



**Behavioral Consequences of Commission and Omission Errors in
Innovation and Strategic Management**

Doctoral Thesis

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Chapter 1: General Introduction

Commission and Omission Errors

In organizations that pursue uncertain opportunities, whether organically, e.g., by developing new products, or inorganically, e.g., by acquiring other firms, failure is a recurring experience. Research has consistently shown that experiences of failure leave lasting imprints on subsequent decisions, shaping how managers and organizations allocate resources and evaluate new opportunities (Garzón-Vico et al., 2020; Madsen & Desai, 2024). This thesis argues that the behavioral consequences of failure are not uniform. They depend on the type of failure, and on the conditions that shape how that type matters: the individual who experienced it, the organizational context in which that individual operates, and, where the outcome is ambiguous, how the failure is appraised, both internally against the firm's own goals and externally by outside audiences (Audia & Greve, 2021; Joseph & Gaba, 2015).

The type of failure refers to a basic distinction in how it came about. Consider two innovation managers. The first develops a new product that fails in the market, recovering none of its costs and imposing substantial losses on the firm. The second terminates a development project, only to watch a competitor launch a comparable product to considerable success. Both managers experienced failure, but of fundamentally different kinds. The first committed an error of commission, which arises from the active pursuit of an unsuccessful course of action; the second committed an error of omission, which arises from forgoing a course of action that would have succeeded (Csaszar, 2012; Klingebiel, 2018).¹ This thesis concerns the type of failure and its consequences. It asks how, why, and when a prior failure influences subsequent decision-making.

¹ Failures and errors differ in meaning; failures represent undesirable outcomes, such as missing sales targets, whereas errors denote mistakes made during task execution, such as entering wrong data (Dahlin et al., 2018). Because the literature often uses "error" to describe failure, as in "commission errors" and "omission errors," this thesis follows the same convention.

The distinction between errors of commission and omission is fundamental to decision-making under uncertainty, and it recurs across disciplines. In the economics of organization, Sah and Stiglitz (1986) show that hierarchies, which require agreement to accept a project, reject more good ones (omission errors), whereas polyarchies, which permit independent acceptance, accept more bad ones (commission errors). In the psychology of self-regulation, individuals can differ in their sensitivity to commission and omission errors (Higgins, 1997). In strategy research, the failure types closely mirror the tension between exploration and exploitation: an exploratory orientation carries greater exposure to commission errors and less to omission errors, whereas an exploitative orientation carries the reverse (Csaszar, 2012, 2013). The two failure types are not independent. Because the predictive validity of project selection is bounded, reducing exposure to one type usually raises exposure to the other (Garud et al., 1997). They differ, however, in how readily they are observed. A commission error is recorded as a loss on the firm's own books and is therefore salient and frequently experienced; for example, roughly 40% of new product development projects fail to achieve commercial success (Knudsen et al., 2023). Omission errors, by contrast, are inherently latent, appearing not as losses to the focal firm but as forgone gains that nonetheless impose substantial opportunity costs (Hennig et al., 2026; Kumar & Operti, 2023).

Why firms commit to one failure type rather than another has been traced to the structure of selection processes and the individuals involved in them. Csaszar (2012) shows, across more than 150,000 stock-picking decisions by 609 mutual funds, that an organization's decision-making structure is a systematic determinant of its mix of commission and omission errors, a trade-off he later formalizes as a design frontier between these two orientations (Csaszar, 2013). How a firm aggregates the judgments of multiple evaluators sharpens or blunts this trade-off (Böttcher & Klingebiel, 2025; Csaszar & Eggers, 2013), and selection regimes that tighten screening can raise error rates rather than lower them once changes in the applicant pool and in evaluator behavior are accounted for (Sharapov & Dahlander, 2025). The antecedents extend

to the individuals involved: Kumar and Operti (2023) find that inventors who are central in a firm's collaboration network or close to its headquarters shape which opportunities are recognized, so that their projects are approved even when weak and peripheral projects are rejected even when strong, and Hennig et al. (2026) show that higher CEO integrity reduces commission errors but increases omission errors in mergers and acquisitions.

Over the past decade, management research has advanced our understanding of the antecedents of both types of failure (e.g., Csaszar, 2013; Hennig et al., 2026; Kumar & Operti, 2023). Considerably less is known about their consequences. Because neither failure type can be eliminated (Garud et al., 1997), prior commission and omission errors are likely to exert a pervasive influence on the subsequent decisions of firms and their managers. That influence has been examined more for commission errors than for omission errors, an asymmetry that reflects the difficulty of observing the latter rather than their lesser importance. The resulting picture of failure types is therefore incomplete, particularly with respect to omission errors. Absent a clearer understanding of how prior failures shape subsequent decisions, firms risk a systematic and unrecognized bias in their decision-making.

The consequences of failure types have been theorized more than they have been tested. Dye et al. (2014) propose that a decision-maker who has made one type of failure weights its cost more heavily and shifts the threshold for action, trading a lower chance of that failure for a higher chance of the other. Klingebiel (2018) extends this to the firm level, proposing that firms shift their preference between commission and omission risk based on how their most recent preference fared. Empirical evidence has only begun to accumulate. Studying handset makers' rollout sequencing decisions, Klingebiel et al. (2022) find that prior omission errors, but not prior commission errors, shape the next rollout: a firm that has accumulated omission errors launches across markets simultaneously rather than in stages to avoid being preempted again. This evidence shows that the type of prior failure affects the subsequent decision, but much of that influence remains open. How it operates across both failure types, and when and

for whom, is unclear. The effect held for omission errors but not for commission errors, suggesting it may depend on conditions the study did not identify. Why it occurs is not understood, as prior work does not examine the underlying factors in the response to a prior failure. And whether an outcome is a failure of a given type at all is not obvious. The prior measure settles it by hindsight, counting any industry success a firm did not launch as an omission error, whether or not the opportunity was ever within its reach. In strategic settings, though, a forgone opportunity may be a failure or a sound decision, and how a firm reads it shapes what it does next. These questions are particularly consequential in complex innovation contexts (Kauffman et al., 2015; Schneckenberg et al., 2017) and in strategic contexts (Greve, 2003; Halebian et al., 2006), where high-stakes choices are made under considerable uncertainty and past failure shapes subsequent decisions.

The Present Thesis

This thesis aims to advance our understanding of how, why, and when the type of failure shapes subsequent decision-making, and how an ambiguous outcome comes to be recognized as a failure in the first place. It pursues this aim through three empirical studies that adopt a multi-layered perspective, spanning the individual and organizational levels of analysis and two decision contexts, the continuation of innovation projects (Studies 1 and 2) and the pursuit of corporate acquisitions (Study 3). Across the studies, it combines conjoint analysis, scenario-based experiments, and archival methods.

The first study (Chapter 2), titled “Flops and Missed Opportunities: The Differential Effect of Distinct Failure Types on Persistence With Underperforming Innovation Projects,” addresses the first of these questions. It examines how commission and omission errors shape subsequent persistence with an underperforming innovation project, and when and for whom this effect holds. It builds on the theory of risk-type preference shifts (Klingebiel, 2018), which holds that decision-makers shift their preference between commission and omission risk in response to their most recent salient failure, away from the risk type that produced it. Applied

to project continuation, this implies that a recent commission error (a flop) lowers persistence, whereas a recent omission error (a missed opportunity) raises it. Using a metric conjoint analysis and a scenario-based experiment with practicing innovation managers, it tests these predictions and examines boundary conditions at the organizational level (strategic orientation) and the individual level (action orientation and rational thinking style). By doing so, the study aims to provide a context-specific view of how the type of failure shapes persistence.

The second study (Chapter 3), titled “How Decision Failures Shape Escalation of Commitment: The Role of Regret and Regulatory Focus,” addresses the second question: why failure type shapes subsequent decision-making. It examines an affective mechanism in the context of escalation of commitment, the continued investment of resources in a failing course of action despite clear indications that it should be abandoned (Staw, 1981). Anticipated regret has long been identified as a central driver of such escalation; however, its sources remain insufficiently understood (Sarangee et al., 2013). Drawing on regret regulation theory (Zeelenberg & Pieters, 2007) and regulatory focus theory (Higgins, 1997), and across two experiments with innovation managers, it tests whether anticipated regret mediates the effect of failure type on escalation, conditional on decision-makers’ regulatory focus. By doing so, the study aims to offer an affective explanation of why failure type shapes escalation of commitment.

Studies 1 and 2 examine an organic route to growth, the development of new products. The third study (Chapter 4), titled “Missed Acquisitions and Subsequent Deal Making,” turns to an inorganic route, corporate acquisitions, and to the level of the firm, and addresses the third question: whether and how a firm comes to read an ambiguous outcome as a failure at all. It examines missed acquisitions: cases in which a firm publicly bids for a target it considers desirable but a competing bidder completes the transaction. The setting raises the analysis to the firm level and, because a contested deal is public, renders the omission observable, whereas an abandoned internal project rarely leaves a trace. Non-completion, however, is not in itself

evidence of a mistake, because withdrawing may forfeit a valuable target or prudently avoid overpaying, and the outcome alone does not reveal which (Garud et al., 1997). Drawing on the behavioral theory of the firm (Cyert & March, 1963; Gavetti et al., 2012), the study argues that a missed acquisition generates feedback that is open to interpretation, because the firm attends to more than one reference point (Audia & Greve, 2021; Joseph & Gaba, 2015). Internally, the firm has not attained its goal of acquiring the target; externally, managers attend to how outside audiences evaluate the decision (Gamache & McNamara, 2019; Haleblian et al., 2006), and the two assessments need not align (Kacperczyk et al., 2015). Using archival data on 430 competitive acquisition announcements between 2000 and 2022, it tests these arguments. By doing so, the study aims to show how a firm comes to read an ambiguous outcome as either an omission error or a defensible withdrawal, and how it responds when internal goal attainment and external evaluation diverge.

Taken together, the three studies turn the distinction between commission and omission from an explanation of why firms err into an examination of what a failure does once it has been made. The thesis examines how the type of a prior failure shapes subsequent decisions: the conditions that bound this influence, the affective mechanism through which it operates, and the reading of an ambiguous outcome as a failure or a defensible decision. By spanning the individual and organizational levels, two decision contexts, and complementary methods, it complements a literature that has concentrated on why these failures occur by showing what they set in motion. The studies are presented in Chapters 2 to 4²; Chapter 5 draws them together, develops their joint contribution, and sets out directions for future research. Figure 1.1 summarizes this structure, presenting the three empirical studies, their theoretical foundations, and the methods employed.

² The chapters differ in how they denote statistical significance. Chapters 2 and 3 report exact p-values and additionally mark significance with asterisks, following the conventions of the *Journal of Product Innovation Management* and the *Journal of Business Research*, whereas Chapter 4 reports exact p-values without asterisks, following the guidelines of the *Strategic Management Journal*. Each chapter preserves the reporting format of its outlet.

Structure of the Doctoral Thesis			
Chapter 1: General Introduction			
	Chapter 2: Study 1	Chapter 3: Study 2	Chapter 4: Study 3
Title and co-authors	Flops and Missed Opportunities: The Differential Effect of Distinct Failure Types on Persistence With Underperforming Innovation Projects <i>Julian Nickel, Björn Hofmann, Monika C. Schuhmacher & Kumar Sarangee</i>	How Decision Failures Shape Escalation of Commitment: The Role of Regret and Regulatory Focus <i>Julian Nickel, Monika C. Schuhmacher & Sabine Kuester</i>	Missed Acquisitions and Subsequent Deal Making <i>Julian Nickel, Björn Hofmann, Petrit Ademi & Monika C. Schuhmacher</i>
Research question	How do recent commission and omission errors affect persistence with an underperforming innovation project, and which individual and organizational factors shape this effect?	How does anticipated regret drive escalation of commitment following prior commission and omission errors, and how does regulatory focus condition this mechanism?	How do missed acquisitions, and investors' reactions to them, shape a firm's subsequent acquisition behavior?
Theory	Risk-type preference shift theory (Klingebiel, 2018)	Regret regulation theory (Zeelenberg & Pieters, 2007); regulatory focus theory (Higgins, 1997)	Behavioral theory of the firm (Cyert & March, 1963)
Method	Metric conjoint analysis and scenario-based experiment	Two scenario-based experiments	Archival study
Status	Published in <i>Journal of Product Innovation Management</i> (ABDC: A*, VHB: A)	Published in <i>Journal of Business Research</i> (ABDC: A, VHB: B)	Working paper (presented at AOM 2026 and EURAM 2026; accepted for presentation at SMS 2026)
Chapter 5: Concluding Remarks			

Figure 1.1
Structure of the Doctoral Thesis

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Chapter 2: Flops and Missed Opportunities: The Differential Effect of Distinct Failure Types on Persistence With Underperforming Innovation Projects

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Abstract:

Without recognizing how past failures bias subsequent choices, managers risk decisions that waste resources or prematurely abandon promising opportunities. This study draws on risk-type preference-shift theory and extends it with individual and organizational boundary conditions to examine how distinct failure experiences shape managers' willingness to persist with underperforming innovation projects. We conceptualize failure as a dichotomy, distinguishing commission errors (flops) from omission errors (missed opportunities). Our findings from two studies indicate that a recent commission error reduces the likelihood of persisting, while an omission error increases it. At the individual level, action-oriented decision-makers show a larger reduction in persistence after experiencing a commission error. Furthermore, rational thinkers do not differ in susceptibility to past failures; instead, they weigh specific attributes of the ongoing project more heavily when deciding whether to persist. At the organizational level, we observe that this effect depends on an organization's strategic orientation, i.e., an exploratory orientation weakens (strengthens) the negative (positive) impact of commission (omission) errors. In contrast, an exploitative orientation amplifies the negative effects of commission errors. Together, these findings advance risk-type preference-shift theory and provide managers with clear guidance on when prior failures will lead them to persist with or abandon innovation projects.

Keywords: Innovation project decision-making, failure, commission and omission errors, persistence

Introduction

The decision of whether to persist with an underperforming innovation project is difficult and carries potentially significant implications for firm performance (e.g., Patzelt et al., 2011). Although success might only be one more investment away (Drummond, 2014), persisting with failing courses of action often escalates into “throwing good money (or resources more generally) after bad” (Sleesman et al., 2012, p. 541). This irrational continuation of dubious projects is widespread in innovation project decision-making and often detrimental to firms’ health (e.g., Eliëns et al., 2018; Schmidt & Calantone, 2002).

Although a large body of work has identified various setting-agnostic antecedents and contextual features that influence persistence (Sarangee et al., 2014; Sleesman et al., 2012; Sleesman et al., 2018), research has predominantly focused on isolated decision situations regarding a singular course of action. This myopic view neglects how past decision outcomes influence subsequent persistence behavior. Thus, how the outcome of a previous course of action influences the decision to persist in a current one when facing negative information remains unclear. We argue that this lack of clarity is particularly problematic in complex innovation contexts, in which high-stakes decisions are made under considerable uncertainty and past experiences are likely to influence future choices (Kauffman et al., 2015; Schneckenberg et al., 2017). Without awareness of how such outcomes shape focal persistence, decision-making may become biased and flawed, potentially leading to resource misallocation and missed innovation opportunities that hamper firm performance.

Our research aims to address this gap by taking a dynamic, experience-driven perspective to examine innovation project decision-making. In doing so, we offer insights for both theory and practice by identifying when and for whom past failures are most likely to bias persistence decisions. We also suggest that simple protocols that either dampen or intentionally amplify the carryover effects of prior failures enable innovation managers to direct persistence toward the required direction at any given stage.

Prior research indicates that experiencing failure decreases persistence in subsequent decision situations. For example, research at the intersection of organizational behavior and psychology has shown that failure associated with a previous course of action reduces persistence with a subsequent, currently underperforming course of action (Ku, 2008). Relatedly, prior research argues that the failure of an innovation project can reduce motivation to pursue subsequent innovation efforts (Shepherd & Cardon, 2009; Shepherd et al., 2009; Välikangas et al., 2009). These studies link failure exclusively to the continued pursuit of an innovation project that ultimately falls short of expectations, a common scenario in research (e.g., Markovitch et al., 2015; Morais-Storz et al., 2020).

However, we argue that an often-neglected but important side of failure stems not only from pursuing the wrong course of action but also from forgoing a favorable one. We dichotomize failure by the type of decision that led to the adverse outcome, thereby explicitly distinguishing between commission and omission errors (Klingebiel, 2018). A commission error results from pursuing a (post hoc) incorrect course of action, while an omission error results from not pursuing a (post hoc) favorable course of action (Csaszar, 2012). In an innovation context, the former manifests as a commercialized innovation project that proves unsuccessful (i.e., a flop).

One example is Google Glass, a highly publicized wearable device launched in 2014, which was discontinued shortly after due to misalignment with user needs, a limited target market, and privacy concerns. Despite a brief pivot toward enterprise applications, the product failed again and was discontinued in 2023 (Galiveeti, 2023). In contrast, an omission error reflects an innovation project that is not brought to market and later proves successful for others (i.e., a missed opportunity) (Klingebiel et al., 2022). For example, while Toyota initially focused its innovation efforts on hybrid and hydrogen vehicles, it chose not to develop a compact battery-electric vehicle during a period of rising market demand. This created an opening that Hyundai capitalized on by launching the Kona, a compact electric sport utility

vehicle that achieved notable commercial success in Europe (McKinsey & Company, 2020). Distinguishing between these two failure types is meaningful because they generate distinct costs (Garud et al., 1997), harm a firm's competitive and financial performance (e.g., Kumar & Operti, 2023), and elicit different decision-making behaviors (Dye et al., 2014).

Therefore, this research aims to empirically investigate the differential effects of the two types of failure on decision-makers' likelihood of persisting with underperforming innovation projects and to clarify when these effects are more or less pronounced. To do so, we draw on the theory of risk-type preference shifts (Klingebiel, 2018), which posits that the most recent type of failure determines decision-makers' relative preference between risking a loss and forgoing the opportunity. The theory proposes that decision-makers seek to avoid re-experiencing the most recent salient failure in subsequent decision situations (Dye et al., 2014). Although failure is generally more salient than success (Garzón-Vico et al., 2020; Madsen & Desai, 2024), we argue that heterogeneity among decision-makers and organizations serves as a boundary condition, shaping the salience of different failure types and, in turn, whether and to what extent a behavioral response is triggered.

We suggest that, at the individual level, the impact of a past failure on persistence with an ongoing project is influenced by (1) failure-related action–state orientation, a self-regulatory ability that helps managers convert shifts in risk-type preferences into concrete actions (Diefendorff et al., 2000; Kuhl, 1992), and (2) rational thinking style, which prioritizes logical, analytical reasoning and may reduce focus on previous failures (Epstein et al., 1996). At the organizational level, we postulate that the mechanism depends on a firm's strategic orientation because the salience of omission and commission errors differs between exploration and exploitation orientations, which in turn influence how past failures shape future decisions (Csaszar, 2013).

To comprehensively investigate the influence of past failures on persistence decisions, we employ a two-study, multimethod design. Specifically, we follow prior research and use a

metric conjoint analysis in Study 1 (Behrens & Patzelt, 2016; Patzelt et al., 2011) and a scenario-based experiment in Study 2 (Eliëns et al., 2018; Weeth et al., 2020). With these methods, we contribute to research on persistence, particularly in the context of innovation development. Using a finer-grained approach to failure, we demonstrate that it can translate into both lower and higher likelihoods of persistence in underperforming innovation projects. Moreover, previous research has called for investigations into the contradictory forces of increased persistence in response to negative feedback within projects, as well as the behavioral adjustments that follow project failure (Eliëns et al., 2018). We extend prior conceptual work on this tension (Keil et al., 2018) by drawing on empirical data from practicing innovation managers. Our findings show that, for sequential projects, behavioral responses differ significantly from traditional escalation-of-commitment patterns; persistence driven by negative feedback within an ongoing project must be distinguished from the distinct responses elicited by negative feedback from prior projects (i.e., commission vs. omission errors).

Building on these insights, we further contribute to the theory of risk-type preference shifts by identifying the boundary conditions of this mechanism at both the individual and organizational level (Klingebiel, 2018). At the individual level, we demonstrate that differences in volitional control, or an individual's ability to initiate and sustain goal-directed action, condition whether and how shifts in risk preferences translate into continued investment under uncertainty. We further show that these risk-type preference shifts remain stable across levels of rational thinking style, suggesting that the mechanism operates independently of deliberate, analytical reasoning. At the organizational level, we find that a firm's strategic orientation, whether it primarily emphasizes exploration or exploitation, determines how managers interpret past failures.

Theory and Hypotheses Development

A Dynamic and Experience-Driven Perspective on Persistence

When decision-makers receive negative information about a course of action, they need to decide whether to persist or withdraw. Despite considerable uncertainty about whether additional investments of money, time, or effort will reverse the trajectory of the course of action, decision-makers usually persist (Brockner, 1992; Staw & Ross, 1987). This tendency is particularly pronounced in underperforming innovation projects and can result in substantial costs (e.g., Schmidt & Calantone, 2002). Given the detrimental effects of persistence, previous research has identified various context-agnostic determinants explaining why decision-makers persist despite negative feedback (for a review, see Sleesman et al., 2012). Previous research has predominantly linked these circumstances to the focal course of action (Sarangee et al., 2014; Sleesman et al., 2012). However, the decision to persist is also likely shaped by a more dynamic environment in which past experiences, particularly recent ones, influence the focal decision situation. Therefore, we argue that recent outcomes from previous courses of action influence decision-makers' persistence in present courses of action, especially when negative information is present.

According to the behavioral view of decision-making (Denrell & March, 2001; March, 1996), managers will repeat decisions that led to success and avoid decisions that failed. Indeed, empirical research on sequential persistence decisions in psychology and organizational behavior has shown that decision-makers are more (less) likely to persist with a currently losing course of action when the decision to persist with a previous action resulted in a profit (loss) (Bragger et al., 2003; Ku, 2008). In other words, decision-makers are more likely to persist when prior persistence in a similar decision situation was successful, and less likely to persist when it was unsuccessful.

We follow Cannon and Edmondson (2005, p. 300) and define failure as a “deviation from expected or desired results.” We limit our theorizing to failure for two primary reasons.

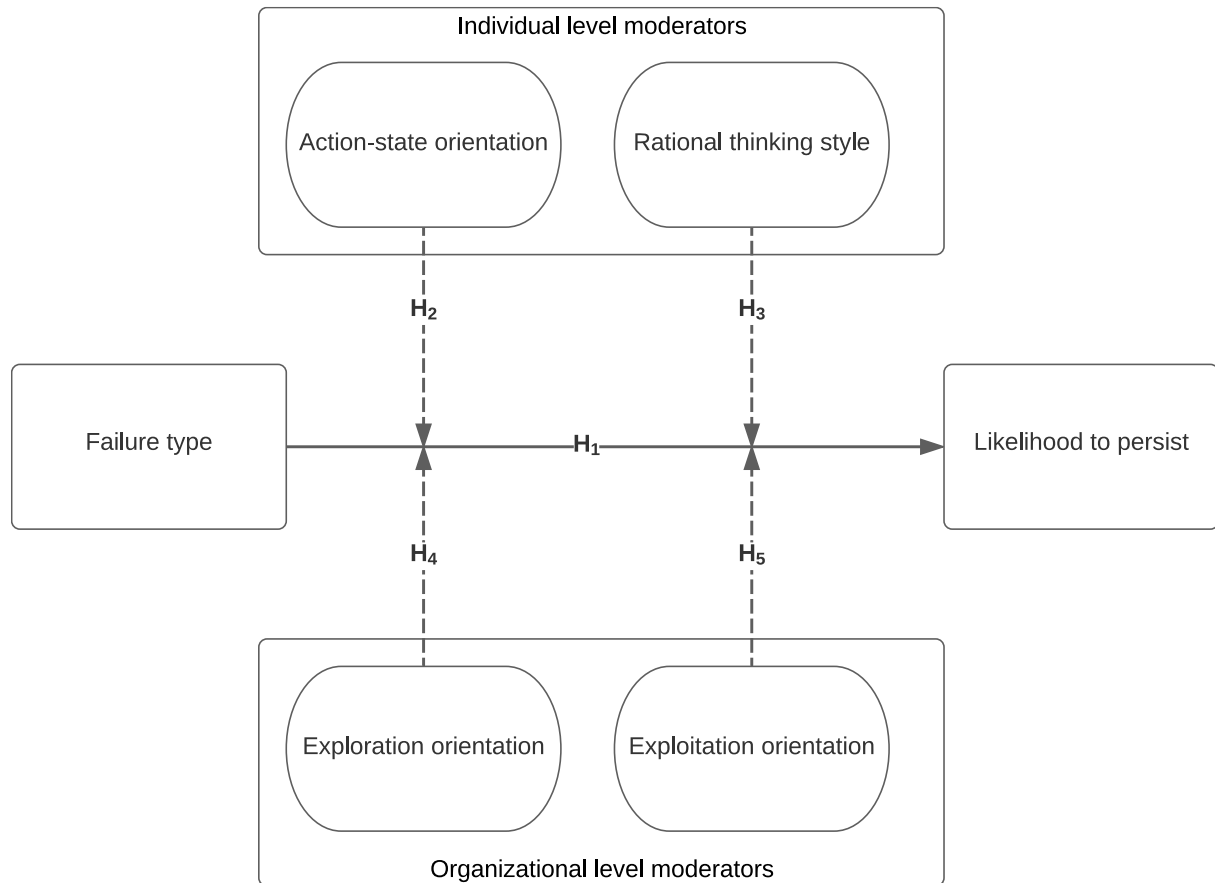
First, failure is more salient than success in the context of innovation development, with a 40% failure rate for new projects (e.g., Markham & Lee, 2013), thereby affecting subsequent decision-making. In addition, the late-stage manifestation of failure in the marketplace usually entails significant financial consequences detrimental to the firm, which more strongly affects ongoing decision-making than success (e.g., Madsen & Desai, 2010). Second, the current treatment of failure in the innovation literature lacks nuance, as it views failure as the outcome of actively pursuing and commercializing an ultimately unsuccessful project (for a review, see Markovitch et al., 2015). However, failure resulting from active pursuit is only one side of the coin.

The Effect of Failure Type on Persistence Through Risk-Type Preference Shifts

Following previous research, we distinguish between a commission error (i.e., an innovation flop) and an omission error (i.e., a missed innovation opportunity) as two distinct types of (innovation) failure (e.g., Klingebiel, 2018; Klingebiel et al., 2022). This dichotomization of failure rests on explicitly accounting for the specific decision that eventually led to failure (i.e., pursuit or abandonment). Since conceptually differentiating between commission errors and omission errors “can reveal phenomena otherwise unobservable” (Csaszar, 2012, p. 629), accounting for these two failure types facilitates a more theoretically sound examination of decision-making.

To derive our conceptual model (see Figure 2.1), we draw on the theory of risk-type preference shifts (Klingebiel, 2018), which postulates that decision-makers’ propensity for potential commission and omission errors in current decision situations depends on the type of failure they experienced in the recent past. Specifically, decision-makers will demonstrate an omission-risk preference (or abandonment) after a recent error of commission and a commission-risk preference (or pursuit) after a recent error of omission. These shifts in risk preference embody the decision-maker’s desire to avoid repeating the same type of failure (Dye et al., 2014). The theory of risk-type preference shifts is well-suited to explaining when

decision-makers are more or less likely to persist with an underperforming innovation project following failure. A commission error sensitizes managers to the risk of financial loss, while an omission error sensitizes them to the risk of forgone gains (Klingebiel et al., 2022).



Note. Failure type (commission error vs. omission error) influences the likelihood to persist with underperforming innovation projects (H₁). Study 2 additionally includes a control condition (no prior failure). Action-state orientation, rational thinking style, exploration orientation, and exploitation orientation moderate this relationship (H₂–H₅).

Figure 2.1
Conceptual Model of Chapter 2

For example, consider an innovation manager who continued developing an underperforming electric vehicle model despite market feedback indicating limited customer interest. She may later view this action as having prolonged the project beyond an appropriate point, thereby making her more inclined to terminate a subsequent underperforming project earlier, reflecting an omission-risk preference. Conversely, an innovation manager who discontinued a promising vehicle concept prematurely and later observed competitors successfully launching a similar model might interpret that earlier choice as overly cautious.

After experiencing such an omission error, she may be more inclined to persist with a subsequent underperforming project rather than abandon it prematurely, reflecting a preference for commission risk. Accordingly, we hypothesize the following:

Hypothesis 1 (H1). Decision-makers will be less likely to persist with an underperforming innovation project following a commission error and more likely to persist following an omission error.

The theory of risk-type preference shifts also implies boundary conditions on its core mechanism (Klingebiel, 2018). We extend this insight by proposing that both individual and organizational differences moderate the effects of distinct failure types on persistence decisions.

The Amplifying Role of Action–State Orientation

The theory of risk-type preference shifts posits that, following a salient failure, decision-makers seek to avoid repeating it in subsequent decisions (Dye et al., 2014; Klingebiel, 2018). We propose that the ability to translate avoidance into decisive action hinges on a trait known as failure-related action–state orientation, which reflects differences in the individual’s capacity to disengage from thoughts about undesirable experiences and enact goal-directed behavior under pressure (Diefendorff, 2004; Diefendorff et al., 2000; Kuhl, 1992). Action–state orientation is a stable personality disposition that places individuals on a bipolar continuum, from *state* orientation, in which one tends toward rumination, to *action* orientation, in which one readily initiates goal-directed behavior. However, situational factors can induce temporary shifts (Kuhl, 1992). We focus on the preoccupation–disengagement dimension, often referred to as the failure-related action–state orientation (hereafter, action–state orientation) (Kuhl, 1985). State-oriented individuals remain fixated on setbacks, unable to redirect attention even when they wish to move on (Kuhl, 1992); conversely, action-oriented individuals quickly disengage from rumination and translate intentions into immediate, context-driven actions.

We propose that failure-related action–state orientation amplifies the effect of failure type on persistence. Although action- and state-oriented decision-makers experience failure equally negatively, the former can quickly disengage from negative feelings to prevent a similar

failure (van Putten et al., 2009). Thus, action-oriented managers can convert risk-shift motives into evident persistence or withdrawal decisions more readily than state-oriented managers. Importantly, disengagement does not mean that action-oriented decision-makers blindly disregard past failures in their decision to persist; they do not dwell on them as state-oriented decision-makers do. Instead, decision-makers with a strong action orientation tend to address failures immediately and confidently after their occurrence (Rybowiak et al., 1999). In contrast, state-oriented managers remain preoccupied with intrusive thoughts, leading to indecisiveness and a muted behavioral response (Kuhl, 1992, 1994). Thus, we propose that:

Hypothesis 2 (H2). Action–state orientation moderates the effect of failure type on persistence: decision-makers with a stronger action orientation are less likely to persist after a commission error and more likely to persist after an omission error than those with a stronger state orientation.

The Attenuating Role of a Rational Thinking Style

Although the general desire to prevent recent failures at the next possible opportunity should be relatively robust (Dye et al., 2014; Klingebiel, 2018), some decision-makers may place less emphasis on past experiences when deciding whether to persist. Traditional models of economic rationality (Edwards, 1954) suggest that past decision outcomes do not influence current decisions because they are irreversible and largely irrelevant for sound present judgment. A stronger rational-thinking style should therefore attenuate the behavioral influence of past failure experiences, reducing the extent to which decision-makers adjust their persistence in response to such experiences. In other words, rational thinkers should show smaller differences in persistence between commission errors and omission errors than less rational thinkers.

Highly rational decision-makers gather extensive information, engage in thorough analysis, and follow rule-based, analytical processes to make comprehensive decisions (Dean & Sharfman, 1993; Evans, 2008). In innovation projects, where predefined decision rules based on current project attributes are common (Hart et al., 2003; Tzokas et al., 2004), such

individuals are more likely to adhere to these criteria, focusing on the project's current merits rather than past failures. Their affect-free reasoning further makes them less susceptible to emotional influences such as anticipated regret (Epstein et al., 1996). In contrast, less rational decision-makers are more likely to incorporate information about previous commission and omission errors into their persistence decisions, even when such information is of limited relevance to the current decision. As a result, they are more strongly influenced by past failures, as the theory of risk-type preference shifts predicts. Thus:

Hypothesis 3 (H3). A rational thinking style moderates the effect of failure type on persistence: decision-makers with a stronger rational thinking style are more likely to persist after a commission error and less likely to persist after an omission error than those with a weaker rational thinking style.

Strategic Orientation as an Organizational Boundary Condition

Researchers suggest that the perceived severity and cost of commission versus omission errors differ systematically across firms because their consequences are shaped by organizational context (Csaszar, 2013). Organizations continually balance their exposure to both types of errors, a tension that closely mirrors the exploration–exploitation trade-off (Csaszar, 2013; Garicano & Posner, 2005; Garud et al., 1997).

Firms with a strong exploitation orientation prioritize efficiency and the scaling of proven offerings (March, 1991). Innovation initiatives in such firms are typically deeply embedded in existing structures and involve substantial resource commitments (Klingebiel, 2018), which magnify perceived losses when projects fail and increase the cost of commission errors. As a result, exploitative firms are particularly motivated to avoid action-based failures that could disrupt tightly coupled processes (Csaszar, 2013).

Conversely, organizations with a strong exploration orientation emphasize pursuing novel opportunities and developing new offerings (March, 1991). Innovation projects in these contexts are often treated more flexibly, as tentative experiments involving comparatively limited resource commitments (Benner & Tushman, 2003; Raisch & Birkinshaw, 2008).

Consequently, exploration-oriented firms are structurally and culturally more prepared to accept commission errors as a normal cost of experimentation (Keil et al., 2018). In contrast, failing to act on promising opportunities may be perceived as particularly consequential because omission errors can threaten growth prospects and strategic ambitions, especially when competitors capitalize on overlooked opportunities (Csaszar, 2012; Klingebiel, 2018). For instance, firms such as Alphabet often frame unsuccessful initiatives as part of the discovery process, whereas missing promising opportunities is considered more damaging.

As a result, omission errors in exploratory organizations are likely to lead to greater persistence in subsequent projects, as managers seek to avoid missing future opportunities. Commission errors, by contrast, are perceived as comparatively mild, making managers less inclined to substantially reduce persistence following action-based failures. Accordingly, we hypothesize:

Hypothesis 4 (H4). Organizational exploration orientation moderates the effect of failure type on persistence: decision-makers in more exploratory organizations are less likely to reduce persistence following a commission error and more likely to increase it following an omission error than those in less exploratory organizations.

In contrast to exploration-oriented contexts, omission errors in highly exploitative firms are less likely to trigger increased persistence because pursuing uncertain opportunities is not central to their near-term priorities. Firms known for strong exploitation orientations, such as Toyota, typically emphasize avoiding failed investments over aggressively pursuing uncertain innovations. Commission errors, however, are viewed as particularly costly, leading managers to reduce persistence more strongly following action-based failures. Thus, we hypothesize:

Hypothesis 5 (H5). Organizational exploitation orientation moderates the effect of failure type on persistence: decision-makers in more exploitative organizations are more likely to reduce persistence following a commission error and less likely to increase it following an omission error than decision-makers in less exploitative organizations.

Study 1: Failure Type and the Individual Level

Methodology

To test H1–H3, we conducted a full-profile metric conjoint experiment because it allows participants to weigh several persistence-shaping factors (in our case, the failure-type experience) within a single integrated decision task. Conjoint analysis is a well-established tool for modeling complex decisions in areas such as marketing and entrepreneurship (Ademi et al., 2023; Green & Srinivasan, 1990). More recently, scholars have applied it to innovation project decisions, investigating decision-makers' likelihood of exploiting these projects (Behrens et al., 2014), terminating them (Behrens & Patzelt, 2016), or persisting with underperforming ones (Kier et al., 2022).

In a conjoint experiment, participants evaluate a series of project profiles whose attribute levels (e.g., high vs. low prior investment) are systematically varied. At the same time, the broader context is held constant (Shepherd & Zacharakis, 2018). Rating each profile on a likelihood-of-persistence scale enables us to decompose participants' choices, estimate the weight they assign to each attribute, and compare those weights across individuals. Because responses are captured in real time, conjoint analysis reflects managers' "theories-in-use" rather than post hoc rationalizations, thereby avoiding many recall biases that plague retrospective methods (Argyris & Schön, 1974; Zacharakis & Shepherd, 2001).

Research Instrument Design. In line with established conjoint-design guidelines (Holland & Shepherd, 2013; Patzelt et al., 2011), the online instrument contained three sections: (1) a general introduction to the decision task and attribute descriptions, (2) the conjoint profiles, and (3) a post-experiment survey (see Appendix A for an overview of the logic of the conjoint experiment). In the first section, we explained the general decision situation. We instructed participants to assume the role of a senior manager at a mid-sized, competitive firm and decide whether to continue funding an innovation project. In their hypothetical role, they had to imagine attending a senior management meeting at which a funding decision for a

specific innovation project was to be made. We noted that the focal project belonged to the firm's broader portfolio, matched its strategic direction, and was currently in mid-development under the senior manager's supervision. The last aspect suggests that the firm had already incurred some sunk costs, a crucial requirement for persistence (Arkes & Ayton, 1999). We also noted that the innovation project was underperforming (Patzelt et al., 2011), failing to meet the firm's performance criteria; that is, sales and market-share forecasts fell short of internal hurdle rates, indicating early signs of failure (Sarangee et al., 2019).

We then told participants that their task was to decide whether to continue funding the underperforming project. More precisely, they had to evaluate several profiles of the underperforming innovation project, each representing an independent, unrelated decision, and rate their willingness to invest in each. Each profile randomly combined four attributes: prior resource investment, proximity to completion, project innovativeness (Arkes & Blumer, 1985; Schmidt & Calantone, 2002; Sleesman et al., 2012), and type of recent failure (commission vs. omission). We defined the attributes and their corresponding levels in detail (see the section on the operationalization of decision-level variables) and informed participants that there were no significant funding limitations. We dichotomized each attribute into *high versus low*, as two-level coding is the recommended default in full-factorial designs to reduce cognitive load (Green & Srinivasan, 1990).

In the second section, participants first completed two practice profiles, a standard procedure in conjoint experiments (Holland & Shepherd, 2013), to familiarize themselves with the task. They then evaluated a full $2 \times 2 \times 2 \times 2$ factorial design, with the four attributes (prior investment, proximity to completion, innovativeness, and failure type) at two levels each, yielding 16 profiles. To assess test-retest reliability, we randomly replicated eight profiles (Kier et al., 2022), so each participant rated 26 profiles in total, a workload comparable to that in other innovation-conjoint studies (Behrens et al., 2014; Patzelt et al., 2011). We chose a full rather than fractional design because it avoids aliasing of main effects and, at 16 profiles, stays

well below the 30-profile fatigue threshold recommended for expert samples (Louviere et al., 2000).

We divided the rating task into two blocks of 12 profiles (eight originals plus four random duplicates) and randomized the block order. Each block was preceded by a single failure prime: a commission error in one block and an omission in the other. We followed this approach because we wanted participants to adopt a commission-or-omission error “mindset” before each block and avoid constantly moving in and out of mindsets, which would have been less desirable given the greater cognitive effort (Holland & Shepherd, 2013). Within each block, we fully randomized the other three attributes and the profile sequence to minimize order effects (Chrzan, 1994). The third section collected individual-level measures (i.e., failure-related action–state orientation and rational thinking style), additional controls, and demographic information via Likert and open-ended items.

Data Collection and Sample. In line with research on innovation project decision-making, we contracted Dynata, a leading online sampling company, to recruit potentially suitable participants (e.g., Wilden et al., 2023). Dynata’s U.S. executive panel undergoes routine quality checks for attentiveness and demographic balance (Camacho et al., 2019). Consistent with prior innovation-decision studies (e.g., Wilden et al., 2023), the survey included two screening items: (1) principal authority over innovation-project funding decisions within the past three years and (2) current managerial responsibility. Participants who did not meet these criteria were excluded at the beginning of our online questionnaire.

We applied three data-quality filters to the 152 returned questionnaires to ensure reliability and validity, in accordance with prior research. First, we included an attention check midway through the questionnaire and a bogus item at the end. Ten participants failed the attention check, 25 failed the bogus-item check, and two failed both checks, leaving 115 cases. Second, given a median completion time of 21 minutes, we excluded seven surveys completed in under 10 minutes and four completed in over 90 minutes ($N = 104$). Third, checks for straight-

lining (four cases) and implausible answers (11 cases) removed 15 additional surveys. The final sample comprises 89 managers, exceeding the 50-responder benchmark for conjoint experiments (Shepherd & Zacharakis, 1999). Appendix B reports the characteristics of the final sample.

Operationalization of the Dependent Variable. For each project profile, participants indicated their likelihood of continued investment on a 7-point scale (1 = “very unlikely,” 7 = “very likely”): “Given these conditions, how likely would you be to continue investing in the project?” (Kier et al., 2022; Patzelt et al., 2011). Higher values reflect stronger persistence intentions.

Operationalization of Decision-Level Variables (Level 1). Each profile varied on four attributes: prior resource investment, proximity to completion, project innovativeness, and type of recent failure (commission vs. omission error). The first three attributes represent high versus low sunk costs (Arkes & Blumer, 1985), 90% versus 10% development progress (Conlon & Garland, 1993), and the radical versus incremental innovativeness of the focal project (Schmidt & Calantone, 1998), respectively. We use them as control variables in the main model and additional post hoc analyses (Kier et al., 2022). The focal predictor is failure type, defined as a prior costly flop (commission error) or a missed opportunity (omission error) (Klingebiel et al., 2022). Appendix C provides the full wording and two-level codings.

Operationalization of Individual-Level Variables (Level 2). We collected data via a post-experimental survey to assess individual-level differences in persistence decision-making and to test our hypothesized cross-level interactions. First, we measured failure-related action–state orientation using the eight items of the preoccupation–disengagement subscale from Diefendorff et al. (2000), a shortened version of Kuhl’s (1994) Action Control Scale. Each item presents a demanding situation and offers an action-oriented response (coded 1) and a state-oriented response (coded 0); the average across items yields a score from 0 to 1, with higher values indicating stronger action orientation. Second, we collected data on participants’ rational

thinking styles using items from Epstein et al.'s (1996) need-for-cognition scale. We followed Eliëns et al. (2018), who adapted the scale to an innovation project decision-making context, and used the three reverse-coded items they selected. We also recorded age, gender, education level, and years of innovation-decision experience. Furthermore, we assessed general risk propensity using a single item adapted from Meertens and Lion (2008) ("I take risks regularly"), as a disposition to actively take risks (i.e., commission risk) should foster persistence in an underperforming project. Table 2.1 reports descriptive statistics and correlations for all individual-level variables.

Data Analysis and Results

Scale Reliability. A single two-factor confirmatory factor analysis conducted in R's lavaan, using weighted least squares mean- and variance-adjusted estimation with ordered indicators, confirmed that both action–state orientation and rational thinking load onto their respective latent factors. All standardized item loadings exceeded the commonly recommended minimum ($\lambda = .45$; Tabachnick & Fidell, 2014), ranging from .468 to .888 ($p < .001$) for action–state orientation and from .675 to .871 ($p < .001$) for rational thinking. Internal consistency was adequate (Cronbach's $\alpha = .82$ and .78, respectively), and composite reliabilities (ω) of .72 and .78 also exceeded the .70 benchmark. Average variance extracted (AVE) was .40 for action–state orientation and .55 for rational thinking. Although the AVE for action–state orientation falls below the recommended .50 threshold, $AVE \geq .40$ in combination with $\omega \geq .70$ is generally regarded as acceptable evidence of convergent validity. Discriminant validity was further supported by the heterotrait–monotrait ratio of .232, well below the .85 threshold. Appendix D provides detailed information on all latent constructs.

Table 2.1*Descriptive Statistics and Bivariate Correlations of Chapter 2*

Variables	Mean	SD	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1) Likelihood of Persistence	4.68	1.71	1.00										
	3.34	1.76	1.00										
(2) Group decision-making	N.A.	N.A.	N.A.	N.A.									
	4.92	1.48	-0.01	1.00									
(3) Risk Propensity	4.89	1.46	N.A.	N.A.	1.00								
	4.56	1.76	0.12*	0.15*	1.00								
(4) Age	43.64	12.34	N.A.	N.A.	0.02	1.00							
	36.77	11.25	-0.06	-0.11*	-0.07	1.00							
(5) Gender	0.72	0.45	N.A.	N.A.	0.04	0.21*	1.00						
	0.49	0.50	-0.02	0.04	0.04	-0.07	1.00						
(6) Innovation Decision-Making Experience	10.52	9.35	N.A.	N.A.	-0.03	0.68*	0.24*	1.00					
	6.98	6.13	0.05	-0.13*	-0.11*	0.63*	-0.07	1.00					
(7) Education Level	3.31	0.79	N.A.	N.A.	-0.05*	-0.16*	-0.07*	0.08*	1.00				
	3.37	0.78	0.12*	0.10*	0.00	0.02	0.02	-0.01	1.00				
(8) Rational Thinking	4.63	1.54	N.A.	N.A.	0.06*	-0.09*	0.06*	-0.16*	-0.03	1.00			
	5.06	1.32	0.04	-0.09	0.00	0.14*	-0.07	0.15*	-0.08	1.00			
(9) Action-State Orientation	0.62	0.27	N.A.	N.A.	-0.03	0.03	0.24*	0.08*	-0.10*	-0.11*	1.00		
	0.36	0.30	-0.14*	0.16*	0.11	-0.07	0.05	-0.15*	-0.01	-0.15*	1.00		
(10) Exploration	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	
	5.79	0.68	0.09	0.16*	-0.01	0.01	-0.12*	0.03	0.10	0.18*	-0.08	1.00	
(11) Exploitation	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
	5.56	0.83	0.14*	0.11*	-0.01	-0.01	-0.07	0.03	0.10	0.11*	-0.17*	0.62*	1.00

Note. Top value in each cell = Study 1 ($N_1 = 89$); bottom value = Study 2 ($N_2 = 382$). N.A. = variable was not measured in that study or was on a different level of analysis. Means, standard deviations, and bivariate correlations were calculated with uncentered variables. Gender: 0 = male, 1 = female. Education Level: 1 = Less than high school, 2 = high school graduate, 3 = bachelor's degree, 4 = master's degree, 5 = doctorate. * $p < .05$.

Test–Retest Reliability. We employed several procedures to assess test–retest reliability (Schüler et al., 2024): Specifically, we estimated separate linear models with participant-clustered standard errors for the original and replicated profile sets and compared the resulting coefficient patterns. Slope-difference tests revealed no significant differences in any level-1 effects across rounds, indicating stable response patterns. Additionally, we fitted a pooled model with two-way clustered standard errors (participant $\times$ round), which yielded substantively identical results.

These checks indicate satisfactory test–retest reliability and support the robustness of our analyses. Therefore, all reported results are based solely on the primary models using the original profiles.

Hypothesis Testing. We estimated all models in Stata 18 using two-level hierarchical linear modeling (HLM) to account for decisions (level 1) nested within managers (level 2), a standard approach for conjoint data (Aguinis et al., 2013; Wood & Mitchell, 2018). Analyses are based on the 1,424 original profiles (16 per manager), with replicated profiles excluded (Fu & Tietz, 2019). The intraclass correlation coefficient of 0.22 indicates substantial between-person variance, thereby justifying cross-level tests. We present direct and interaction effects (see Table 2.2), then average marginal effects of failure type at different action–state orientation levels (see Figure 2.2) (Busenbark et al., 2022), and, finally, post hoc analyses (see Table 2.3 and Figure 2.3).

Main Effects. Our results (see Table 2.2) show that a recent commission error significantly reduces persistence, compared with an omission error ($b = -0.367$, $\beta = -0.108$, $p < .001$), even when controlling for prior resource investment ($b = 0.063$, $\beta = 0.019$, $p = .516$), proximity to completion ($b = 0.822$, $\beta = 0.243$, $p < .001$), and project innovativeness ($b = 0.954$, $\beta = 0.282$, $p < .001$). Predicted means demonstrate that persistence is 7.5% lower following a

commission error ($M = 4.53$) than following an omission error ($M = 4.90$), supporting H1 and aligning with the theory of risk-type preference shifts (Klingebiel, 2018).

Among the controls, high proximity to completion increases persistence by 19.11% ($M = 5.12$ vs. $M = 4.30$) and high innovativeness by 22.55% ($M = 5.19$ vs. $M = 4.24$). In contrast, the effect of prior resource investment in the form of sunk costs is not statistically significant. However, previous research shows that independent manipulation of sunk costs and proximity of project completion can strongly diminish the former's effect and even render it insignificant (Sleesman et al., 2012). Overall, our findings indicate that decision-makers employ persistence decision policies that incorporate specific attributes relating to the previous innovation project (i.e., type of failure) and the currently underperforming innovation project (i.e., proximity to completion and degree of project innovativeness).

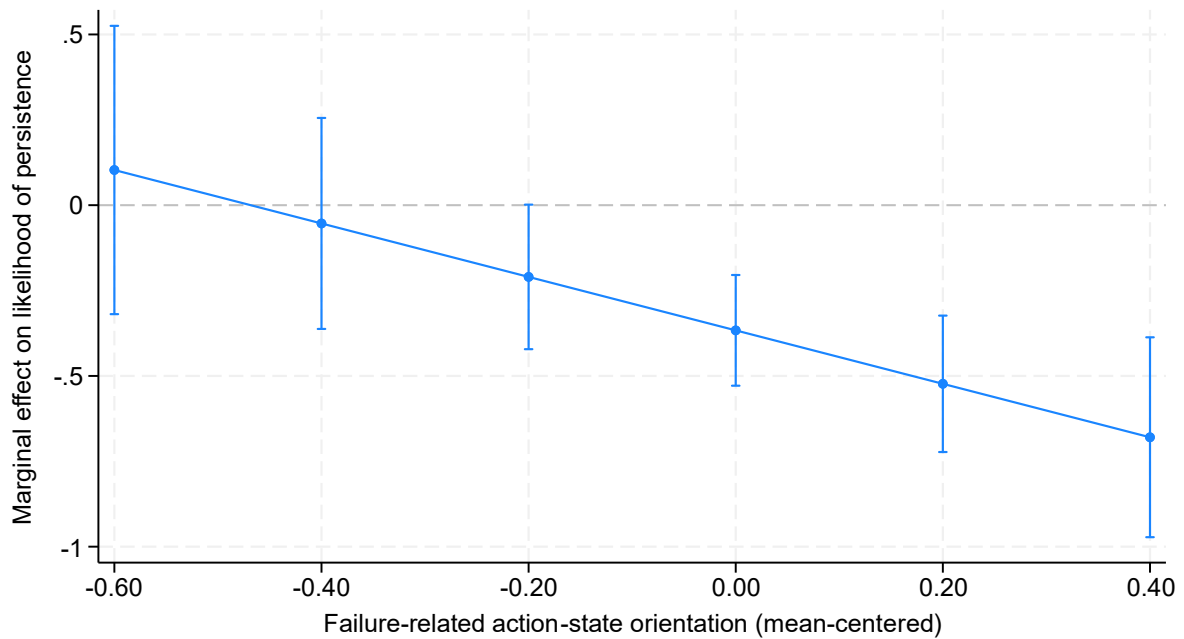
Table 2.2
Results of HLM Regression, Study 1

DV: Likelihood of persistence	b	SE	p	
Control variables				
Decision level (L1)				
Resource investment (high = 0.5 vs. low = -0.5)	.063	.097	.516	
Proximity to project completion (high = 0.5 vs. low = -0.5)	.822 ***	.097	.000	
Project innovativeness (high = 0.5 vs. low = -0.5)	.954 ***	.110	.000	
Individual level (L2)				
Age	.001	.011	.925	
Gender (male vs. female)	.203	.177	.250	
Educational level	-.053	.113	.636	
Innovation experience	.001	.012	.905	
Risk propensity	.180 **	.056	.001	
Action-state orientation	-.172	.274	.529	
Rational thinking style	-.166 ***	.047	.000	
Main effect (L1)				
Experienced type of failure (CE = 0.5 vs. OE = -0.5)	-.367 ***	.083	.000	H1
Cross-level interaction effects (L1 × L2)				
Experienced type of failure × Action-state orientation	-.783 *	.323	.016	H2
Experienced type of failure × Rational thinking style	.015	.046	.755	H3
Constant	4.713 ***	.083		

Note. $n = 1,424$ decisions (level 1 = L1), nested in 89 managers (level 2 = L2). L1 variables are group-mean centered, and L2 variables are grand-mean centered. SEs are cluster robust. Random intercept random slope model. SE = robust standard errors. CE = commission error. OE = omission error.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Cross-Level Interaction Effects. We examined cross-level interactions (Aguinis et al., 2013) to test for the moderating effects of action–state orientation and rational thinking style. Action–state orientation significantly strengthened the differential impact of failure type ($b = -0.783$, $\beta = -0.054$, $p = .016$). Average marginal effects show that as managers’ failure-related action orientation increases, the gap in persistence between commission and omission errors widens, supporting H2 (see Figure 2.2). Highly action-oriented managers are less likely to persist after a commission error and more likely to persist after an omission error than their state-oriented peers. Below the midpoint of the action–state continuum, the commission-versus-omission difference becomes nonsignificant, indicating that predominantly state-oriented managers do not translate failure-type information into corrective action. In short, action-oriented managers actively use recent failure cues to calibrate persistence decisions, whereas state-oriented managers do not. In contrast, we find no evidence that rational thinking style moderates the relationship between the type of recent failure and the likelihood of persisting with an underperforming innovation project ($b = 0.015$, $\beta = 0.035$, $p = .755$), leading us to reject H3. That is, the corresponding main differential effect remains constant and robust regardless of whether managers exhibit a stronger or weaker rational thinking style.

**Figure 2.2**

Average Marginal Effect of Failure Type on Likelihood of Persistence Across Levels of Failure-Related Action-State Orientation (95% CIs), Study 1

Post Hoc Analyses and Robustness Check. Although the rational thinking style did not moderate the failure-type effect, post hoc tests reveal that it significantly strengthens the effects of the ongoing innovation project's proximity to completion ($b = 0.191$, $\beta = 0.087$, $p = .003$) and project innovativeness ($b = 0.177$, $\beta = 0.081$, $p = .011$), as shown in Table 2.3.

Table 2.3

Post Hoc HLM Analyses, Study 1

DV: Likelihood of persistence	b	SE	p-value
Cross-level interaction effects (L1 × L2)			
Resource investment × Rational thinking style	-.08 8	.066	.184
Proximity to project completion × Rational thinking style	.191 **	.064	.003
Project innovativeness × Rational thinking style	.177 *	.070	.011
Control variables	✓		
Main effect	✓		
Other cross-level interaction effects	✓		
Constant	✓		

Note. $n = 1,424$ decisions (level 1 = L1), nested in 89 managers (level 2 = L2). L1 variables are group-mean centered, and L2 variables are grand-mean centered. SEs are cluster robust. Random intercept random slope model. SE = robust standard errors.

* $p < .05$. ** $p < .01$.

The corresponding average marginal effects indicate that managers with higher rational thinking place greater weight on these two attributes when deciding whether to persist (Figure 2.3).

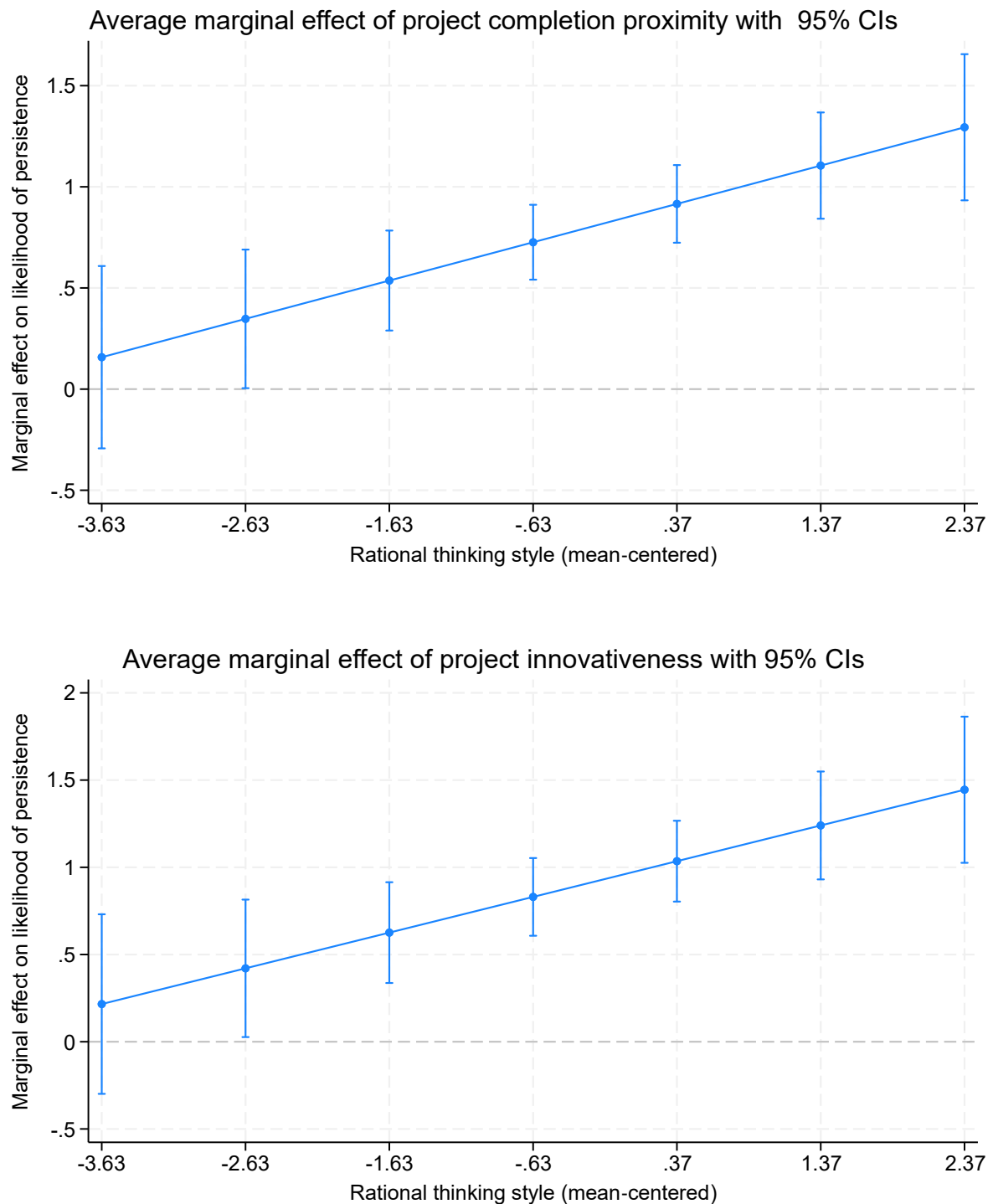


Figure 2.3

Post Hoc Analysis: Average Marginal Effects, Study 1

As a robustness check, we re-ran all models, including the replicated profiles ($N = 2,136$ decisions). The key coefficients and interaction patterns remained unchanged, confirming the stability of our findings. Furthermore, we re-estimated all models using participants' proposed investment amount (ranging from the lowest to the highest possible allocation) as the dependent variable, rather than the likelihood of persistence. This alternative specification accounts for the possibility that managers will persist while committing only minimal resources. However, the results remained entirely consistent in direction, magnitude, and significance; thus, our effects hold when persistence is expressed as financial commitment rather than as decision likelihood (see Appendix F, Table F1).

Discussion

In today's hyper-competitive environments, managers must frequently decide whether to persist with or withdraw from underperforming innovation projects. Drawing on the theory of risk-type preference shifts (Klingebiel, 2018), we propose that a recent failure can either dampen or bolster persistence depending on its type. Specifically, we distinguish between commission error (innovation flop) and omission error (missed opportunity) and find that the former reduces persistence while the latter increases it. This pattern supports the idea that decision-makers adaptively shift their risk preferences to avoid repeating the same type of costly mistake (Denrell & March, 2001; Klingebiel, 2018).

However, behavioral research also shows that negative feedback can fuel persistence through managers' tendency to justify sunk costs and defend past decisions, a phenomenon known as escalation of commitment (Sleesman et al., 2012), which is further reinforced by the drive to recoup losses, leading individuals to become more risk-seeking (Kahneman & Tversky, 1979; Whyte, 1993). Conceptual and simulation studies suggest these opposing tendencies hinge on the level of analysis: within a single project, escalation pressures predominate, but when evaluating multiple projects over time, course correction becomes more likely (Keil et al., 2018; Wong & Kwong, 2018). Although our design did not isolate within-project escalation,

experiencing a commission error significantly lowered persistence, consistent with the theory of risk-type preference shifts. If managers are unaware of the distinct effects of prior failures on persistence, and of the differing impacts of negative feedback within and between projects, their decision-making may be biased, leading to resource misallocation and missed opportunities for innovation, ultimately harming firm performance (Böttcher & Klingebiel, 2025).

Given this risk, the next question is which managers and organizations are especially prone to this influence. We find that the effect of failure type depends on decision-makers' action–state orientation. An increasing action orientation amplifies the main effect, translating recent failure-type experiences into more pronounced corrective actions to prevent similar failures. Action-oriented managers can swiftly disengage from the emotional weight of past setbacks, allowing them to act decisively on the feedback they provide. In contrast, state-oriented managers tend to remain preoccupied with prior setbacks and experience difficulties disengaging from ruminative thoughts about past decisions (Kuhl, 1992). As a result, they lack the volitional control necessary to translate feedback from previous failures into adaptive behavioral adjustments. Their attention remains anchored in past experiences rather than directed toward corrective action in the present, rendering the feedback from the failure type cognitively registered but behaviorally inert. Consequently, their current decisions appear less influenced by past failures, which may limit both the potential distortions and the potential benefits of those experiences.

Contrary to our hypothesis (H3), a rational thinking style does not moderate the effect of the type of previous failure on persistence in an ongoing project, which is surprising, given that rational decision-makers are expected to focus on current project attributes rather than past failures (Eliëns et al., 2018). However, this expectation is grounded in a within-project perspective, in which rationality implies that sunk costs should be ignored and decisions should rely solely on present evidence (Arkes & Blumer, 1985). When viewed from an across-project

or portfolio perspective, however, past failures may serve as informational cues rather than sunk costs or forgone opportunities. Consistent with this notion, rational thinkers seem to focus on key project characteristics rather than ignoring past failures. They weigh proximity to completion and project innovativeness more heavily in their persistence decisions. Because the marginal cost of terminating a nearly complete project is high relative to the remaining upside, rational actors view late-stage abandonment as especially irrational. Similarly, exploratory projects often promise greater future value and growth than exploitative ones, leading rational actors to tolerate early underperformance in anticipation of eventual gains. This aligns with evidence that growth potential is a key criterion for rational decision-makers in underperforming ventures (Lin et al., 2022).

While Study 1 compared commission error with omission error, it did not account for a neutral baseline. Thus, we cannot determine whether the overall shift in persistence or the action–state moderation is driven by both failure types or by one in particular. Study 2 addresses this gap by adding a no-failure control and accounts for strategic orientation as an organizational boundary condition. To zoom in on the core risk-type preference-shift mechanism and its boundary conditions, we hold focal project characteristics such as resource investment, proximity to completion, and innovativeness constant, as their effects in Study 1 were consistent with prior research (Sleesman et al., 2012).

Study 2: Failure Type Across Individual and Organizational Levels

Methodology

Study 2 employs a three-condition (commission error, omission error, neutral control) between-subjects, scenario-based experiment to validate and deepen the insights from Study 1. Appendix E provides a comprehensive overview of the experiment’s logic.

Data Collection and Sample. We recruited participants through Prolific, an online panel provider. Eligibility criteria matched Study 1, requiring managers to (1) have principal decision-making authority over innovation projects and (2) be actively involved in such decisions within

the past three years. We invited 300 qualified participants to take part in the experiment. Of these, 13 failed embedded attention checks, and two did not pass the initial project decision gate. After these exclusions, the final analytical sample comprised 285 managers (see Appendix B for descriptive statistics). The descriptive statistics, correlations, and measurement analyses reported for Study 2 are based on the full Study 2 sample ($N = 382$), which includes the final analytical sample of 285 managers used for the focal hypothesis tests as well as a third experimental condition included to assess the robustness.

Procedure and Instrument. The experimental procedure followed a three-stage decision sequence. Participants first evaluated a promising innovation project (Project Kappa), were then exposed to condition-specific information about a prior project (Project Theta), and finally made a persistence decision after receiving updated negative performance information about Project Kappa.

Participants were asked to imagine themselves as senior managers in their current organization responsible for funding innovation projects, thereby situating all decisions within their actual work context. To ground the scenario in this context, participants reviewed two abstract but realistic project cases. The first, Project Kappa, served as the focal project in the persistence decision, whereas the second, Project Theta, primed participants with different past failure experiences depending on their experimental condition.

To foster psychological ownership, all participants first evaluated Project Kappa in a promising state. They examined the project's positive internal forecasts and achievement of key milestones before deciding whether to move it to the next development phase. Only those who approved Kappa's progression continued; we excluded two participants who chose to terminate Kappa early from the remainder of the experiment.

After this initial gate, participants were randomly assigned to one of three experimental conditions. In the commission error condition, they recalled deciding to continue Project Theta, which ultimately failed in the market and caused significant financial losses. In the omission

error condition, they prematurely terminated Theta, after which a competitor successfully launched a similar product and gained an advantage, resulting in a lost opportunity. In the control condition, participants received a brief update on the company's ecological and diversity initiatives, with no reference to prior success or failure.

Following the condition-specific scenario, participants received an updated performance report for Project Kappa, indicating that, one year after approval, the project was underperforming. Forecasted sales and market share had fallen below targets, milestones were missed, and costs had overrun. Participants then rated their likelihood of continuing to invest in Project Kappa using the same measure as in Study 1.

Measurements. In a pre-experimental survey, we assessed participants' failure-related action–state orientation with the same eight-item scale as in Study 1 (Diefendorff et al., 2000) and their rational thinking style with the same three-item scale (Eliëns et al., 2018). We also assessed participants' perceptions of their organization's strategic orientation using Jansen et al.'s (2006) scale, which comprises seven items for exploration orientation and seven for exploitation orientation. Participants then indicated their likelihood of persisting with Project Kappa using the same single-item persistence measure as in Study 1 (Kier et al., 2022; Patzelt et al., 2011). After the main task, a post-experimental survey included an error-mindset scale to verify successful manipulation, additional comprehension and realism checks, and a marker variable to test for common method bias. Finally, we collected demographic and background information, including age, gender, education level, organizational tenure, years of experience in innovation decision-making, and a measure of group decision-making (whether innovation decisions are typically made individually or in groups within the participant's real organizational context).

Data Analysis and Results

Measurement Model Assessment. A four-factor confirmatory factor analysis in R's lavaan, using weighted least squares mean- and variance-adjusted estimation with ordered

indicators (Li, 2016), confirmed that exploration orientation, exploitation orientation, action–state orientation, and rational thinking each constitute distinct dimensions. We dropped one exploitation orientation item and one borderline action–state orientation item because of low standardized loadings ($\lambda \leq .45$). In the final model, all standardized loadings (λ) exceeded .45 (Tabachnick & Fidell, 2014), ranging from .518 to .734 ($p < .001$) for exploration orientation, .556 to .738 ($p < .001$) for exploitation orientation, .590 to .863 ($p < .001$) for action–state orientation, and .457 to .807 ($p < .001$) for rational thinking. Internal consistency was satisfactory (Cronbach’s $\alpha = .83, .80, .69$, and $.88$, respectively). Composite reliabilities ($\omega = .83, .80, .69$, and $.78$, respectively) were close to or exceeded the .70 benchmark (Hair et al., 2014). The AVEs were .42, .40, .43, and .53, respectively. Although the AVEs for exploration, exploitation, and rational thinking fall below .50, when combined with ω greater than or equal to .70 (or approaching .70 for rational thinking), these values are considered satisfactory (Hair et al., 2014). Discriminant validity was further supported by heterotrait–monotrait ratios ranging from .164 to .701, all well below the .85 threshold (Henseler et al., 2015). Appendix D provides detailed information on all latent constructs.

Manipulation Validity and Common Method Bias. We first verified that participants found the scenarios plausible, then conducted manipulation-specific checks for the intended failure types. To ensure scenario plausibility, participants completed a three-item realism scale (e.g., “I believe the scenarios described could occur in my company’s environment”). A one-sided t-test confirmed that participants found the scenarios highly realistic ($M = 6.03$, $SD = 0.81$, $p < .001$). Next, we conducted comprehension checks for each failure type. Participants in the commission error condition rated the statement “I made a decision to continue Project Theta, which later failed and caused a financial loss” significantly higher than the control group ($M = 5.30$ vs. 2.95 ; $SD = 1.76$ vs. 1.98 ; $p < .001$). Our data also showed similar differences for the omission condition (“I terminated Theta prematurely, after which a competitor successfully launched it”; $M = 5.18$ vs. 2.54 ; $SD = 1.99$ vs. 1.68 ; $p < .001$). Finally, to verify that each

scenario induced an error mindset, participants completed a three-item scale (e.g., “The situation made me feel that something important was lost as a result of my earlier decision”). One-sided t-tests showed that the commission error group ($M = 5.34$, $SD = 1.27$, $p < .001$) and the omission error group ($M = 5.60$, $SD = 1.15$, $p < .001$) reported significantly higher error mindset scores than the control group ($M = 3.69$, $SD = 1.72$), confirming the successful induction of the intended cognitive frame.

To test for potential common method bias, we employed the confirmatory factor analysis marker variable technique (Williams et al., 2010) using the “Attitude Toward the Color Blue” scale, a theoretically unrelated marker variable (Miller & Simmering, 2023). We compared a baseline model (with freely estimated covariances between the marker factor and substantive latent constructs) with a constrained model in which these covariances were fixed to zero (Williams et al., 2010). The likelihood ratio test indicated no significant difference in fit ($\chi^2(7) = 0.00$, $p = 1.000$), suggesting that common method variance does not threaten the validity of the results (Miller & Simmering, 2023; Williams et al., 2010).

Hypothesis Testing. To test the hypotheses, we estimated a linear regression model with robust standard errors. As in Study 1, the dependent variable was the self-reported likelihood of continuing to invest in the underperforming innovation project (Kier et al., 2022; Patzelt et al., 2011). We included failure type, the proposed moderators, and all corresponding interaction terms as predictors, while controlling for group decision-making (self-reported as whether innovation decisions are typically made individually or in groups within the participant’s own organization), risk propensity, age, gender, education level, and years of innovation decision-making experience (see Table 2.4).

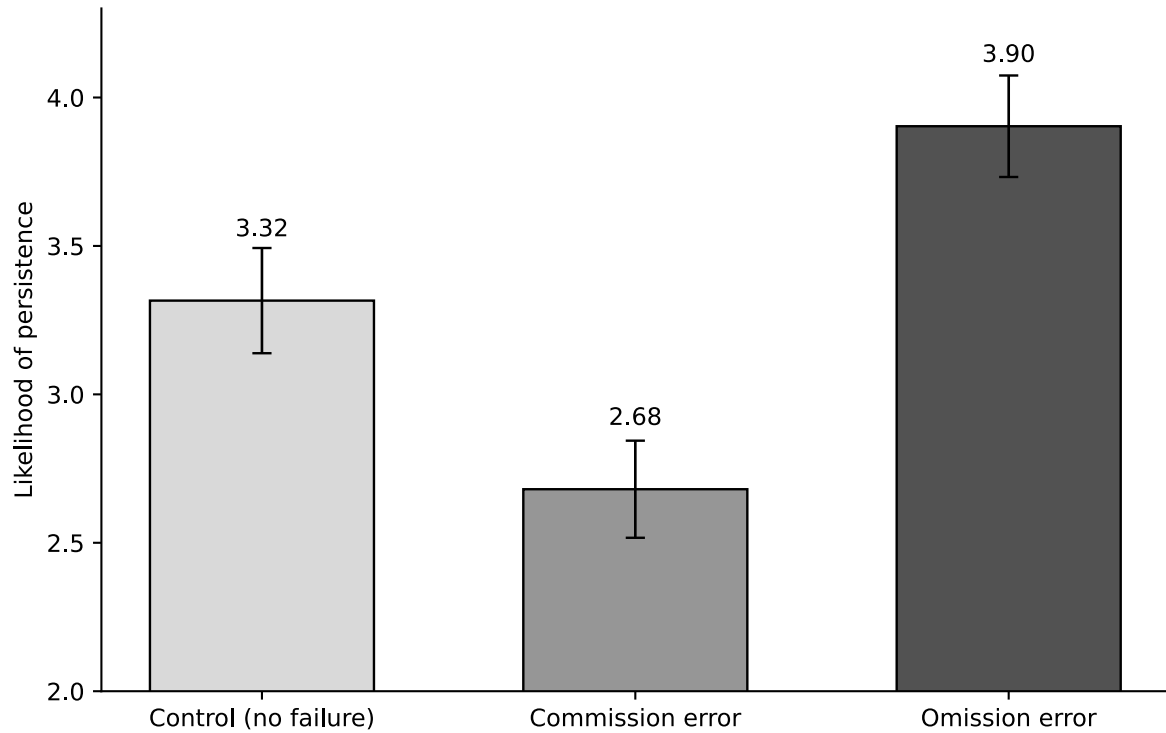
We dummy-coded failure type in the control condition as the reference category, allowing each error condition to be compared directly with a neutral benchmark. We coded gender as a binary dummy (0 = male, 1 = female) and mean-centered all continuous covariates to aid interpretation and minimize multicollinearity (Wooldridge, 2011).

Main Effects. As posited in H1, we find that a commission error lowers the likelihood of persistence ($b = -0.546$, $\beta = -0.299$, $p = .027$) and an omission error raises it ($b = 0.556$, $\beta = 0.327$, $p = .034$; see Table 2.4). Specifically, we show that both effects emerge relative to the neutral baseline, rather than only when comparing commission and omission errors (as in Study 1). To facilitate comparison across conditions and provide an intuitive representation of the results (van Heerde et al., 2021), Figure 2.4 presents the mean likelihood of persistence across the experimental conditions. Persistence is lowest after a commission error, highest after an omission error, and intermediate in the control condition. Together, these results support H1.

Table 2.4
Results of OLS Regression, Study 2

DV: Likelihood of persistence	b	SE	p	
Control variables				
Group decision-making	-.065	.067	.327	
Risk propensity	.090	.059	.150	
Age	-.020	.011	.077	
Gender	-.112	.196	.569	
Innovation experience	.031	.022	.155	
Education level	.196	.134	.144	
Main effects				
Commission error	-.546	*	.245	.027 H1
Omission error	.556	*	.261	.034 H1
Action–state orientation	-.440		.554	.428
Rational thinking style	.071		.135	.599
Exploration orientation	-.451		.242	.063
Exploitation orientation	.457		.251	.070
Interaction effects				
Commission error × Action–state orientation	-1.589	*	.729	.030 H2
Omission error × Action–state orientation	1.222		.849	.151 H2
Commission error × Rational thinking style	-.096		.174	.580 H3
Omission error × Rational thinking style	-.256		.169	.131 H3
Commission error × Exploration orientation	.724	*	.345	.036 H4
Omission error × Exploration orientation	1.216	**	.356	.001 H4
Commission error × Exploitation orientation	-.667	*	.307	.031 H5
Omission error × Exploitation orientation	-.362		.335	.280 H5
Constant	3.108	***	.663	.000
R ²			.213	

Note. $n = 285$. $SE =$ robust standard errors. All moderators are mean-centered. Error-type dummies compare errors to the omitted baseline (no error). * $p < .05$. ** $p < .01$. *** $p < .001$.

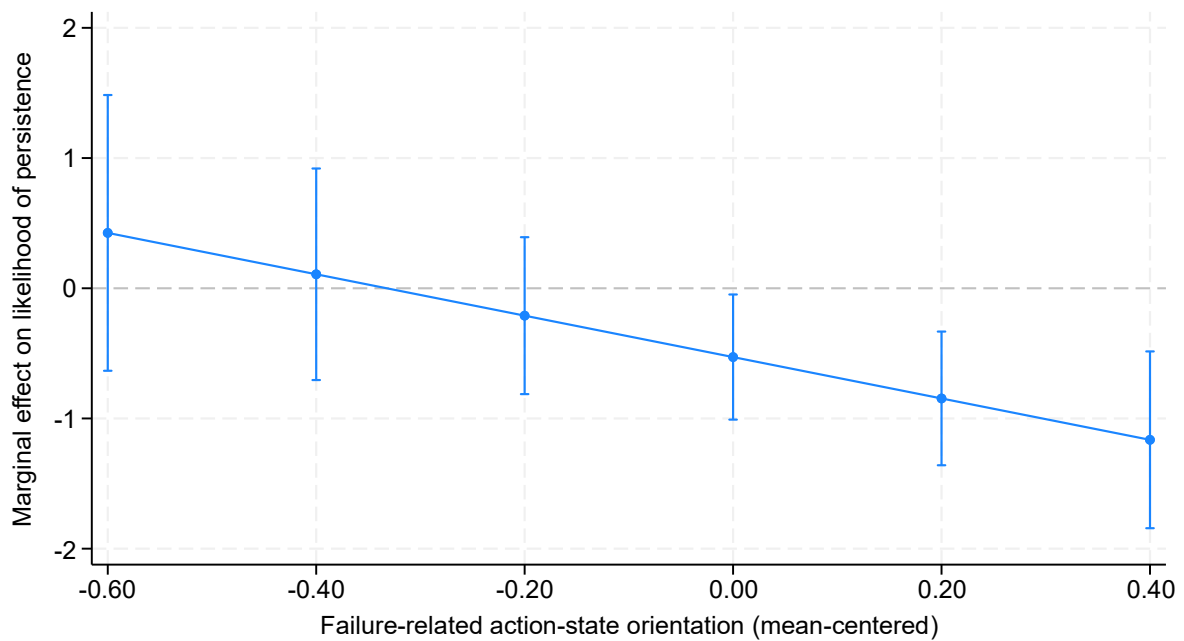


Note. Bars represent the mean likelihood of persistence (1–7 scale) across experimental conditions. Error bars indicate ± 1 standard error.

Figure 2.4

Mean Likelihood of Persistence Across Experimental Conditions, Study 2

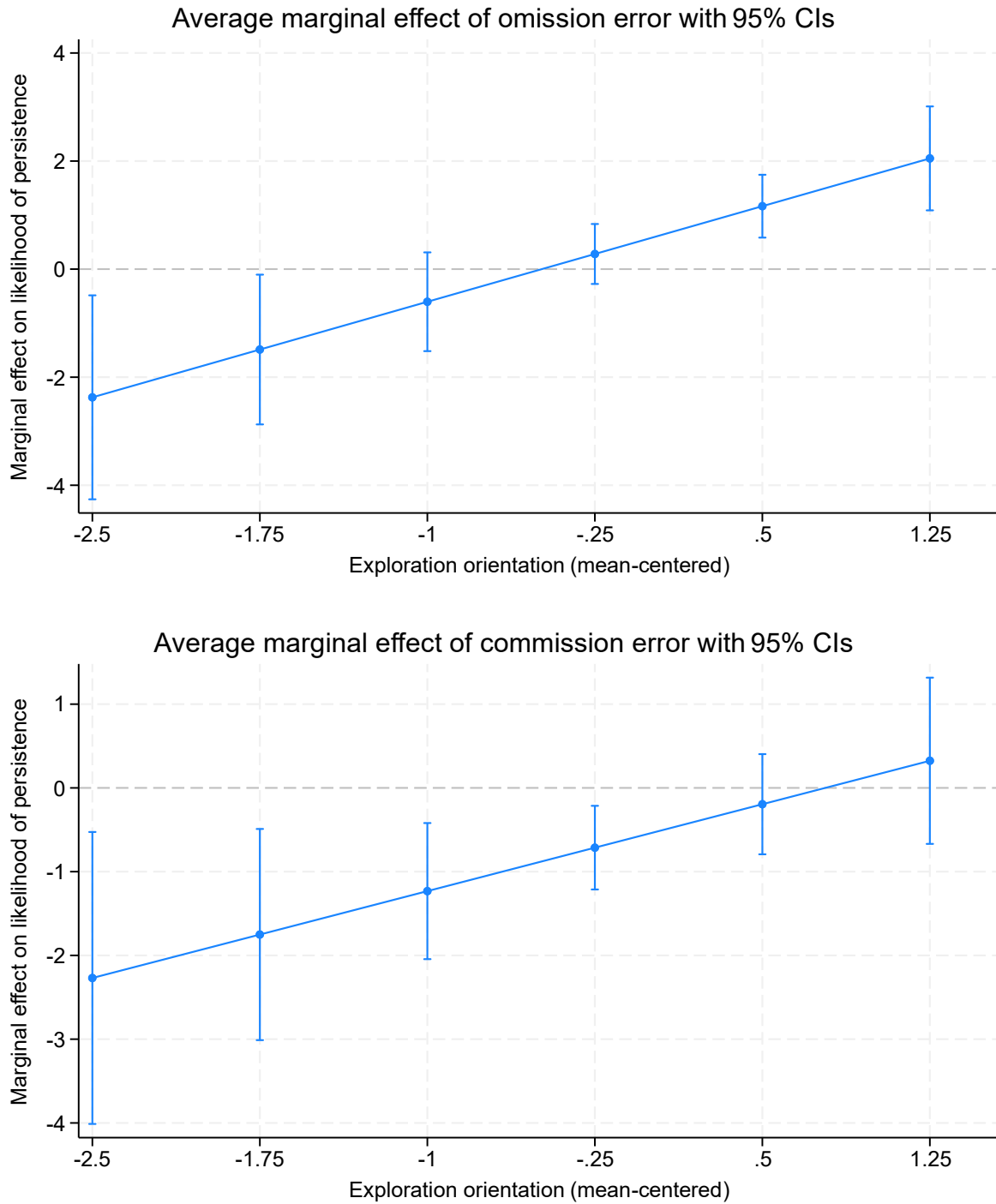
Interaction Effects. Regarding the interaction effects at the individual level, we proposed that action–state orientation would strengthen the impact of failure type on the likelihood of persistence (H2). Consistent with this, the commission error $\times$ action–state orientation interaction is significant and negative ($b = -1.589$, $\beta = -0.277$, $p = .030$), indicating that highly action-oriented individuals are less likely to persist following a commission error (see Figure 2.5). In contrast, the omission error $\times$ action–state orientation interaction is nonsignificant ($p = .151$). These results indicate that action orientation amplifies the effect of a commission error, but not of an omission error. Overall, these results provide partial support for H2.

**Figure 2.5**

Average Marginal Effect of Commission Error on Likelihood of Persistence Across Levels of Failure-Related Action–State Orientation (95% CIs), Study 2

Furthermore, we hypothesized that a rational thinking style would attenuate the effect of failure type on the likelihood of persistence (H3). Contrary to this prediction, none of the interactions between rational thinking style and any failure condition reached significance (all p s $\geq .131$), indicating no moderating effect. Therefore, we again find no support for H3.

Regarding the interaction effects at the organizational level (H4 and H5), we predicted in H4 that organizational exploration orientation would amplify the positive effect of an omission error and attenuate the negative effect of a commission error on the likelihood of persistence. Consistent with this prediction, the omission error $\times$ exploration interaction is positive and significant ($b = 1.216$, $\beta = 0.469$, $p = .001$; see Figure 2.6). Likewise, the commission error $\times$ exploration interaction is positive and significant ($b = 0.724$, $\beta = 0.279$, $p = .036$). Thus, exploration orientation mitigates the decline in persistence following a commission error, supporting H4.

**Figure 2.6**

Average Marginal Effects of Failure Type on Likelihood of Persistence Across Levels of Exploration Orientation (95% CIs), Study 2

In H5, we hypothesized that exploitation orientation would exacerbate the decline in the likelihood of persistence following a commission error and dampen the increase in the likelihood of persistence following an omission error. Consistent with this prediction, the commission error $\times$ exploitation interaction is negative and significant ($b = -0.667$, $\beta = -0.327$,

$p = .031$), showing that higher exploitation orientation further reduces the likelihood of a persistence drop after a commission error (see Figure 2.7). In contrast, the omission error $\times$ exploitation interaction is not significant ($p = .280$), indicating no clear evidence that exploitation orientation attenuates the positive effect of an omission error. Thus, we find partial support for H5.

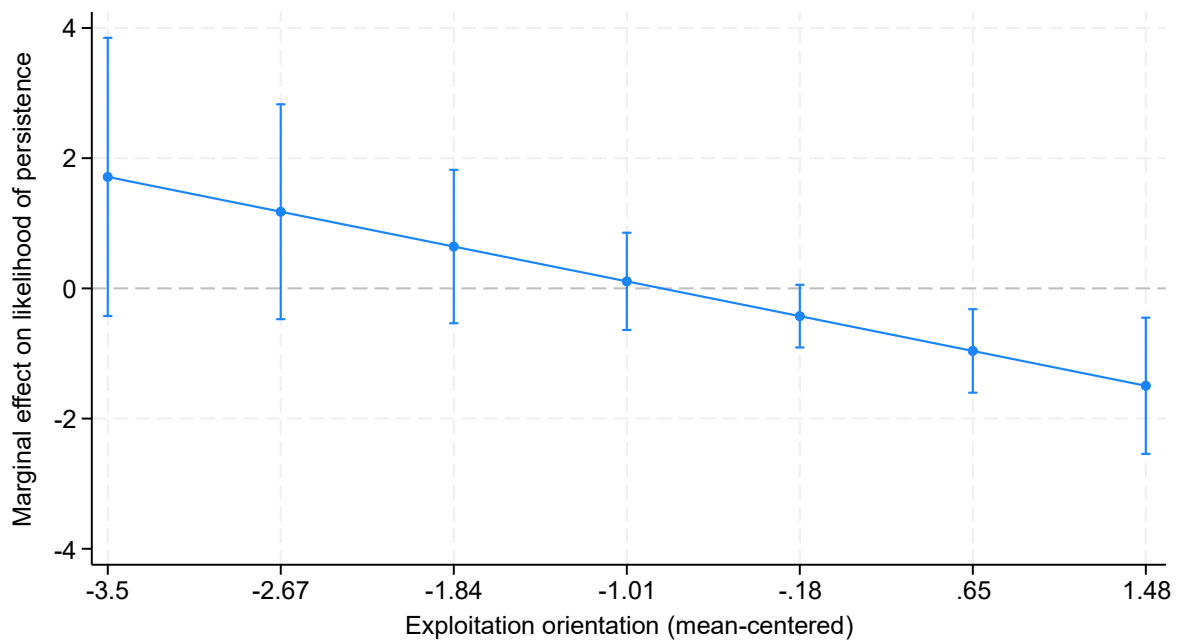


Figure 2.7

Average Marginal Effect of Commission Error on Likelihood of Persistence Across Levels of Exploitation Orientation (95% CIs), Study 2

Robustness. As in Study 1, we re-estimated all models with participants' stated investment amount (ranging from the lowest to the highest possible allocation) as the dependent variable rather than the likelihood of persistence. The results were again entirely consistent in both direction and significance, indicating that the observed effects remain stable when persistence is expressed as a financial commitment rather than a stated likelihood. Detailed results are available in Appendix F, Table F2.

In a similar vein, we included a hybrid failure condition as an additional robustness check. In this condition, participants read a scenario in which a project was initiated with limited resource commitment, only to be successfully commercialized by a competitor. Thus, this

situation contained both commission- and omission-related failure cues. The results showed no significant differences between the hybrid and control conditions ($p > .10$), and all effects remained stable when this condition was included (see Appendix F, Table F3). This suggests that competing failure cues offset each other and therefore do not produce a clear shift in persistence.

Discussion

Study 2 replicated the main effect with a neutral baseline: a commission error again reduces persistence, while an omission error increases it. This result confirms that both error types exert directional pressure relative to a neutral starting point rather than merely relative to each other. These results suggest that a single past failure can shift persistence decisions by over half a point on a 7-point scale. In practical terms, assuming an innovation project budget of \$1 million, this corresponds to an approximately \$90,000 decrease in persistence after a commission error and a \$90,000 increase after an omission error, a difference of nearly \$180,000 in investment intention depending on the prior failure type. More importantly, these differences can widen or narrow further depending on individual decision-makers' traits and the organization's strategic context.

Our results also demonstrate that a stronger action orientation amplifies the reduction in persistence following a commission error, but, contrary to our initial expectations, does not amplify the increasing effect of an omission error. We attribute this asymmetry to the tension between shifts in risk-type preferences and escalation pressures (Keil et al., 2018; Wong & Kwong, 2018).

Action-oriented individuals, who possess greater volitional strength and self-regulatory capacity, may be better able to resolve this conflict, translating the risk shift into decisive abandonment behavior (Kuhl, 1992; Kuhl & Beckmann, 1985; van Putten et al., 2009). In contrast, after omission errors, the risk-type shift toward pursuing opportunities aligns more easily with existing escalation tendencies, requiring little additional self-regulatory effort. Thus,

action orientation may primarily strengthen a risk-type preference shift when it runs counter to escalation dynamics, as in the case of a prior commission error.

In contrast, state-oriented individuals, who ruminate and struggle to disengage from setbacks (Kuhl, 1992), become overwhelmed when escalation and risk-shift forces pull in opposite directions. This indecision dampens commission-induced corrections. However, when omission errors occur, both escalation and risk shift favor persistence, so even state-oriented managers exhibit the expected increase in persistence. In short, state orientation blocks corrective action only in conflict, not when both forces point in the same direction.

We introduce strategic orientation as an organizational boundary condition that influences shifts in risk-type preference. Exploration-oriented firms, which view innovation as experimentation and embrace flexible resource allocation, exhibit greater persistence following an omission error and reduced sensitivity to a commission error (Csaszar, 2013; Keil et al., 2018). In contrast, exploitation-oriented firms, anchored in established structures and requiring high up-front investment, exhibit sharper declines in persistence following a commission error, owing to its salience and cost. Notably, elevated levels of exploitation orientation do not alter the impact of an omission error on persistence, likely because they still signal lost opportunities to obtain valuable returns that decision-makers aim to avoid in subsequent decisions.

General Discussion

Theoretical Contributions

Our findings contribute to the literature on persistence decision-making and the theory of risk-type preference shifts in several ways. First, we advance innovation failure literature by challenging the dominant view of failure as a singular, undifferentiated construct (e.g., Garzón-Vico et al., 2020; Shepherd & Cardon, 2009). Although highly insightful, prior research has predominantly associated failure with the active pursuit of unsuccessful projects (e.g., Markovitch et al., 2015), thereby overlooking that failure can also result from forgoing promising initiatives. We address this limitation by distinguishing between commission and

omission errors to explain why managers persist with underperforming innovation projects. This distinction matters because real-world decisions involve both acts of commission and omission under uncertainty; yet omission errors remain empirically underexplored, with few exceptions (e.g., Csaszar, 2012; Kumar & Operti, 2023).

Second, we contribute to the persistence literature by integrating earlier conceptual work on innovation project persistence (Keil et al., 2018) with the theory of risk-type preference shifts (Klingebiel, 2018). Previously, behavioral research showed that negative feedback can fuel persistence through decision-makers' tendency to defend past decisions (i.e., to escalate commitment) (Sleesman et al., 2012), leading them to engage in more risk-seeking behavior (Kahneman & Tversky, 1979). However, other research suggests that these opposing tendencies hinge on the level of analysis. Within a single project, escalation of commitment pressures predominate; thus, negative feedback in an innovation project increases persistence (Eliëns et al., 2018; Weeth et al., 2020). However, when evaluating multiple projects over time, course correction may become more likely (Keil et al., 2018; Wong & Kwong, 2018). Our study suggests that, across projects, risk-type preference shifts dominate, overriding escalation tendencies and providing evidence for this course correction.

Third, as a mechanism proposed by the theory of risk-type preference shifts, decision-makers seek to avoid re-experiencing the most recent salient failure of a given type in subsequent decision situations (Dye et al., 2014). We show, however, that this logic is not always followed, given different boundary conditions. In this regard, we answer calls for research on underexamined boundary conditions of risk-type preference shifts by investigating potentially significant individual- and organizational-level moderators (Klingebiel, 2018).

For individual-level boundary conditions, we note that action-oriented decision-makers exhibit a firm preference for omission risk following a commission error. In contrast, state-oriented decision-makers might not exhibit a shift in risk preferences following a commission error, possibly due to indecisiveness and behavioral passivity. We also contribute to the

understanding of how rational thinking shapes the tension between shifts in risk-type preferences and persistence. Eliëns et al. (2018) argue that rational thinkers are less prone to escalation behavior because they are likely to disregard sunk costs and prioritize present project attributes. Our findings nuance this view by showing that rational thinkers do not differ from less rational managers in how failure type shapes persistence decisions; instead, they appear to redirect their attention to present project characteristics, such as proximity to completion and project innovativeness. This behavior aligns with instrumental rationality under uncertainty, in which learning from past outcomes is adaptive when it supports better decisions (Gavetti & Levinthal, 2000; Joseph & Gaba, 2020).

For organizational boundary conditions, we show that its core mechanism also depends on a firm's strategic orientation. Commission and omission errors offer alternative lenses for understanding the exploration–exploitation trade-off (Garicano & Posner, 2005; Garud et al., 1997). Our findings show that risk-type preference shifts are not universal; they are contingent on strategic orientation, as exploratory and exploitative firms perceive and weigh omission versus commission errors differently (Csaszar, 2013). This variation determines whether and how firms adjust their risk preferences following specific failures.

Practical Implications

Our findings yield actionable guidance at both the organizational and individual levels. Firms should explicitly account for how recent failures shape persistence decisions by maintaining a failure log that distinguishes commission errors (innovation flops) from omission errors (missed opportunities). Although omission errors often go unnoticed until a competitor succeeds with an initiative the focal firm once passed on, proactive tracking supports both learning and calibration of future persistence. Conversely, reviewing recent commission errors can serve as an intervention to temper over-investment in projects unlikely to recover (Sarangee et al., 2014). To implement these insights, we provide three recommendations.

First, teams can embed structured post-launch and post-mortem reviews that classify each failure by type and extract strategic lessons (von Zedtwitz, 2002). Second, when past failures threaten to bias judgment, managers can solicit a neutral colleague's second look, akin to a third-party evaluation, to restore objectivity and mitigate spillover effects (Loh et al., 2019). Third, decision-makers can use deliberate reframing to minimize the influence of past errors. For example, asking "How would I decide had I never heard of the last failure?" helps determine whether a past outcome is unduly shaping the current judgment. These self-directed reframing techniques can weaken irrelevant contextual anchors and improve decision quality (Milkman et al., 2009).

These protocols are vital for action-oriented managers, for whom commission errors sharply reduce persistence. State-oriented managers, in contrast, are less decisive, but this very caution can serve as a counterweight to the impulsiveness of action-oriented colleagues. Organizations may therefore benefit from forming review panels that combine both profiles. Diverse stage-gate panels or cross-functional review boards can balance decisiveness with caution, ensuring that decisions to persist are informed by a broader range of perspectives and are less vulnerable to individual biases.

While we find no evidence that rational thinking attenuates the influence of past failures on persistence decisions, our analyses indicate that rational thinkers place greater emphasis on specific project attributes, particularly a project's stage of completion and level of innovativeness, when deciding whether to persist. As a result, rational decision-makers tend to maintain underperforming projects that are near commercialization or highly innovative. Therefore, organizations pursuing advanced, exploratory initiatives may benefit from including decision-makers with a strong rational thinking style.

To identify managers by action–state orientation and rational thinking style, companies can use the same validated scales employed in this study. The failure-related action–state orientation scale (eight items) of Kuhl (1994) and the rational thinking style scale (three items)

of Eliëns et al. (2018) offer companies short, easy-to-administer surveys that decision-makers can complete within minutes.

A firm's strategic orientation further dictates how failures shape persistence. Although exploration and exploitation reflect distinct strategic logics (March, 1991), applying past error-based reactions without considering a project's current merits can backfire. Instituting structured reflection routines enables teams to assess whether decisions to persist or withdraw are based on current evidence or merely habitual responses to prior mistakes. For example, exploratory firms, which tend to double down after omission errors, can benefit from reviews that explicitly evaluate whether continued investment aligns with strategic objectives or compensates for earlier inaction. Conversely, exploitative firms, which are particularly sensitive to commission errors, can adopt second-look procedures, such as delayed re-evaluations, to avoid prematurely abandoning projects with latent potential. These buffers are particularly important for action-oriented managers, for whom commission errors most sharply reduce persistence.

Limitations and Future Research

This study has limitations that suggest promising directions for future research. First, the appropriateness of persistence is often ambiguous (e.g., Wong & Kwong, 2018): continuing may help or hurt performance. Our experiments did not assess whether persistence ultimately improves or undermines project outcomes. We encourage future research to investigate the post hoc performance implications of persistence following commission or omission errors, such as the extent to which financial, strategic, and other project goals are met.

Second, our study focused on identifying individual and organizational boundary conditions that shape the effect of failure type on persistence. Although this clarifies when and for whom failure types matter, the psychological processes underlying these distinctions remain underexamined. Mediating mechanisms such as anticipated regret (Wong & Kwong, 2007; Wong et al., 2006) or counterfactual thinking (Roese, 1997) may help explain the psychological

processes and offer opportunities for future research. Relatedly, although highly analytical managers were no more or less likely than their peers to persist after either a flop or a missed opportunity, they consistently placed greater weight on proximity to completion and project innovativeness, regardless of the type of prior failure. This suggests a general decision rule rather than a reactive adjustment. Future studies could disentangle whether this pattern reflects deliberate analytical reasoning or an implicit heuristic by using think-aloud protocols or other process-tracing methods that capture how rational thinkers reach their decisions.

Third, as with most scenario experiments, our design has limited external validity. The controlled setting, however, enabled us to isolate commission and omission effects, especially omission errors rarely seen in archival data, and test how failure type influences persistence. While some recent work (e.g., Kumar & Operti, 2023) infers omissions from missed patent opportunities, such methods remain rare and merit further development. Using archival data would further allow researchers to examine the role of temporal proximity. Prior work shows that recent experiences exert a disproportionate influence on subsequent choices (Barron & Erev, 2003; Madsen & Desai, 2024). Longitudinal designs could reveal whether omission errors exert a more durable persistence effect than commission errors.

Fourth, our participants were U.S. managers, which leaves cultural variation unexplored. In collectivist cultures, in which consensus and group harmony are valued, commission errors may carry greater stigma (Oetzel & Ting-Toomey, 2003). However, we found no link between persistence and whether decisions were made individually or collaboratively, nor any interaction with failure type. These findings suggest generalizability across decision styles, though future research should explore how deeply consensus-driven cultures might influence responses to failure. Cross-national and longitudinal designs could operationalize these propositions by combining archival datasets on innovation decisions (e.g., Kumar & Operti, 2023; Sharapov & Dahlander, 2025) with country-level cultural indicators such as Hofstede et al.'s (2010) dimensions. Such data would enable examination of whether

cultural values, particularly uncertainty avoidance and collectivism, condition the persistence effects of commission versus omission errors across contexts and over time.

Furthermore, broader contextual forces may be influential and therefore warrant investigation. For example, dynamic, high-innovation industries may heighten the salience of omissions, while stable, efficiency-driven industries may amplify the costs of commissions (Garud et al., 1997). Likewise, cultures that stress consensus may increase the reputational burden of visible flops. Future archival research could therefore examine how strategic orientation, industry characteristics, and cultural norms jointly condition the influence of failure type on persistence.

Finally, as AI-powered tools frequently support managerial decision-making (Raisch & Krakowski, 2021), routine logs of decision failures could serve as the empirical foundation for AI systems that identify recurring patterns in how past failures influence future decisions. Future research might investigate how to implement such systems in practice, assess their accuracy in detecting relevant decision patterns, and determine whether managers adopt and benefit from them.

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Chapter 3: How Decision Failures Shape Escalation of Commitment: The Role of Regret and Regulatory Focus

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Abstract:

We investigate how a prior decision failure affects escalation of commitment in subsequent new product development. Distinguishing between commission errors (persisting with failing projects) and omission errors (prematurely abandoning promising projects), we demonstrate their distinct effects on subsequent escalation of commitment across two experimental studies with innovation managers. Study 1 tests the main effect, and Study 2 examines the underlying mechanisms and boundary conditions. Drawing on regret regulation theory and regulatory focus theory, we show that anticipated keep regret, arising from continuing a failing project, and anticipated drop regret, stemming from terminating a promising project too soon, conditionally mediate these effects, depending on decision-makers' regulatory focus. Commission errors increase anticipated keep regret, reducing escalation among decision-makers low in prevention focus, whereas omission errors heighten anticipated drop regret, increasing escalation among those high in promotion focus.

Keywords: Escalation of commitment, decision failure, anticipated regret, regulatory focus

Introduction

Escalation of commitment (EoC) occurs when decision-makers continue investing in failing projects despite clear signals that termination would be more rational (Staw, 1981). Research has documented the phenomenon across various domains, including new product development (Roeth et al., 2020; Yang et al., 2023), pricing (Jain & Chen, 2023), entrepreneurship (Huang et al., 2019), information systems (Lee et al., 2021), and strategic management (Norheim-Hansen & Meschi, 2021). Prior studies attribute EoC largely to project-level factors, such as sunk costs (Garland, 1990; Garland & Newport, 1991) and proximity to completion (Boehne & Paese, 2000; He & Mittal, 2007), implicitly assuming that such decisions are made in isolation.

We instead argue that in environments where EoC is most prevalent (Schultze et al., 2012), managers rely heavily on experience when deciding whether to persist with a project. For decision-makers, such experiences, and failures in particular, are not merely informational cues but emotionally charged events that shape behavior in subsequent projects (Ku, 2008). In this study, we conceptualize failure as decision errors made by managers in prior project evaluations. These errors may arise either from pursuing projects that ultimately fail to meet expectations (commission errors) or from prematurely abandoning projects that later prove promising (omission errors) (Klingebiel, 2018). Among the emotions associated with such experiences, anticipated regret plays a central role in shaping escalation tendencies (Sarangee et al., 2013; Sleesman et al., 2012). However, little is known about what triggers this regret or what constrains its influence on EoC. We argue that different types of failure elicit distinct forms of anticipated regret and that their impact on escalation depends on decision-makers' self-regulatory abilities. Without understanding how different failure experiences generate anticipated regret and how this process is bounded by self-regulation, the understanding of why managers persist with failing projects remains incomplete.

Experiences with prior failure, in particular, have received limited attention in the EoC domain, with few exceptions (e.g., Ku, 2008). While prior research has examined the effects of

prior success, showing how strong performance can increase managerial confidence and encourage escalation tendencies (Bragger et al., 2003; DeTienne et al., 2008; Keil, 1995) or provide a sense of security that reduces the pressure to persist (Hayward & Shimizu, 2006), failure remains underexplored despite its salience. Failure is often more emotionally and cognitively salient than success, making it a critical factor in shaping subsequent decision-making (Baumeister et al., 2001; Garzón-Vico et al., 2020; Ito et al., 1998; KC et al., 2013). However, research has largely neglected the ways different types of failure experiences influence escalation behavior. Prior research has called for a shift from project-level explanations to understanding how decision-makers adapt after failure in subsequent escalation situations (Eliëns et al., 2018). EoC is particularly prevalent in contexts in which setbacks and unpredictability are common (Brockner, 1992; Schultze et al., 2012). Here, managers often persist with struggling projects, especially more innovative ones, despite mounting costs and poor projections (Schmidt & Calantone, 2002), diverting resources from better opportunities and potentially causing substantial financial losses (Schmidt et al., 2009; Webb, 2016).

Moreover, research often treats failure as a generalized concept, ignoring the distinct ways it can occur. In project evaluation, two types of failure may emerge: commission errors and omission errors³ (Klingebiel, 2018). Commission errors occur when firms pursue projects that ultimately fail to meet aspirations. These aspirations serve as benchmarks, creating a binary success/failure metric against which organizational activities are measured (Madsen & Desai, 2010). Therefore, a commission error can result from escalating commitment to a failing project. In contrast, omission errors result from failing to pursue promising projects or from prematurely abandoning them, often recognized only in hindsight when competitors succeed, or market conditions shift (Klingebiel, 2018). In innovation contexts, both error types are

³ Failures and errors differ in meaning; failures represent undesirable outcomes, such as missing sales targets, while errors denote mistakes made during task execution, such as entering wrong data (Dahlin et al., 2018). However, the literature often uses “error” to describe failure, as in “commission errors” and “omission errors.” For consistency, we also use this convention.

common, though omission errors are more difficult to quantify. For example, commission error rates range from 40% to over 80% in specific industries (Baghizadeh et al., 2020; Sarangee et al., 2019).

Prior research suggests that these errors have distinct effects on future decisions (Csaszar, 2013; Dye et al., 2014; Klingebiel, 2018; Klingebiel et al., 2022). While failure may offer learning opportunities and potentially cause decision-makers to alter their subsequent behavior (Bingham & Davis, 2012; Shepherd et al., 2011), rational information processing can be inherently biased in escalation situations (Schultze et al., 2012; Schultze & Schulz-Hardt, 2015). Given the emotional and complex nature of dealing with project failure (Eisenhardt & Tabrizi, 1995; Kim & Lee, 2020), we argue that, beyond rational analysis, behavioral adaptation is driven by efforts to manage or avoid negative emotions.

Emotions play a crucial role in decisions involving adverse outcomes (Lerner et al., 2015), with anticipated regret being particularly influential in EoC (Sarangee et al., 2019; Sleesman et al., 2012). Although the literature discusses the impact of anticipated regret on EoC, the specific mechanism by which it emerges remains unclear. Anticipated regret—both over continuing a failing project (keep regret) and abandoning a promising one (drop regret)—exerts opposing pressures on escalation: keep regret discourages escalation, while drop regret encourages it (Sarangee et al., 2013). Drawing on regret regulation theory (Zeelenberg & Pieters, 2007), we propose that past experiences shape the type and intensity of anticipated regret and, in turn, influence subsequent decisions.

Furthermore, we argue that the mechanisms linking failure to regret have boundary conditions and that the relationship between failure type and anticipated regret varies across managers. Individual self-regulatory orientations shape how failures are interpreted and how regret is experienced. Research shows that promotion-focused managers, oriented toward ideals and gains, and prevention-focused managers, oriented toward duties and loss avoidance, differ systematically in their perceptions of commission and omission errors (Förster et al., 2001) and

in the regret they anticipate (Leder et al., 2013; Pierro et al., 2008). To capture this variation, we integrate regret regulation theory, which explains how failures elicit regret, with regulatory focus theory (Higgins, 1997), which explains why the impact of failure types on regret varies across individuals. Together, these perspectives provide a coherent framework for explaining how, and under what conditions, commission and omission errors shape escalation through anticipated regret.

To achieve our research aim, we conducted two experimental studies with innovation managers. Our research offers three important insights. First, we consider failure history, thereby advancing EoC theory. While prior research acknowledges the role of past experiences in guiding decisions under uncertainty (Dayan & Elbanna, 2011; Sedighadeli & Kachouie, 2013), it has often treated failure as a one-dimensional construct rather than as a nuanced phenomenon (Garzón-Vico et al., 2020; Lee & Markham, 2016). We distinguish between commission and omission errors and show that these distinct failure types produce distinct psychological and behavioral consequences. Second, we uncover the mechanism through which regret emerges in escalation. Drawing on regret regulation theory, we show that different types of failure elicit distinct forms of anticipated regret, which in turn influence whether managers persist or withdraw. This perspective goes beyond work that essentially treats regret as an exogenous deterrent to escalation (e.g., Sleesman et al., 2012). Third, we identify boundary conditions to this process by incorporating regulatory focus theory. We show that promotion- and prevention-focused managers differ systematically in how they interpret failure types and in the intensity of anticipated regret, thereby moderating the link between failure and escalation. This integration refines theoretical perspectives by situating the generation and regulation of regret within self-regulatory orientations.

Theory and Hypotheses Development

Table 3.1 reviews adjacent research that has examined the role of decision history and emotional or motivational constructs in escalation-related or comparable decision contexts.

This body of work demonstrates that emotions such as regret and self-regulatory orientations influence persistence decisions (Barsky & Zyphur, 2016; Sarangee et al., 2019). However, most studies are confined to single-project settings, treating escalation as an isolated event rather than as part of broader decision history. Only a few have explored how prior decision outcomes shape subsequent escalation behavior, and these have focused exclusively on acts of commission (Bragger et al., 2003; Ku, 2008). The present study extends this line of research by examining how both types of failure (commission and omission errors) affect future escalation. Specifically, we investigate their underlying mechanisms through anticipated keep regret and anticipated drop regret and their boundary conditions through individual differences in regulatory focus (promotion vs. prevention focus). Figure 3.1 illustrates our conceptual model, which integrates these relationships and highlights the proposed mediating and moderating mechanisms.

Table 3.1
Overview of Adjacent Literature

Authors	Method (n)	Emotional/motivational constructs	Decision history	Key findings
Bragger et al. (2003)	Experiment (136)	–	Across projects; past success experience	Prior success delays exit from failing ventures, particularly when feedback is equivocal.
Wong et al. (2006)	Experiments (462)	Negative affect (trait/state)	Within project	Negative affect reduces escalation only when the individual is responsible for the prior decision.
Wong & Kwong (2007)	Experiments (623)	Anticipated withdrawal vs. persistence regret	Within project	Withdrawal regret increases escalation; persistence regret decreases escalation.
Ku (2008)	Experiments (121)	Experienced regret	Across projects; past regret experience	Experiencing regret in an earlier escalation reduces escalation in a subsequent task.
DeTienne et al. (2008)	Conjoint experiment (89 participants; 2,848 decisions)	Extrinsic motivation, personal investment, collective efficacy	Within project; prior success as a manipulated attribute	Persistence increases with personal investment, collective efficacy, and prior success. Extrinsic motivation strengthens investment effects and weakens other influences.
Molden & Hui (2011)	Experiments (238)	Regulatory focus (promotion vs. prevention)	Within project	Promotion focus reduces escalation compared with prevention focus and control; prevention focus produces typical escalation when responsible for initial decisions.
Sarangee et al. (2013)	Experiments (328)	Anticipated keep and anticipated drop regret	Within project	Keep regret increases with negative information; drop regret remains constant; commitment declines.
Barsky & Zyphur (2016)	Experiments (342)	Regulatory focus (promotion vs. prevention)	Within project	Proximity to completion increases escalation among promotion-focused individuals.
Huang et al. (2019)	Team simulation (66 teams; 569 rounds)	Group hope vs. fear; engagement	Within project	Group hope increases escalation more strongly than fear reduces it; engagement mediates this effect.
Sarangee et al. (2019)	Experiment (280)	Anticipated keep and anticipated drop regret	Within project	Keep regret reduces escalation; drop regret increases escalation via perceived likelihood of success.
Roeth et al. (2020)	Experiment (366)	Affect (positive/negative) × decision mode (intuitive/rational)	Within project	Negative affect increases escalation overall. Rational mode increases escalation under negative affect, while intuitive mode reduces escalation under positive affect.

Authors	Method (n)	Emotional/motivational constructs	Decision history	Key findings
Weeth et al. (2020)	Experiments (460)	Thought worlds (strategy orientation, professional orientation, tolerance for ambiguity, risk orientation)	Within project	Thought-world orientations have distinct effects on escalation via belief updating. Escalation is more likely when orientations align with project characteristics (e.g., R&D orientation with exploratory projects).
Lee et al. (2021)	Experiments (351)	Growth mindset, anticipated regret	Within project	A growth mindset increases escalation, mediated by lower anticipated regret and higher anticipated likelihood of success, with partially more substantial effects under unfamiliar technology.
Kier et al. (2022)	Experiment (261); conjoint experiment (216 participants; 7,776 decisions)	Self-regulatory modes (locomotion vs. assessment); entrepreneurial experience	Within project	Team recommendations increase persistence with losing projects. Effects amplify for locomotion-oriented and experienced entrepreneurs but weaken for assessment-oriented entrepreneurs.
Lee et al. (2024)	Experiments (208)	Goal source (self-set, assigned, inherited)	Within project	Escalation is highest for self-set goals, lower for assigned goals, and lowest for inherited goals; it is not explained by responsibility.
Valéau et al. (2024)	Field study (85); 18-month longitudinal	Affective vs. instrumental commitment profiles	Within project	Persistence is explained by distinct initial–long-term commitment profiles. Long-term instrumental commitment alone predicts persistence (escalation). Affective commitment needs reinforcement by instrumental commitment for long-term persistence. Initial-only profiles lead to detachment.
This research	Experiments (302)	Regulatory focus (promotion vs. prevention); anticipated keep and drop regret	Across projects; prior commission error vs. omission error	Commission errors increase anticipated keep regret, reducing escalation among individuals low in prevention focus; omission errors heighten anticipated drop regret, increasing escalation among those high in promotion focus.

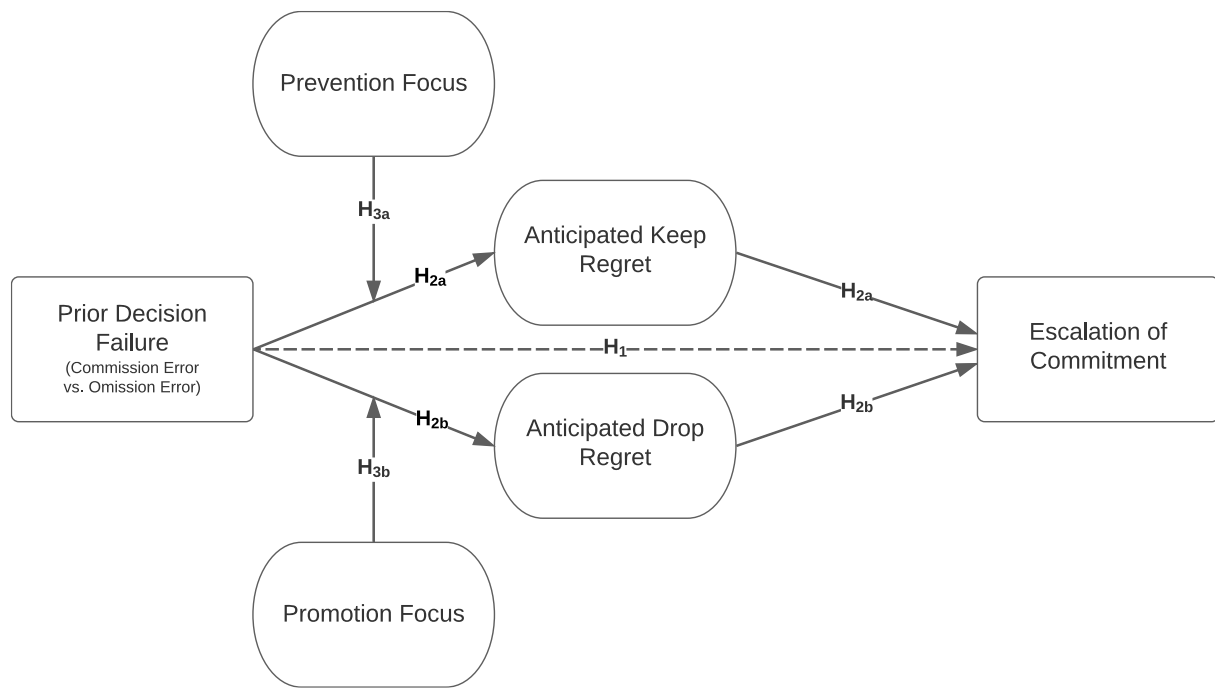


Figure 3.1
Conceptual Model of Chapter 3

The Influence of Prior Failure on EoC

Adverse feedback on a project often leads decision-makers to escalate their commitment to that project (Staw, 1981). However, across projects, failure tends to prompt behavioral adaptation (Cyert & March, 1963; Madsen & Desai, 2024). Individuals adjust their future actions in response to prior adverse outcomes (Blake, 2008; Denrell, 2007). Applied to project reviews, this suggests that after experiencing failure, decision-makers become less inclined to repeat the same course of action when facing a new failing project. Specifically, those who previously made a commission error tend to shift toward decisions that increase the likelihood of omission errors, and vice versa (Dye et al., 2014; Klingebiel, 2018). This pattern reflects a broader tendency to form more negative perceptions of decision types associated with recent adverse outcomes (Johnson & Tversky, 1983).

We propose that decision-makers who have experienced a commission error attribute the failure to their earlier decision to continue the project. For example, a pharmaceutical manager who pushed an expensive drug through clinical trials despite poor early results may later interpret the failure as evidence that they should have terminated the trial earlier.

Consequently, when evaluating a subsequent failing project, decision-makers view continued investment as less attractive. In contrast, those who experienced an omission error are more likely to associate the failure with their decision to terminate the project. For example, a manager who canceled a promising drug project might later view a competitor's success with a similar compound as proof that they acted too cautiously. Managers experiencing an omission error are therefore more likely to discount the option of termination, to overestimate the project's potential, and to escalate their commitment. Thus:

Hypothesis 1 (H1). Decision-makers who have experienced an omission error are more likely to escalate commitment to a subsequent failing project than those who have experienced a commission error.

EoC and Regret Regulation

Because decision-makers in escalation contexts are prone to biased information processing (Schultze & Schulz-Hardt, 2015), their adaptation process following failure may be both analytic and emotional. Among potential affective drivers, anticipated regret has emerged as a particularly influential factor in shaping EoC decisions (Sarangee et al., 2013; Sleesman et al., 2012). Regret is a negative emotion that arises when individuals realize that a different decision could have produced a better outcome (Zeelenberg, 1999). According to regret regulation theory (Zeelenberg & Pieters, 2007), individuals try to avoid regret rather than to maximize utility; they do so by adopting regret management strategies, one of which involves anticipating future regret to guide current decisions (Pieters & Zeelenberg, 2007).

We propose that the experience of failure influences the type of anticipated regret that surfaces in subsequent decisions. Specifically, individuals who previously committed a commission error are likely to develop anticipated keep regret, a forward-looking emotional concern that repeating the same action (continuation) will again lead to adverse outcomes. For example, after insisting on continuing a software development project that ultimately failed, a manager may feel intense regret for not stopping earlier. To regulate this emotion, they project similar feelings onto future decisions and anticipate keep regret when facing a subsequent

project with negative feedback. This anticipation helps them avoid repeating the same emotionally costly mistake, making them more reluctant to persist with another failing project (Zeelenberg & Pieters, 2007).

In contrast, individuals who experienced an omission error are less likely to anticipate keep regret and may even consider continuation a corrective action. In this way, anticipated keep regret functions as an affective mechanism that reduces the likelihood of repeated escalation following commission errors but is less activated in the case of omission errors. Thus:

Hypothesis 2a (H2a). Anticipated keep regret mediates the effect of decision failure on EoC, such that decision-makers who made a commission (omission) error experience heightened (reduced) levels of anticipated keep regret, leading to lower (higher) levels of EoC.

Following this logic, individuals who have recently encountered an omission error should experience higher levels of anticipated drop regret for a focal project. Because drop regret results from an omission error experience (Khanin et al., 2021; Leder et al., 2013), they may anticipate drop regret in an effort to regulate the regret caused by the omission error (Zeelenberg & Pieters, 2007). For example, a manager who sees a competitor successfully release a software development product after terminating a similar project may feel intense retrospective regret for having canceled too early. To regulate this emotion, they anticipate feeling a comparable degree of regret if they were to drop another project that is currently underperforming. Consequently, decision-makers who have recently experienced an omission error are likely to show a tendency toward escalation, due to heightened anticipated drop regret (Sarangee et al., 2019). They may be more willing to continue investing in a failing project to avoid the drop regret associated with another omission error. Thus:

Hypothesis 2b (H2b). Anticipated drop regret mediates the effect of decision failure on EoC, such that decision-makers who made an omission (commission) error experience heightened (reduced) levels of anticipated drop regret, leading to higher (lower) levels of EoC.

Role of Regulatory Focus

Self-regulation is central to how individuals manage negative emotions, conflicting goals, and motivational impulses (Billore et al., 2023). A key motivational framework explaining how

they regulate their responses to such challenges is regulatory focus theory. According to this theory (Higgins, 1997), individuals adopt either a promotion focus, aimed at achieving ideals and pursuing gains, or a prevention focus, aimed at maintaining security and avoiding losses. These motivational orientations influence how they interpret different types of failure. Specifically, individuals' interpretations of commission and omission errors are dictated by their underlying regulatory orientation (Förster et al., 2001; Lim & Hahn, 2020). In turn, regulatory focus influences how individuals process failure-related information (Florack & Hartmann, 2007) and how they adjust their responses to negative feedback (Ahn et al., 2021).

Prevention-focused individuals are especially attuned to potential losses and are more sensitive to anticipated keep regret, which stems from continuing a failing course of action (Leder et al., 2013). They also show a heightened tendency to engage in subtractive counterfactual thinking—imagining what could have been avoided if a prior action had not been taken—particularly in response to commission errors (Idson et al., 2000; Roese et al., 1999). These reflections may intensify retrospective regret and elevate future anticipated keep regret.

Research on prevention focus shows that when individuals operate below their aspiration level, in the domain of losses, they often persist rather than withdraw to restore a sense of security (Higgins & Pinelli, 2020; Scholer & Higgins, 2012). Thus, in escalating situations, prevention-focused individuals may anticipate less keep regret from persistence, because they reframe continuation as the only viable route to recover stability. For example, a prevention-focused pharmaceutical manager whose drug trial has encountered disappointing interim results may view continued investment as a means to fix the situation and prevent the broader program from failing. In this state, they may suppress anticipated keep regret to preserve a sense of control and security. Although prevention-focused managers are generally more sensitive to commission errors and the regret they generate, under conditions of threat, they may regulate this anticipation downward to align affect and behavior with their motivational goal of restoring security. Escalation research supports this reasoning, showing

that prevention-focused individuals are particularly prone to persist when they feel responsible for the initial decision (Molden & Hui, 2011). Drawing on regret regulation theory, we argue that anticipated regret in such situations serves not merely as a prediction of future emotions but also as a regulatory tool by which managers adjust their expectations to remain aligned with their motivational orientation (Zeelenberg & Pieters, 2007).

Building on this logic, we contend that such dynamics are especially pronounced following commission errors. Losses from a commission error can, in principle, be reversed if the focal project eventually succeeds, making persistence appear as an opportunity to restore the prior state. For example, a prevention-focused pharmaceutical manager who previously continued a costly drug trial that ultimately failed may, when evaluating a new project facing early setbacks, downplay anticipated regret by framing persistence as a chance to recover from the earlier failure and re-establish stability. Faced with this possibility, prevention-focused individuals may strategically anticipate less keep regret from continuing to justify escalation and remain consistent with their overarching goal of maintaining security. Therefore, regret regulation (how regret expectations are adjusted) and regulatory focus (why these adjustments are made) jointly explain why prevention focus weakens the effect of commission errors on anticipated keep regret, reducing regret's deterrent role and ultimately fostering escalation. Thus:

Hypothesis 3a (H3a). Prevention focus moderates the effect of commission (vs. omission) error experiences on anticipated keep regret. Specifically, as prevention focus increases, the effect of commission errors on anticipated keep regret diminishes, thereby increasing subsequent EoC.

Conversely, promotion-focused individuals pursue growth and the achievement of ideals (Higgins, 1997). Omission errors represent missed opportunities to realize these aspirations and thus directly threaten this motivational orientation. Such errors evoke upward counterfactual thinking about unrealized gains, which intensifies regret over inaction (Roese et al., 1999; Yeung & Feldman, 2022). Promotion-focused individuals are particularly prone to

this form of regret, as they are more sensitive to absent positives and forgone opportunities (Leder et al., 2013). Because promotion focus also reduces inaction inertia (Liu & Chou, 2025), individuals high in this orientation are more likely to re-engage after missed opportunities than to disengage, thereby strengthening the motivational pull of omission errors in subsequent decisions. Although promotion focus is often associated with resilience in the face of failure (de Lange & van Knippenberg, 2009; Langens, 2007), this buffer weakens when failure stems from inaction. Whereas commission errors can be reframed as proactive missteps, omission errors reflect passivity and squandered opportunity. This contrast makes them particularly difficult to dismiss for promotion-focused individuals (Crowe & Higgins, 1997; Roese & Summerville, 2005).

We argue that in escalation contexts, prior omission errors intensify upward counterfactual thinking about what could have been gained, heightening anticipated drop regret when managers consider terminating a subsequent failing project. Promotion-focused individuals are especially attuned to the prospective costs of inaction, often finding them more aversive than the costs of failed action (Leder et al., 2013; Pierro et al., 2008). For example, a promotion-focused pharmaceutical manager who previously canceled a promising drug project and later saw a competitor achieve a breakthrough with a similar compound may experience intense retrospective regret for withdrawing too soon. To regulate this emotion, they amplify anticipated drop regret in subsequent decisions, imagining how much they would regret terminating another project that might still succeed. According to regret regulation theory, they are likely to amplify anticipated drop regret following omission errors to align emotional expectations with their aspirational goals (Zeelenberg & Pieters, 2007). In this case, promotion focus strengthens the link between omission errors and anticipated drop regret, thereby increasing EoC. Thus, we hypothesize:

Hypothesis 3b (H3b). Promotion focus moderates the effect of omission (vs. commission) error experiences on anticipated drop regret. Specifically, as promotion focus increases, the effect of omission errors on anticipated drop regret amplifies, thereby increasing subsequent EoC.

Overview of Studies

We conducted two experimental studies to test our hypotheses. Study 1 examines whether a prior commission error results in lower EoC with a subsequent project than an omission error (H1). Study 2 builds on this by investigating whether anticipated keep regret and anticipated drop regret mediate this relationship (H2a and H2b). Study 2 also explores how individuals' regulatory focus moderates the relationship between prior failure type and anticipated regret, thereby influencing EoC (H3a and H3b).

Study 1

Methodology

Participants and Design. In line with previous escalation research, we conducted a scenario-based experiment that led participants through a fictitious innovation development process to test H1 (Eliëns et al., 2018; Schmidt & Calantone, 2002; Weeth et al., 2020). Specifically, we employed a two-group between-subjects experiment, manipulating past failure experience through a vignette and randomly allocating participants to either the commission error or omission error group. The experimental design ensures a high degree of internal validity, a prerequisite for drawing causal inferences (Campbell & Stanley, 1963). In addition, decision-makers in an alternative research design would likely present their past failure experiences in a biased manner (Schmidt & Calantone, 2002).

We collaborated with the European panel provider Respondi (now part of Bilendi) (Revilla & Höhne, 2020) to recruit managers with decision-making authority in new product development projects. In line with prior research, we selected this context because of the high stakes and inherent uncertainty of new product development, which make it especially

susceptible to EoC (Eliëns et al., 2018; Sarangee et al., 2019; Weeth et al., 2020; Yang et al., 2023).

To be eligible, participants needed to hold a leadership role at the group, team, or project level and to have been involved in at least one new product development decision within the last three years. The initial sample consisted of 130 responses. We excluded four participants whose total survey completion times were more than two median absolute deviations below the median, suggesting anomalously fast responses (Leys et al., 2013). Consequently, we retained 126 valid responses, which we nearly evenly distributed across the two experimental conditions.

Because scenario-based escalation tasks can be cognitively demanding (Kahneman & Tversky, 1984; Sweller, 1988), we implemented several design safeguards to minimize overload while preserving ecological validity. To minimize the risk of cognitive overload, we carefully designed the scenario to be realistic but manageable for participants. Before launching the study, we conducted a pretest with innovation managers to ensure that the experimental task was comprehensible and that they could follow the information without difficulty (Ericsson & Simon, 1998; Presser et al., 2004). Instead of providing detailed financial tables, we aggregated performance information into three key criteria (profits, sales, and market share) and presented them in a visual format for quick review. We also included attention and comprehension checks to identify inattentive responses (Maniaci & Rogge, 2014). These features, combined with our effort to closely follow prior EoC experiments (Eliëns et al., 2018; Schmidt & Calantone, 2002; Weeth et al., 2020), support our belief that participants were able to process the information and make meaningful decisions without succumbing to satisficing behavior. At the same time, we intentionally retained some degree of task complexity to preserve ecological validity, as real-world escalation decisions require balancing financial trade-offs with past experiences and emotional considerations (Behrens & Ernst, 2014). Moreover, engagement indicators such as completion times, low dropout rates, and meaningful variance in responses suggest that participants engaged seriously with the scenarios rather than resorting to default responding.

Finally, the results are robust across model specifications, further reducing concerns that the observed effects are artifacts of task complexity.

Procedure. The experiment required participants to assume the role of decision-makers evaluating a fictional project: the development of a novel airbag sensor (Schmidt & Calantone, 2002). We instructed the participants to envision themselves as the head of innovation management at a fictional mid-sized sensor supplier in the automotive sector. We provided a thorough explanation and a visual representation of the Stage-Gate procedure used by the fictitious company (Appendix G). In addition, we told the participants to assume the role of a member of the company's project review committee (Eliëns et al., 2018). In this capacity, we informed the participants that their responsibility was to provide top-level executives with recommendations on whether to continue or terminate innovation projects at the respective gates. Study 1 focuses on individual decision-making because project evaluations are typically conducted at the individual level before being aggregated at the group level (Eliëns et al., 2018). We also informed participants that top management expected innovations launched into the market to meet three specific performance benchmarks (Sarangee et al., 2013; Schmidt & Calantone, 1998, 2002): (1) profits exceeding €500,000 per year, (2) sales exceeding €30 million per year, and (3) market share exceeding 30%. Decisions in innovation management are typically evaluated against such financial and market-based criteria (Behrens & Ernst, 2014).

Next, we notified the participants that, during a previous phase of airbag sensor development, they had recommended to top management that the project be initiated and proceed through Gates 1 (idea screen) and 2 (go to development). Top management followed the participants' recommendation and allocated €15.68 million toward the airbag sensor project (Schmidt & Calantone, 2002). Subsequently, we informed the participants that the project team had completed the development and testing of the new airbag sensor. They were now

responsible for evaluating the project at the final gate before its launch and providing top management with a recommendation (Gate 3).

Before participants decided how to proceed with the airbag sensor project, we introduced a manipulation that involved a decision failure in a prior project. We provided the participants with a vignette describing the previous project they had overseen—an innovative brake sensor. The vignette detailed that participants in the commission error group had supported the market introduction of the brake sensor. Following their guidance, top management launched the product into the market. Subsequent feedback revealed that the brake sensor did not meet its prior specifications, indicating a commission error. For the omission error group, the vignette depicted participants advising caution in introducing the brake sensor. Following their advice, top management refrained from launching the product. However, subsequent feedback indicated that a competitor had succeeded with a similar product, suggesting an omission.

Finally, we informed participants that the additional costs of introducing the new airbag sensor to the market amounted to €3 million. We informed them that the estimated annual profit would be €250,000, the estimated annual sales would be €21.5 million, and the estimated market share would be 22.5%. Consequently, the airbag sensor project fails to meet all performance objectives set by top management. As a result, participants should terminate the project at this point. Both experimental groups received identical performance estimates for the airbag sensor project (Schmidt & Calantone, 1998). At the end of the study, we asked participants to answer our measures of EoC and sociodemographic questions.

Measurement and Controls. We coded decision failure as 1 for an omission error and 0 for a commission error. Following prior research, we operationalized EoC using both binary and metric measurements. In addition to the binary decision to continue or terminate the focal project (Eliëns et al., 2018), participants used an 11-point scale to indicate their intent to authorize additional project funds (Sarangee et al., 2019). Table 3.2 presents the measurement

information, and Table 3.3 reports the descriptive statistics and bivariate correlations. Because decision failure (commission error vs. omission error) was experimentally manipulated and temporally preceded the escalation decision, endogeneity concerns about the independent variable are minimized (Aguinis & Bradley, 2014; Antonakis et al., 2010). To account for any industry-specific expertise, we asked participants to indicate their familiarity with the automotive industry. In addition, we controlled for risk propensity, an important driver of EoC (Keil et al., 2000; Sleesman, 2019).

Table 3.2
Construct Measurements

	M	SD	λ	CR	AVE
Behavioral commitment (Study 1/Study 2) (adapted from Schmidt & Calantone, 2002)					
How likely is it that you would recommend authorizing the funds required to complete the next stage of the new product development project?	5.37/7.73	3.28/2.63			
After reviewing the available information, my recommendation to senior management is to terminate (0)/continue (1) the ... project.	0.47/0.64	0.50/0.48			
Anticipated keep regret (Study 2; Cronbach's $\alpha = 0.63$) (adapted from Sarangee et al., 2019)					
I felt that I might regret it if I authorized the funds and later found out that I shouldn't have.	4.56	1.69	0.56	0.70	0.60
I felt that I might regret it in the future if I gave too many opportunities for the project to do well later by not stopping the funding now.	4.35	1.64	0.94		
Anticipated drop regret (Study 2; Cronbach's $\alpha = 0.80$) (adapted from Sarangee et al., 2019)					
I felt that I might regret it if I did not authorize the funds and later found out that I should have.	4.72	1.67	0.71	0.82	0.65
I felt that I might regret it in the future if I did not give sufficient opportunities for the project to do well later by stopping the funding now.	4.78	1.60	0.89		
I felt that I might regret it if I delayed the project, and a competitor came up with a similar product earlier than I did because of the delay.	4.89	1.51	0.80		
Prevention focus (Study 2; Cronbach's $\alpha = 0.79$) (adapted from Higgins et al., 2001)					
Not being careful enough has gotten me into trouble at times. (R)	4.06	1.73	0.51	0.82	0.50
Growing up, I would often 'cross the line' by doing things my parents would not tolerate. (R)	4.18	1.82	0.82		
When I was growing up, I often got on my parents' nerves. (R)	4.13	1.93	0.78		
I often obeyed rules and regulations established by my parents when I was growing up.	5.36	1.45	0.42		
Growing up, I often acted in ways that my parents found objectionable. (R)	4.07	1.86	0.86		
Promotion focus (Study 2; Cronbach's $\alpha = 0.68$) (adapted from Higgins et al., 2001)					
When it comes to achieving things that are important to me, I often find that I don't perform as well as I would ideally like to do. (R)	4.74	1.73	0.44	0.70	0.41
I feel like I have made progress toward being successful in my life.	5.85	1.09	0.78		
Compared to most people, I am typically unable to get what I want out of life. (R)	5.03	1.77	0.59		
Accomplishing things often gets me 'psyched' to work even harder.	5.88	1.15	0.73		
I often do well at different things I try.	5.76	1.07	0.62		

Note. R = a reverse-scaled item; λ = standardized factor loading; CR = composite reliability; AVE = average variance extracted.

Table 3.3*Descriptive Statistics and Bivariate Correlations of Chapter 3*

Variables	M	SD	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) EoC	5.37 7.73	3.28 2.63	1.00 1.00							
(2) Decision failure	0.48 0.38	0.50 0.49	0.164 0.062	1.00 1.00						
(3) Risk propensity	5.72 5.14	1.35 1.31	0.070 0.396**	0.057 -0.120	1.00 1.00					
(4) Industry knowledge	5.78 3.81	3.26 1.70	0.133 0.291**	-0.088 -0.115	0.070 0.273**	1.00 1.00				
(5) Anticipated keep regret	N.A. 4.45	N.A. 1.42	N.A. -0.284**	N.A. -0.108	N.A. -0.155*	N.A. -0.070	N.A. 1.00			
(6) Anticipated drop regret	N.A. 4.79	N.A. 1.34	N.A. 0.415**	N.A. 0.052	N.A. 0.129	N.A. 0.021	N.A. 0.092	N.A. 1.00		
(7) Promotion focus	N.A. 5.45	N.A. 0.92	N.A. 0.080	N.A. -0.050	N.A. 0.187*	N.A. 0.078	N.A. 0.121	N.A. 0.126	N.A. 1.00	
(8) Prevention focus	N.A. 4.11	N.A. 1.46	N.A. 0.009	N.A. 0.077	N.A. -0.048	N.A. -0.006	N.A. -0.014	N.A. -0.080	N.A. 0.011	N.A. 1.00

Note. Top value in each cell = Study 1 ($N_1 = 126$); bottom value = Study 2 ($N_2 = 176$). N.A. = variable was not measured in that study. Means, standard deviations, and bivariate correlations were calculated with uncentered variables. * $p < .05$. ** $p < .01$.

Data Analysis and Results

To evaluate the effectiveness of our manipulation, participants rated whether they chose to continue or terminate the brake sensor project on an 11-point scale (1 = “terminate,” 11 = “continue”). Because the responses were non-normally distributed, we conducted a Mann–Whitney U test to compare the two groups. The results revealed a significant difference ($Mdn_{CE} = 10$, $Mdn_{OE} = 3$; $z = 6.236$, $p < .001$) in the desired direction. Participants also evaluated performance outcomes. Those in the commission error group rated whether the brake sensor met performance benchmarks (1 = “not met,” 11 = “fully met”), while those in the omission error group rated whether the competitor’s brake sensor met performance aspirations. Using the Wilcoxon signed-rank test, we tested whether responses deviated from the neutral midpoint (6). The commission error group rated the brake sensor as failing to meet benchmarks ($Mdn = 2$; $z = -4.747$; $p < .001$), while the omission error group believed the competitor’s brake sensor exceeded performance aspirations ($Mdn = 9$; $z = 4.815$; $p < .001$). These findings indicate that participants appropriately distinguished between the performance outcomes of the two scenarios.

We employed a bootstrap-based ordinary least squares regression with robust standard errors to examine whether prior failure type predicts EoC ($N = 126$; 5000 replications). An omission error increased EoC compared with a commission error ($b = 1.176$; $SE = 0.560$; $p = .036$), in support of H1. Neither risk propensity ($b = 0.115$; $SE = 0.245$; $p = .649$) nor industry knowledge ($b = 0.125$; $SE = 0.088$; $p = .168$) was a significant covariate ($R^2 = 0.049$). The results remained consistent when excluding covariates and when estimating a logit model with the binary operationalization of EoC.

Discussion

As hypothesized, our data reveal a significant influence of a prior decision failure on EoC in subsequent decision-making. Although research shows that decision-makers’ experience of failure can reduce subsequent escalation (e.g., Ku, 2008), our study offers a more nuanced

perspective. Following a commission error, decision-makers tend to avoid repeating that specific mistake, leading to reduced EoC. Conversely, following omission errors, decision-makers show increased commitment to a subsequent failing project, likely driven by a desire to avoid a recurrence of the same oversight.

However, the effect is small to moderate (Cohen's $f^2 = 0.033$), suggesting that additional factors influence this relationship. This raises two key questions: Under what conditions is this effect more substantial, and through what mechanisms does it operate? To explore these questions, Study 2 examines anticipated regret as a mediator driving the effect and regulatory focus as a moderator shaping its strength.

Study 2

Methodology

Participants and Design. To test H2 and H3, we employed a between-subjects quasi-experimental design. Quasi-experiments resemble true experiments but lack random assignment (Cook & Wong, 2008). However, both designs allow researchers to draw more definitive conclusions about the causal relationship between two variables (Marsden & Torgerson, 2012). By omitting random assignment, we can achieve a more effective manipulation, as participants will experience the specific failure type themselves. We again relied on scenario-based approaches that capture the situational characteristics of EoC (Eliëns et al., 2018; Weeth et al., 2020).

For this study, we collaborated with the US-based panel provider Dynata to selectively recruit managers with decision-making authority in new product development; Dynata routinely checks its executive panel for attentiveness and demographic balance (Camacho et al., 2019). Eligibility requirements were identical to those in Study 1. We retained 176 valid responses after excluding 24 participants who did not continue at the initial gate.

We employed safeguards similar to those in Study 1 to minimize cognitive overload and ensure task comprehensibility. These included pretests, face-validity interviews with innovation

managers, and a simplified presentation of financial information, in which we aggregated forecasts into net present values (NPVs) and cash-out options rather than detailed tables. In addition, we implemented an early comprehension check: we excluded participants who chose to terminate the positively framed adhesive project at the initial screen from further participation, as this response indicated insufficient task engagement or a misunderstanding of the scenario (see Eliëns et al., 2018). Together, these design features, along with our reliance on established EoC paradigms (Eliëns et al., 2018; Weeth et al., 2020), suggest that participants engaged meaningfully with the tasks rather than satisficing.

Procedure. The participants acted as decision-makers, making a series of project-review decisions for two fictitious projects at a mid-sized chemical firm (Weeth et al., 2020). As in Study 1, we informed participants that the firm follows a Stage-Gate process to evaluate innovation projects (Appendix G). Participants again served as project managers on the company's innovation development gate committee, advising on whether to continue or terminate projects (Eliëns et al., 2018). We explained that the focal firm uses the NPV metric to evaluate projects. Next, participants learned that the innovation development team had been working on a new adhesive and were asked to choose a product name for it and to formulate a one-sentence pitch to elicit commitment to the project (Weeth et al., 2020). Given an NPV of \$3 million (compared with the historically successful project average of \$1.5 million), participants had to decide whether to continue with the adhesive project at the "Initial Screen" gate. Participants who chose not to continue the project exited the experiment and did not participate in the subsequent stages (Eliëns et al., 2018). Because continuation in the experiment depended on this initial decision, we conducted balance checks comparing participants who continued the project with those who terminated it on key baseline characteristics (risk propensity, innovation experience, tenure, industry knowledge, age, and gender). Independent samples Welch t-tests for continuous variables and a proportion test for gender showed no significant differences between the groups (all $ps > .10$).

Subsequently, we drew participants' attention to a second project on which the firm's product development team had been working: new self-repairing concrete, currently at the final gate, referred to as the "Final Launch." Here, the participants received ambiguous information about the project, including an NPV of \$1.16 million and the option to receive \$1.10 million immediately by selling the technology to another company upon project termination. Depending on whether participants continued or terminated the project, they received negative feedback on their decision, which was framed as a commission or omission error. To verify that the experimental conditions did not differ systematically in baseline characteristics, we again conducted balance checks on risk propensity, innovation experience, tenure, industry knowledge, age, and gender. Independent-samples Welch t-tests for continuous variables and a proportion test for gender again revealed no significant differences between the experimental groups (all $ps > .10$).

Participants then returned their attention to the adhesive project, which had progressed to the "Business Case Evaluation" gate. We informed the participants that the projected development time had increased while the forecast had significantly deteriorated, including an updated NPV of \$1.17 million. Again, a cash-out option was offered, under which the seller would receive \$1.8 million immediately upon selling the technology to another company. Given this information, the rational choice was to terminate the project and exercise the cash-out option. Subsequently, we solicited responses to our measure of EoC, anticipated regret, and control variables, as well as sociodemographic characteristics.

Measurements and Manipulation Checks. Measures of EoC and covariates were the same as in Study 1. In addition, we assessed participants' anticipated keep and anticipated drop regret regarding the failing project by adapting the scales of Sarangee et al. (2019). We measured prevention focus and promotion focus at the beginning of the experiment using the Regulatory Focus Questionnaire (Higgins et al., 2001), which captures individuals' chronic motivational orientation toward pursuing gains (promotion focus) versus avoiding losses and

fulfilling obligations (prevention focus) (see Table 3.2 for measurement details and Table 3.3 for descriptive statistics and correlations).

To determine whether participants understood the manipulation as a commission or omission error, we asked them to indicate whether their decision on the first project resulted in a failed innovation or a missed innovation (7-point semantic differential scale; 1 = “failed innovation,” 7 = “missed innovation”). An independent samples t-test revealed a statistically significant difference ($M_{CE} = 3.59$, $M_{OE} = 5.35$; $p < .001$) in the expected direction, indicating that the manipulation was successful.

Data Analysis and Results

Measurement Model Assessment. A four-factor confirmatory factor analysis (CFA) in R’s lavaan confirmed that anticipated keep regret, anticipated drop regret, promotion focus, and prevention focus each form distinct dimensions. We dropped one reversed promotion item because of a weak standardized loading ($\lambda = .34$). In the final model, all standardized loadings exceeded the .40 benchmark (Tabachnick & Fidell, 2014), ranging from .555 to .939 ($p < .001$) for anticipated keep regret, .714 to .889 ($p < .001$) for anticipated drop regret, .444 to .780 ($p < .001$) for promotion focus, and .424 to .864 ($p < .001$) for prevention focus. For anticipated keep regret (two items), the inter-item correlation ($r = .46$) indicated acceptable internal consistency for a two-item scale (Eisinga et al., 2013). Cronbach’s α values were .82 for anticipated drop regret, .68 for promotion focus, and .79 for prevention focus. Promotion focus is borderline at the .70 threshold but acceptable given the scale’s brevity and the presence of reverse-scored items, and is supported by satisfactory composite reliability ($\omega = .70$) and significant factor loadings. Composite reliabilities ($\omega = .70$, .82, .82, .70, respectively) of all constructs met the .70 benchmark (Hair et al., 2014). Average variance extracted (AVE) was .60, .65, .50, and .41, respectively. Although the AVE for the promotion focus was below .50, the combination of composite reliability and AVE is considered satisfactory (Hair et al., 2014). Discriminant validity was supported, with heterotrait–monotrait ratios ranging from .097 to

.200, all well below the .85 threshold (Henseler et al., 2015), and the Fornell–Larcker criterion showing that AVE values exceeded the squared latent correlations (Fornell & Larcker, 1981).

Common Method Bias. To mitigate potential common method bias, we ensured the confidentiality and anonymity of participants' responses (Podsakoff et al., 2003) and used distinct scale formats for the mediators and moderators compared with the dependent variable. Additionally, we assessed the moderators at the outset and the mediators and the dependent variable at the conclusion of the survey, immediately before the covariates and demographics. We subsequently conducted a post hoc test by estimating an unmeasured latent method construct model, in which we allowed all items to load onto both their theoretical constructs and a latent common method factor (Feurer et al., 2019). The model did not fit significantly better than the baseline CFA ($\Delta\chi^2(5) = 9.44, p = .093$), and changes in fit indices were negligible ($\Delta CFI = 0.005, \Delta RMSEA = -0.008$). Moreover, the inclusion of the latent method factor did not alter the strength or significance of the path coefficients. Taken together, these results suggest that common method variance is not a serious concern in our study and that the observed effects are driven by the theoretical constructs under investigation rather than by measurement artifacts.

Hypothesis Testing. We employed generalized structural equation modeling (GSEM) with robust standard errors to examine the effects of decision failure on EoC, mediated by anticipated keep and anticipated drop regret (see Table 3.4), and to assess whether these effects are conditioned by promotion and prevention focus (see Table 3.5). We modeled anticipated keep regret, anticipated drop regret, prevention focus, and promotion focus as observed composite scores, computed by averaging the respective items. We opted for composites rather than latent variables, as the latter often require sample sizes of nearly 500 or more to produce stable estimates (Kretzschmar & Gignac, 2019).

To reduce multicollinearity and facilitate interpretation in the moderated mediation model, we mean-centered both promotion and prevention focus scores before creating

interaction terms (Cortina, 1993). Following Kalnins and Praitis Hill (2025), we examined the bivariate correlations among predictors, all of which were well below the 0.20 threshold for our sample size, indicating that multicollinearity was not a concern.

We computed linear interactions by multiplying the mean-centered predictors by the decision failure variable. We created quadratic terms in two steps: (1) squaring the mean-centered predictors and (2) multiplying these squared terms by decision failure to obtain the quadratic interactions (Kalnins, 2024). Both standard and quadratic interaction terms were therefore included in our model, as omitting quadratic terms may result in spurious linear interactions and inflated Type I errors (Cortina, 1993), as well as an increased likelihood of Type II errors (Ganzach, 1998). For transparency, we estimated the models with and without quadratic terms (see Table 3.5 and Appendix H). To ensure the validity of the quadratic specification, we assessed potential biases, including beta polarization, Type I error inflation, and common factor concerns (Kalnins, 2024). Correlations between decision failure and promotion focus ($r = -0.049, p = .511$) and prevention focus ($r = -0.047, p = .536$) were close to zero and non-significant, making spurious effects due to common factors unlikely. On this basis, we report both models but base our interpretation on the quadratic specification.

Model 1 (Direct Effect). To test the baseline hypothesis (H1), we regressed EoC directly on decision failure. The results confirm that EoC decreases following a commission error compared with an omission error ($\beta = 0.696; SE = 0.341; p < .05$; see Table 3.4).

Table 3.4*Study 2: GSEM Results: Main Effect and Mediation Analysis (Models 1 and 2)*

Dependent variable	Predictor variable	Coefficient	SE	z	p	95% CI
Model 1: Direct effect						
	Industry knowledge	0.324	0.102	3.18	0.002**	[0.124, 0.525]
	Risk propensity	0.707	0.122	5.79	<.001**	[0.467, 0.947]
	Decision failure	0.696	0.341	2.04	0.041*	[0.028, 1.364]
	Constant	2.594	0.736	3.52	<.001**	[1.151, 4.037]
Model 2: Mediators included						
Anticipated keep regret	Industry knowledge	-0.035	0.066	-0.53	0.598	[-0.164, 0.094]
	Risk propensity	-0.172	0.083	-2.08	0.038*	[-0.335, -0.009]
	Decision failure	-0.385	0.216	-1.79	0.074	[-0.807, 0.037]
	Constant	5.618	0.451	12.47	<.001**	[4.735, 6.501]
Anticipated drop regret	Industry knowledge	-0.007	0.068	-0.10	0.918	[-0.139, 0.126]
	Risk propensity	0.142	0.079	1.79	0.074	[-0.014, 0.298]
	Decision failure	0.188	0.195	0.96	0.335	[-0.194, 0.570]
	Constant	4.020	0.466	8.63	<.001**	[3.107, 4.933]
EoC	Industry knowledge	0.313	0.087	3.61	<.001**	[0.143, 0.483]
	Risk propensity	0.514	0.114	4.52	<.001**	[0.291, 0.737]
	Decision failure	0.365	0.302	1.21	0.228	[-0.228, 0.957]
	Anticipated keep regret	-0.480	0.109	-4.40	<.001**	[-0.693, -0.267]
	Anticipated drop regret	0.780	0.142	5.50	<.001**	[0.502, 1.058]
	Constant	2.156	0.923	2.34	0.020*	[0.347, 3.966]

Note. $N = 176$; Decision failure (0 = commission error, 1 = omission error). Model 1 log-likelihood = -398.92; Model 2 log-likelihood = -980.97. Entries are unstandardized coefficients. Robust standard errors are reported. * $p < .05$. ** $p < .01$.

Model 2 (Mediation). We then added anticipated keep regret and anticipated drop regret as mediators in a structural model with three linked equations: decision failure predicting each mediator and both mediators predicting EoC. In this specification, the direct effect of decision failure on EoC becomes non-significant ($\beta = 0.365$; $SE = 0.302$; $p = .228$). Anticipated keep regret significantly decreases EoC ($\beta = -0.480$; $SE = 0.109$; $p < .001$), while anticipated drop regret significantly increases it ($\beta = 0.780$; $SE = 0.142$; $p < .001$). However, the relationship between decision failure and anticipated keep regret is only marginally significant ($\beta = -0.385$;

$SE = 0.216$; $p = .074$), while the effect on anticipated drop regret is not significant ($\beta = 0.188$; $SE = 0.195$; $p = .335$). Therefore, H2a and H2b are not supported.

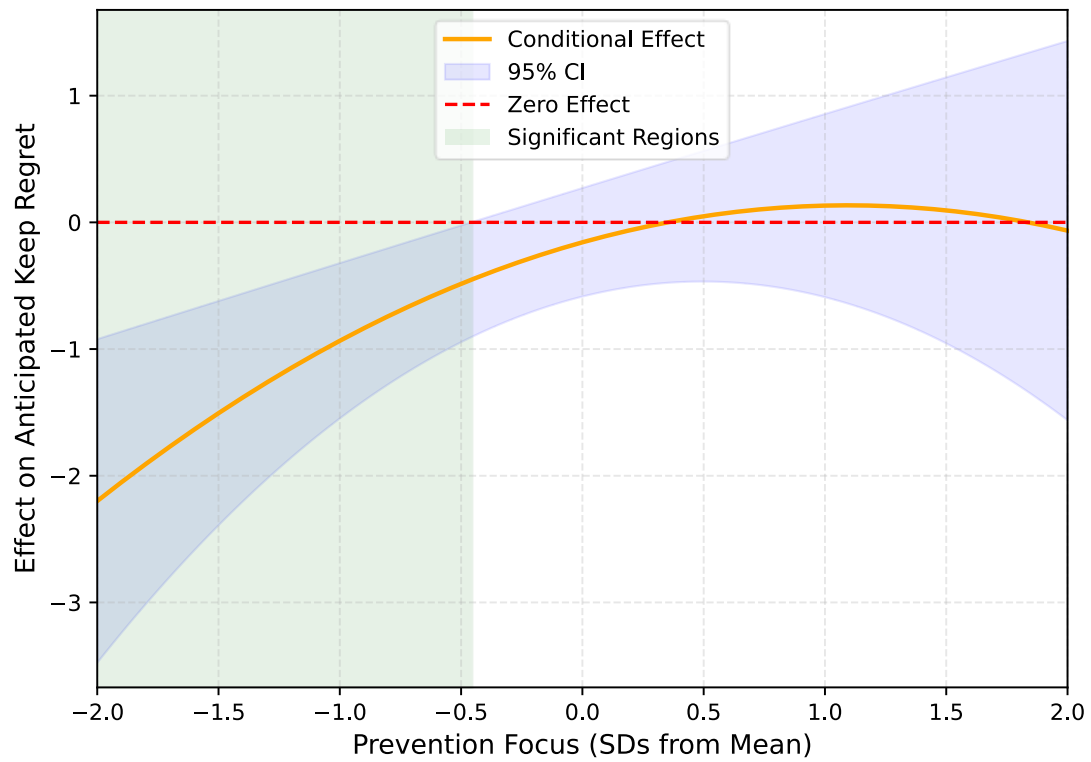
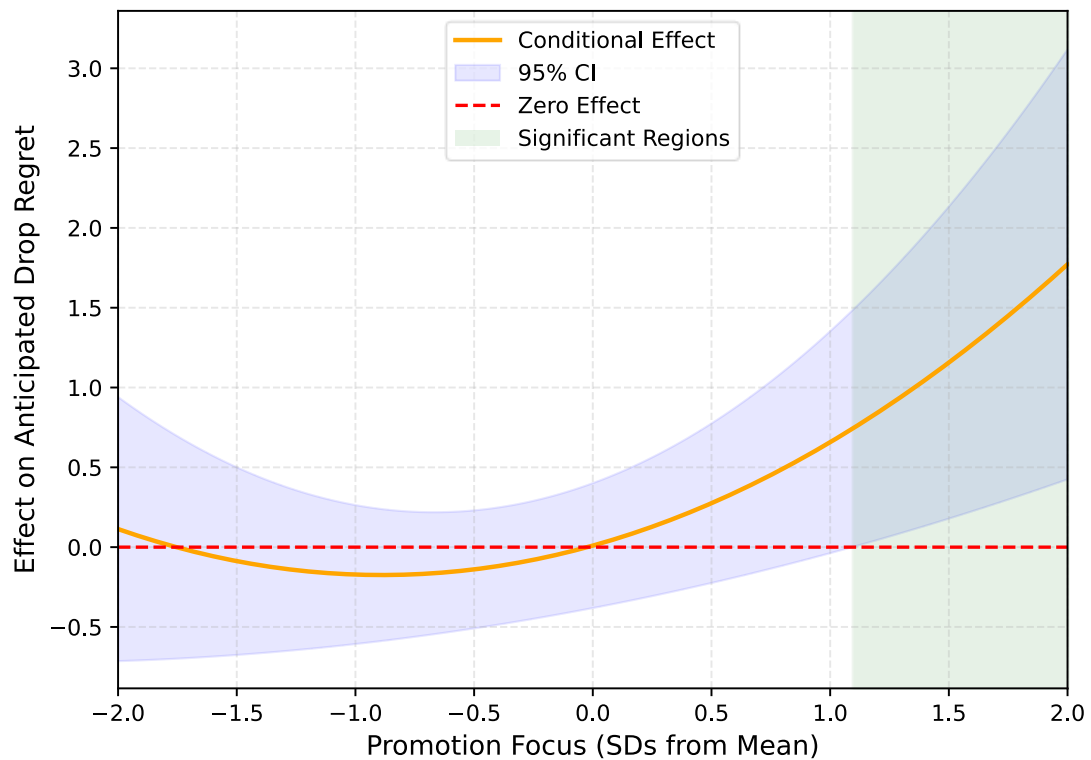
Model 3 (Moderated Mediation). Finally, we incorporated promotion focus and prevention focus as moderators in a structural model with three equations for anticipated keep regret, anticipated drop regret, and EoC (see Table 3.5). This model included both linear and quadratic interaction terms with decision failure. We also investigated whether regulatory focus explicitly conditions the mechanism of regret regulation rather than influencing the direct relationship itself.

In line with H3a, the results reveal a significant interaction effect of prior failure type and prevention focus on anticipated keep regret ($\beta = 0.410$; $SE = 0.167$; $z = 2.46$; $p = .014$), while anticipated keep regret is negatively associated with EoC ($\beta = -0.460$; $SE = 0.116$; $z = -3.95$; $p < .001$). At low levels of prevention focus (approximately 0.5 SD below the mean), commission errors are associated with significantly higher anticipated keep regret than omission errors, which in turn lowers subsequent EoC (see Panel A of Figure 3.2 and Table 3.6). Above this level, the effect is no longer significant, indicating no meaningful difference between failure types. The squared interaction term is not significant ($\beta = -0.144$; $SE = 0.106$; $z = -1.36$; $p = .175$), suggesting that the moderation follows a linear rather than a curvilinear pattern.

Table 3.5*Study 2: GSEM Results: Moderation Analysis (Model 3)*

Dependent variable	Predictor variable	Coefficient	SE	z	p	95% CI
Anticipated keep regret	Industry knowledge	−0.046	0.064	−0.72	0.472	[−0.170, 0.079]
	Risk propensity	−0.184	0.083	−2.21	0.027*	[−0.347, −0.021]
	Decision failure (X)	−0.157	0.277	−0.57	0.570	[−0.701, 0.386]
	Prevention focus (W)	−0.245	0.116	−2.11	0.035*	[−0.473, −0.017]
	Prevention focus ² (W ²)	0.104	0.073	1.43	0.154	[−0.039, 0.247]
	X × W	0.410	0.167	2.46	0.014*	[0.083, 0.737]
	X × W ²	−0.144	0.106	−1.36	0.175	[−0.351, 0.064]
	Constant	5.581	0.490	11.38	<.001**	[4.620, 6.543]
Anticipated drop regret	Industry knowledge	−0.008	0.066	−0.12	0.902	[−0.138, 0.121]
	Risk propensity	0.118	0.079	1.49	0.137	[−0.037, 0.273]
	Decision failure (X)	0.010	0.216	0.04	0.965	[−0.415, 0.434]
	Promotion focus (Z)	0.078	0.167	0.46	0.643	[−0.250, 0.406]
	Promotion focus ² (Z ²)	0.023	0.107	0.22	0.828	[−0.187, 0.234]
	X × Z	0.450	0.227	1.99	0.047*	[0.006, 0.894]
	X × Z ²	0.275	0.137	2.00	0.045*	[0.006, 0.544]
	Constant	4.129	0.474	8.71	<.001**	[3.200, 5.058]
EoC	Industry knowledge	0.316	0.087	3.63	<.001**	[0.146, 0.487]
	Risk propensity	0.509	0.118	4.30	<.001**	[0.277, 0.741]
	Anticipated keep regret	−0.460	0.116	−3.95	<.001**	[−0.688, −0.232]
	Anticipated drop regret	0.800	0.142	5.63	<.001**	[0.521, 1.078]
	Decision failure (X)	0.448	0.383	1.17	0.242	[−0.303, 1.199]
	Prevention focus (W)	−0.047	0.190	−0.25	0.804	[−0.420, 0.326]
	Prevention focus ² (W ²)	−0.097	0.117	−0.83	0.406	[−0.326, 0.132]
	Promotion focus (Z)	−0.059	0.227	−0.26	0.793	[−0.504, 0.385]
	Promotion focus ² (Z ²)	0.205	0.165	1.24	0.215	[−0.119, 0.529]
	X × W	−0.203	0.253	−0.80	0.423	[−0.698, 0.292]
	X × W ²	<.001	0.155	0.00	1.000	[−0.303, 0.303]
	X × Z	0.017	0.352	0.05	0.962	[−0.673, 0.707]
	X × Z ²	−0.028	0.259	−0.11	0.915	[−0.535, 0.480]
	Constant	1.945	0.964	2.02	0.044*	[0.056, 3.834]

Note. $N = 176$; Decision failure (0 = commission error, 1 = omission error). Model log-likelihood = −971.57. Entries are unstandardized coefficients. Robust standard errors are reported. * $p < .05$. ** $p < .01$.

Panel A: Moderated by Prevention Focus, With 95% CIs**Panel B:** Moderated by Promotion Focus, With 95% CIs**Figure 3.2**

Conditional Effect of Decision Failure on Anticipated Regret

Table 3.6

Conditional Effects of Decision Failure on Anticipated Regret at Different Levels of Regulatory Focus

Dependent variable: Anticipated keep regret					
Prevention focus	Effect	SE	z	p	95% CI
-2 SD	-2.200	0.648	-3.39	0.001**	[-3.47, -0.93]
-1 SD	-0.935	0.300	-3.11	0.002**	[-1.52, -0.35]
M	-0.157	0.277	-0.57	0.570	[-0.70, 0.39]
+1 SD	0.132	0.303	0.44	0.662	[-0.46, 0.73]
+2 SD	-0.065	0.787	-0.08	0.934	[-1.61, 1.48]
Dependent variable: Anticipated drop regret					
Promotion focus	Effect	SE	z	p	95% CI
-2 SD	0.113	0.407	0.28	0.781	[-0.68, 0.91]
-1 SD	-0.172	0.247	-0.70	0.486	[-0.66, 0.31]
M	0.010	0.216	0.04	0.965	[-0.41, 0.43]
+1 SD	0.657	0.308	2.14	0.033*	[0.05, 1.26]
+2 SD	1.772	0.708	2.50	0.012*	[0.38, 3.16]

Note. $N = 176$; Decision failure (0 = commission error, 1 = omission error). Entries are unstandardized coefficients. Robust standard errors are reported. * $p < .05$. ** $p < .01$.

As H3b predicted, the interaction effect of prior failure type and promotion focus on anticipated drop regret is significant ($\beta = 0.450$; $SE = 0.227$; $z = 1.99$; $p = .047$). The quadratic interaction is also significant ($\beta = 0.275$; $SE = 0.137$; $z = 2.00$; $p = .045$), indicating a non-linear moderation. Anticipated drop regret is positively associated with EoC ($\beta = 0.800$; $SE = 0.142$; $z = 5.63$; $p < .001$). At low and moderate levels of promotion focus (up to +1 SD above the mean), the effect is non-significant, indicating no meaningful difference between commission and omission errors (see Panel B of Figure 3.2 and Table 3.6). At higher levels, however, the effect becomes significantly positive, with promotion focus amplifying anticipated drop regret following an omission error compared with a commission error.

Neither promotion focus nor prevention focus significantly moderated the direct effect of decision failure on EoC. The interactions between decision failure and prevention focus ($\beta =$

-0.203 ; $SE = 0.253$; $p = .423$), as well as its squared term ($\beta = 0.000$; $SE = 0.155$; $p = 1.000$), were non-significant. Likewise, the interactions with promotion focus ($\beta = 0.017$; $SE = 0.352$; $p = .962$) and its squared term ($\beta = -0.028$; $SE = 0.259$; $p = .915$) were not significant. Rather than moderating the direct effect of failure type on escalation, regulatory focus operates in the emotional pathway of regret regulation, shaping how prior failures are transformed into anticipated regret and persistence. Our results remained robust when using the binary operationalization of EoC. We further re-estimated the full structural model, including additional demographic and experience-related controls (innovation experience, tenure, age, and gender). All key results remained highly similar in direction and magnitude, supporting the robustness of our findings.

Discussion

Study 2 sheds more light on how prior failure types influence subsequent EoC by examining distinct properties of anticipated regret. The findings suggest that behavioral adaptation following a failure experience operates through an emotional pathway. Previous research indicates that the level of anticipated drop regret remains consistent throughout the course of a failing project (Sarangee et al., 2013). Our findings contribute to this body of research by showing that, across projects, anticipated drop regret varies with the type of prior failure.

Furthermore, we identify a boundary condition for this adaptation mechanism. For individuals low in prevention focus, experiencing a commission error (vs. an omission error) heightens anticipated keep regret, which reduces subsequent escalation. However, as prevention focus increases, this effect weakens and eventually reverses, with higher prevention focus leading to greater escalation. In parallel, individuals moderate to high in promotion focus exhibit higher levels of anticipated drop regret following an omission error (vs. a commission error), leading to greater escalation. Conversely, at lower levels of promotion focus, this effect diminishes and eventually reverses.

These findings suggest that both high promotion and prevention focus can heighten the risk of EoC following a prior failure. While prevention-focused individuals may use the focal failing project as a means to recover from earlier losses associated with commission errors, promotion-focused individuals may escalate commitment to avoid regret associated with repeated missed opportunities resulting from omission errors. Despite differing motivations, both regulatory foci can lead decision-makers to treat the failing project as a mechanism to rectify past mistakes, increasing the likelihood of escalation.

General Discussion

Organizations often face substantial financial losses due to high failure rates in innovation development, exacerbated by the high costs involved. EoC is a key contributor to these losses, as it drives decision-makers to persist with failing projects, leading to commission errors (Liang et al., 2014; Sethi & Iqbal, 2008). To date, research examining the impact of decision-makers' failure experiences on the occurrence of EoC has been limited. While prior research suggests that prior failures reduce EoC (Ku, 2008), our findings offer a more nuanced perspective. We show that the *type* of failure—whether a commission or an omission error—can increase or decrease EoC. This effect is shaped by emotional regulation processes, which in turn are influenced by both the nature of the failure and the decision-maker's self-regulation orientation.

Theoretical Contributions

Our findings contribute to EoC literature in several important ways. First, we enhance the understanding of EoC by considering failure history. While studies have highlighted the critical role of experience in uncertain environments, such as new product development (Dayan & Elbanna, 2011; Sedighadeli & Kachouie, 2013), they often treat failure as a single, undifferentiated construct (Garzón-Vico et al., 2020; Lee & Markham, 2016). We challenge this view by distinguishing between commission and omission errors (Klingebiel, 2018). While both taking action and failing to act can lead to suboptimal outcomes (Csaszar, 2012; Kumar & Operti, 2023), scant research has examined how these types of failure elicit fundamentally

different emotional and behavioral reactions. By making this distinction, we provide a theoretical framework for understanding why decision-makers persist or withdraw in response to negative feedback.

Second, when decision-makers increase their level of commitment, rational information processing may be accompanied by inherent biases (Schultze et al., 2012; Schultze & Schulz-Hardt, 2015). As a result, studies have called for the investigation of the underlying mechanisms governing information processing in such circumstances (Biyalogorsky et al., 2006; Sarangee et al., 2019; Schultze et al., 2012). A key contribution of our study is the introduction of strategic regret regulation as a mechanism that drives EoC. Previous work suggests that anticipated regret acts as a deterrent to escalation, with individuals less likely to persist when they expect regret (Sleesman et al., 2012). However, this view overlooks decision-makers' efforts to regulate regret by anticipating it in ways that align with their past experiences and self-regulatory tendencies, thereby justifying continued commitment. Our findings also show that anticipated drop regret, like anticipated keep regret, can shift in response to past experiences, challenging the assumption that drop regret remains stable over time (Sarangee et al., 2013).

Third, we identify boundary conditions for regret regulation. Effective adaptation to failure requires that the failure be salient, drawing the decision-maker's attention (Madsen & Desai, 2024). While prior research has explored how regulatory focus influences failure perception and risk assessment (Crowe & Higgins, 1997; Scholer & Higgins, 2012; Shah & Higgins, 1997), our study extends this work by examining how self-regulation moderates the impact of distinct failure experiences on subsequent behavior through emotional regulation. Specifically, we contribute to both regret regulation and regulatory focus theory by showing that individuals with a prevention focus adjust their emotional regulation after a commission error to justify further commitment. Prevention-focused individuals are sensitive to commission errors (Higgins, 1997) and tend to experience anticipated keep regret when facing continued failure (Leder et al., 2013). However, research indicates that these individuals may prefer riskier

options, such as persisting with a failing project, when it offers a final opportunity to avoid loss and restore the status quo (Scholer & Higgins, 2012). By reframing their continued commitment as necessary to prevent further losses, they align their emotional responses with their goal of loss avoidance, which accounts for the increased EoC observed among individuals high in prevention focus (Zou et al., 2020).

Similarly, we show that promotion focus interacts with anticipated drop regret to influence post-omission escalation. Promotion-focused individuals, driven by aspirations and opportunities, are particularly attuned to omission errors, which they perceive as missed opportunities for achieving gains (Crowe & Higgins, 1997). Following an omission error, these individuals are more likely to experience heightened anticipated drop regret, which leads them to escalate commitment to avoid repeating the emotional burden of another missed opportunity. In contrast with prevention-focused individuals, who escalate commitment to restore stability, promotion-focused individuals do so to reclaim unrealized gains. These findings indicate that, due to the salience of omission errors, promotion-focused individuals justify their escalation tendencies through emotional regulation mechanisms that prioritize goal fulfillment.

Finally, by integrating regret regulation and regulatory focus theory, we provide a more nuanced understanding of the role of prior failure in EoC. Our findings show that commission errors do not universally deter escalation; under high prevention focus, they can actually encourage it. Similarly, omission errors do not always increase escalation; only under a high promotion focus do they drive greater commitment. Our study extends conceptual work on behavioral responses to commission and omission errors (Klingebiel, 2018), which suggests that decision-makers experiencing a commission error are more likely to withdraw, while those facing an omission error tend to persist. Although this pattern holds at the aggregate level, regulatory focus determines its strength and direction, as decision-makers dynamically adjust their emotional responses to prior failures in ways that reinforce, rather than challenge, their self-regulatory tendencies.

Managerial Implications

Although prior failures can offer valuable learning opportunities (Khanna et al., 2016), our research suggests that they can also lead to maladaptive behavior, contingent on the type of failure and managers' self-regulatory tendencies. Compared with commission errors, omission errors increase anticipated drop regret and reduce anticipated keep regret, thereby increasing EoC for managers low in prevention and promotion foci. In general, organizations should normalize omission errors as a natural component of decision-making to mitigate this effect, viewing them as opportunities for learning rather than as missed opportunities (Danneels & Vestal, 2020). Promotion-focused managers, who are motivated by aspirational goals, are particularly susceptible to EoC following omission errors. This is because their increased anticipated drop regret encourages them to continue investing in failing projects to recoup forgone gains. These managers need to normalize omission errors to alleviate the emotional burden of missed opportunities. Organizations should encourage them to conduct a critical assessment of alternative resource allocations, focusing on the advantages of redirecting resources to more promising projects.

Conversely, managers with a prevention focus are more likely to escalate commitment following a commission error. This may occur because they suppress the emergence of anticipated keep regret by treating continued investment as a loss-avoidance measure, even when terminating the project would be more logical. Organizations should reframe project termination as a stability-preserving decision and provide tools that compare the risks of continued investment with the potential benefits of discontinuation to address this bias. Organizations can align these strategies with the motivations of prevention-focused individuals by emphasizing the safety of reallocating resources to viable alternatives (Scholer & Higgins, 2012).

Finally, organizations should maintain systematic records of decision failures, distinguishing between commission and omission errors, to institutionalize these practices. To

mitigate the risks of EoC and convert setbacks into valuable opportunities for growth and innovation, organizations can work to cultivate a culture that normalizes both types of failure and embeds resource reallocation as a strategic priority.

Limitations and Future Research Directions

As with any other research, our study has limitations and blind spots to consider. These aspects also present opportunities for future research. The scenario-based experimental design we used in our two studies, though effective in isolating specific variables, may lack the complexity and unpredictability of real-world managerial decision-making (Schmidt & Calantone, 2002). In manipulating the failure type, we chose a single, recent, and unambiguous failure experience. The findings that recent unsuccessful outcomes and explicit feedback on failures encourage adaptation (Barron & Erev, 2003; Erev & Barron, 2005) influenced this decision. However, it simplifies the representation of failure experiences and limits our ability to observe how the effects of different failure types evolve. For example, do prevention-focused individuals adjust their decision-making strategies after repeated commission errors, or do promotion-focused individuals develop resilience to omission errors over time? Longitudinal research could address these questions, providing richer insights into the temporal dynamics of EoC.

In addition, while the reduced favorability of continuing failing projects, driven by increases in anticipated keep regret or reductions in drop regret, can support beneficial decision-making, it may also create risks. For example, a strong aversion to commission errors may lead to underestimation of the value of risky but innovative projects that initially underperform (Denrell & March, 2001). Missing such opportunities could lead to omission errors with significant long-term consequences (Csaszar & Eggers, 2013). Therefore, when interpreting our findings, note that our study examines project review decisions for failing projects. Recent research on entrepreneurial decision-making has introduced the concept of deferred enablement, which may be understood as EoC that leads to repeated omission errors (Wood et al., 2023). Future research could therefore investigate how different failure experiences can

affect the deferred enablement to pursue innovative projects and ventures, as conceptualized in the innovator's dilemma (Christensen, 2013).

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Chapter 4: Missed Acquisitions and Subsequent Deal Making

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Abstract:

Competitive bidding in acquisitions involves multiple firms pursuing the same target, with some ultimately not securing it while a competing bidder completes the deal. We conceptualize such outcomes as missed acquisitions and examine how they shape subsequent acquisition behavior. Using 430 competitive acquisition announcements, we find that firms that miss out engage in greater subsequent acquisition activity than firms that complete the deal, even after accounting for the financial resources preserved by not completing it. Stock market reactions condition this relationship: more favorable reactions attenuate the increase. These findings show that unrealized deals in competitive bidding settings shape bidders' subsequent behavior, and that the strategic consequences of goal non-attainment depend on public evaluation.

Keywords: Missed acquisitions, competitive bidding, market perception, behavioral theory of the firm, behavioral decision-making

Introduction

Acquisitions are strategic, often large-scale investments that firms pursue to grow (Kim et al., 2011), change (Welch et al., 2020), and create value (Haleblian et al., 2009). Competition for attractive targets is often intense and may involve multiple potential acquirers (Boone & Mulherin, 2007, 2009; Testoni, 2024). Competitive bidding settings differ from single-bidder deals because when a firm loses a desired target to a competing bidder, it not only fails to secure the asset itself but may also face the possibility that the competing bidder will benefit from owning it (Anand et al., 2026). For example, in 2016, Microsoft acquired LinkedIn after prevailing over Salesforce in a public bidding contest, leaving Salesforce without the target while a competing bidder secured the asset. We refer to such outcomes as missed acquisitions: competitive acquisition outcomes in which a focal firm publicly pursues a target, but ultimately does not acquire it because another bidder completes the transaction.

Missed acquisitions are salient because public bidding contests make “winners” and “losers” clearly observable. Once a firm publicly announces its intent to acquire a focal target, completing the deal becomes an important goal, such that missing out on doing so may be perceived as failure (e.g., Dickson & Giglierano, 1986; Muehlfeld et al., 2012; Starbuck, 1963). Moreover, the pursuit of the same target makes other bidders salient comparison actors, and firms are likely to perceive one another as strategic competitors for the same opportunity (Porac et al., 1989). Missed acquisitions, therefore, combine goal non-attainment with another bidder’s realization of the same opportunity (Klingebiel, 2018).

Despite their relevance, missed acquisitions have received limited scholarly attention. Recent research has begun to examine why firms forgo acquisitions, showing that managerial characteristics shape whether firms pursue or pass up available deals (Hennig et al., 2026). However, how firms recalibrate subsequent acquisition behavior after missing out remains insufficiently understood. This question persists in part because existing research has examined unrealized acquisitions more broadly, often under labels such as acquisition failure, withdrawal,

abandonment, or termination (see Xing & Yi, 2024). Such categories capture non-completed focal transactions, but do not necessarily distinguish whether another bidder ultimately realizes the same acquisition opportunity.

From the perspective of the behavioral theory of the firm, failure to attain an important organizational goal should trigger problemistic search and behavioral change (Cyert & March, 1963; Gavetti et al., 2012; Greve, 2003). Applied to acquisition outcomes, this logic would suggest that unrealized deals motivate firms to intensify subsequent acquisition search. However, prior findings suggest that failed deals may instead lead to more cautious subsequent M&A activity (Campbell et al., 2022), or even alternative strategic responses such as divestiture rather than renewed acquisition activity (Gibbs et al., 2026). We argue that this tension reflects the theoretical heterogeneity of unrealized deals. A firm may abandon a value-destroying transaction, fail to complete a deal because external conditions change, or lose a desired opportunity that another bidder subsequently realizes. These outcomes are observationally similar because the focal firm does not complete the acquisition, but they differ in what non-completion means for the focal firm. Building on recent theory that acquisition outcomes can matter not only through acquirer synergies but also through the consequences of another bidder obtaining the target (Anand et al., 2026), we theorize missed acquisitions as a distinct form of goal non-attainment. The focal firm does not merely fail to consummate a deal, but rather primarily fails to secure a publicly pursued strategic opportunity that another bidder now controls.

However, we argue that the behavioral response predicted by this logic also depends on how the missed strategic opportunity is interpreted. Another bidder's acquisition of the target does not, by itself, reveal whether completing the focal deal would have created or destroyed value, such as through overpayment (e.g., Giliberto & Varaiya, 1989; Xing & Yi, 2024). Consistent with the behavioral theory of the firm, we argue that organizations draw on both internal goal-attainment feedback and external evaluations when interpreting prior outcomes

and calibrating subsequent action (Gamache & McNamara, 2019; Gong et al., 2019; Kacperczyk et al., 2015). Stock market reactions are particularly well suited to this function: unlike managers' own assessments of a deal's outcome, CARs (cumulative abnormal returns) provide an objective, publicly visible, and readily quantifiable measure of feedback (Gamache & McNamara, 2019; Gong et al., 2019). For missed acquisitions specifically, favorable market reactions to non-completion can signal that investors view the withdrawal as value-preserving and thus a defensible decision that warrants restraint, while unfavorable reactions cast the same event as a missed valuable opportunity that calls for corrective action (Jacobsen, 2014; Xing & Yi, 2024). Stock market reactions thus constitute a boundary condition for the behavioral consequences of missed acquisitions, shaping how non-completion is interpreted and conditioning firms' subsequent acquisition behavior.

Using a sample of 430 acquisition announcements with multiple competing public bidders between 2000 and 2022, we examine whether and how missed acquisitions, compared to deal completions, influence firms' subsequent acquisition spending, and how stock market reactions condition this relationship. Our analyses show that missed acquisitions are followed by greater subsequent acquisition spending than completed deals. We further find that more favorable stock market reactions attenuate this increase. These findings suggest that firms' responses depend on whether public evaluations frame missed acquisitions as costly missed opportunities or defensible withdrawals.

These relationships persist after accounting for firm-, deal-, and industry-level factors, as well as the financial resources that unsuccessful bidders mechanically retain by not committing capital to the focal deal. To further assess robustness, we manually coded acquirer agency over deal outcomes using press releases and media reports, distinguishing cases in which termination reflected external constraints, such as target board rejection or regulatory requirements, from cases in which the acquirer retained meaningful discretion over the outcome

(Xing & Yi, 2024). Results hold when restricting the sample to deals in which the acquirer had agency over the termination decision.

Our study makes three contributions to acquisition research and to the behavioral theory of the firm. First, we introduce missed acquisitions as a conceptually distinct form of unrealized acquisition. Prior categories of non-completion do not distinguish whether another bidder ultimately realized the same opportunity (Jacobsen, 2014; Xing & Yi, 2024). Missed acquisitions isolate precisely this case, in which the focal firm's failure to secure an asset is coupled with a competitor's realization of the same strategic opportunity (Anand et al., 2026). This coupling makes non-realization socially comparative and shifts attention from whether a transaction closes to what non-completion means for the focal firm.

Second, and relatedly, we theorize missed acquisitions as a behavioral trigger for renewed strategic action. Whereas prior work suggests that unrealized deals may prompt caution or even alternative strategic responses, such as divestiture (Campbell et al., 2022; Gibbs et al., 2026), we show that missed acquisitions can sustain renewed acquisition activity because the focal strategic objective remains unresolved, as another bidder realizes the same opportunity.

Finally, we contribute to research in the tradition of the behavioral theory of the firm (Cyert & March, 1963; Gavetti et al., 2012) by theorizing how organizations respond when goal attainment and public evaluation provide potentially divergent feedback. Behavioral theory often assumes that goal attainment and external evaluations point in the same direction. Nevertheless, the same outcome may elicit different behavioral responses depending on whether firms evaluate it against internal goals or external audience reactions (Kacperczyk et al., 2015). We relax this assumption by showing that firms may face mixed feedback. That is, a goal can remain unattained even as external audiences evaluate the outcome favorably, or it can be attained even as external audiences evaluate it unfavorably. By theorizing this decoupling, our study refines behavioral accounts of reinforcement and problemistic search and

clarifies when experiences of success and failure translate into subsequent strategic action (Amburgey & Miner, 1992; Halebian et al., 2006; Joseph & Gaba, 2020).

Theory and Hypotheses Development

Missed Acquisitions as a Distinct Form of Unrealized Strategic Action

At the heart of this paper is the phenomenon of missing out on a strategic opportunity, a specific yet often neglected type of failure. A focal firm experiences missing out when two conditions apply. First, the focal firm must have actively considered a strategic opportunity and perceived it as attractive or desirable before the outcome occurred (Dickson & Giglierano, 1986; Klingebiel, 2018). The opportunity must therefore have been part of the focal firm's decision space and regarded as a potentially valuable course of action. Missing out is unlikely when the firm was unaware of the opportunity or did not view it as sufficiently attractive, because the firm would lack meaningful decision-making agency over the outcome. Second, another firm, rather than the focal firm, must ultimately exploit the opportunity (Klingebiel et al., 2022). When these conditions are met, the focal firm can interpret the other firm's exploitation of the opportunity as the loss of a desirable reward (Wadhwa & Kim, 2015). Applied to acquisitions, a missed acquisition therefore occurs when a firm publicly pursues a target it considers desirable but does not acquire it, while a competing bidder ultimately completes the transaction.

This paper posits that competitive acquisitions involving multiple public bidders for a coveted target firm provide a suitable context for exploring missed acquisitions. In general, the acquisition process comprises a pre-deal phase and the deal's consummation (Welch et al., 2020), with the pre-deal phase further subdivided into private and public stages (Boone & Mulherin, 2007). During the private stage, selling firms may negotiate with multiple bidders, indicating early competition. Competition can also arise during the public stage, however, where it becomes highly visible.

The public stage begins when a bidder publicly announces its intent to acquire a target, thereby signaling active consideration of the strategic opportunity. Observing such a public bid,

other interested acquirers may enter the bidding competition (Fishman, 1989). Following the public announcement, bidders' desire to complete the transaction becomes particularly strong: acquiring the target turns into an important organizational goal, and falling short of that goal constitutes failure (Muehlfeld et al., 2012). Public competition further intensifies commitment by confirming managers' belief that the target is valuable and desirable (Haunschild et al., 1994). In such settings, the pursuit of the same target also makes other bidders salient comparison actors, and firms are likely to perceive one another as strategic competitors for the same opportunity (Porac et al., 1989).

The public stage ends on the consummation date, clearly identifying the bidder who ultimately closes the deal, as well as the bidder(s) who do not and thus miss out. As a result, competitive bidding produces a transparent distinction between realized and unrealized strategic pursuits, with unsuccessful bidders visibly falling short of a publicly articulated acquisition goal. Importantly, this unrealized pursuit does not simply disappear. Because acquisition outcomes can matter not only through the synergies they create for the acquirer but also through the consequences of another bidder obtaining the target, the competing bidder's completion changes the meaning of non-completion for the focal firm (Anand et al., 2026). A missed acquisition, therefore, combines failure to attain the focal acquisition goal with the realization of the same strategic opportunity by another bidder.

A missed acquisition implies non-completion by the focal firm and may involve abandonment of a target at some point during the acquisition process, often described as deal termination or withdrawal. However, missed acquisitions are not defined by the reason for non-completion. Abandonment can occur for multiple reasons, differing in locus and perceived controllability (Jacobsen, 2014; Xing & Yi, 2024). For instance, a potential acquirer may withdraw due to price dynamics, such as being outbid or deciding not to escalate an offer. In contrast, changes in market or regulatory conditions, or decisions on the target's side, such as board rejection or acceptance of a competing bid, are primarily external to the focal firm.

Regardless of the underlying reason, however, the defining outcome remains the same: the focal firm does not acquire the target, while a competing bidder completes the deal and realizes the same acquisition opportunity.

The Effect of Missed Acquisitions on Subsequent Acquisition Spending

The distinction between success and failure is central to the behavioral theory of the firm (Cyert & March, 1963; Gavetti et al., 2012). Organizations code outcomes as successes or failures depending on whether they meet subjective goals (Starbuck, 1963), and tend to replicate behaviors associated with success and revise those associated with failure (Denrell & March, 2001). Accordingly, success typically reduces search and may foster complacency, whereas failure increases search and motivates behavioral change to avoid recurrence (Audia et al., 2000; Dye et al., 2014; Klingebiel, 2018; Klingebiel et al., 2022; Levinthal & March, 1993; Miller, 1994).

Recent work on unrealized acquisitions complicates this baseline expectation. Failed deals have been associated with more cautious subsequent M&A activity (Campbell et al., 2022), and terminated acquisitions may prompt divestiture rather than renewed acquisition activity (Gibbs et al., 2026). These findings suggest that non-completion does not uniformly trigger renewed acquisition search. Rather, the behavioral implications of unrealized deals likely depend on what non-completion means for the focal firm. Missed acquisitions differ from failed or terminated deals more generally because another bidder ultimately realizes the same strategic opportunity. This distinction is important because acquisition outcomes can matter not only through the synergies they create for the acquiring firm, but also through the consequences of another bidder obtaining the target (Anand et al., 2026). Missed acquisitions, therefore, fit the behavioral theory of the firm distinctively. Once a firm publicly pursues a target, completing the deal becomes an important organizational goal, and falling short of that goal may be perceived as failure (Muehlfeld et al., 2012). Nevertheless, the focal firm not only fails to complete a transaction but also fails to secure a desired strategic opportunity that a competing

bidder ultimately realizes. This makes the outcome both unresolved and socially comparative: the focal firm's original acquisition goal remains unmet, while another bidder completes the transaction. Drawing on these behavioral insights, we argue that missed acquisitions should result in renewed strategic action through increased subsequent acquisition spending.

Building on prior research, we focus on firms' subsequent acquisition spending in the year after a focal deal (Gamache & McNamara, 2019). Firms that miss out should increase subsequent acquisition spending relative to successful bidders for several reasons. First, missed acquisitions leave the focal strategic objective unresolved. In contrast to firms that close deals and thereby obtain the intended acquisition-related benefits, firms that miss out do not secure the target and must continue searching for alternative ways to address the underlying strategic need. Indeed, firms that are under pressure to realize acquisition-related benefits, such as growth, have been shown to overpay for acquisitions (Kim et al., 2011). Consider Take-Two Interactive, a major video game publisher, which pursued the racing-game developer Codemasters to broaden its portfolio. After losing Codemasters to a competing bidder, it did not retrench but completed a substantially larger acquisition of the mobile-gaming firm Zynga the following year, at a 64 percent premium (see Table I1 in Appendix I for a few illustrative examples within our setting).

Second, missed acquisitions likely heighten urgency, prompting unsuccessful bidders to act more quickly than successful bidders. Research shows that after missing out on successful innovations, firms are more likely to roll out innovations simultaneously across multiple markets rather than sequentially, preferring immediacy over caution and effortful sequential learning (Klingebiel et al., 2022). Similarly, experiencing failure shortens organizational time horizons, leading firms to search for quick solutions to identified problems in a time-efficient manner (DesJardine & Bansal, 2019). In acquisition settings, firms that seek to complete prospective acquisitions more quickly may also be more prone to overspending (Pavićević & Keil, 2021).

Third, missing out may lead firms to lower the critical decision threshold they use to evaluate acquisition opportunities during the search process (Dye et al., 2014; Garud et al., 1997). In an effort to reduce the risk of missing out again, loosening evaluation stringency may make a larger number of prospective acquisitions appear acceptable to the focal firm. As a result, firms that miss out on a focal deal may become more likely to pursue additional acquisition opportunities or to pay higher prices than their successful counterparts, at least in the short term following a competitive bidding process.

Finally, missed acquisitions may also facilitate subsequent acquisition activity through a more mechanical channel. Because the focal acquisition does not materialize, unsuccessful bidders may retain financial and organizational resources that would otherwise have been committed to the focal deal. This preserved resource capacity could enable subsequent acquisition spending independent of the behavioral mechanism developed above. We therefore account for this alternative explanation explicitly in our empirical analysis.

To summarize, drawing on the behavioral theory of the firm, we argue that missed acquisitions constitute a distinct form of goal non-attainment in which the focal firm's strategic objective remains unresolved even as a competing bidder secures the same opportunity. This combination should motivate renewed strategic action rather than reinforcement, leading firms to intensify subsequent acquisition spending. We therefore hypothesize:

Hypothesis 1 (H1). *Subsequent acquisition spending will be higher for firms that missed out on deal completion in competitive bidding situations than for firms that completed a deal.*

External Evaluations as Interpretive Signals in Acquisition Outcomes

Organizations do not interpret acquisition outcomes solely through the lens of whether the focal goal was attained. Although goal attainment provides an important internal reference point, organizations operate in complex environments in which managers also attend to external performance cues when interpreting past decisions and determining future actions (Gavetti et al., 2012; Levitt & March, 1988). Prior literature on behavioral decision-making suggests that managers consider the opinions of external stakeholders when reflecting on strategic choices,

particularly when such stakeholders control firms' access to important resources or exert public pressure (e.g., Dye et al., 2014). External evaluations can take various forms, including stock market reactions to deal announcements, media coverage, and other public commentary (Gamache & McNamara, 2019; Gong et al., 2019; Klein et al., 2025). These evaluations provide immediate, publicly observable assessments of organizational actions and may therefore shape how decision-makers interpret prior outcomes.

Stock market reactions, in particular, reflect investors' collective assessment of new information about a firm's prospects. Abnormal stock returns capture investors' evaluation of events that convey such information (e.g., Sorescu et al., 2017). Accordingly, CARs around acquisition-related announcements are widely used as evaluative performance signals in acquisition research (e.g., Haleblian et al., 2009). Because they are observable around public acquisition announcements, CARs provide a consistent external evaluation of competitive bidding outcomes. Strategic decision-makers also attend to such external evaluations when shaping subsequent acquisition behavior (Gamache & McNamara, 2019; Haleblian et al., 2006).

This external evaluation may either reinforce or complicate the feedback provided by goal attainment. Prior literature on decision-making distinguishes among evaluative outcomes based on the combination of an underlying decision and its subsequent assessment, including positive hits, negative hits, false positives, and false negatives (Dye et al., 2014; Garud et al., 1997). Positive and negative hits are generally interpreted as "good" decision outcomes, reflecting correct pursuit and correct abandonment, respectively. In contrast, false positives and false negatives represent "bad" outcomes, reflecting errors of commission and omission (Csaszar, 2012; Kumar & Operti, 2023). Organizations may interpret these latter outcomes as evidence of flawed decision-making and as distinct manifestations of decision failure (Klingebiel, 2018; Klingebiel et al., 2022).

In competitive acquisitions, stock market reactions thus provide evaluative feedback that can shape whether acquisition completion or non-completion is interpreted as appropriate or problematic. For missed acquisitions, positive stock market reactions to abandonment may suggest that investors view non-completion as value-preserving, making the outcome more consistent with a negative hit or defensible withdrawal. Negative reactions, in contrast, may suggest that investors view the abandoned deal as value-enhancing, making the outcome more consistent with a false negative or omission-like error (Liu & McConnell, 2015; Tang, 2015). Conversely, for completed acquisitions, positive stock market reactions may reinforce completion as a positive hit, whereas negative reactions may cast completion as a false positive or a commission error. Because these evaluations are public and salient, decision-makers are likely to attend to stock market reactions to both abandonment and completion announcements. Accordingly, we argue that stock market reactions in competitive bidding settings shape how firms interpret acquisition outcomes and, in turn, condition their subsequent behavioral responses.

The Moderating Role of Stock Market Reactions

According to the behavioral theory of the firm, organizations reinforce decisions that receive favorable feedback and revise or avoid decisions that receive unfavorable feedback (Denrell & March, 2001; Klingebiel, 2018). In acquisition settings, stock market reactions provide such feedback by publicly evaluating whether acquisition completion or non-completion is viewed favorably. Positive stock market reactions should therefore make firms more likely to view the focal decision as appropriate, whereas negative reactions should make firms more likely to view it as problematic. As a result, market reactions can shape whether firms interpret a missed acquisition as a costly missed opportunity that calls for renewed action or as a defensible withdrawal that warrants restraint.

This logic is particularly important because missed acquisitions combine two potentially divergent feedback signals. On the one hand, the focal firm has not achieved its acquisition goal

because it failed to secure the target. On the other hand, public evaluations may either reinforce or counteract the behavioral implications of failing to attain this goal. A favorable stock market reaction may validate non-completion, suggesting that investors view the abandonment decision as prudent or value-preserving. Such validation can reduce the perceived severity of missing out, increase confidence in the firm's decision process, and encourage managers to proceed more cautiously rather than pursue subsequent acquisitions with urgency (Campbell et al., 2022; Halebian et al., 2006; Zollo, 2009). In this sense, positive market reactions can make missed acquisitions appear less like costly missed opportunities and more like acceptable withdrawals.

For firms that complete the focal acquisition, favorable stock market reactions should have a different meaning. Positive evaluations of completion can reinforce the acquisition decision, increase confidence in the firm's ability to make prudent acquisition choices, and support continued acquisition momentum (Amburgey & Miner, 1992; Halebian et al., 2006). Firms may therefore become more willing to commit to subsequent deals once financial and cognitive resources are replenished, for example, by paying higher acquisition premiums or maintaining acquisitive activity (Gong et al., 2019; Hayward, 2002; Xing & Yi, 2024). Thus, favorable market reactions should reduce the behavioral difference between missed and completed acquisitions: they dampen the renewed-search response after missed acquisitions while reinforcing or sustaining acquisition activity after completed deals.

Unfavorable market reactions should have the opposite effect. When a missed acquisition is evaluated negatively, managers may infer that investors viewed non-completion as problematic and that the abandoned deal might have created value. Such feedback can intensify the omission-like character of the missed acquisition, amplifying the sense that the firm has forgone a valuable strategic opportunity (Klingebiel, 2018; Nickel et al., 2026). To address this perceived error and reduce the risk of missing out again, firms are likely to respond more forcefully by pursuing alternative acquisition opportunities in the near term. Negative

evaluations of completed acquisitions, by contrast, may cast the completion decision as problematic and make firms more cautious about additional acquisition activity, because subsequent deals could compound an already poorly received outcome. Consistent with this logic, lower acquisition performance reduces the likelihood of subsequent acquisitions (Haleblian et al., 2006).

These contrasting dynamics can be seen in the responses to individual missed acquisitions. Take-Two's unsuccessful pursuit of Codemasters, discussed above, drew an unfavorable market reaction and was followed by a substantially larger acquisition. In contrast, Infosys, a major IT services firm, pursued Axon, an SAP consultancy, to expand its consulting business. However, after a competitor outbid it, Infosys chose not to raise its offer and walked away. That decision drew a favorable market reaction, and Infosys made no comparable acquisition in the period that followed (see Table I1 in Appendix I).

Taken together, stock market reactions should condition firms' behavioral responses by shaping how they reconcile goal attainment with public evaluation. For missed acquisitions, favorable market reactions can validate non-completion and attenuate the motivation for renewed acquisition activity, whereas unfavorable reactions can intensify the sense of having missed a valuable opportunity. For completed acquisitions, favorable reactions reinforce completion, whereas unfavorable reactions may dampen subsequent acquisition activity. Accordingly, we hypothesize that:

Hypothesis 2 (H2). Stock market reactions moderate the relationship between missed acquisitions and subsequent acquisition spending, such that the positive effect of missed acquisitions is attenuated as stock market reactions become more favorable.

Methodology

Sample Construction

We extracted global acquisition data involving multiple bidders from the Securities Data Corporation Platinum database, provided by LSEG Data & Analytics, formerly Refinitiv (Gong et al., 2019; Hayward, 2002), covering the period from 2000 to 2022. To ensure the

transactions' strategic relevance, we applied screening criteria consistent with prior acquisition research. First, we focused on public acquirers, as they are more likely to pursue high-stakes acquisitions central to their long-term strategic positioning (Haleblian et al., 2009). Public firms are also subject to stricter disclosure requirements and regulatory scrutiny, which enhances data availability and reliability (Faccio et al., 2006; Officer, 2007). Second, we imposed a minimum transaction value of \$50 million to capture economically and strategically meaningful acquisitions (Officer, 2007; Pavićević & Keil, 2021). Third, we restricted the sample to acquisitions resulting in a post-deal ownership stake exceeding 50 percent, ensuring that the focal transactions involved a clear transfer of control (Desyllas & Hughes, 2010). Accordingly, we excluded minority investments, buybacks, exchange offers, recapitalizations, asset acquisitions, divestitures, and spin-offs, as these transactions do not involve competitive bidding for corporate control or a comparable objective of acquiring a target firm (Haspeslagh & Jemison, 1991). Finally, we excluded deals in the financial, real estate, and government sectors, where acquisition activity is often driven primarily by regulatory or financial considerations rather than strategic motives (Capron & Mitchell, 2009; Haspeslagh & Jemison, 1991).

Applying these criteria resulted in 678 acquisition announcements. We then excluded acquisitions in which no prospective acquirer completed the deal, reducing the sample to 545. We further excluded observations with missing financial or stock price data, yielding 430 acquisition announcements with a roughly balanced distribution of deal completions and abandonments. The unit of analysis is the bidder–deal observation, so that competing bidders in the same focal deal are treated as separate observations.

Operationalization of Main Variables

Dependent Variable. We measured *subsequent acquisition spending* as the total value of acquisitions announced within 365 days following the effective abandonment or completion date of a focal deal (Gamache & McNamara, 2019). We use this specific dependent variable

for several reasons. First, subsequent acquisition spending reflects a focal firm's willingness to pursue acquisitions, the number of deals the firm favors, the size of target firms, and its aggressiveness in completing deals (Gamache & McNamara, 2019). Second, prior research emphasizes the disproportionate influence of recent experiences on decision-making (Dahlin et al., 2018; Madsen & Desai, 2024). Extending the time window beyond 365 days would likely introduce unrelated events and experiences that the firm would need to attend to, thereby confounding our hypothesized effects.

Independent Variable. Our primary independent variable, *missed acquisition*, was operationalized as a binary indicator of the focal deal outcome, coded 1 if the focal bidder missed the acquisition (i.e., the deal was ultimately abandoned by the focal firm and completed by a competing bidder) and 0 if the focal bidder completed the acquisition. To validate this operationalization, we manually coded press releases and public disclosures for each missed acquisition to assess whether the termination reflected active decision-making by the acquirer (e.g., voluntary withdrawal or refusal to raise the offer) or was driven by external constraints beyond the acquirer's control (e.g., regulatory intervention or target board rejection), following Xing and Yi (2024). Table I2 in Appendix I presents illustrative examples of this classification. Our results are robust to restricting the sample to cases with clear acquirer agency, as reported in Table J1 of Appendix J.

Moderating Variable. To assess the external evaluation of the focal deal outcome, we used stock market reactions measured by CARs around the eventual abandonment or completion date. CARs provide managers with concrete and timely feedback (e.g., Haleblan & Finkelstein, 1999; Hayward, 2002). They are widely used in acquisition research as proxies for investor reactions (Desyllas et al., 2024; Xing & Yi, 2024), as well as acquisition quality and performance (Cording et al., 2010; Haunschild & Miner, 1997), and have been shown to correlate with long-term acquisition outcomes (Healy et al., 1992).

We computed CARs using the `eventstudy2` package in Stata (Kaspereit, 2021). In line with prior research (Desyllas et al., 2024; Gong et al., 2019), we applied a three-day event window (−1 to +1) to reduce the risk of confounding events (Brown & Warner, 1985; de Jong & Naumovska, 2016). Abnormal returns were calculated using the market model, with a 255-day-to-46-day pre-announcement estimation window to reduce the risk of information leakage (Wade et al., 2006). If an announcement occurred on a non-trading day, the event date was shifted to the next available trading day (Gong et al., 2019). We focused on abandonment or completion announcements rather than initial acquisition announcements to avoid methodological concerns associated with the latter. Stock market reactions to initial announcements can causally influence whether a deal is abandoned or completed, creating endogeneity through simultaneity bias. Research has shown that such reactions influence the likelihood of deal completion (Cao et al., 2023), making CARs computed around the abandonment or completion announcement the more appropriate operationalization for our theoretical purposes. CARs around the initial acquisition announcement are included separately as a control variable to account for pre-existing market sentiment toward the focal deal.

Operationalization of Control Variables

Consistent with prior acquisition research, we control for deal-level, firm-level, and industry-level factors that may influence subsequent acquisition spending. To account for macroeconomic conditions, we include year fixed effects based on the focal deal year. All control variables are based on the most recent data available prior to the focal deal announcement. We present descriptive statistics and bivariate correlations for all variables in Table 4.1.

Deal-Level Controls. Our control variables at the deal level refer to the focal deal, which was either abandoned or completed. We operationalized *strategic relatedness* between the acquirer and target as a binary variable equal to 1 when the two firms share the same two-digit Standard Industrial Classification (SIC) code and 0 otherwise (Beckman & Haunschild, 2002).

Losing or acquiring a target from the firm's core industry may have more substantial implications for subsequent acquisition behavior than a strategically distant opportunity. We also included the *number of bidders* to account for variation in competition intensity across focal deals. While our analyses focus on competitive deals, the total number of bidders may introduce additional variation that could confound the estimated effects. Highly competitive deals may increase the risk of overpayment (Bessler et al., 2015), deplete financial resources (Boone & Mulherin, 2007), or heighten perceptions of strategic threat (Porac et al., 1989; Wu & Klingebiel, 2024). Including this covariate allows us to isolate the effect of missed acquisitions within competitive settings. Additionally, we control for *hostile takeovers*, coded as 1 if present and 0 otherwise (Gamache & McNamara, 2019), as they require heightened managerial and financial commitment and can constrain subsequent acquisition spending (Comment & Schwert, 1995; Golubov et al., 2012). *Foreign target* was also included as a binary variable, coded 1 for cross-border acquisitions and 0 otherwise. This variable captures integration challenges, regulatory differences, and currency-related risks that may affect future acquisition spending (Bertrand, 2009). We additionally control for stock market reactions around the initial acquisition announcement to account for early market-based evaluations that may shape subsequent acquisition behavior.

Table 4.1*Descriptive Statistics and Bivariate Correlations of Chapter 4*

Variable	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Missed acquisition	.52	.50																
2. Strategic relatedness	.68	.47	.00															
3. Number of bidders	1.47	0.13	.08	.10														
4. Hostile takeover	.07	.26	.08	.06	.01													
5. Foreign target	.38	.49	-.02	-.06	-.06	-.02												
6. Focal deal size	6.49	1.63	-.04	.08	-.04	.08	.06											
7. Bidder size	7.96	1.95	-.18	-.04	-.08	.01	.24	.62										
8. Bidder slack	1.58	0.47	.05	.09	-.08	-.01	.00	-.27	-.42									
9. Bidder performance	0.06	0.07	-.11	-.04	-.10	.04	.11	.15	.17	.11								
10. Bidder CapEx	4.45	2.32	-.15	.01	.01	.02	.12	.43	.74	-.34	.14							
11. Bidder completion experience	2.92	1.78	-.17	-.04	-.07	-.01	.17	.21	.54	-.27	.09	.33						
12. Bidder abandonment experience	0.40	0.62	-.07	.02	.07	.04	.11	.11	.27	-.13	-.02	.19	.30					
13. Industry acquisition activity	7.28	3.50	.04	.21	-.08	-.11	.02	-.03	-.06	.13	.02	-.12	.17	.03				
14. Stock market reaction (effective date)	-0.01	0.04	-.03	-.06	.07	.02	.01	.06	.11	-.13	.04	.10	.03	.08	-.05			
15. Stock market reaction (announcement date)	0.01	0.06	.05	.01	.07	-.03	.01	.07	-.04	.05	-.04	-.01	-.01	.03	-.02	-.04		
16. Subsequent acquisition spending	2.75	3.17	.04	-.05	-.02	.05	.15	.20	.37	-.15	.09	.28	.31	.11	.01	.05	-.01	

Note. $n = 430$. Means, standard deviations, and correlations are reported for the transformed variables as entered in the regression models, except focal deal size and the effective-date stock market reaction, which are shown uncentered. Continuous variables were winsorized at the 5th and 95th percentiles (subsequent acquisition spending at the upper tail only). To reduce skewness, continuous variables were transformed using the natural logarithm or the inverse hyperbolic sine, and count variables using the square root. Missed acquisition: 1 = missed acquisition, 0 = completed acquisition. Stock market reactions are cumulative abnormal returns; effective-date reactions are computed around the deal abandonment or completion announcement, and announcement-date reactions around the initial bid announcement.

Firm-Level Controls. On the firm level, we control for *bidder size*, measured as total assets. Larger firms typically have greater financial resources and access to capital, enabling continued acquisition activity (Kim et al., 2011). *Bidder slack*, measured as total assets divided by total liabilities, reflects the flexibility to fund additional deals (Pavićević & Keil, 2021). *Bidder performance*, approximated through return on assets (ROA), indicates a firm's financial health and capacity to pursue acquisitions (Haleblian et al., 2009). *Bidder capital expenditures* (CapEx) are included to account for firms that may prioritize internal investments over external growth through acquisitions (Laamanen, 2007). To isolate the influence of prior experience, we control for *bidder completion experience*, i.e., the number of previously completed acquisitions, and *bidder abandonment experience*, i.e., the number of previously abandoned deals, in the last 10 years prior to the focal deal (Cuypers et al., 2017; Reuer et al., 2012).

Industry-Level Control. Lastly, we control for *industry acquisition activity*, measured as the total number of large acquisitions in the bidder's industry in the year prior to the focal deal announcement (Haleblian et al., 2012; McNamara et al., 2008).

Beyond that, we include *focal deal size* and its interaction with deal outcome to account for the possibility that uncommitted financial resources mechanically drive higher subsequent acquisition spending following missed acquisitions. Because resources associated with the focal deal are deployed when a deal is completed but remain available when a deal is withdrawn, this interaction captures differences in available capital between completed and missed acquisitions as a function of deal size, with larger deals implying greater differences in available resources. This allows us to better isolate behavioral responses from purely mechanical effects related to the availability of financial resources.

Data Analysis and Results

Data Transformation

Given the distributional characteristics of several variables, we applied variable-specific transformations. First, to mitigate the influence of extreme values and methodological outliers,

we winsorized continuous variables at the 5th and 95th percentiles (Ellahie et al., 2025; Kennedy et al., 1992). For subsequent acquisition spending, we winsorized only the upper tail of the distribution, as the lower tail, including zero values, represents substantively meaningful observations rather than outliers.

Second, we applied functional transformations tailored to each variable's support and distribution. For count variables, we applied a square-root transformation to the number of bidders, bidders' completion experience, bidders' abandonment experience, and industry acquisition activity. For variables with frequent zero, small, or negative values, we used the inverse hyperbolic sine (IHS) transformation. This includes CARs as well as covariates capturing financial slack and financial performance. The IHS transformation accommodates zero and negative values while reducing skewness and the influence of outliers (Bellemare & Wichman, 2020). However, when applied to the dependent variable, the IHS transformation complicates interpretation and retransformation (Mullahy & Norton, 2024; Norton, 2022). Thus, although subsequent acquisition spending exhibits a substantial mass at zero, we use a logarithmic specification $[\ln(x + 1)]$ in the primary analyses to facilitate interpretation. In log-linear models, retransformed predictions approximate conditional medians on the original scale, yielding economically meaningful quantities that are less sensitive to extreme right-tail observations (Norton, 2022). We also used the natural logarithm to transform continuous, strictly positive variables, including firm size and capital expenditures. To assess the robustness of this choice, we re-estimated all models using an IHS-transformed measure of subsequent acquisition spending, which explicitly accommodates zero values. The results are substantively unchanged (see Table J2 in Appendix J). Finally, we mean-centered continuous moderators after their transformation, before constructing interaction terms, to improve interpretation and reduce nonessential multicollinearity (Cortina, 1993).

Model Estimation

We estimated ordinary least squares regressions with standard errors clustered at the acquirer level to account for repeated firm-level observations (Carnahan et al., 2017). Variance inflation factors (VIFs) were all below 5, indicating a low risk of Type II errors due to inflated standard errors. However, because VIFs may understate the risk of Type I errors, we also examined the bivariate correlations between our primary independent variable and each covariate (Kalnins & Praitis Hill, 2025; see Table 4.1). All correlations were below .30, suggesting that multicollinearity-induced bias is unlikely.

Main Results

Table 4.2 reports our main results. Model 1 includes only control variables. Model 2 introduces the main effects of missed acquisitions, focal deal size, and the effective-date stock market reaction. It also includes the interaction between missed acquisitions and focal deal size, which accounts for differences in available financial resources between missed and completed acquisitions. Model 3 adds the interaction between missed acquisitions and the effective-date stock market reaction to test H2.

Table 4.2*Ordinary Least Squares Regression Results Predicting Subsequent Acquisition Spending*

DV: Subsequent acquisition spending	Model 1			Model 2			Model 3		
Variables	β	SE	p	β	SE	p	β	SE	p
<i>Control variables</i>									
Strategic relatedness	-0.309	0.315	.327	-0.264	0.321	.412	-0.202	0.322	.531
Number of bidders	0.789	1.121	.482	0.747	1.075	.487	0.674	1.053	.522
Hostile takeover	0.540	0.639	.398	0.390	0.662	.556	0.406	0.674	.547
Foreign target	0.293	0.343	.394	0.236	0.350	.500	0.209	0.349	.550
Bidder size	0.461	0.124	<.001	0.510	0.151	.001	0.512	0.150	.001
Bidder slack	0.131	0.327	.690	0.175	0.326	.592	0.153	0.326	.640
Bidder performance	-0.425	2.059	.836	-0.151	2.078	.942	0.003	2.063	.999
Bidder CapEx	0.033	0.086	.700	0.034	0.084	.682	0.033	0.084	.699
Bidder completion experience	0.239	0.122	.050	0.257	0.124	.039	0.263	0.123	.033
Bidder abandonment experience	-0.211	0.280	.451	-0.185	0.284	.515	-0.218	0.282	.441
Industry acquisition activity	0.034	0.048	.487	0.030	0.048	.526	0.029	0.047	.548
Stock market reaction (announcement date)	1.057	2.433	.664	1.121	2.477	.651	0.631	2.515	.802
<i>Main effects</i>									
Missed acquisition				0.762	0.294	.010	0.764	0.294	.010
Focal deal size				-0.202	0.161	.210	-0.216	0.161	.181
Stock market reaction (effective date)				1.429	3.662	.697	9.960	5.009	.047
<i>Interaction effects</i>									
Missed $\times$ Focal deal size				0.335	0.180	.063	0.355	0.179	.049
Missed $\times$ Stock market reaction (effective date)							-15.385	6.672	.022
Constant	-3.010	2.101	.153	-3.915	2.057	.058	-3.856	2.055	.061
Year fixed effects	YES			YES			YES		
Observations	430			430			430		
R ²	.209			.229			.238		
F	3.97			4.01			4.24		

Note. $n = 430$ acquisition announcements. The dependent variable is the $\ln(x+1)$ transformation of subsequent acquisition spending. Unstandardized coefficients (β) are reported with robust standard errors (SE) clustered at the bidder level and exact p-values (p). Missed acquisition: 1 = missed acquisition, 0 = completed acquisition. Year dummy variables included but not reported.

Model 2 shows that experiencing a missed acquisition is associated with greater subsequent acquisition spending than completing a deal ($\beta = 0.762$; $SE = 0.294$; $p = .010$), supporting H1. Model 3 tests whether stock market reactions moderate this relationship. The interaction between missed acquisitions and effective-date stock market reactions is negative ($\beta = -15.385$; $SE = 6.672$; $p = .022$), indicating that the positive effect of missed acquisitions on subsequent acquisition spending weakens as stock market reactions become more favorable, thereby supporting H2.

We also account for the possibility that subsequent acquisition spending reflects differences in available financial resources rather than behavioral responses. The interaction between missed acquisitions and focal deal size is positive in both Model 2 ($\beta = 0.335$; $SE = 0.180$; $p = .063$) and Model 3 ($\beta = 0.355$; $SE = 0.179$; $p = .049$), consistent with the idea that financial resources left uncommitted by a missed acquisition remain available for subsequent deals, with the effect more pronounced for larger focal deals. Importantly, the moderating effect of stock market reactions remains negative alongside this resource-based effect, indicating that behavioral responses to prior deal outcomes contribute to subsequent acquisition spending beyond what mechanical resource availability alone would predict. To illustrate the economic magnitude of these effects, we retransformed predicted values to the original dollar scale, which approximates conditional medians of subsequent acquisition spending for otherwise comparable firms (Figure 4.1, Panel A). When stock market reactions are negative (-1 SD), firms that miss out are predicted to spend approximately \$94.0 million on subsequent acquisitions, compared with approximately \$18.4 million for firms that complete the deal, a difference of roughly 412 percent, or about five times the spending of completing firms. When stock market reactions are positive ($+1$ SD), this difference narrows to approximately 47 percent (\$60.9 million versus \$41.4 million), illustrating how favorable market evaluations substantially attenuate the behavioral response to a missed acquisition. These differences persist

after accounting for the mechanical availability of uncommitted financial resources, suggesting that the observed spending patterns reflect behavioral responses to prior decision outcomes rather than purely financial constraints.

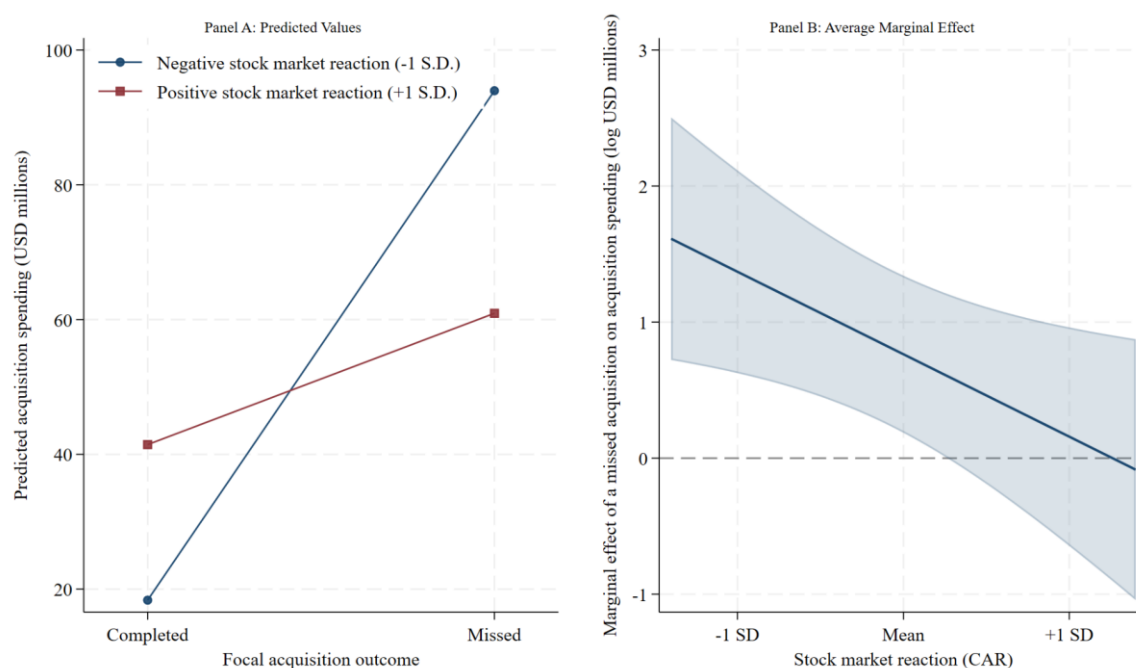


Figure 4.1

Moderating Effect of Stock Market Reactions on the Relationship Between Focal Deal Outcome and Subsequent Acquisition Spending

Figure 4.1, Panel B reports the average marginal effect of a missed acquisition on subsequent acquisition spending across the range of stock market reactions, expressed on the log scale. The marginal effect is positive at negative reaction levels, with a confidence interval that excludes zero, and declines monotonically as reactions become more favorable. Its confidence interval includes zero at approximately one-quarter of a standard deviation above the mean, and the point estimate continues to decline beyond this threshold, although the interval includes zero throughout the remaining range, indicating no reversal within the observed range of stock market reactions.

Taken together, these results indicate that stock market reactions systematically condition the effect of missed acquisitions on subsequent acquisition spending. Consistent with H2, more favorable market evaluations attenuate the positive effect of missed acquisitions,

reducing it to a level at which the confidence interval includes zero under sufficiently favorable reactions.

Endogeneity

Although we sought to mitigate endogeneity concerns *ex ante* through theory-driven model specification, clear temporal ordering, an externally evaluated moderator, a comprehensive set of firm-, deal-, and industry-level controls, and year fixed effects, concerns related to omitted variables, selection processes, or measurement may remain (Hill et al., 2021). We therefore conducted a series of complementary analyses targeting distinct sources of endogeneity, which we report in detail in Appendix K.

To assess the potential influence of omitted variables on the main effect, following prior strategy research (Klein et al., 2025; Kraft et al., 2025), we calculated the impact threshold for a confounding variable (ITCV) and applied the robustness-of-inference-to-replacement (RIR) approach (Busenbark et al., 2022; Frank, 2000; Frank et al., 2023). Both analyses suggest that the estimated effect of missed acquisitions on subsequent acquisition spending is robust to plausible levels of omitted-variable bias.

To address concerns about selection into missing out on the focal acquisition, we conducted a propensity-score-matching analysis following Li (2013), explicitly modeling selection into treatment and assessing covariate balance. Matched estimates closely mirror the main regression results, suggesting that differential selection into treatment is unlikely to account for the estimated effect.

Recent research suggests that interaction terms are generally less susceptible to endogeneity bias than main effects (Bun & Harrison, 2019; Busenbark et al., 2022). Nonetheless, we assessed robustness using the RIR approach and examined whether adding individual control variables altered the interaction coefficient by a magnitude sufficient to invalidate the inference. Both analyses indicate that the interaction effect is robust to plausible levels of unobserved bias. Finally, to assess whether measurement error in the moderator could

attenuate the estimated interaction effect, we recomputed CARs using wider event windows $(-2, +2)$ and $(-3, +3)$. The consistency of results across windows suggests that the choice of event window does not introduce measurement error sufficient to bias the interaction estimate (see Table K1 in Appendix K).

Robustness Checks

We conducted several additional robustness checks, which we report in full in Appendix J. First, missed acquisitions differ in whether the focal firm actively withdrew or had the outcome imposed by external constraints, a distinction prior work treats as consequential for how terminations are interpreted (Xing & Yi, 2024). In our setting, a competing bidder realizes the same strategic opportunity either way, so the focal firm's objective remains unresolved regardless of how the deal ended. We nonetheless re-estimated the models on the subset of deals with clear acquirer agency, coded from press releases and public disclosures (see Measures section); restricting the sample to these observations yields results consistent with the main findings in direction and magnitude (see Table J1 in Appendix J).

Second, although subsequent acquisition spending contains a substantial mass at zero, we relied on a logarithmic specification in the main models for ease of interpretation (see Data transformation section). To confirm that this choice does not drive our findings, we re-estimated all models using an inverse hyperbolic sine (IHS) transformation, which directly accommodates zero values. The results remain substantively unchanged, indicating that they are not sensitive to the functional form of the dependent variable (see Table J2 in Appendix J).

Third, because subsequent acquisition spending combines deal frequency and deal size, it cannot reveal whether the effect reflects more frequent acquisitions or larger individual transactions. To distinguish these, we re-estimated the model using the number of subsequent acquisitions as the dependent variable. A negative binomial specification yields results consistent in direction with our main findings (see Table J3 in Appendix J), suggesting that firms respond to missed acquisitions by pursuing more deals, not solely larger ones.

Finally, to assess whether nonlinear effects alter our conclusions, we re-estimated the interaction model with quadratic terms alongside the linear interaction, since omitting them can distort interaction estimates and inflate error rates (Cortina, 1993; Ganzach, 1998). Following Kalnins (2024), we compared specifications with and without the quadratic terms. The interaction remains negative and of comparable magnitude across both specifications, indicating a robust interaction effect (see Table J4 in Appendix J).

Discussion

In this study, we examine public firms' acquisition-related behavior following competitive bidding for prospective targets. We distinguish between unsuccessful bidders (i.e., those for whom a focal deal is ultimately abandoned) and successful bidders (i.e., those that complete a focal deal) to introduce the concept of a missed acquisition. We conceptualize a missed acquisition as a distinct form of unrealized acquisition in which a firm falls short of its intended goal of acquiring a coveted target while a competing bidder completes the transaction. Missing out, therefore, leaves the focal firm's strategic objective unresolved and links non-completion to another bidder's realization of the same acquisition opportunity. Accordingly, a missed acquisition differs from generic deal abandonment because competitive bidding renders non-completion socially comparative and particularly salient, evoking perceptions of having lost the competition for a desired target (Haunschild et al., 1994).

Using a global sample of 430 observations from 2000 to 2022, we examine firms' acquisition spending in the 12 months following competitive public bidding. Our analyses reveal two central findings. First, firms that miss out spend more on subsequent acquisitions than firms that complete competitive deals. Second, stock market reactions to abandonment or completion announcements, as measured by CARs, systematically moderate this relationship. Consistent with our theoretical expectation, the increase in subsequent acquisition spending following missed acquisitions is attenuated as stock market reactions become more favorable. Additional analyses and robustness checks lend further credibility to these findings.

Theoretical Implications

Our study contributes to acquisition research and research in the tradition of the behavioral theory of the firm in several ways. First, prior acquisition research has largely focused on completed deals, offering a partial view of the acquisition process and risking the oversight of the strategic consequences of deals that are pursued but not consummated (Welch et al., 2020). Building on this broader insight, we introduce missed acquisitions as a distinct form of unrealized acquisition and as a specific manifestation of missed strategic opportunities. We define missed strategic opportunities as situations in which a focal firm actively considers or pursues a strategic opportunity but does not realize it, while another actor does. Prior research has examined non-completed deals under broader labels such as failed, withdrawn, abandoned, or terminated acquisitions and has shown that these outcomes vary in their causes, attributions, and consequences (e.g., Xing & Yi, 2024). However, these categories primarily indicate that a focal transaction did not close, without necessarily distinguishing whether another actor ultimately realized the same opportunity. Building on recent theory that acquisition outcomes matter not only through acquirer synergies but also through the consequences of another bidder obtaining the target (Anand et al., 2026), we theorize missed acquisitions as a qualitatively distinct form of non-completion. In such cases, the focal firm does not merely fail to complete a transaction; it loses a publicly pursued and initially desired target to a competing bidder. More broadly, this suggests that missed strategic opportunities are behaviorally distinctive because they make non-realization socially comparative and tie goal non-attainment to another actor's realization of the same opportunity. Conceptually, this distinction shifts attention from whether a transaction closes to what non-completion means for the focal firm.

Second, we contribute to research on the behavioral consequences of unrealized strategic actions by theorizing missed acquisitions as a trigger for renewed strategic pursuit. Prior work suggests that unrealized deals may lead firms to become more cautious in subsequent acquisition activity or even engage in divestitures rather than renewed acquisition activity

(Campbell et al., 2022; Gibbs et al., 2026). We extend this view by showing that unrealized strategic actions need not only dampen subsequent search. When non-realization leaves the focal strategic objective unresolved, and another actor realizes the same opportunity, firms may remain motivated to pursue alternative paths toward that objective. In our setting, this renewed strategic pursuit manifests as increased subsequent acquisition spending after missed acquisitions, even after accounting for preserved financial resources. Thus, our findings highlight a form of unrealized strategic action that sustains, rather than suppresses, subsequent strategic search.

Finally, we contribute to research in the tradition of the behavioral theory of the firm (Cyert & March, 1963; Gavetti et al., 2012) and related work on behavioral decision-making (Denrell & March, 2001; Greve, 2003; Klingebiel, 2018) by theorizing how organizations respond when goal attainment and public evaluation provide potentially divergent feedback. Behavioral theory has long emphasized that organizations learn from success and failure, with success reinforcing prior behavior and failure triggering search or change. Nevertheless, this logic often assumes that goal attainment and external evaluations of the outcome point in the same direction. This assumption matters because the same outcome may elicit different behavioral responses depending on whether organizations evaluate it against internal goals or external audience reactions (Kacperczyk et al., 2015). We relax this assumption by showing that organizations may face mixed feedback: a goal can remain unattained even as external audiences evaluate the outcome favorably, or it can be attained even as external audiences evaluate it unfavorably.

Such mixed feedback can change the behavioral meaning of success and failure. Favorable external evaluations may make non-attainment appear more defensible, consistent with research showing that withdrawal can be interpreted as managerial discipline and that investor responses to acquisition terminations depend on framing and attribution (Jacobsen, 2014; Xing & Yi, 2024). Unfavorable external evaluations, by contrast, may intensify the

interpretation of non-attainment as an omission-like failure, linking our argument to work on omission and commission errors (Dye et al., 2014; Klingebiel, 2018). By theorizing this decoupling between goal attainment and external evaluation, our study refines behavioral accounts of reinforcement and problemistic search and clarifies when experiences of success and failure translate into subsequent strategic action (Amburgey & Miner, 1992; Halebian et al., 2006; Joseph & Gaba, 2020). Finally, in the domain of negative public evaluations, our results speak to the literature on omission and commission errors by suggesting that negatively evaluated inaction can prompt stronger subsequent pursuit than negatively evaluated action (Dye et al., 2014; Klingebiel, 2018; Nickel et al., 2026).

Managerial Implications

Competitive bidding outcomes are accompanied by public stock market reactions that can shape how managers, boards, analysts, and competing bidders interpret firms' future acquisition behavior. Our findings suggest that these evaluations may influence how firms respond after missing out on a desired target.

When stock market reactions are unfavorable, firms that miss out appear more likely to increase subsequent acquisition spending. This pattern suggests that missed acquisitions can create pressure for corrective action following publicly visible setbacks. Managers and boards should therefore pay particular attention to acquisition activity following negatively evaluated missed acquisitions. Such responses are not necessarily problematic, but they may partly reflect behavioral pressure associated with a perceived missed opportunity rather than solely deliberate strategic planning. Post-bid reviews may therefore help decision-makers assess whether renewed acquisition activity reflects enduring strategic needs or is a reaction to public feedback surrounding the focal deal.

Favorable stock market reactions, in contrast, attenuate this tendency and may even shift firms toward greater restraint. Positive evaluations may therefore create a sense of closure surrounding the abandonment decision. Nevertheless, a favorable evaluation does not imply

that the strategic rationale underlying the original bid has disappeared. The firm still did not secure the desired target, and a competing bidder may now benefit from owning it. Managers should therefore distinguish between approval of non-completion and resolution of the underlying strategic objective. Favorable reactions may legitimize restraint, but they do not necessarily eliminate the strategic consequences of missing out.

Limitations and Future Research

Although we conducted this study as rigorously as possible, several limitations point to promising avenues for future research. First, our empirical setting focuses on publicly listed bidders engaged in competitive acquisition contests with disclosed bids. This design enables clear identification of missed acquisitions, but it may underrepresent dynamics unfolding in less visible stages of the acquisition process. Public bidding contests make both outcomes and market evaluations especially salient (Welch et al., 2020), which may intensify behavioral responses relative to more opaque settings. Future research could examine whether similar patterns emerge in private bidding processes, using proprietary data or qualitative designs.

Second, although we employed multiple complementary approaches to mitigate endogeneity concerns, causal inference remains inherently limited in observational research (Hill et al., 2021). Future studies could strengthen causal claims by leveraging experimental designs, survey-based approaches, or field studies that directly capture managerial interpretations of missed acquisitions and subsequent strategic responses.

Third, our study examines whether missed acquisitions shape subsequent acquisition spending, but it does not assess the performance consequences of this behavior. Increased acquisition spending after missing out may reflect adaptive strategic search, reactive compensation, or value-destroying overcorrection. Similarly, restraint following favorable market reactions may reflect disciplined decision-making or missed opportunities for further strategic action. Future research could therefore examine whether post-miss acquisition

behavior ultimately creates or destroys value and under what conditions different responses to missed acquisitions prove beneficial.

Finally, we use short-window CARs to capture market evaluations around deal abandonment and completion. Although such reactions may not fully reflect longer-term stakeholder assessments, short-window CARs provide a well-established proxy because they reduce contamination from confounding events (Brown & Warner, 1985; de Jong & Naumovska, 2016) and have been widely used in acquisition research to capture investor evaluations of focal transactions (e.g., Cording et al., 2010). Nevertheless, future research could examine whether other evaluative channels, such as analyst sentiment, investor communications, or longer-horizon market responses, shape acquisition behavior in similar or distinct ways.

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Chapter 5: Concluding Remarks

This doctoral thesis set out to understand how prior decision failures shape subsequent decisions. Absent that understanding, firms risk a systematic and unrecognized bias in their decision-making. We distinguish two failure types, commission errors (i.e., pursuing or persisting with a course of action that should have been forgone) and omission errors (i.e., forgoing or abandoning a course of action that should have been pursued), and examine what each does once it has occurred, comparing the two failure types directly in the experimental studies and, in the third study, tracing the consequences of a missed strategic opportunity at the firm level with archival data. The remainder of this chapter summarizes the findings of the three studies, draws out their joint theoretical contribution, discusses the limitations of the thesis together with the directions they open for future research, and sets out the implications for managerial practice.

Summary of Findings

The first study (Chapter 2) examines how the type of a recent failure shapes a manager's willingness to persist with an underperforming innovation project. Drawing on the theory of risk-type preference shifts (Klingebiel, 2018), and across a metric conjoint experiment with 89 practicing innovation managers and a scenario-based experiment with 285 managers, it finds that a recent commission error (a flop) lowers persistence whereas a recent omission error (a missed opportunity) raises it, with both effects emerging against a neutral baseline rather than only relative to one another. This response is bounded at two levels. At the individual level, action-oriented managers adjust their persistence more sharply, particularly after a commission error, whereas state-oriented managers do not translate the failure into a corrective adjustment. A rational thinking style does not alter the effect of failure type; instead, these managers weigh present project attributes, such as proximity to completion and innovativeness, more heavily. At the organizational level, the effect depends on strategic orientation: an exploratory orientation weakens the reduction in persistence following a commission error and strengthens

the increase following an omission error, whereas an exploitative orientation amplifies the reduction following a commission error. These findings show that the failure-type effect depends on who is deciding and on the strategic context in which they decide.

The second study (Chapter 3) turns to escalation of commitment, a more specific and detrimental form of persistence, and to the affective process behind it. It draws on regret regulation theory (Zeelenberg & Pieters, 2007) and regulatory focus theory (Higgins, 1997), and includes two scenario-based experiments with 126 and 176 innovation managers, respectively. A prior omission error produces greater escalation than a prior commission error, and the response operates through anticipated regret: anticipated keep regret, arising from continuing a failing project, deters escalation, whereas anticipated drop regret, arising from abandoning a promising one too soon, encourages it. The path from failure to regret depends on the decision-maker's regulatory focus. Among managers low in prevention focus, a commission error raises anticipated keep regret and so lowers escalation, but this restraint weakens and can reverse as prevention focus increases; among managers high in promotion focus, an omission error raises anticipated drop regret and so heightens escalation. Regulatory focus operates within this emotional pathway, not on the direct effect of the type of failure. Anticipated regret, regulated to fit the decision-maker's focus, is therefore an affective process linking failure type to escalation, and the direction of the response is not fixed: under a prevention focus, a commission error can encourage escalation rather than restraint.

The third study (Chapter 4) moves from the individual to the firm and from innovation projects to corporate acquisitions. It examines missed acquisitions, cases in which a firm publicly bids for a target, but a competing bidder completes the transaction, a firm-level omission whose status as a genuine failure or a defensible withdrawal is not given by the outcome alone. Across 430 competitive acquisition announcements between 2000 and 2022, and drawing on the behavioral theory of the firm (Cyert & March, 1963), it finds that firms that miss an acquisition subsequently spend more on acquisitions than firms that complete one, even

after accounting for the resources they retain by not closing the deal. How the missed deal is evaluated externally conditions this response: a favorable stock market reaction, which marks the withdrawal as value-preserving, narrows the gap, whereas an unfavorable reaction, which marks the outcome as a forgone opportunity, widens it. A firm's response to a missed opportunity, therefore, depends on how the outcome is read, and that reading can diverge from the firm's own assessment of whether it attained its goal.

Together, the studies show that neither failure type produces a fixed response; variation depends on the decision-maker, the organization, and the audience evaluating the outcome. A commission error reduced persistence among action-oriented managers, but under a prevention focus, it could encourage escalation instead; by contrast, following an omission error, a promotion focus and an exploratory orientation strengthened the shift toward persistence. External evaluation, in turn, can determine whether a missed opportunity is interpreted as an omission error in the first place.

Theoretical Implications

This thesis joins a still-emerging stream of research on commission and omission errors in innovation and strategy. Most of this work asks why such failures arise and examines the selection processes and conditions that produce them (Böttcher & Klingebiel, 2025; Csaszar, 2013; Sharapov & Dahlander, 2025). Far fewer ask what those failures do once made, and that work has remained largely conceptual (Klingebiel, 2018; Wood et al., 2023), with only initial firm-level evidence that infers failure types from realized outcomes (Klingebiel et al., 2022). Through complementary theoretical lenses, the three studies of this thesis build on the idea that a prior failure of one type influences subsequent decisions, with commission and omission errors pulling in different directions. That influence does not operate in isolation. Given the complexity of decision-making in innovation and strategy, a decision-maker attends to more than one source of feedback (Audia & Greve, 2021; Joseph & Gaba, 2015), and the consequences of a prior failure depend on how these are reconciled.

What reconciles these sources and governs the response to a prior failure is the construed meaning of the outcome, not the outcome alone. The same failure can move a subsequent decision in opposite directions depending on how it is read, and the three studies locate the reading in three places. Within the decision-maker, the regulation of regret, conditioned by regulatory focus, shapes the response, so that the same commission error that deters one manager can lead another to escalate (Chapter 3). Within the organization, strategic orientation determines the weight a firm gives to a failure, and exploratory and exploitative firms respond differently to the same commission or omission error (Chapter 2). Outside the firm, external evaluation shapes how an ambiguous outcome is read, so that a missed strategic opportunity registers as an omission error or a defensible withdrawal (Chapter 4). At this level, the reading can rest with outside audiences rather than the decision-maker, and can settle whether there was a failure at all, a judgment the firm may act on against its own sense of goal attainment (Cyert & March, 1963; Kacperczyk et al., 2015).

Construal governs whether and how a failure registers. How firmly the resulting response then holds is a separate matter, and here commission and omission did not prove equally contingent. In the experiments of Studies 1 and 2, the response to a prior commission error bent and reversed under several conditions, whereas the response to a prior omission error held across them. We read this difference as turning on how the prior failure relates to the feedback the decision-maker receives in the present. A failing focal project presents a loss frame, which inclines the decision-maker toward persistence, the within-project pressure behind escalation of commitment (Kahneman & Tversky, 1979; Staw, 1981), while the prior failure points in the direction the risk-type preference shift implies, away from the risk type just experienced (Klingebiel, 2018). After a commission error, the two may conflict: the prior error inclines the decision-maker away from continuation, while the failing project inclines toward it. The response then depends on which prevails, which may be why this side proved contingent and reversible. Action-oriented managers followed the preference shift and withdrew; state-

oriented managers showed a muted response; and managers high in prevention focus persisted, treating continuation as a means of recovering from the earlier loss. After an omission error, the two point the same way, since both the prior error and the failing project favor persistence. With no conflict to resolve, this side proved robust: neither action orientation nor exploitation orientation altered it, and no condition we examined reversed it, whereas promotion focus and an exploratory orientation strengthened a response that already ran in one direction. We read the pattern as an across-project preference shift and a within-project loss frame that conflict after a commission error and agree after an omission error.

These contributions share one thread. A decision-maker acts on more than one source of feedback: a prior failure is carried into a present that brings feedback of its own, and at the firm level, an internal sense of goal attainment sits beside an external verdict, and the two need not agree. What the thesis adds to the consequences of commission and omission errors is an explanation of how this feedback is reconciled, through the construed meaning of a failure, through the conflict or alignment of past and present feedback, and through the external evaluation that can decide whether an outcome counts as a failure at all.

Limitations and Future Research

Beyond the limitations discussed within each chapter, this thesis has limitations that apply to it as a whole and, at the same time, point to avenues for future research.

First, the response to a failure follows from its construed meaning for the individual or organization, yet the studies say more about that response than about how the meaning is formed, inferring it from manipulated conditions and observed behavior rather than observing it directly. Qualitative designs, such as interviews or process studies, could open this step, eliciting how managers interpret a prior failure and connecting to work on how organizational actors make sense of the events they confront (Maitlis & Christianson, 2014). Such work could,

in particular, ask which reading prevails when different feedback channels pull decision-makers in opposing directions.

Second, the thesis examines how the actor who failed responds, yet a failure is also read by those who observe it, so that the same error becomes input to the decisions of peers, competitors, and audiences. Work on vicarious experience suggests these observers may read a failure differently from the actor who committed it, attributing it to causes the actor would not (KC et al., 2013). Future research could take up the observer's side, asking how commission and omission errors committed by one firm shape the decisions of those who witness them, and whether a missed opportunity that draws one firm toward renewed pursuit pushes those watching to be cautious or to imitate. This would extend the thesis from the actor who failed to those who observe the failure.

Third, the thesis establishes the carryover at two levels separately, in the decisions of individual managers and in the spending of firms, but does not connect them. A firm's response to a missed acquisition rests on the reactions of the people who decide, yet the thesis leaves the path from the individual to the firm unspecified. Future research could supply these microfoundations by asking how the individual reactions documented here aggregate, through the teams and routines that produce strategic decisions, into the firm-level pattern observed in the third study, and whether the effect retains its direction along the way (Felin et al., 2015).

Fourth, the thesis examines realized errors, but experience also includes outcomes that come close to either error without becoming one: a firm may nearly persist with a project that would have flopped before pulling back, or nearly abandon one that would have succeeded before continuing, experiencing what we might call a near commission or a near omission error. Whether such near-misses carry over as realized errors do is not obvious. A near-miss is not an actual failure, so it is unclear whether the avoidance logic even reaches it. The decision-maker both came up against a failure of a given type and avoided it, and the event is open to being read either way: as the error nearly committed, which would push it as a realized error of that

type does, or as a success in having escaped it, which would reinforce the course just taken. Research on near-misses points to the second reading, finding that a narrowly avoided failure is often taken as a sign that the decision-maker chose well rather than as a brush with error (Dillon & Tinsley, 2008). Which reading takes hold appears to depend on the salience of the danger the near-miss exposed, since organizations more readily adapt when that danger was salient (Madsen et al., 2016). Future research could test this by asking whether narrowly avoided commission and omission errors shape subsequent decisions as realized ones do, and whether the salience of the avoided failure determines the type to which they are attributed.

Practical Implications

For managers, the thesis shows that a prior failure systematically influences subsequent decisions, and that the direction of that influence depends on the type of failure. A recent flop tends to reduce persistence, a recent missed opportunity to increase it, and at the firm level, a missed acquisition tends to increase subsequent deal-making. A firm that does not track failures by type cannot account for their influence on its next decision. The clearest step, and the one all three studies point to, is to keep a record of prior outcomes that separates commission errors, the flops, from omission errors, the opportunities a competitor later captured, and to build that distinction into post-launch and post-project reviews. A flop enters a firm's own record as a loss, whereas an omission error arrives as another firm's success with an opportunity the focal firm forwent. That feedback is often public and unmistakable, since a competitor now realizes the value the focal firm passed on (Anand et al., 2026), yet it is not automatically logged as the focal firm's own failure, and the thesis suggests it is the omission that more often draws a firm toward continued investment where it should withdraw. Treating a competitor's success with a forgone opportunity as performance feedback in its own right lets a firm recognize the omission and recalibrate.

The same failure does not call for one response, because who is deciding shapes how it is read. Managers high in promotion focus tend to escalate after a missed opportunity, pursuing

a failing project to recover a forgone gain, whereas managers high in prevention focus tend to escalate after a flop, treating continued investment as a way to avoid booking the loss. Action-oriented managers, by contrast, withdraw sharply after a flop, whereas state-oriented managers are slower to move. Because these dispositions pull in different directions, no single reviewer's reading should settle the question of whether to persist. Review panels that combine decisive and cautious profiles and include an outside opinion when a recent failure is likely to bias judgment help keep any one disposition from dominating.

A firm's strategic orientation shapes the reading at the organizational level in the same way: exploratory firms lean toward renewed investment after a missed opportunity, exploitative firms toward caution after a flop, so structured reflection on whether persistence rests on a project's present merits, rather than on habit, keeps orientation from hardening into reflex. The reading can also come from outside the firm, and an outcome that outside observers judge favorably need not have met the objective the firm set: a withdrawal others approve can still leave the underlying need unresolved, a distinction worth drawing before a favorable verdict is taken as closure.

Conclusion

This thesis began with a simple observation: a project pursued to a loss and a valuable opportunity left to a competitor are both failures, but failures of distinct kinds. It examined how the two carry into the decisions that follow, and across three studies, two levels, and several theoretical lenses, it has shown that their influence on what comes next is not fixed. How a prior failure shapes the next decision depends on how it is read, a reading shaped by such factors as the regulation of emotion within the decision-maker, the orientation of the organization, and the judgment of audiences outside the firm. The consequence of a failure, then, is not contained in the failure itself. It is made in the reading, and that is where both the hazard and the hope reside: the hazard of letting the last failure quietly script the next, and the hope that, seen clearly, it need not. If failures determined what came after them, the most a decision-maker could do

would be to avoid failing, which no one who acts under uncertainty can promise. That the consequence turns on interpretation rather than on the event leaves the next decision open, subject to judgment and to a second look. A flop need not harden into caution, nor a missed opportunity into overreach. What we make of a failure is, within limits, ours to decide.

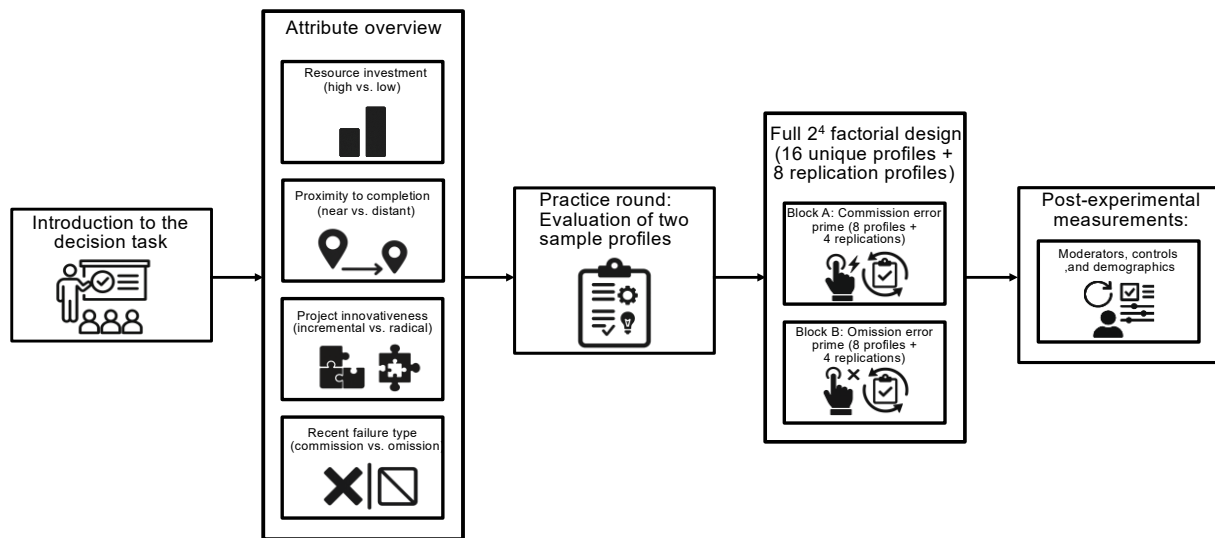
Decision-making, and the response to adverse events in particular, is a fascinating subject, made more so by the difficulty of studying the actions not taken. I have not resolved how we react to such outcomes, and I am not certain it can be fully resolved. But if a reader who shares that puzzlement finds in these pages a clearer way to hold the question, or a thread worth following further, then the years behind this thesis will have found their purpose.

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Appendices

Appendix A *Experimental Procedure, Study 1, Chapter 2*



Appendix B
Sample Description: Studies 1 and 2, Chapter 2

	Study 1 N = 89	Study 2 N = 382
Age (Mean / SD)	43.64 / 12.34	36.77 / 11.25
Innovation Decision-Making Experience (Mean / SD)	10.51 / 9.34	6.98 / 6.13
Gender		
Female	28.09%	51.05%
Male	71.91%	48.95%
Education		
High school diploma graduate	13.48%	11.52%
Bachelor's degree	48.31%	46.60%
Master's degree	31.46%	35.08%
Doctorate	6.74%	6.81%
Functional Background		
Research and development (R&D)	21.35%	13.09%
Marketing	12.36%	19.37%
Sales	5.62%	14.66%
Information technology (IT)	24.72%	19.63%
Operations	23.60%	17.54%
Finance	3.37%	7.33%
Other	8.99%	8.38%
Background		
Business	35.96%	46.60%
Engineering	42.70%	18.32%
Science	16.85%	19.11%
Other	4.49%	15.97%
Industry		
Capital goods	3.37%	8.90%
Chemicals and materials	2.25%	3.40%
Industrial services	17.98%	3.93%
Technology, hardware, and equipment	22.47%	12.83%
Software and related services	16.85%	16.49%
Consumer services	4.49%	14.66%
Health care	5.62%	6.54%
Fast-moving consumer goods	8.99%	13.09%
Other	17.98%	20.16%
Company size		
< 50	13.48%	14.40%
50 – 100	13.48%	18.32%
101 – 250	13.48%	16.23%
251 – 500	8.99%	18.59%
501 – 1,000	19.10%	14.14%
1,001 – 5,000	16.85%	8.64%
5,001 – 10,000	4.49%	1.83%
> 10,000	10.11%	7.85%

Note. The totals may not sum to 100% due to rounding.

Appendix C

Definition and Operationalization of Decision Attributes, Chapter 2

Decision attributes	Levels
Experienced type of failure (e.g., Klingebiel, 2018; Klingebiel et al., 2022)	Omission error: Imagine your decision to discontinue investing in the previous project enabled successful competitive pre-emption by a rival firm, and thus your firm missed a valuable opportunity. Commission error: Imagine your decision to continue investing in the previous project resulted in a costly innovation failure for your firm.
Proximity to project completion (e.g., Conlon & Garland, 1993)	Low level: The innovation project is still far from completion, as the development phase is only 10% complete. High level: The innovation project is very close to completion, as the development phase is already 90% complete.
Project innovativeness (e.g., Benner & Tushman, 2003; Jansen et al., 2006)	Low level: The innovation project builds on the firm's current knowledge and technical capabilities to refine and improve an already existing solution that meets the needs of current customers or markets. High level: The innovation project departs from the firm's current knowledge and technical capabilities to discover and create a completely new solution that meets the needs of emerging customers or markets.
Resource investment (e.g., Arkes & Blumer, 1985)	Low level: The amount of financial (i.e., money) and non-financial resources (i.e., time or effort) already invested in the innovation project is small. High level: The amount of financial (i.e., money) and non-financial resources (i.e., time or effort) already invested in the innovation project is large.

Note. Studies in parentheses indicate relevant studies for definitions and operationalizations. Failure type experience represented the context in which the persistence decision was made.

Appendix D

Operationalization and Reliability of Latent Constructs: Studies 1 and 2, Chapter 2

Construct	Items	Factor loading	CR	AVE
Failure-related action-state orientation (Diefendorff et al., 2000) ($\alpha = .82$; $\alpha = .88$)	Please select the option that generally applies most to you.		.72	.40
			.79	.53
	If I've worked for weeks on one project and then everything goes completely wrong with the project:			
	• It takes me a long time to adjust myself to it. (<i>so</i>)	.468		
	• It bothers me for a while, but then I don't think about it anymore. (<i>ao</i>)	.703		
	If I had just bought a new piece of equipment (e.g., a laptop) and it accidentally fell on the floor and was damaged beyond repair:			
	• I would manage to get over it quickly. (<i>ao</i>)	.551		
	• It would take me a long time to get over it. (<i>so</i>)	.641		
	If I have to talk to someone about something important and, repeatedly, can't find him or her:			
	• I can't stop thinking about it, even while I'm doing something else. (<i>so</i>)	.505		
	• I easily forget about it until I see the person. (<i>ao</i>)	N.A.		
	When I am told that my work has been completely unsatisfactory:			
	• I don't let it bother me for too long. (<i>ao</i>)	.535		
	• I feel paralyzed. (<i>so</i>)	.638		
	If I'm stuck in traffic and miss an important appointment:			
	• At first, it's difficult for me to start doing anything else at all. (<i>so</i>)	.611		
	• I quickly forget about it and do something else. (<i>ao</i>)	.590		
	When something really gets me down:			
	• I have trouble doing anything at all. (<i>so</i>)	.574		
	• I find it easy to distract myself by doing other things. (<i>ao</i>)	.813		

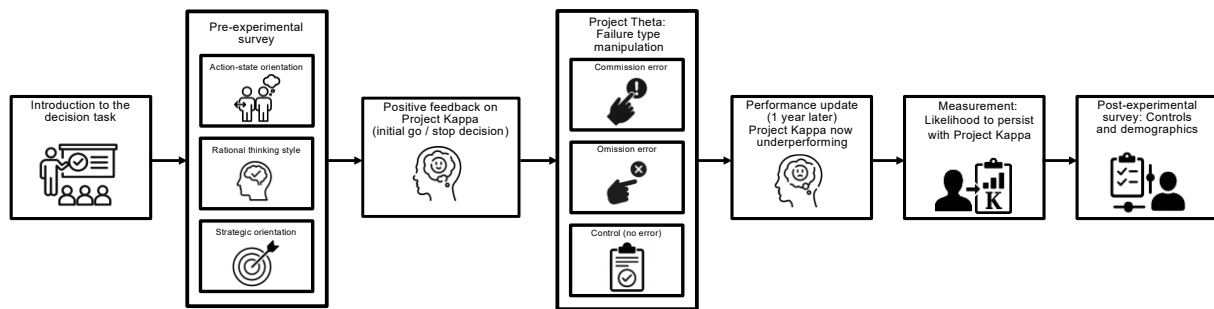
Construct	Items	Factor loading	CR	AVE
	When several things go wrong on the same day:			
	• I usually don't know how to deal with it. (<i>so</i>)	.888		
	• I just keep on going as though nothing had happened. (<i>ao</i>)	.817		
	When I have put all my effort into doing a really good job on something and the whole thing doesn't work out:			
	• I don't have too much difficulty starting something else. (<i>ao</i>)	.717		
	• I have trouble doing anything else at all. (<i>so</i>)	.863		
Rational thinking style ^a (adapted from Eliëns et al., 2018; Epstein et al., 1996) ($\alpha = .78$; $\alpha = .69$)	Please indicate the extent to which you agree with the following statements.		.78 .69	.55 .43
	I don't enjoy thinking a lot when making project decisions. (<i>r</i>)	.871 .807		
	I try to avoid thinking in-depth when making project decisions. (<i>r</i>)	.675 .752		
	Thinking hard and for a long time when making project decisions gives me little satisfaction. (<i>r</i>)	.678 .457		
Exploration orientation ^a (adapted from Jansen et al., 2006) ($\alpha = .84$)	Please indicate the extent to which each statement describes your company's usual approach.		.83	N.A. .42
	Our company accepts demands that go beyond existing products or services.	N.A. .684		
	We invent new products or services.	N.A. .601		
	We experiment with new products or services in our market.	N.A. .696		
	We commercialize products or services that are completely new to our company.	N.A. .734		
	We frequently utilize new opportunities in new markets.	N.A. .678		
	Our company regularly uses new distribution channels.	N.A. .651		
	We regularly search for and approach new clients in new markets.	N.A. .518		
Exploitation orientation ^a (adapted from Jansen et al., 2006) ($\alpha = .79$)	Please indicate the extent to which each statement describes your company's usual approach.		.79	N.A. .40
	We regularly implement small adaptations to existing products or services.	N.A. .641		

Construct	Items	Factor loading	CR	AVE
	We introduce improved yet existing products or services for our market.	N.A. .738		
	We improve our provision's efficiency of products or services.	N.A. .556		
	We increase economies of scale in existing markets.	N.A. .673		
	Our company expands services for existing clients.	N.A. .583		
	Lowering the costs of internal processes is an important objective.	N.A. .632		

Note. Top value in each cell = Study 1 ($N_1 = 89$); bottom value = Study 2 ($N_2 = 382$). (*so*) = state-oriented response, (*ao*) = action-oriented response. ^a = 7-point scale, anchored by "Strongly disagree (1)" to "Strongly agree (7)". (*r*) = reverse-coded item. N.A. = the item was not measured in that study or deleted due to weak loading.

Appendix E

Experimental Procedure, Study 2, Chapter 2



Appendix F
Additional Robustness Analyses, Chapter 2

Table F1

Study 1: Results of HLM Regression With Alternative Dependent Variable

DV: Investment amount	b	SE	p	
Control variables				
Decision level (L1)				
Resource investment (high = 0.5 vs. low = -0.5)	.168	.093	.072	
Proximity to project completion (high = 0.5 vs. low = -0.5)	.747 ***	.094	.000	
Project innovativeness (high = 0.5 vs. low = -0.5)	.971 ***	.113	.000	
Individual level (L2)				
Age	.009	.013	.487	
Gender (male vs. female)	.218	.192	.254	
Educational level	.043	.126	.730	
Innovation experience	-.023	.020	.230	
Risk propensity	.188 **	.066	.005	
Action-state orientation	.275	.314	.381	
Rational thinking style	-.201 ***	.063	.001	
Main effect (L1)				
Experienced type of failure (CE = 0.5 vs. OE = -0.5)	-.291 ***	.071	.000	H1
Cross-level interaction effects (L1 × L2)				
Experienced type of failure × Action-state orientation	-.565 *	.271	.037	H2
Experienced type of failure × Rational thinking style	-.043	.040	.278	H3
Constant	4.290 ***	.091	.000	

Note. $n = 1,424$ decisions (level 1 = L1), nested in 89 managers (level 2 = L2). L1 variables are group-mean centered, and L2 variables are grand-mean centered. SEs are cluster robust. Random intercept random slope model. *SE* = robust standard errors. CE = commission error. OE = omission error.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table F2*Study 2: Results of OLS Regression With Alternative Dependent Variable*

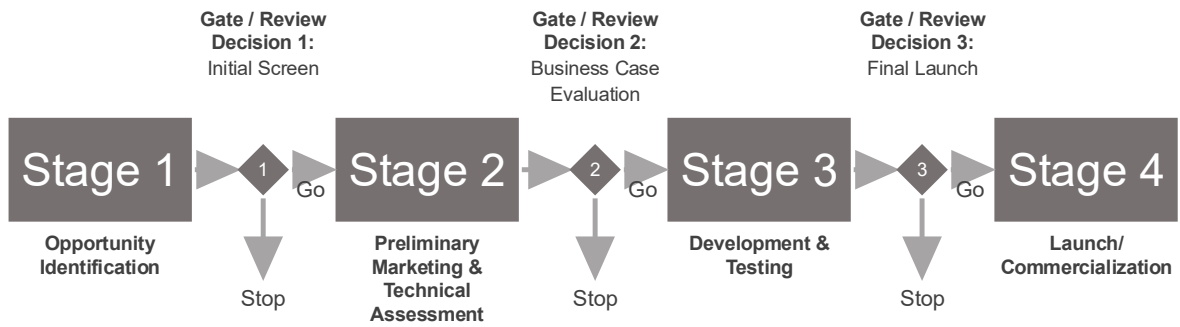
DV: Investment amount	b		SE	p	
Control variables					
Group decision-making	.017		.052	.745	
Risk propensity	.115	*	.048	.018	
Age	-.004		.009	.659	
Gender	.000		.155	.999	
Innovation experience	.002		.016	.910	
Education level	.142		.106	.179	
Main effects					
Commission error	-.623	**	.211	.003	H1
Omission error	.472	*	.183	.010	H1
Action–state orientation	.229		.479	.633	
Rational thinking style	.025		.125	.844	
Exploration orientation	-.479	*	.241	.048	
Exploitation orientation	.355		.240	.141	
Interaction effects					
Commission error × Action–state orientation	-1.443	*	.673	.033	H2
Omission error × Action–state orientation	.537		.665	.420	H2
Commission error × Rational thinking style	.056		.159	.724	H3
Omission error × Rational thinking style	-.117		.151	.439	H3
Commission error × Exploration orientation	.703	*	.334	.036	H4
Omission error × Exploration orientation	1.510	***	.308	.000	H4
Commission error × Exploitation orientation	-.613	*	.281	.030	H5
Omission error × Exploitation orientation	-.410		.304	.178	H5
Constant	2.703	***	.549	.000	
R ²				.271	

Note. $n = 285$. $SE =$ robust standard errors. All moderators are mean-centered. Error-type dummies compare errors to the omitted baseline (no error). * $p < .05$. ** $p < .01$. *** $p < .001$.

Table F3*Study 2: Results of OLS Regression (Hybrid Error Included)*

DV: Likelihood of persistence	b		SE	p	
Control variables					
Group decision-making	−.018		.059	.757	
Risk propensity	.092		.052	.080	
Age	−.022		.010	.030	
Gender	.040		.174	.818	
Innovation experience	.036		.019	.067	
Education level	.213		.115	.065	
Main effects					
Commission error	−.542	*	.243	.026	H1
Omission error	.574	*	.257	.026	H1
Hybrid error	.222		.258	.390	
Action–state orientation	−.477		.547	.384	
Rational thinking style	.060		.134	.654	
Exploration orientation	−.442		.244	.071	
Exploitation orientation	.432		.253	.089	
Interaction effects					
Commission error × Action–state orientation	−1.596	*	.722	.028	H2
Omission error × Action–state orientation	1.214		.845	.152	H2
Hybrid error × Action–state orientation	−.191		.807	.813	
Commission error × Rational thinking style	−.078		.172	.649	H3
Omission error × Rational thinking style	−.225		.169	.184	H3
Hybrid error × Rational thinking style	.176		.196	.370	
Commission error × Exploration orientation	.692	*	.345	.046	H4
Omission error × Exploration orientation	1.179	**	.358	.001	H4
Hybrid error × Exploration orientation	−.168		.405	.679	
Commission error × Exploitation orientation	−.644	*	.308	.037	H5
Omission error × Exploitation orientation	−.328		.335	.328	H5
Hybrid error × Exploitation orientation	.318		.383	.407	
Constant	2.736	***	.601	.000	
R ²			.194		

Note. $n = 382$. $SE =$ robust standard errors. All moderators are mean-centered. Error-type dummies compare errors to the omitted baseline (no error). * $p < .05$. ** $p < .01$. *** $p < .001$.

Appendix G*Experimental Representation of the Stage-Gate Review Process, Chapter 3*

Appendix H*Study 2 GSEM Results: Moderation Analysis Without Squared Interactions, Chapter 3*

Dependent variable	Predictor variable	Coefficient	SE	z	p	95% CI
Anticipated keep regret	Industry knowledge	−0.048	0.064	−0.75	0.452	[−0.173, 0.077]
	Risk propensity	−0.177	0.085	−2.08	0.038*	[−0.344, −0.010]
	Decision failure (X)	−0.390	0.209	−1.86	0.063	[−0.801, 0.020]
	Prevention focus (W)	−0.253	0.113	−2.24	0.025*	[−0.473, −0.032]
	X × W	0.428	0.167	2.56	0.010*	[0.101, 0.755]
	Constant	5.707	0.463	12.33	<.001**	[4.800, 6.614]
Anticipated drop regret	Industry knowledge	−0.008	0.067	−0.12	0.903	[−0.139, 0.123]
	Risk propensity	0.109	0.080	1.36	0.172	[−0.047, 0.264]
	Decision failure (X)	0.199	0.191	1.04	0.298	[−0.176, 0.574]
	Promotion focus (Z)	0.069	0.145	0.48	0.633	[−0.215, 0.354]
	X × Z	0.274	0.226	1.21	0.225	[−0.169, 0.717]
	Constant	4.198	0.466	9.01	<.001**	[3.285, 5.111]
EoC	Industry knowledge	0.322	0.086	3.73	<.001**	[0.153, 0.491]
	Risk propensity	0.512	0.117	4.37	<.001**	[0.282, 0.741]
	Anticipated keep regret	−0.481	0.115	−4.19	<.001**	[−0.705, −0.256]
	Anticipated drop regret	0.802	0.140	5.74	<.001**	[0.528, 1.076]
	Decision failure (X)	0.329	0.302	1.09	0.276	[−0.263, 0.921]
	Prevention focus (W)	−0.012	0.192	−0.06	0.951	[−0.389, 0.365]
	Promotion focus (Z)	−0.175	0.205	−0.85	0.394	[−0.577, 0.227]
	X × W	−0.198	0.247	−0.80	0.423	[−0.682, 0.286]
	X × Z	−0.027	0.296	−0.09	0.926	[−0.608, 0.553]
	Constant	2.035	0.969	2.10	0.036*	[0.136, 3.935]

Note. $N = 176$; Decision failure (0 = commission error, 1 = omission error). Model log-likelihood = −974.028. Entries are unstandardized coefficients. Robust standard errors are reported. * $p < .05$. ** $p < .01$.

Appendix I
Illustrative Examples, Chapter 4

Table I1

Illustrative Examples of Missed Bidders' Subsequent Acquisition Behavior

Focal Bidder	Focal Deal (Target; Offer; Winning Bid)	Effective-Date Reaction (CAR)	Subsequent Acquisition Behavior (Following ~12 Months)
Take-Two Interactive	Codemasters; offered ~\$1.0B, EA prevailed at ~\$1.2B	Unfavorable (−5.9%)	Within roughly a year, agreed to acquire Zynga for about US\$12.7 billion at a 64% premium, a major subsequent acquisition.
ABB	Chloride; offered ~\$1.25B, Emerson prevailed at ~\$1.5B	Unfavorable (−2.2%)	Within about five months, agreed to acquire Baldor Electric for about US\$4.2 billion.
Infosys	Axon; offered ~\$0.78B, HCL prevailed at ~\$0.82B	Favorable (+11.4%)	Declined to raise its offer and made no comparable acquisition in the following period.
Alcoa	Alcan; offered ~\$26.9B, Rio Tinto prevailed at ~\$38.1B	Favorable (+10.2%)	Withdrew after the competitor's higher agreed offer and made no comparable acquisition in the following period.

Note. The effective-date reaction is the cumulative abnormal return around the deal abandonment announcement (−1, +1 window); reported values are raw CARs, whereas the regression models use winsorized, inverse-hyperbolic-sine-transformed values. Subsequent acquisition behavior refers to acquisitions announced within 365 days of the focal deal's effective date. Reported deal values are the focal bidder's withdrawn offer and the competing bidder's prevailing bid. These cases are illustrative and not intended as formal evidence; details are drawn from company disclosures and contemporaneous press reporting.

Table I2*Illustrative Examples of Termination Coding*

Focal Bidder	Target (Acquirer That Prevailed)	Classification	Illustrative Evidence	Coding Rationale
Minmetals Resources	Equinox Minerals (Barrick Gold)	Acquirer agency: refused to increase offer	Minmetals' chief executive framed the decision not to raise its bid as a matter of pricing discipline, indicating that paying the prevailing price would have eroded shareholder value.	The bidder voluntarily declined to escalate its bid and withdrew, retaining discretion over the outcome even though a competing bidder ultimately secured the target.
Astellas Pharma	CV Therapeutics (Gilead Sciences)	Acquirer agency: refused to increase offer	Astellas made an unsolicited cash tender offer for CV Therapeutics, declined to raise it, and withdrew after the target accepted a higher offer from Gilead Sciences, which completed the acquisition.	
Tesco	Safeway (Wm Morrison)	External constraint: regulatory prohibition	The UK Competition Commission prohibited Tesco, alongside two other large bidders, from acquiring Safeway on buyer-power grounds, while clearing the smaller bidder, Morrisons.	The competition authority imposed the outcome; the bidder had no discretion over the decision.
Garmin	Raymarine (FLIR Systems)	External constraint: target accepted a competing offer	Raymarine's administrators selected an immediately deliverable bid from FLIR Systems over Garmin's higher but antitrust-conditional offer.	The outcome was determined by the target side's selection of a competing bid; the bidder could not secure the asset despite offering more.

Note. Each row corresponds to an observation in the sample. Classification reflects the manual coding of whether the focal bidder exercised agency over the deal outcome or the outcome was imposed by external factors. Case details are drawn from company disclosures, regulatory filings, and contemporaneous press reporting, and are presented for illustrative purposes only.

Appendix J
Robustness Checks, Chapter 4

Table J1

Robustness Check: Missed Acquisitions Restricted to Acquirer Agency

DV: Subsequent acquisition spending		Model 1	
Variables	β	SE	p
Strategic relatedness	−0.294	0.342	.390
Number of bidders	0.967	1.095	.378
Hostile takeover	0.593	0.712	.406
Foreign target	0.059	0.363	.870
Bidder size	0.554	0.155	<.001
Bidder slack	0.274	0.343	.424
Bidder performance	0.179	2.120	.933
Bidder CapEx	0.053	0.089	.551
Bidder completion experience	0.233	0.129	.072
Bidder abandonment experience	−0.229	0.291	.431
Industry acquisition activity	0.049	0.049	.316
Stock market reaction (announcement date)	−0.724	2.567	.778
Missed acquisition	0.932	0.303	.002
Focal deal size	−0.225	0.163	.166
Missed × Focal deal size	0.363	0.185	.050
Stock market reaction (effective date)	9.946	5.095	.052
Missed × Stock market reaction (effective date)	−15.164	7.007	.031
Constant	−4.965	2.106	.019
Year fixed effects	YES		
Observations	402		
R ²	.255		
F	4.16		

Note. $n = 402$ acquisition announcements. The dependent variable is the $\ln(x+1)$ transformation of subsequent acquisition spending. This analysis restricts missed acquisitions to those over which the acquirer had agency; that is, cases in which the focal firm actively chose to abandon the deal rather than have the outcome imposed by external factors such as regulatory intervention or target rejection. Unstandardized coefficients (β) are reported with robust standard errors (SE) clustered at the bidder level and exact p-values (p). Missed acquisition: 1 = missed acquisition, 0 = completed acquisition. Year dummy variables included but not reported.

Table J2

Robustness Check: Inverse Hyperbolic Sine Transformation of Subsequent Acquisition Spending

DV: Subsequent acquisition spending (IHS)		Model 1	
Variables	β	SE	p
Strategic relatedness	−0.216	0.356	.543
Number of bidders	0.698	1.163	.549
Hostile takeover	0.449	0.741	.545
Foreign target	0.240	0.384	.532
Bidder size	0.549	0.166	.001
Bidder slack	0.158	0.365	.664
Bidder performance	−0.033	2.292	.988
Bidder CapEx	0.030	0.094	.750
Bidder completion experience	0.296	0.136	.030
Bidder abandonment experience	−0.227	0.309	.463
Industry acquisition activity	0.029	0.052	.584
Stock market reaction (announcement date)	0.613	2.790	.826
Missed acquisition	0.852	0.324	.009
Focal deal size	−0.246	0.177	.166
Missed × Focal deal size	0.389	0.198	.050
Stock market reaction (effective date)	10.845	5.529	.051
Missed × Stock market reaction (effective date)	−17.181	7.398	.021
Constant	−3.993	2.278	.080
Year fixed effects	YES		
Observations	430		
R ²	.232		
F	4.19		

Note. $n = 430$ acquisition announcements. The dependent variable is the inverse hyperbolic sine (IHS) transformation of subsequent acquisition spending, which accommodates zero values. Unstandardized coefficients (β) are reported with robust standard errors (SE) clustered at the bidder level and exact p-values (p). Missed acquisition: 1 = missed acquisition, 0 = completed acquisition. Year dummy variables included but not reported.

Table J3

Robustness Check: Negative Binomial Regression Predicting the Number of Subsequent Acquisitions

DV: Number of subsequent acquisitions		Model 1	
Variables	β	SE	p
Strategic relatedness	−0.177	0.117	.130
Number of bidders	0.167	0.428	.697
Hostile takeover	0.051	0.205	.802
Foreign target	0.060	0.121	.616
Bidder size	0.164	0.060	.006
Bidder slack	−0.091	0.153	.554
Bidder performance	0.175	0.951	.854
Bidder CapEx	−0.003	0.033	.927
Bidder completion experience	0.268	0.039	<.001
Bidder abandonment experience	−0.247	0.097	.011
Industry acquisition activity	0.028	0.019	.139
Stock market reaction (announcement date)	−0.087	1.212	.942
Missed acquisition	0.350	0.113	.002
Focal deal size	−0.120	0.062	.053
Missed × Focal deal size	0.097	0.066	.145
Stock market reaction (effective date)	3.228	2.205	.143
Missed × Stock market reaction (effective date)	−5.581	2.817	.048
Constant	−1.651	0.815	.043
Year fixed effects	YES		
Observations	430		
Wald χ^2	243.66		
Pseudo R ²	.119		

Note. $n = 430$ acquisition announcements. The dependent variable is the count of subsequent acquisitions announced within the 365-day window. Coefficients (β) represent log incidence rate ratios from a negative binomial regression with robust standard errors (SE) clustered at the bidder level and exact p-values (p). Missed acquisition: 1 = missed acquisition, 0 = completed acquisition. Year dummy variables included but not reported.

Table J4*Robustness Check: Model Including Quadratic Interaction Terms*

DV: Subsequent acquisition spending		Model 1	
Variables	β	SE	p
Strategic relatedness	−0.198	0.326	.543
Number of bidders	0.641	1.060	.546
Hostile takeover	0.479	0.668	.473
Foreign target	0.186	0.352	.597
Bidder size	0.507	0.150	.001
Bidder slack	0.142	0.323	.659
Bidder performance	−0.135	2.092	.949
Bidder CapEx	0.035	0.084	.682
Bidder completion experience	0.249	0.124	.045
Bidder abandonment experience	−0.206	0.284	.469
Industry acquisition activity	0.034	0.048	.483
Stock market reaction (announcement date)	1.237	2.582	.632
Missed acquisition	1.063	0.458	.021
Focal deal size	−0.211	0.158	.182
Missed × Focal deal size	0.420	0.177	.018
Focal deal size ²	−0.020	0.082	.806
Missed × Focal deal size ²	−0.105	0.112	.350
Stock market reaction (effective date)	9.259	5.258	.079
Missed × Stock market reaction (effective date)	−16.397	7.018	.020
Stock market reaction (effective date) ²	−38.069	95.688	.691
Missed × Stock market reaction (effective date) ²	−30.159	134.140	.822
Constant	−3.602	2.100	.087
Year fixed effects	YES		
Observations	430		
R ²	.245		
F	4.16		

Note. $n = 430$ acquisition announcements. The dependent variable is the $\ln(x+1)$ transformation of subsequent acquisition spending. Following Kalnins (2024), the model includes quadratic terms for the moderator and focal deal size. The interaction of interest remains negative and similar in magnitude and p-value across specifications with and without the quadratic terms. Unstandardized coefficients (β) are reported with robust standard errors (SE) clustered at the bidder level and exact p-values (p). Missed acquisition: 1 = missed acquisition, 0 = completed acquisition. Year dummy variables included but not reported.

Appendix K

Endogeneity, Chapter 4

This appendix provides technical details on the endogeneity analyses summarized in the main text. Following Hill et al. (2021), we consider four potential sources of endogeneity bias: omitted variables, simultaneity, measurement error, and selection. Simultaneity bias is unlikely given the clear temporal ordering of the design: the focal deal outcome and the associated stock market reaction are both measured prior to the window over which subsequent acquisition spending is recorded, precluding reverse causation. We address the remaining three sources in turn.

We first assess the robustness of the main effect of missed acquisitions against omitted-variable bias. We calculated the impact threshold for a confounding variable (ITCV), which indicates how strongly an unobserved factor would need to be correlated with both the focal predictor and the outcome to invalidate the estimated effect (Busenbark et al., 2022; Frank, 2000). Using the *konfound* command in Stata (Xu et al., 2019), the conditional ITCV indicates that an omitted variable would need to correlate with both deal outcome and subsequent acquisition spending at approximately $r = .188$ (conditional impact = .035) to overturn the inference. By comparison, the strongest observed covariate in the model, acquirer completion experience, exhibits a conditional impact of .011, well below this threshold.

We further evaluated sensitivity to omitted-variable bias using the robustness-of-inference-to-replacement (RIR) approach (Frank et al., 2023). The RIR analysis indicates that approximately 24.64% of the estimate (106 observations) would need to be replaced with counterfactual observations of zero effect to invalidate the inference. Together, these analyses suggest that the estimated effect of missed acquisitions on subsequent acquisition spending is robust to plausible levels of omitted-variable bias.

To address selection bias, we conducted a propensity score matching analysis. Following Li (2013), we implemented the matching procedure to estimate the propensity score via a logit model including firm- and deal-level covariates, year fixed effects, and CARs at the

initial announcement date, and then applied nearest-neighbor matching with a caliper of 0.03. Matching substantially improved covariate balance: mean standardized bias declined from 16.6% to 8.0%, the Rubin B-statistic decreased from 56.2 to 28.3, and the Rubin R-ratio remained close to one (1.13). After matching, covariates were well balanced between missed and completed deals, with a joint covariate-balance test yielding $p = .77$. Of 222 treated observations, 206 fell within the region of common support. Using two nearest neighbors, the estimated average treatment effect on the treated was 0.84 ($SE = 0.40$; $t = 2.13$), closely mirroring the main regression results. Results were robust to a single nearest-neighbor specification ($ATT = 1.00$; $SE = 0.45$; $t = 2.23$).

Turning to the moderating effect, recent research suggests that interaction terms are generally less susceptible to endogeneity bias than main effects (Bun & Harrison, 2019; Busenbark et al., 2022). Nonetheless, we assessed the robustness of the interaction effect using the RIR approach. The analysis indicates that approximately 14.73% of the interaction coefficient (63 observations) would need to be attributable to bias to overturn the inference. Following Busenbark et al. (2022), we further examined whether adding individual control variables altered the interaction coefficient by more than this threshold. The largest single-control change occurred when including the foreign-target indicator ($\approx 6.16\%$), with the focal deal size terms producing a comparable shift ($\approx 5.91\%$); both remain well below the RIR value, and no control shifted the coefficient by more than approximately 6%. Both analyses indicate that the interaction effect is robust to plausible levels of unobserved bias.

Finally, we address measurement error in the moderator. Classical measurement error in a continuous moderator biases interaction coefficients toward zero (Busenbark et al., 2022), such that any imprecision introduced by the choice of event window would deflate rather than inflate the estimated effect. CARs calculated over short windows reduce contamination from confounding events and are well-established proxies for investor reactions (Brown & Warner, 1985; de Jong & Naumovska, 2016), limiting the scope for systematic measurement error. To

assess this concern directly, we recomputed CARs using wider event windows (−2, +2) and (−3, +3). The consistency of results across windows suggests that the choice of event window does not introduce measurement error sufficient to bias the interaction estimate.

Table K1
Ordinary Least Squares Regression With Alternative Event Windows

DV: Subsequent acquisition spending Variables	(−2, +2) window			(−3, +3) window		
	β	SE	p	β	SE	p
Strategic relatedness	−0.207	0.321	.520	−0.218	0.322	.498
Number of bidders	0.767	1.067	.473	0.889	1.077	.410
Hostile takeover	0.369	0.675	.585	0.391	0.674	.563
Foreign target	0.204	0.350	.561	0.220	0.348	.529
Bidder size	0.512	0.152	.001	0.496	0.152	.001
Bidder slack	0.181	0.328	.581	0.150	0.332	.652
Bidder performance	0.134	2.090	.949	−0.062	2.095	.977
Bidder CapEx	0.042	0.085	.622	0.053	0.086	.534
Bidder completion experience	0.266	0.123	.032	0.267	0.124	.032
Bidder abandonment experience	−0.207	0.282	.464	−0.166	0.282	.556
Industry acquisition activity	0.026	0.047	.580	0.030	0.048	.533
Stock market reaction (announcement date)	0.653	2.486	.793	0.695	2.473	.779
Missed acquisition	0.774	0.292	.008	0.763	0.293	.010
Focal deal size	−0.226	0.162	.164	−0.215	0.163	.187
Missed × Focal deal size	0.371	0.180	.040	0.363	0.179	.044
Stock market reaction (effective date)	7.996	4.147	.055	5.905	3.141	.061
Missed × Stock market reaction (effective date)	−12.484	5.533	.025	−10.972	4.276	.011
Constant	−4.077	2.075	.050	−4.146	2.086	.048
Year fixed effects	YES			YES		
Observations	430			430		
R ²	.237			.239		
F	4.10			4.11		

Note. $n = 430$ acquisition announcements. The dependent variable is the $\ln(x+1)$ transformation of subsequent acquisition spending. Models re-estimate the main specification using cumulative abnormal returns computed over (−2, +2) and (−3, +3) event windows around the deal effective date. Unstandardized coefficients (β) are reported with robust standard errors (SE) clustered at the bidder level and exact p-values (p). Missed acquisition: 1 = missed acquisition, 0 = completed acquisition. Year dummy variables included but not reported.

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Affidavit

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.

I hereby declare that I completed the papers submitted and listed hereafter independently, with only the 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 the 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.

List of Papers

1. **Nickel, J.**, Hofmann, B., Schuhmacher, M. C., & Sarangee, K. R. (2026). Flops and missed opportunities: The differential effect of distinct failure types on persistence with underperforming innovation projects. *Journal of Product Innovation Management*. Advance online publication. <https://doi.org/10.1111/jpim.70043>
2. **Nickel, J.**, Schuhmacher, M. C., & Kuester, S. (2026). How decision failures shape escalation of commitment: The role of regret and regulatory focus. *Journal of Business Research*, 215, Article 116311. <https://doi.org/10.1016/j.jbusres.2026.116311>
3. **Nickel, J.**, Hofmann, B., Ademi, P., & Schuhmacher, M. C. (2026). Missed acquisitions and subsequent deal making. Manuscript submitted for publication.

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