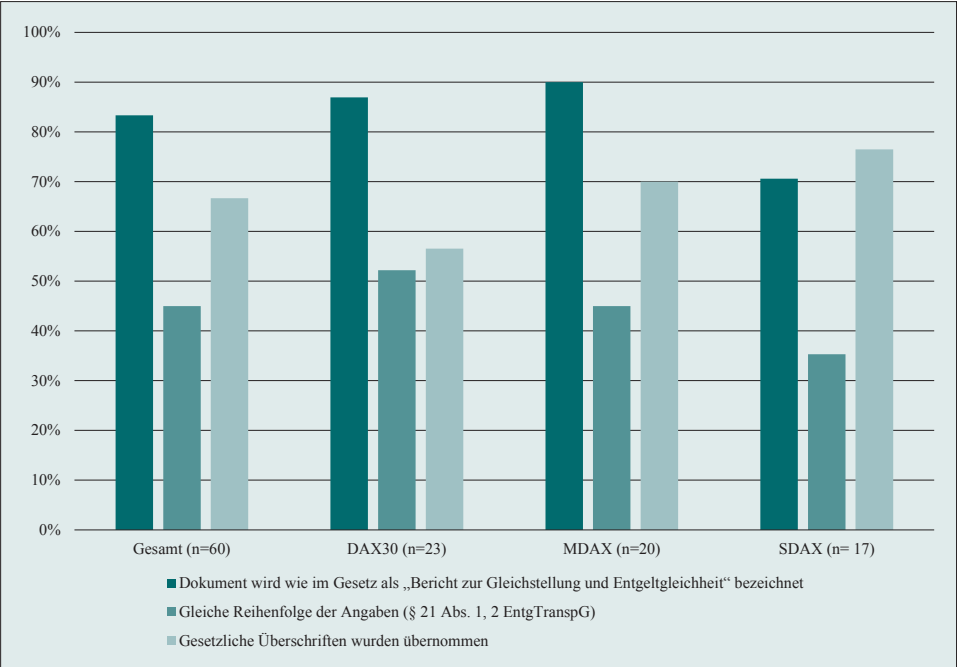


Abb. 7: Darstellungsform der Entgeltberichte

Bezeichnungen und die Reihenfolgen der Angaben, die im Gesetzestext ausformuliert sind. Vor diesem Hintergrund scheint der Gesetzestext in Ermangelung eines ergänzenden formalen Rahmenwerkes zur

Erstellung des Entgeltberichts von vielen Unternehmen herangezogen zu werden. Bei den statistischen Angaben über Beschäftigte gibt es grundsätzlich drei Darstellungstypen: Tabellen, Grafiken und

die reine Textform. Die meisten Unternehmen (68 %) bevorzugen die Wahl einer Tabelle, 28 % entscheiden sich für die ausschließliche Fließtextvariante und nur 3 % visualisieren ihre statistischen Daten anhand von Grafiken.

Wie die Berichtspraxis der Unternehmen zeigt, gibt es bezüglich der *Darstellungsform* der Entgeltberichte einige Punkte, auf die die Unternehmen besonderen Wert legen sollten. Basierend auf den empirischen Erkenntnissen bietet Abb. 8 eine am gesetzlichen Wortlaut ausgerichtete Orientierungshilfe zum Aufbau des Entgeltberichts, die im Folgenden näher erläutert wird. Ein wesentlicher Aspekt ist der Titel des Entgeltberichts, den die Unternehmen wählen. So empfiehlt es sich, den gesetzlichen Wortlaut „Bericht zur Gleichstellung und Entgeltgleichheit“ gemäß § 21 EntgTranspG zu präzisieren, z.B. mittels des Unternehmensnamens und des Berichtszeitraums. Insbesondere wenn Unternehmen mehrere Berichte publizieren, ist es deutlich einfacher, ein bestimmtes Dokument mit Hilfe präzisierender Zusätze wiederzufinden. Auch dienen Schlagworte in Überschriften der leichten Auffindbarkeit von Berichten, bspw. wenn die Schlagwortsuche im Netz (Google oder andere Suchmaschinen) verwendet wird.⁴¹

Neben dem Titel, der auf dem EntgTranspG aufbaut, ist es ratsam, sich hinsichtlich der Reihenfolge der inhaltlichen Angaben an der gesetzlichen Struktur zu orientieren. Bevor jedoch „in medias res“ gegangen wird, ist eine „kurze Einleitung“ empfehlenswert, in der prägnant der genaue Berichtszeitraum – wenn dieser vom Kalenderjahr abweicht – sowie das EntgTranspG im Allgemeinen (Ziele, Hintergründe etc.) genannt werden. Nach der Einleitung sollten die drei *inhaltlichen* Bestandteile: 1) *Maßnahmen zur Förderung der Gleichstellung*, 2) *Maßnahmen zur Herstellung von Entgeltgleichheit* und 3) *nach dem Geschlecht aufgeschlüsselte Angaben* über die Beschäftigten der Reihe nach aufgeführt

Der Bericht zur Gleichstellung und Entgeltgleichheit gemäß §21 EntgTranspG von [Unternehmensnamen] für den Berichtszeitraum [Jahreszahl]

- Einleitung
- Maßnahmen zur Förderung der Gleichstellung von Frauen und Männern und deren Wirkungen
 - Maßnahme A
 - Maßnahme B
- Maßnahmen zur Herstellung von Entgeltgleichheit für Frauen und Männer
 - Maßnahme A
 - Maßnahme B
- Nach dem Geschlecht aufgeschlüsselte Angaben

Statistische Angaben für [Zeitraum] (absolut und in Prozent)	Frauen	Männer	Gesamt
Durchschnittliche Gesamtzahl der Beschäftigten nach Geschlecht			
Durchschnittliche Zahl der Vollzeitbeschäftigten nach Geschlecht			
Durchschnittliche Zahl der Teilzeitbeschäftigten nach Geschlecht			

Abb. 8: Best Practice Vorlage zur formalen Gestaltung des Entgeltberichts

41 Zwei Vorzeigbeispiele sind BASF SE: „Bericht zum Entgelttransparenzgesetz nach § 21 EntgTranspG zum Geschäftsjahr 01.01.2016-31.12.2016“ oder die Continental AG: „Bericht zur Gleichstellung und Entgeltgleichheit der Continental AG (gem. § 21 EntgTranspG)“.

werden. Hierbei ist zu beachten, dass der Bericht i. S. der Adressatenfreundlichkeit kein unübersichtlicher, unstrukturierter Textblock sein sollte. In *formaler* Hinsicht kann eine übersichtliche, klare Darstellung durch äußerlich kenntlich gemachte Sinnabschnitte (Paragrafenbildung) bzw. Absätze, durch graphische Akzentuierungen (bspw. Kursiv- oder Fettdruck von Schlüsselwörtern oder anderen zentralen Aspekten) oder durch prägnante Überschriften etwa bezüglich der drei Bestandteile nach § 21 EntgTranspG erfolgen.

Neben der groben Einteilung in die einzelnen Bestandteile können die Unternehmen mit umfänglichen Berichtsaspekten noch weitere Unterteilungen innerhalb der Abschnitte vornehmen, um den Lesern eine gewünschte Überschaubarkeit und Ordnung zu ermöglichen. Konkret unterteilen einige Unternehmen den Block *Maßnahmen zur Förderung der Gleichstellung* in Teilgebiete wie „Code of Conduct“⁴², „Frauenquote im Management“⁴³, „Vereinbarkeit von Beruf und Privatleben“⁴⁴ usw. Eine zusätzliche Untergliederung der Maßnahmen nach § 21 Abs. 1, 2 EntgTranspG im Sinne der in den Kapiteln 4.3.1 und 4.3.2 dargelegten Kategorien bietet sich durchaus an.

Die *Maßnahmen zur Herstellung von Entgeltgleichheit* lassen sich weniger zu einzelnen inhaltlichen Abschnitten zusammenfassen, sondern hier eignet sich vielmehr eine Kategorisierung nach der Tarifgebundenheit („tarifliche Tätigkeiten“ und „außertarifliche Tätigkeiten“).⁴⁵ Ferner können statt Überschriften auch Formatierungsmittel genutzt werden, um den Bericht zu strukturieren. Diese könnten Aufzählungszeichen oder Nummerierungen sein, die die einzelnen Maßnahmen auflisten.⁴⁶

Mit Blick auf die *statistischen Angaben* eignet sich die Darstellungsform als reiner Text im Vergleich zur Tabelle weitaus weniger, da die Angaben eher unübersichtlich abgebildet und dadurch schwerer nachvollzogen werden können. Die Dar-

stellung in Form einer Tabelle erweist sich hier als effektiver, um die statistischen Informationen, insbesondere im Hinblick auf die Zahl der weiblichen und männlichen Beschäftigten, gegenüberzustellen. Gleichmaßen lassen sich auch Daten aus vergangenen Geschäftsjahren übersichtlich integrieren. Bei Bedarf können auch zusätzliche Grafiken verwendet werden, um die statistischen Angaben zu visualisieren.⁴⁷ Um Verzerrungen vorzubeugen, sollten Jahresdurchschnittswerte der Beschäftigtenzahl im Vergleich zu Stichtagszahlen präferiert werden. Bspw. erhöht sich die Beschäftigtenzahl zu bestimmten SaisonsGeschäften/Jahreszeiten wie der Weihnachtszeit durch die verbesserte Auftragslage. Außerdem sollten die Angaben nach § 21 Abs. 2 Nr. 1 und Nr. 2 EntgTranspG explizit gekennzeichnet werden.

5. Fazit und Ausblick

Mit dem Entgeltbericht nach §§ 21, 22 EntgTranspG hat der Gesetzgeber ein Berichtsinstrument geschaffen, das eine Verbindung zwischen dem handelsrechtlichen Lagebericht und dem politischen Ziel schafft, der festgestellten Entgeltlücke zwischen Frauen und Männern entgegenzuwirken. Durch die prinzipienorientierte Ausgestaltung des EntgTranspG sowie dadurch, dass für den Entgeltbericht die einmalige und besondere Form der Anlage zum Lagebericht gewählt worden ist, entstehen jedoch Umsetzungsschwierigkeiten seitens der Praxis. Aus inhaltlicher Sicht behandelt der Entgeltbericht Themen, die für Unternehmen, ihre aktuellen und auch potenziellen Mitarbeiter bereits jetzt in der Praxis eine hohe Relevanz besitzen. Eine deskriptive Analyse sollte aufzeigen, wie die berichtspflichtigen Unternehmen mit dem erstmalig zu veröffentlichenden Entgeltbericht umgegangen sind. Der daraus abgeleitete Best Practice kann eine Orientierung dafür geben, wie ein typischer Entgeltbericht aussehen könnte und welche Maßnahmen nach § 21 Abs. 1 EntgTranspG angesprochen werden könnten.⁴⁸ Selbstverständ-

lich können die Unternehmen darüber hinaus weitere Themen adressieren. Zukünftig wünschenswert wäre ein zusätzliches Rahmenwerk mit verbindlichen Vorgaben und Empfehlungen zu konkreten und detaillierten Berichtsangaben für die Unternehmen, um die Intention des Entgelttransparenzgesetzes in der Praxis zu realisieren und die Lohndiskriminierung effektiv zu bekämpfen. Denn trotz erzielter Fortschritte bestehen noch immer Defizite bei der Verwirklichung von Lohntransparenz und folglich bei der Umsetzung des Grundsatzes des gleichen Entgelts für gleiche oder gleichwertige Arbeit. Dies unterstreicht nicht zuletzt der jüngst von der Europäischen Kommission vorgelegte Richtlinien-vorschlag zur Entgelttransparenz.⁴⁹

42 Adidas AG, Jahresabschluss und Lagebericht 2017.

43 Deutsche Lufthansa AG, Jahresabschluss und Lagebericht 2017.

44 Merck KGaA, Jahresabschluss und Lagebericht 2017.

45 Vgl. Commerzbank AG, Jahresabschluss und Lagebericht 2017.

46 In den Berichten von Wüstenrot & Württembergische AG und Continental AG lässt sich die Umsetzung entnehmen. Vgl. Wüstenrot & Württembergische AG, Jahres- und Konzernabschluss 2017; Continental AG, Jahres- und Konzernabschluss 2017.

47 Bspw. integrierte die Deutsche Pfandbriefbank AG als einziges Unternehmen ein Kreisdiagramm in ihren Entgeltbericht, der die statistischen Daten nach Frauen und Männern aufteilte; vgl. Deutsche Pfandbriefbank AG, Konzernabschluss 2017.

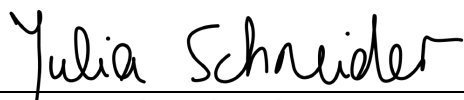
48 Nicht-tarifgebundene Unternehmen müssen den nächsten Entgeltbericht für die Jahre 2017 bis 2019 erstellen und diesen zusammen mit dem Lagebericht für das Geschäftsjahr 2020 veröffentlichen. D.h. die Unternehmen werden den Entgeltbericht im Jahr 2021 veröffentlichen. Tarifgebundene Unternehmen müssen alle fünf Jahre ihren Entgeltbericht erstellen. Dies bedeutet, dass sie den Bericht für die Jahre 2017 bis 2021 aufstellen und diesen zusammen mit dem Lagebericht für das Geschäftsjahr 2022 veröffentlichen. D.h. sie veröffentlichen den Entgeltbericht im Jahr 2023.

49 Siehe auch die Begründung zum Richtlinien-vorschlag der Europäischen Kommission zur Lohntransparenz COM(2021) 93 final sowie die entsprechenden Evaluierungen und Durchführungsberichte der Europäischen Kommission SWD(2020)50 und COM(2013)861 final.

Declaration – cumulative doctoral thesis

I hereby declare that I completed the papers submitted and listed hereafter independently and with only those forms of support mentioned in the relevant paper or in the following supplementary list. When working with the authors listed, I contributed no less than a proportionate share of work. In the analyses that I have conducted and to which I refer in the papers, I have followed the principles of good academic practice, as stated in the Statute of Justus-Liebig-University Giessen for Ensuring Good Scientific Practice.

Mannheim, February 12th, 2022
Place, Date

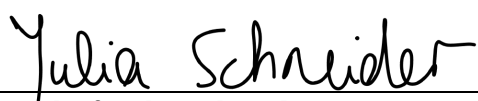


Signature Julia Schneider, M.Sc.

Eigenständigkeitserklärung - Kumulative Dissertation

Ich erkläre hiermit, dass ich die vorgelegten und nachfolgend aufgelisteten Aufsätze selbstständig und nur mit den Hilfen angefertigt habe, die im jeweiligen Aufsatz angegeben oder zusätzlich in der nachfolgenden Liste aufgeführt sind. In der Zusammenarbeit mit den angeführten Koautoren war ich mindestens anteilig beteiligt. Bei den von mir durchgeführten und in den Aufsätzen erwähnten Untersuchungen habe ich die Grundsätze guter wissenschaftlicher Praxis, wie sie in der Satzung der Justus-Liebig-Universität Gießen zur Sicherung guter wissenschaftlicher Praxis niedergelegt sind, eingehalten.

Mannheim, 12. Februar 2022
Ort, Datum



Unterschrift Julia Schneider, M.Sc.