

**Damned if you do, damned if you don't:
How counterfactuals shape early-stage investment decision-making**

ABSTRACT

This study explores the role of investors' counterfactual thinking regarding errors of commission and omission and how these relate to willingness to invest in new ventures. Drawing from behavioral economics and psychology, we focus on the salience of prospective counterfactuals at the screening stage. Our experimental findings demonstrate that increasing the salience of commission-related counterfactuals, particularly social counterfactuals, significantly reduces investors' willingness to invest. This effect underscores the influence of anticipated regret, social comparison, and emotional responses in shaping investment behavior. By contrast, omission-related counterfactuals show no measurable impact, suggesting a prevailing not-investing norm and limited effect of potential fear of missing out (FOMO) among new-venture investors. Our results provide a deeper understanding of how investors navigate the tension between avoiding missed opportunities and minimizing losses, emphasizing the salience of situational triggers as opposed to stable traits or market-wide factors. These insights highlight the importance of counterfactual thinking as a theoretical lens for studying decision-making in the high-risk, high-reward context of new-venture investing.

Keywords: *Counterfactual Thinking, Error of Commission, Error of Omission, FOMO, Social Comparison, Entrepreneurial Investment*

INTRODUCTION

"Investors may claim they aren't influenced by FOMO [the fear of missing out] or herd mentality, but the truth is they're human, and FOMO affects even the most elite investors." – Yeh (2023)

"VCs don't want to invest anywhere where they can end up looking stupid." – Levy-Weiss (founder of business accelerator NFX, 2019)

The first quote stems from an article titled "How to Leverage Investor FOMO", published by a company that offers fundraising guidance and solutions to entrepreneurs. It is one of various popular (e.g., Rist, 2020; Sorrentino, 2018) and academic articles (e.g., Huang, 2018; Kleinert & Hildebrand, 2025; Valliere & Peterson, 2004) suggesting that new-venture investors are preoccupied with not letting profitable opportunities escape. Relatedly, other recent articles offer advice to entrepreneurs on how to raise funds, inciting them to leverage this preoccupation to their advantage (e.g., Levy-Weiss, 2019; Drozdz, 2024). On the other hand, the second quote speaks to a counterbalance to the first psychological driver, with

investors also being motivated to avoid investing in unprofitable investments and appearing incompetent in front of others.

Both dynamics reflect counterfactual thinking, defined as the broader cognitive phenomenon of comparing actual events to alternatives that are constructed ad hoc rather than retrieved from past experience (Kahneman & Miller, 1986). Specifically, these comments refer to counterfactual thinking about *errors of omission* (“What if I don’t invest and miss out?”) and *errors of commission* (“What if I invest and it’s a mistake?”). Their relevance for new-venture investors (henceforth short: investors) raises the question of how counterfactual thinking influences new venture investment decision-making? Repeated mentions about the possibility that counterfactual thinking might be activated transiently as part of entrepreneurial strategy further highlight the relevance of this inquiry (Fisher et al., 2024). While avoiding errors of omission is critical to securing high-return investments, the risk of committing resources to poor ventures also remains pressing, as it can deplete capital and erode gains. Additionally, these counterfactuals seem to carry a social component, where both errors of commission and omission carry the threat of a social cost for investors. This elicits a second question: does the social dimension of counterfactuals, such as peer comparisons, amplify their effects?

The increasingly interconnected and socially embedded nature of new-venture investing underlines these tensions. Angel investors participate in angel networks (Antretter et al., 2020), venture capitalists syndicate deals (Sorenson & Stuart, 2008), and crowdfunders operate in highly visible environments (Mollick, 2014). These settings heighten awareness of peers’ activities, fostering social comparisons and concerns about relative performance and reputation (Valliere & Peterson, 2004). Additionally, situational factors such as opportunity framing (Fisher et al., 2024), media coverage (Cervantes-Zacarés et al., 2022), peer interest (Levy-Weiss, 2019), and perceived pressure to justify decisions (Valliere & Peterson, 2005)

can amplify the salience of both errors, forcing investors to navigate the tension between pursuing high-reward opportunities and avoiding costly mistakes, and ultimately shape their decision-making processes.

Research to date has largely focused on investors' enduring dispositional traits, such as Huang's (2018) classification of control-focused and choice-focused investors, or enduring, macro-level factors like market sentiment (Kleinert & Hildebrand, 2025). Yet comparatively little research has examined the situational and dynamic factors that affect investors' decision making. Sohl (2022) explored how regret over previously missed opportunities affects angel investors' subsequent decisions. He found that investors tend to become less willing to invest in opportunities resembling previously missed profitable ones. This phenomenon occurs because the missed opportunity becomes an anchor, serving as a reference point against which new opportunities are evaluated. When faced with an uncertain future outcome, investors discount its potential value relative to the known value of the missed opportunity, making the new opportunity appear less attractive.

Presently, it is hitherto unknown how considering one's potential (future) errors might affect (present) new venture investment decisions. Because there is no certain outcome that serves as an anchor for comparison, such prospection differs from retrospective thinking about errors in the past. This is important because most research on reference-dependent risk taking (e.g., studies on loss aversion; Kahneman & Tversky, 1979) focuses on reference points that are observable or already realized, rather than imagined or simulated future outcomes.

In this study, we therefore explore the nature and effects of counterfactual thinking in the evaluation of new-venture investments, as they relate to potential errors of commission and omission. Our framework accounts for both individual and social counterfactuals, and how they may impact investors' decisions. More specifically, we experimentally manipulate the salience of counterfactuals related to errors of commission and omission, in both individual

and social referent contexts, and observe the effects on willingness to invest in a new opportunity. We do so at the screening stage, where investors quickly form a preliminary sense of their potential willingness to invest (Hall & Hofer, 1993; Fu & Tietz, 2019; Lerner, 2016). Most opportunities are discarded at this stage, and therefore advancing through it is critical for entrepreneurs seeking funding (Hudson & Evans, 2005). We report findings from a controlled randomized, between-subject experiment (main study), as well as a related supplemental study – both of which sample investors and follow methodologies used in new-venture investment and entrepreneurship research (e.g., Drover et al., 2017b; Heupel et al., 2024; Murnieks et al., 2016; Zacharakis & Shepherd, 2001).

Our work makes three main contributions. First, it expands the theoretical understanding of counterfactual thinking in venture investment –moving beyond stable traits (Huang, 2018) and macro-level factors (Kleinert & Hildebrand, 2025) to situational drivers of judgment, triggered by specific, actionable prospective thinking. This approach complements existing research on dispositional and structural influences, providing a more comprehensive framework for understanding decision-making in venture investment.

Second, it contributes to theories of social motivation of venture investors (Sorenson & Stuart, 2008; Valliere & Peterson, 2005). By theorizing and testing the difference between individual and social counterfactuals in this setting, it highlights the important reference role of social comparisons, addressing calls for a more “socialized” perspective of investor behavior (Drover et al., 2017a). While past behaviors of others may serve as signals for investment quality (Spence, 1978), we explore how prospective social comparison can impact investment likelihood through their interaction with reference points and the possibility of social penalties.

Lastly, we integrate recent research on FOMO (Cai & Goma, 2019; Cooman, 2022; Kleinert & Hildebrand, 2025; Sabia et al., 2022) with work on regret in investor decision-making (Lejarraga & Sákolics, 2025; Sohl, 2022). By conceptualizing prospective

counterfactuals as triggers for both phenomena, we enable their joint examination in future work, extending novel evidence that FOMO and other behavioral tendencies can be combined in decision models (Lejarraga & Sákovics, 2025).

CONCEPTUAL BACKGROUND AND HYPOTHESES

Research on new-venture investor decision-making has centered around the criteria that make new deals more attractive. This research involved venture capitalists (VCs) (MacMillan et al., 1985; Moritz et al., 2022; Poindexter, 1976; Robinson, 1987; Sandberg et al., 1988; Wells, 1974), angel investors (Bachher & Guild, 1996; Feeney et al., 1999; Haar et al., 1988; Landström, 1998; Paul et al., 2007; Sudek, 2006; van Osnabrugge, 2000), and more recently crowdfunders (e.g., Shafi, 2021). Earlier work emphasized objective parameters such as the founding team's track record, size of the target market, business model, and product characteristics (e.g., Haar et al., 1988; Hall & Hofer, 1993). Subsequent research included subjective and affective factors, such as entrepreneurial passion, enthusiasm, and perceived similarity to the investor (e.g., Cardon et al., 2009; Murnieks et al., 2016). A growing stream of work now shows that investors frequently rely on affect-driven cognitive mechanisms and heuristics that deviate from normative models of expected utility (Huang & Pearce, 2015; Huang, 2018; Valliere & Peterson, 2005; Wesemann Lekkas et al., 2025; Zacharakis, 2010). These studies highlight the role of intuition, affect, and social comparison in decision-making (Huang & Pearce, 2015; Huang, 2018).

One such affect-laden cognitive mechanism is counterfactual thinking (Kahneman & Miller, 1986) which allows decision-makers to simulate or imagine “what could have been” and evaluate choices against as of yet unrealized (prospective) alternatives. Counterfactuals are particularly relevant in contexts marked by uncertainty and irreversibility, such as early-stage venture investing, where each decision is consequential and entails high potential gain or loss (Kupor, 2019). In these settings, investors can engage in two types of counterfactual reflection:

errors of omission (failing to invest in an opportunity that later succeeds) and errors of commission (investing in an opportunity that later fails). As Huang (2018, p. 1831) captures vividly:

“I pay attention to ‘flawed investments’; I don’t want to wrongly invest in something that later becomes a failure.”

“Who cares if I threw some money into things and they didn’t pan out? Not me. But if I didn’t throw money into something that ends up being the next Twitter, Uber, or Zenefits, I’m going to be mighty pissed off.”

Given the high probability of startup failure, avoiding both errors is important to investors. As most venture investments yield no or negative returns, investors rely on very few big wins to generate a profit (Nanda & Rhodes-Kropf, 2013). This asymmetric payoff structure simultaneously evokes two cognitive-affective tensions: the fear of missing out (FOMO) on future winners (Fisher et al., 2024) and the fear of wrongful commitment to future losers (Zeelenberg, 1999).

The distinction between Type I (commission) and Type II (omission) errors has long informed behavioral decision research. Huang (2018) identifies two investor orientations: a control-focused stance, emphasizing the avoidance of Type I errors, and a choice-focused stance, prioritizing the avoidance of Type II errors. These orientations suggest dispositional tendencies in investors’ counterfactual thinking. Kleinert and Hildebrand (2025) extend this view by showing that market context also shapes error avoidance: in “hot” markets characterized by rapid deal flow and rising valuations, investors emphasize omission avoidance to prevent regret from missed opportunities. Whereas in “cold” markets, commission avoidance dominates as the fear of losses prevails. This evidence underscores that counterfactual tendencies are not merely dispositional, but can also vary situationally, triggered by contextual cues. The framing of an opportunity by its founder (Fisher et al., 2024), media coverage, peer enthusiasm, or pressure to justify investment decisions publicly (Valliere & Peterson, 2005), can all heighten investors’ concerns about either missing a valuable opportunity or committing

to a poor one. While some of these cues serve as signals of quality (Spence, 1978), shaping investors' perception of the deal, we argue that they also independently elicit counterfactual thinking, regardless of perceived quality. Thus, even if objective information is assumed to be constant, the salience of counterfactual frames can impact the likelihood of investment.

Counterfactual Thinking Shifts Reference Points

Prospective counterfactual thinking involves mentally simulating alternative outcomes before making a choice (Coricelli & Rustichini, 2010). For investors, this means comparing hypothetical future states across two dimensions: investing or not investing, and being correct or mistaken in each. Three distinct, but related principles discussed in the literature help explain how increasing the salience of counterfactuals (more specifically, engaging in counterfactual thinking related to errors of omission and commission) before a decision can influence investors' choices at the screening stage. The first is prospect theory, which offers a baseline principle for loss aversion: losses relative to the *reference point* loom larger than gains (Kahneman & Tversky, 1984).¹

While in prospect theory the status quo often serves as the reference point for evaluating prospects (Linde & Sonnemans, 2012), aspirations and expectations can also become reference points (Tversky & Kahneman, 1991). Counterfactual thinking may invoke an aspirational state, such as the prospect of financial gain, altering the reference point and shifting risk preferences in alignment with prospect theory. Specifically, when the possibility of missing out on a profitable opportunity is highlighted, the imagined foregone profit becomes the reference point, making the current endowment appear comparatively worse. This frames the decision not to invest as a potential loss, prompting risk-seeking behavior due to the convexity of the utility curve for losses (Kahneman & Tversky, 2013). Conversely, when a scenario emphasizes the

¹ Here, and throughout, we gratefully acknowledge blind-peer review and editorial comments, essential to the paper.

possibility of an investment resulting in the loss of the endowment, the current endowment is seen as the preferable outcome, so that it remains the reference point, but is now more salient and thus will have a greater impact on the decision. In this situation, the investor will become more risk-averse when confronting the loss of the endowment (Koszegi & Rabin, 2006).

Secondly, counterfactual thinking can also elicit regret (Coricelli & Rustichini, 2010), an emotion that arises when individuals imagine that a better outcome could have resulted from an alternative choice (Zeelenberg, 1999). Anticipating regret before making a decision can shape choices involving uncertain outcomes (Bell, 1982; Zeelenberg & Pieters, 2007), as individuals are generally motivated to avoid post-decisional regret (Zeelenberg, 1999). Research has demonstrated the influence of anticipated regret across diverse settings, including purchasing decisions, gambling tasks, and, relevantly, investment decisions (Connolly & Zeelenberg, 2002; Kumar & Chaurasia, 2024). Regret is particularly pronounced when decisions are complex, consequential, (Zeelenberg & Pieters, 2007) not easily reversed, and when individuals expect complete outcome information (Ritov & Baron, 1995) – all conditions characteristic of new-venture investing. During the dot-com bubble, Valliere and Peterson (2005) identified anticipated regret as a critical factor driving venture capitalists to participate in speculative investments despite unclear payoff prospects. Their qualitative inquiry found that some investors' decisions were dominated by regret-avoidance, leading to participation in hyped ventures. Both wrongful investments and missed opportunities are significant sources of regret for new-venture investors, making the prevention of such errors a central consideration in the decision-making processes (Huang, 2018).

Third, is the behavioral response to FOMO and its counterpart, the fear of wrongfully committing. Taken at face value, FOMO suggests concern, fear, or anxiety over an error of omission. Although psychology literature often examines FOMO as a chronic state linked to unmet psychological needs (Przybylski et al., 2013), marketing research has explored it as a

transient affective state that increases purchase likelihood when made salient (Good & Hyman, 2021). Despite limited in-depth exploration of FOMO in new-venture investment decisions, several studies suggest it as a significant factor (Cai & Gomaa, 2019; Cooman, 2022; Kleinert & Hildebrand, 2025; Sabia et al., 2022). Kleinert and Hildebrand (2025) note that heightened venture capital activity often intensifies FOMO, leading investors to reduce due diligence, rely on heuristic decision-making, and overlook critical signals. Entrepreneurs exploit this urgency to attract resources (Fisher et al., 2024), especially when popular media helps to create FOMO with hype-building around startups (Glazman, 2022; Rist, 2020; Zörgiebel, 2016). But the fear of wrongful commitment to an investment can also work the other way around, particularly in “cold” markets, when investors become more apprehensive and sensitive to errors of commission (Kleinert & Hildebrand, 2025).

Understanding the three logics together, counterfactual thinking is not merely a restatement of loss aversion. It is proposed as the process by which individuals (investors in our case) adjust their mental reference points by means of prospective comparisons; for example, by making *simulated* foregone profit or money-at-risk the focal reference before choice. Here, activated FOMO and fear of wrongful commitment trigger anticipated regret, which in turn would lead to investment behavior compatible with loss aversion. Thus, within counterfactual thinking, loss aversion, FOMO, and anticipated regret all contribute to shaping which counterfactuals dominate attention. The more salient counterfactual in turn determines whether investors treat potential inaction as a loss or a safeguard (Boles & Messik, 1995).

In this way, counterfactual thinking helps identify boundary conditions that loss aversion alone leaves underspecified. While classic loss aversion (Kahneman & Tversky, 1979; 1984) explains that people weigh losses more heavily than equivalent gains given a reference point, it does not specify how the reference point emerged. Counterfactual thinking specifies

that reference points are mentally constructed through imagined alternatives, and these can be triggered situationally.

In our context of early-stage investing, high uncertainty and skewed outcome distributions lead to high failure rates overall with a few big winners (Dimov & De Clercq, 2006; Nanda & Rhodes-Kropf, 2013; Nanda et al., 2020). This means that avoiding omission errors (i.e., missing the next big win or “unicorn”) are indeed consequential in venture investment decision making. For instance, when highly successful ventures receive extensive media attention and generate hype, investors may mentally reframe non-investment as a lost opportunity. The imagined foregone profits become the reference point. In these situations, inaction represents a material risk, thus increasing investors’ willingness to invest.

Hypothesis 1a (H1a): Increased salience of individual **omission** counterfactuals (not investing in an opportunity that turns out to be profitable in the future) increases investors’ willingness to invest.

Conversely, when commission counterfactuals are salient, the focus shifts to potential losses from action. The reference point reverts to the current endowment, and anticipated regret centers on making an active mistake rather than missing an opportunity passively. As investors are motivated to avoid unprofitable ventures due to their potential to jeopardize portfolio profitability (Guler, 2007), and because commission errors evoke a stronger self-blame (Zeelenberg & Pieters, 2007) investors can become extra sensitive to the risk of errors of commission. In this scenario, they become more loss-averse and risk-avoidant. Hence, highlighting commission counterfactuals should decrease willingness to invest.

Hypothesis 1b (H1b): Increased salience of individual **commission** counterfactuals (investing in an opportunity that turns out to be unprofitable in the future) reduces investors’ willingness to invest.

Counterfactuals in Social Contexts

New-venture investors operate in environments where social ties and peer evaluations are important. Angel investors, for example, have increasingly formed membership groups to

enhance deal flow (Antretter et al., 2020), fostering complex social dynamics in which investment decisions are shaped by the opinions of peers (Wood et al., 2020). Similarly, VCs engage in syndication to share costs and mitigate risks while simultaneously competing for resources, including attractive investment opportunities, key financing sources, and valuable relationships (Lerner, 2022; Valliere & Peterson, 2004). VCs are aware of their peers' activities and investment outcomes (Sorenson & Stuart, 2008), often taking cues from their social networks to navigate uncertainty (Lo et al., 2024). Reputation plays a pivotal role in this context, as maintaining a strong standing among peers and potential investors can significantly influence future performance (Gompers, 1996).

Both angel investors and VCs operate in environments where their peers' actions and outcomes are often visible, creating fertile ground for social comparisons regarding investment performance. These comparisons may take the form of social counterfactual thinking, which involves comparing one's own payoff to that of others (individually or collectively) in a future scenario where one made the wrong decision while others made the correct choice (Coricelli & Rustichini, 2010). Since, this exercise also inevitably involves thinking about one's own decision and payoff in the counterfactual scenario (to make a comparison possible), social counterfactual thinking is always (inherently) accompanied by individual counterfactual thinking.

The effects of social counterfactual thinking on investors' willingness to invest closely mirror those of individual counterfactual thinking. Social utility functions incorporate social comparisons, with unfavorable comparisons (where others fare better) having greater psychological impact than favorable ones (Fehr & Schmidt, 1999; Loewenstein et al., 1989). These functions exhibit the same convex shape in the loss domain as individual utility curves (Kahneman & Tversky, 2013) and also predict loss aversion relative to a reference point (Fehr & Schmidt, 1999). Importantly, reference points themselves can be shaped by social

comparisons (Tversky & Kahneman, 1991; Linde & Sonnemans, 2012). For investors, this suggests that when they think about a scenario where they make a poor investment decision while others make a successful one, their risk attitudes shift similarly to when they consider individual counterfactuals about making the right versus wrong choice. These arguments suggest that the directions of the effects of social counterfactual thinking in errors of commission and omission for investors are the same in individual and social counterfactual thinking.

Yet, social comparisons also amplify the psychological stakes of decision-making (Garcia, Tor, & Schiff, 2013), and thus we propose that the effects of social counterfactuals are greater than that of individual ones alone for new venture investors. Social emotions exert stronger effects than their individual counterparts. For example, anticipated envy can have a more profound behavioral impact than anticipated regret alone (Bault et al., 2008). Pressures to belong, the safety of the group, and the prospects of sharing in the upside can quickly overshadow investors' private concerns. In the context of venture capital, Valliere and Peterson (2005) observed that the small, insular nature of the VC market amplifies the motivation to avoid regret. Thus, social counterfactuals could magnify the impact of considering counterfactuals in isolation, leading to a more pronounced influence of counterfactuals when considering others.

Hypothesis 2a (H2a): When omission counterfactuals involve social comparisons (i.e., one's action and outcome relative to others), they even more positively increase investors' willingness to invest.

Hypothesis 2b (H2b): When commission counterfactuals involve social comparisons (i.e., one's action and outcome relative to others), they even more negatively decrease investors' willingness to invest.

Because of its related nature it is important to consider how the effects of social counterfactuals discussed here might relate to the phenomenon of herding (Banerjee, 1992), which has been observed in financial markets broadly (Bikhchandani & Sharma, 2000) and in

venture capital markets specifically (Zhang et al., 2021; Sahlman & Stevenson, 1985). Herding, in contrast to our individual level analysis of decision making, is a collective behavioral pattern characterized by the convergence of investment choices at the group level. Herding may be driven by informational cues or social emotions such as conformity, anxiety, or reputation concerns (Baddeley, 2010). Social counterfactual thinking operates at the level of *individual cognition*, shaping how investors evaluate their investments, and it may trigger some of the affective responses that drive herd behavior, although it also affects behavior through its effect on reference points and risk evaluation, as clarified above.

Omission & Commission: Norms as Reference Points

Thus far, we have examined the independent effects of counterfactual thinking related to errors of commission and omission. But which of the two is stronger? At the heart of this inquiry lies a fundamental tension: the goal of minimizing the risk of missing out on a profitable investment directly conflicts with the goal of avoiding investment in an unprofitable venture.

Spranca, Minsk, and Baron (1991) leveraged Kahneman and Tversky's (1982) seminal work on asymmetries in decision making to differentiate commission- and omission-related errors: negative outcomes from actions (commission) elicit stronger regret than equivalent outcomes from inaction (omission). This commission bias is a phenomenon in line with the "action-effect" (Kahneman & Tversky, 1982). People generally experience stronger regret following actions than equivalent inaction. Related findings, such as omission bias (Ritov & Baron, 1990), status-quo bias (Samuelson & Zeckhauser, 1988), default bias (Johnson & Goldstein, 2003), and inaction inertia (Tykocinski et al., 1995) all show a tendency toward inaction (Type II errors) and stronger emotional reactions for unfavorable outcomes arising from deviations from the default. Subsequent studies, however, also documented circumstances where omission errors weigh more heavily, introducing an "inaction-effect"

(Gilovich & Medvec, 1995; Zeelenberg et al., 2002), and suggesting that the direction of asymmetry depends on what counts as the “normal” or “default” state of affairs.

Feldman and colleagues (2020) reconcile these findings through Norm Theory (Kahneman & Miller, 1986), which posits that abnormal events evoke stronger emotional reactions than routine ones, because norms act as cognitive reference points. When a negative outcome arises from departing from the norm, the counterfactual “*had I done the usual thing*” is readily imagined, intensifying regret. The prevailing norm thus defines the reference point for both counterfactual comparisons as well as their risk assessments, determining whether potential outcomes are coded as gains or losses (Feldman et al., 2020).

Among early-stage venture investors, non-investment functions as the default norm: most investment proposals do not meet minimal quality thresholds and are rejected (Gompers et al. 2000). Taking action (committing capital) is a deviation from the default, exposing the investor to reputational and financial loss if the outcome is negative. At the same time, the main preoccupation that venture investors admit to is the ability to identify the “home runs” to make up for the unprofitable investments in a portfolio (Kupor, 2019; Levy-Weiss, 2021). This tension, between a conservative *not-investing norm* and an adventurous *investing ideal and necessity*, creates opposing psychological forces. The salience of omission counterfactuals stimulates investment (reducing inaction through FOMO and missed-gain regret), while the salience of commission counterfactuals heightens avoidance (intensifying vigilance against loss and blame). Both shape willingness to invest, but they stand to differ in emotional intensity. In so far as commission counterfactuals are tied to deviations from the norm, we argue that they are apt to activate a stronger affective response in investors, despite the prevailing narrative that sins of omission weigh more heavily in the world of new venture investments (Kupor, 2019).

The aforementioned asymmetry would seemingly not only apply to individually situated counterfactual thinking, but also counterfactuals in reference to others. In social contexts, *actions* are more visible, traceable, and sanctionable than *inactions*/omissions (Heath et al., 1999). As mentioned previously, venture investors operate within tightly networked communities where reputation is central: failed investment can diminish status, undermine credibility, and constrain access to future deal flow (Dimov, Shepherd, & Sutcliffe, 2007). Within such social ecosystems, prudence and selective engagement constitute an implicit norm. Taking visible action on a poor investment violates this norm, evoking not only personal regret but also potential reputational loss. When these social counterfactuals become salient, such as imagining others not investing while one invested and failed, the negative consequences dominate the decision process. By contrast, omission counterfactuals in social reference frames (i.e., others invested and profited, but I did not) tend to carry fewer negative consequences: non-investment can always be defended as prudence and a discriminant, disciplined approach.

Accordingly, whether simply in relation to self or in relation to others, commission counterfactuals dominate omission counterfactuals in investment decisions.

Hypothesis 3 (H3): The negative effect of increased salience of commission counterfactuals on willingness to invest is stronger than any positive effect of increased salience of omission counterfactuals on investors' willingness to invest.

METHODOLOGY

Overview of Experiment

To test our hypotheses, we conducted a randomized decision-making experiment contextualized in a new-venture investment scenario. Following prior research on decision-making in general decision scenarios (e.g., Hetts et al., 2000; Simonson, 1992) and in entrepreneurship (e.g., Heupel et al., 2024; Souitaris et al., 2020), we used a vignette methodology (Aguinis & Bradley, 2014; Wesemann Lekkas et al., 2025; McKenny et al., 2025;

Bergenholtz et al., 2023). We presented participants with a hypothetical investment at the screening stage and eventually asked them to evaluate their willingness to invest in it.

To ensure both internal and external validity, we followed best practice. First, we reviewed the literature on attributes that new-venture investors consider when making decisions at the screening stage (e.g., Gompers et al., 2020; Maxwell et al., 2011). We then triangulated this information with insights from five interviews with industry experts (i.e., experienced VC and angels), lasting approximately 30 minutes each, extracting the final attributes and assigning appropriate values to each attribute based on these combined sources. Second, to ensure the investment opportunity was realistic, relevant, and reasonably attractive, we received feedback from three additional experienced new-venture investors. Conversations took place while working through the instrument and lasted on average 15 minutes. Their input helped refine the descriptions and ensured alignment with industry norms and expectations. Third, we tested the instrument on a pilot sample of fifteen respondents to verify the clarity of the questions and the estimated completion time.

Design

The study uses a 2x2 between-subjects design, manipulating the type of counterfactual thinking (commission or omission) and context of judgment (individual or social). We implemented these factors by increasing their salience via randomized priming statements (see Table 2). Participants saw one of the four treatment (priming) conditions or the control condition (with no counterfactual prime) prior to making their decision. Similar business studies (e.g., Good & Hyman, 2021) used this methodology and successfully primed subjects through vignette statements to, for instance, experience FOMO before a purchase decision.

Specifically, after the introducing the investment opportunity and randomly priming the respondents, we measured investors' initial willingness to invest in the opportunity. Examining willingness to invest at the screening stage follows related venture investment research (e.g.,

Murnieks et al., 2016; Muzyka et al., 1996), and is important because it is the initial step of the funnel process, at which most investment opportunities are discarded (Gompers et al., 2020). Although conjoint experiments have also been used to uncover new-venture investors' preferences (e.g., Fu & Tietz, 2019; Shepherd & Zacharakis, 1999), that approach was unsuitable for our study due to the importance of randomized treatments (manipulations) and conjoint analysis' reliance on subjects evaluating multiple opportunities that could introduce confounding carryover treatment effects (Hsu et al., 2017). Our randomized between-subjects design isolated the effects of the counterfactuals hypothesized, allowed us to collect real-time data on decision-making processes, and ensured no potential confounds or other contamination across conditions.

Participants

The starting sample for our experiment consisted of listed venture investors (e.g., VCs, angel investors) identified through their affiliations with new-venture financing firms and angel networks in the US and the UK, using the Pitchbook and Crunchbase databases. We collected the email contact information of a total of 36,264 potential participants. These individuals were contacted via email, with the survey's purpose and target group specified to ensure respondents were venture investors with relevant experience in new-venture investments (Kleinert & Hildebrand, 2025). Out of these, 353 participated in the study. To further increase the number of listed investors, we recruited adjunct entrepreneurship faculty at a leading business school. Out of the 153 adjunct faculty emailed, 25 participated in the study after verifying their investor status, for an initial dataset of $353 + 25 = 378$ listed venture investors.

To ensure high quality of our respondents and data, we specified various exclusion criteria. First, *time spent* in the experiment removed observations where participants completed the entire data-collection instrument in less than 60 seconds, as pilot tests determined this to be the absolute minimum time required for sensible responses; responses taking more than 10

minutes were also excluded, as these likely involved discontinuous completion of the experiment and therefore risked the manipulation being disconnected from the response. This led to the exclusion of 164 observations². Second, *confirmed investments* required participants to disclose their number of prior venture investments retaining only those respondents with one or more prior venture investments. This excluded an additional 28 observations. Third, five respondents did not pass a standard *attention check* (Aguinis et al., 2020). After accounting for these exclusion criteria, we retained 181 listed venture investors [= 378 - 164 - 28 - 5]. They did not receive any monetary compensation for participation.

While a sizeable sample of listed venture investors, the between-subjects design with 5 groups (4 treatments + control condition) radically reduces statistical power (effectively to $\frac{1}{5}$), relative to a traditional field study or within-subjects experiment. Given this, and the fact that effect sizes in entrepreneurship are typically small (Anderson, Wennberg & McMullen, 2019), we sought to boost the statistical power and generalizability of the findings. To do so, we recruited additional venture investors through Prolific, a research platform used to study individual behavior in several disciplines, including management science and entrepreneurship (e.g., Heupel et al., 2024; Stevenson et al., 2019; Wesemann Lekkas et al., 2025). Using Prolific provided investors is a valid choice because the early-stage screening investment decision context in the experiment does not require idiosyncratic firm-specific knowledge but rather general investment reasoning. Further, all participants on the Prolific platform are continuously evaluated for accurate responding (Peer et al., 2022). Using Prolific's built-in screening capabilities, recruitment was limited to USA and UK participants with investment experience in *Angel Syndicates*, *Private Equity Funds*, or *Venture Capital Funds*. This initially yielded 352 additional participants. We applied the three aforementioned exclusion criteria (*time spent*

² We checked the sensitivity of the main results with different time cut-off points (e.g., ending the task 5–15 seconds earlier or 60–180 seconds later) and the results remain robust to these variations.

-22; *confirmed investments* -38, *attention check* -1), plus an additional filter to double-check these participants' investor status. All participants were required to enter their primary role in new venture investment (as VC, Angel, or Other), but for Prolific-based respondents, we added the option "None"; those who selected this option were excluded (-28). After all filters were applied, the Prolific platform yielded 263 investor participants. Taken together, the listed investors and the Prolific provided investors results in a total usable dataset of $n = 444$ (181+263).

Procedure

We used the Qualtrics software for task administration, randomization, outreach and data collection³. Upon providing informed consent, participants saw the investment opportunity, which (1) was described as aligned in general terms with an investor's typical investment thesis, (2) was designed to be general enough to apply across industries and investment strategies, and (3) was identical across all groups (Kleinert et al., 2022; Kleinert & Hildebrand, 2025; Zacharakis & Shepherd, 2001). We presented the opportunity through information cues detailing its attributes, consistent with established methodologies in decision-making research (Maxwell et al., 2011) (Appendix 1). Next, respondents received the randomized treatment (or control), consisting of brief primes increasing the salience of either a potential error of omission or commission, as individually- or socially-situated counterfactuals. Afterwards we asked them to evaluate the investment opportunity by sharing their investment likelihood. This parsimonious experimental design ensured relevance, minimized unrelated variance, and eliminated potential confounds such as the influence of innumerable other factors like passion, charisma, and trust, which are known to impact

³The data collection instrument, along with a description of the work, is available at the following OSF registration: https://osf.io/8bhgf/overview?view_only=a54c274690544d0597720ff60f901ff4

evaluations (Cardon et al., 2009; Cardon et al., 2017; Murnieks et al., 2016). Table 1 provides the specific priming prompts by condition.

Table 1: List of priming prompts by Randomized Condition

Condition	Priming Prompt
Individual-Counterfactual Omission	<i>Think for a minute how regretful you would feel if you did not invest in this opportunity and it turned out to be very profitable.</i>
Individual-Counterfactual Commission	<i>Think for a minute how regretful you would feel if you invested in this opportunity and it turned out to be very unprofitable.</i>
Social-Counterfactual Omission	<i>Think for a minute how regretful you would feel if you did not invest in this opportunity, <u>while close peers in the industry did</u>, and it turned out to be very profitable.</i>
Social-Counterfactual Commission	<i>Think for a minute how regretful you would feel if you invested in this opportunity, <u>while close peers in the industry did not</u>, and it turned out to be very unprofitable.</i>
Control	(no priming prompt was shown)

Note: as shown above, the corresponding *individual* and *social counterfactual* primes are identical other than the additional text underlined here (which was not underscored for respondents).

This procedure, closely modeled on the methodology of Hetts et al. (2000), enabled us to assess the effects of individual and social counterfactuals related to omission and commission errors independently, as well as to compare the effects⁴.

After the randomized treatments, participants completed a brief post-experiment survey on their investment interest, demographics (age, gender, education), and number of previous venture investments. This concluded the experiment.

Variables

Dependent Variable - Investment Likelihood: Following Murnieks et al. (2016), our dependent variable was collected by asking: “What is the probability you would invest in this venture?” Similar measurements have been used in randomized experiments (e.g., Cardon et

⁴ Our treatments were designed to elicit both cognitive and emotional aspects of counterfactual thinking in a controlled, context-free manner. To avoid confounding effects, we excluded cues (e.g., media coverage or peer interest) that might signal opportunity quality, ensuring that observed effects reflected counterfactual and emotional processes rather than unrelated evaluative mechanisms.

al., 2017; Drover et al., 2017b; Huang & Pearce, 2015). Although studies with VCs have used Likert scale responses as the outcome variable (e.g., Murnieks et al., 2011; Warnick et al., 2018; Zacharakis & Shepherd, 2001), following Lerner (2016) we used a 0 to 100% likelihood scale to avoid conversion difficulties (Wu & Leung, 2017) and ease interpretability of results. We use a standardized, abstract scale in line with our research question, instead of a unit-based scale (e.g., amount of dollars to be invested) to isolate treatment effects from idiosyncratic constraints (e.g., investor's wealth, fund size, uninvested funds, portfolio considerations, etc.) and to reduce cross-respondent incomparability.

Independent Variables: The four treatment groups: (1) Individual-Counterfactual-Omission, (2) Individual-Counterfactual-Commission, (3) Social-Counterfactual-Omission, (4) Social-Counterfactual-Commission, plus a *Control* group were all coded as binary variables (0 or 1) in our analyses.

Control Variables: Because our study relied on a fully randomized between-subjects experiment, the main analyses do not include demographic control variables. Random assignment ensures that observed and unobserved characteristics should be balanced across treatment conditions (Stevenson & Josefy, 2019); we verified this by testing for differences in gender, age, investment experience (as number of investments), and investor type (VC or angel) across conditions, which showed no systematic imbalance. Yet, control variables are commonly included in post-experiment surveys, to appropriately describe the sample and to assess randomization quality. Supplementary models including these controls, reported in Appendix 2, yielded substantively identical results and did not improve model fit (as measured by Adjusted McKelvey–Zavoina R-Squared). The only control retained in the main analysis was the source of the observation (listed investor vs. Prolific provided investor), included to account for differences across sample sources.

ANALYSIS & RESULTS

Table 2 shows randomization checks, which confirm that the study's randomization was effective. Specifically, this avoids potential endogeneity threats otherwise posed by individual differences (e.g., in age, gender, investment experience, and VC/Angel type of investor), and suggests that results generalize across individual differences.

Table 2: Randomization Checks

Variable	Method	Full Dataset		Listed Investors		Prolific Provided	
		Test Stat.	P-Value	Test Stat.	P-Value	Test Stat.	P-Value
Source	Chi-Sq.	0.331	0.988				
Inv. Experience	ANOVA	1.130	0.342	1.090	0.363	0.840	0.501
Age	ANOVA	0.566	0.688	0.504	0.733	0.982	0.418
Gender	Chi-Sq.	6.908	0.141	7.114	0.130	5.424	0.247
VC	Chi-Sq.	1.583	0.812	2.628	0.622	4.908	0.297
Angel	Chi-Sq.	2.889	0.577	2.732	0.604	2.908	0.573

Table 3 presents the summary statistics for the overall sample and by source. It indicates that in both sources, the average reported investment likelihood was within five percentage-points of 50%. We also observe that listed investors were more conservative in average investment willingness (~46% vs 54%), had more investment experience and more VC investors, were about 5 years older and about 10% more male. Yet, given the effective randomization to treatment and the current research question/hypotheses, such differences do not threaten spurious results or undermine analysis of the overall dataset.

Table 3: Summary Statistics – Overall and by Source

<i>Source</i>	<i>Full Dataset</i>	<i>Listed Investors</i>	<i>Prolific Provided</i>
n	444	181	263
Time (mean (SD))	168.77 (83.35)	179.57 (86.88)	161.33 (80.16)
Condition (sum (%))	Control: 89 (20.0); I/O: 98 (22.1); I/C: 90 (20.3); S/O: 77 (17.3); S/C: 90 (20.3)	Control: 36 (19.9); I/O: 38 (21.0); I/C: 38 (21.0); S/O: 31 (17.1); S/C: 38 (21.0);	Control: 53 (20.2); I/O: 60 (22.8); I/C: 52 (19.8); S/O: 46 (17.5); S/C: 52 (19.8)
Inv. Prob. (mean (SD))	50.70 (25.93)	45.76 (27.19)	54.10 (24.50)
Inv. Experience (mean (SD))	21.38 (65.72)	45.95 (97.77)	4.46 (5.56)
Age (mean (SD))	45.50 (13.18)	48.59 (13.32)	43.43 (12.70)
Gender (%)	Male: 346 (78.1); Female: 97 (21.9)	Male: 155 (86.1); Female: 25 (13.9)	Male: 191 (72.6); Female: 72 (27.4)
VC (%)	No: 197 (44.4); Yes: 247 (55.6)	No: 52 (28.7); Yes: 129 (71.3)	No: 145 (55.1); Yes: 118 (44.9)
Angel (%)	No: 315 (70.9); Yes: 129 (29.1)	No: 126 (69.6); Yes: 55 (30.4)	No: 189 (71.9); Yes: 74 (28.1)

I/C: Individual/Commission; I/O: Individual/Omission; S/C: Social/Commission; S/O: Social Omission

Table 4 compares the two sources on all variables that we collected, using ANOVA (for continuous variables) or Chi-Squared test (for categorical variables). Thereafter, in the main analyses, we present the estimated effects of the treatments in the overall dataset, as well as according to source.

Table 4: Comparison of Source

Variable	Method	Test Statistic	P- Value
Inv. Probability	T-Test	-3.302	0.001
Inv. Experience	T-Test	5.702	0.000
Age	T-Test	4.050	0.000
Gender	Chi-Squared	11.367	0.001
VC	Chi-Squared	30.282	0.000
Angel	Chi-Squared	0.263	0.608

Main Analysis

We employed Tobit models in Table 5 to compute the effect sizes of our treatments, given the censored nature (0-100) of our dependent variable⁵. All models include the treatment variables and, in the case of the overall sample, the Source variable as a control. We expected to find an increase in investment intention in the Individual Counterfactual/Omission group (H1a) and a decrease in the Individual Counterfactual/Commission group (H1b), compared to the Control condition. The effects of these treatments were, despite our predictions, not statistically significant at $p < 0.05$ for the overall dataset ($\beta = -1.214$, $p = 0.749$, and $\beta = -4.836$, $p = 0.212$, respectively) or for either of the two sources. However, we did find a statistically significant effect in the Social Counterfactual/Commission treatment ($\beta = -15.733$, $p = 0.000$, overall; as well as in the two sources), providing initial support for H2b. Meanwhile, the coefficient of the Social Counterfactual/Omission treatment was not statistically significant ($\beta = 0.210$, $p = 0.959$), thereby not supporting H2a. The consistency of findings across the two sample sources, as well as the similarity of the magnitude of effects and significance levels of the Social Counterfactual/Commission treatment validates the empirical and theoretical augmentation of the listed investor (researcher collected) participants with the use of the Prolific provided investors.

After adjusting for censoring, the discrete marginal effects indicated that participants in the Social Counterfactual/Commission condition reported scores approximately 14.7 percentage points lower than those in the baseline condition (predicted mean = 50.3), representing a substantive and statistically significant decrease of 29.18% in investment likelihood relative to the Control group. Furthermore, Cohen's d for this effect was -0.57, suggesting a medium-to-large effect size. Meanwhile, the effects of the other treatments were small in magnitude, with Cohen's $d < |0.2|$. Results also show that the investors from Prolific

⁵ The analysis code and data for all studies are available on ResearchBox <https://researchbox.org/4602>.

were, on average, slightly more disposed toward investing than the listed investors we contacted via email ($\beta = 8.224$, $p = 0.001$, Cohen's $d = 0.30$).

Table 5: Main Models

Variable	Full Dataset (n = 444)		Listed Investors (n = 181)		Prolific Provided (n = 263)	
	Estimate	Pr(> z)	Estimate	Pr(> z)	Estimate	Pr(> z)
Constant	50.272	0.000	52.722	0.000	56.850	0.000
Individual Counterfactual-Omission	-1.214	0.749	-8.083	0.219	3.252	0.471
Individual Counterfactual-Commission	-4.836	0.212	-3.751	0.568	-5.706	0.221
Social Counterfactual-Omission	-0.210	0.959	-8.679	0.211	5.375	0.265
Social Counterfactual-Commission	-15.733	0.000	-14.779	0.025	-16.616	0.000
Source: Prolific	8.224	0.001				
Log (Scale)	3.254	0.000	3.339	0.000	3.172	0.000

To test the comparative hypotheses (H2a, H2b, H3) in a dedicated way, we performed Wald Tests (Bhanot, 2021) on all pairwise comparisons between treatment coefficients, with Benjamini–Hochberg adjusted p-values to account for multiple comparisons (akin to Bonferroni corrections). The results in Table 6 show two relevant and statistically significant differences in the coefficient comparisons. While the difference between the Individual-Counterfactual-Omission and Social-Counterfactual-Omission conditions (H2a) was not statistically significant ($\Delta = 1.004$, $p = .800$), the difference between the coefficients of the Individual-Counterfactual-Commission and Social-Counterfactual-Commission conditions (H2b) was. The data suggest that the effect of Social-Counterfactual-Commission is the larger of the two ($\Delta = 10.897$, $p = 0.010$), with participants in this condition being roughly 22.10% less likely to invest than those in the Individual-Counterfactual-Commission condition. This offers support for the notion that, at least with respect to errors of commission, social counterfactuals have a marked impact on investment likelihood.

The difference between Individual-Counterfactual-Commission and Individual-Counterfactual-Omission was not significant ($\Delta = 3.622$, $p = .407$). But the difference between Social-Counterfactual-Commission and Social-Counterfactual-Omission was large and statistically significant ($\Delta = 15.523$, $p = 0.000$), with participants in the latter condition being 28.90% less likely to invest than those in the former. This offers partial support for H3. Taken together, we interpret these results as pointing to the existence of a not-investing norm among new-venture investors that steers them in this direction when the response to the associated type of counterfactual (an error of commission) is strong enough, which is the case when socially-situated counterfactuals are made salient.

Table 6: Wald Tests – Pairwise Comparisons of Condition Coefficients

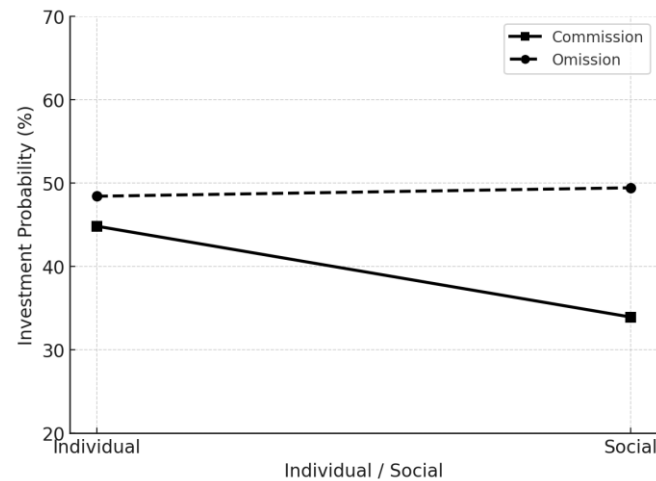
	Individual/Omission		Individual/Commission		Social/Omission	
	Estimate Diff.	Wald Test	Estimate Diff.	Wald Test	Estimate Diff.	Wald Test
Individual/Commission	3.622	0.407				
Social/Omission	-1.004	0.800	-4.626	0.377		
Social/Commission	14.519	0.000	10.897	0.010	15.523	0.000

Additional Analyses and Robustness Tests

To jointly visualize and inspect our hypothesized effects, we performed an additional analysis in which we coded our four treatments along two dimensions: Individual/Social and Commission/Omission, creating a binary variable for each. This new model included the two variables, their interaction, and the Sample Source variable as a control. A graphical representation of the results appears in Figure 1, while a table with the numerical results can be found in Appendix 3. Results graphically confirm the strong effect of socially-situated counterfactuals in commission errors versus individually-situated ones ($\beta = 10.902$, $p = 0.005$), and the lack of an effect for individual counterfactuals alone in both commission and omission errors ($\beta = 3.591$, $p = 0.346$ for individual/omission versus individual/commission). We also found a meaningful interaction between the two variables ($\beta = 11.919$, $p = 0.032$) that

highlights the finding that social counterfactuals have a strong effect when related to commission errors but (in our sample) a statistically insignificant effect in the realm of omission errors.

Figure 1: Individual/Social - Omission/Commission Interaction



As a variable that might impact investor decision-making and their propensity to cognitive biases, we selected investor experience to explore interactions with our treatments. When including this variable on its own or together with interaction terms between it and the treatments in a series of new Tobit models, none were statistically significant (Appendix 4).

To validate the combination of listed investors and prolific investors and the treatment coefficients of our main model, we interacted the Source variable with our original treatment variables. This was interesting to consider since the investors provided via Prolific were, on average, slightly more willing to invest than the listed investors we contacted directly. We therefore added these terms to the original model and found no statistically significant interactions between the variables (Appendix 5). Finally, we repeated our main analysis (summarized in Table 5) using OLS models instead of Tobit and found identical results in terms of statistical significance at the five percent significance cutoff.

Supplemental Study

We tested the relative effects of counterfactual commission and omission errors when both types are concurrently expressed with a supplemental experiment. The procedure was the same as in the main experiment; what differed was the treatments/priming prior to reporting their willingness to invest in the new venture opportunity. Here, we prompted *both* omission and commission counterfactuals simultaneously by asking participants to answer two priming questions about which type of error would have a stronger influence on their feelings (regret or upsetness) (Simonson, 1992). One treatment group received individually-situated counterfactuals, and the other received socially-situated counterfactuals, for a total of 3 conditions, including the Control group. In this experiment, the control group answered either the Individual Counterfactuals or the Social Counterfactuals priming questions *after* reporting their willingness to invest. Table 7 provides the specific priming prompt for each condition, and we provide complete details of the supplemental study as online Appendix A.

Table 7: Priming Prompts for Supplemental Study

Condition	Priming Prompt
Individual Counterfactuals	<i>Imagine you made an investment decision about the opportunity presented earlier. In which situation would you feel more regretful? A) If you invested in this opportunity and it turned out to be very unprofitable; B) If you did not invest in this opportunity and it turned out to be very profitable.</i> <i>In which situation would you feel more upset? A) If you invested in this opportunity and it turned out to be very unprofitable; B) If you did not invest in this opportunity and it turned out to be very profitable.</i>
Social Counterfactuals	<i>Imagine you made an investment decision about the opportunity presented earlier. In which situation would you feel more regretful? A) If you invested in this opportunity, while others close to you did not, and it turned out to be very unprofitable; B) If you did not invest in this opportunity, while others close to you did, and it turned out to be very profitable.</i> <i>In which situation would you feel more upset? A) If you invested in this opportunity, while others close to you did not, and it turned out to be very unprofitable; B) If you did not invest in this opportunity, while others close to you did, and it turned out to be very profitable.</i>
Control	No prompt shown before DV measurement. Rather, after DV collection, participant received and responded to either the Individual or Social questions above (for comparison with associated treatment condition).

This setup, inspired by Simonson (1992), allowed us to both prime respondents in the treatment groups and also assess every participant's sensitivity to counterfactuals and use this information in the analysis; we classified them either as *omission-sensitive* (if they answered that not investing in a profitable opportunity would be both cause more regret and upsetness), *commission-sensitive* (if they answered that investing in an unprofitable opportunity would be both cause more regret and upsetness), or *unidentified* when their answers to the two treatment questions (regret and upsetness) were inconsistent, which was used as the baseline case.

The main results of the supplemental experiment appear in Table 8. Summary statistics and randomization checks can be found in Appendix 6. We found that those who were commission-sensitive (i.e., responding that they would feel more regretful and upset if they invested in an unprofitable opportunity than if they did not invest in a profitable one) were 22.10% less willing to invest than those classified as 'Unspecified' ($\beta = -13.11$, $p = 0.002$) and 27.76% less willing than those classified as being more omission-sensitive ($\Delta = 17.762$, $p = 0.000$). Meanwhile, those responding as being more omission-sensitive (i.e., responding that they would feel more regretful and upset if they did not invest in a profitable opportunity than if they invested in an unprofitable one) did not differ significantly from the baseline. Adding these sensitivity covariates strengthened the Social Counterfactuals effect to statistical significance ($\beta = -7.89$, $p = 0.034$), with results indicating that participants in this condition were 13.30% less likely to invest than those in the Control group. This addition also improved model fit (adjusted McKelvey–Zavoina $R^2 = 0.082$ versus 0.004 without the sensitivity covariates).

Table 8: Supplemental Study - Results

n = 254	Baseline Model		Sensitivity Covariates	
	Estimate	Pr(> t)	Estimate	Pr(> t)
Constant	57.778	0.000	59.324	0.000
Condition: Individual Counterfactuals	-5.360	0.164	-4.370	0.239
Condition: Social Counterfactuals	-6.227	0.108	-7.894	0.034
Omission-Sensitive			4.656	0.217
Commission-Sensitive			-13.106	0.002
Log (Scale)	3.227	0.000	3.182	0.000
McKelvey–Zavoina R²	0.012		0.096	
Adj. McKelvey–Zavoina R²	0.004		0.082	

DISCUSSION

This work explores the role of counterfactuals on willingness to invest in new ventures. The omnipresent threats in venture investment are: investing when one should not (Type I error), and not investing when one should (Type II error). Thus, considering counterfactual errors of commission and of omission is germane to venture investor decision-making. However, entrepreneurship studies to date have hardly scratched the surface. For example, while some VCs and business press suggest FOMO as an important driver of investment, does thinking about the potential of missed hits (counterfactual errors of omission) really change investment willingness? Relatedly, for errors of omission or commission, what if the counterfactual includes a social component (e.g., *I* make the wrong choice while *others* make the right choice)?

To address this topic, we conducted controlled experiments with investors randomized to treatment conditions. Our findings highlight an asymmetry of effects, with stronger impact of potential errors of commission. Moreover, we quantify for the first time the *in-situ* effect of counterfactual thinking on investment willingness. For instance: increasing the salience of socially situated counterfactual thinking related to an error of commission significantly reduced investors' willingness to invest—by approximately 30% in relative terms, and nearly 15% in

absolute terms. These results indicate that contemplating the negative consequences of investing in a poor-performing venture (“a lemon”) that peers did not invest into, materially deters investment. Notably, while individual counterfactual thinking alone also appeared to lead to a diminished investment willingness, the effect was not statistically significant (e.g., -4.836, $p=0.212$ in main model). This suggests that the prospect of negative social comparison accounts for the majority of the observed impact. This finding supports the notion that investors think and operate in a decidedly social context (Wood et al., 2020), and it underscores the importance of considering both individual and social dimensions of counterfactual thinking in understanding investor behavior.

In relation to the popular notion and VC suggestions of FOMO pushing investment decisions (Kupor, 2019), we found evidence otherwise. This was evident in two findings: the lack of an effect of error of omission counterfactuals (main experiment), and the negative net effect when counterfactuals related to both types of errors—commission and omission—was activated simultaneously (supplemental study). In other words, considering omission counterfactuals did not move the needle significantly toward investment and when investors were prompted to consider both the consequences of wrongfully investing as well as of wrongfully not investing (missing out on an opportunity), the concern over commission errors in form of wrongful investment prevailed. This finding challenges popular and academic narratives that emphasize investors’ to primarily focus on not missing out on “home runs” (e.g., Valliere & Peterson, 2005; Glazman, 2022; Rist, 2020). It is worth noting that the prior findings reported by Valliere and Peterson (2005) are situated in the extreme context of the dot-com bubble, a period when media, public opinion and most ecosystem players were hyped about a radical new technology transforming the entrepreneurial landscape. Thus, while FOMO may play a role in such contexts, it appears unlikely to have notable effects in other contexts.

Theoretical Contributions

Our study makes three theoretical contributions. First, we extend the growing body of literature that investigates departures from highly rational cognitive models in new-venture investors (Drover et al., 2017a). Several authors have identified counterfactual thinking and related emotions as important drivers of new-venture investor decision-making, contrasting earlier views that portrayed investors as purely analytical and reliant on objective, quantifiable information (e.g., Huang, 2018; Liu et al, 2020; Valliere & Peterson, 2004; 2005). While previous research framed preoccupations over Type I and II errors in new-venture funding as stemming from trait-like dispositions (Huang, 2018) or macro-level determinants such as “market heat” (Kleinert & Hildebrand, 2025), we explored their situational salience as novel factor that carries substantial influence. This is an important departure from the previous—mostly static—explanations and invites future research to consider additional situational drivers as active parts of the decision process.

Second, we integrate recent research on the effects of FOMO (Cai & Gomaa, 2019; Cooiman, 2022; Kleinert & Hildebrand, 2025; Sabia et al., 2022) with work on regret (Lejarraga & Sákovics, 2025; Sohl, 2022) in new-venture investor decision-making. Although we did not design our study to explicitly measure the magnitude of either FOMO or regret in our experiments, their juxtaposed roles combine in the affective responses to *primed* counterfactual thinking we discussed here. Our conceptualization of prospective counterfactuals as encompassing these different mechanisms enables their joint consideration in future studies. This is in line with the recent combinatorial modeling work of Lejarraga and Sákovics (2025) who showed that the endowment effect and FOMO can both be combined in models of decision making. We present a first empirical contribution in this regard. A general, albeit preliminary integration of Sohl’s (2022) findings with our own, could suggest that the

process of counterfactual thinking and the resulting emotions, be they prospective or retrospective, tend to make investors less willing to invest.

Third, we contribute to the literature that studies the social influences of the new-venture funding industry, answering the call from Drover and colleagues (2017a) to address the issue of an under-socialized perspective of new venture investors' decisions. Recent work that also addresses this issue has explored past behaviors of relevant others as signals interpreted and acted upon by investors of new ventures (e.g., Kleinert & Hildebrand, 2025; Lo et al., 2024; Pontikes & Barnett, 2017). We explore a complementary path by introducing social counterfactual thinking as an additional consideration that acts in parallel to signals of quality. Our results indicate that socially situated counterfactual thinking (particularly in the domain of errors of commission) can reduce investment willingness, *ceteris paribus*, which indicates that this phenomenon could undermine or override the effects of such signals, ultimately biasing investor decisions.

Practical Implications

Our findings offer potential practical implications for both investors and entrepreneurs. For investors, the discovery that counterfactual thinking can influence their willingness to invest in new ventures, underscores the need for vigilance of environmental factors that may inadvertently prompt counterfactuals and thus shape their decisions. Social comparisons of counterfactuals in particular, can be triggered by interactions within investors' networks, news media, and social platforms. By recognizing these triggers, investors can adopt strategies to mitigate their impact and make more objective investment decisions.

Investors should also be cautious about the potential unintended side effects of socializing with peers. Although it is rational to engage in social interactions to learn what others are doing and to infer current market trends, our findings suggest that this socializing process may intensify peer comparisons. In turn, such comparisons, arising from counterfactual

thinking, may lead to overly conservative investment behavior aimed at minimizing the risk of making poor investments in the eyes of fellow investors.

For entrepreneurs, our findings suggest that attempts to induce omission-related counterfactuals in investors to increase funding prospects may be less effective than conventional wisdom suggests. Although attempting to foster a sense of FOMO is a common tactic, our results cast doubt on its efficacy when based on counterfactual thinking, as we found no significant effect from omission-related counterfactuals. Entrepreneurs should be cautious in employing this strategy, as it may even backfire. Entrepreneurs trying to trigger concern for potential omission errors may inadvertently activate both counterfactuals, reducing the overall likelihood of securing funding.

Ultimately, raising awareness of the cognitive and emotional biases associated with counterfactual thinking can help investors make more informed decisions and entrepreneurs better tailor their pitches. By understanding these dynamics, stakeholders can take proactive steps to mitigate biases and optimize their interactions in the new-venture investment process.

Limitations and Future Research

Like all empirical studies, our research design involves trade-offs, and limitations, some of which present opportunities for future research. While our experiment was designed to increase the salience of counterfactual thinking and measure its effects on investment willingness, it did not isolate the distinct mechanisms driving counterfactual thoughts. Future research could provide greater insight into the internal cognitive and emotional processes underlying the effects of counterfactual thinking by unpacking the precise co-occurring mechanisms at play in different venture investment situations.

In our study, we conceptually and methodologically treated new-venture investors as a relatively homogeneous group —although we did capture investors' identity as VCs or angel investors. This approach allows for advancing generalizable theory and fits our objective to

explore the general implications of counterfactual thinking in early-stage investment settings. If investors' cognitive and emotional processes are similar at baseline to render them broadly susceptible to the same counterfactual (treatment) effects, then there should be little reason for why our theory and findings would not generalize to other types of professional or non-professional investors. Similar results for investor source or type on both experiments seem to indicate this. However, both angels and VCs differ substantially from retail or hobby investors, for instance based on the average ticket (investment) size, as well as on the observability of their investments for social comparison. Indeed, most retail investors might simply not talk about their missed opportunities or errors of commission. This presents a rich area for future exploration with meaningful contribution to an ever-growing segment of the population. There are also differences between individual angels and angel groups (for instance in their decision-making processes) (Carpentier & Suret, 2015), that signal different behavior patterns in syndicated arrangements, versus simple individual investments. Such differences may influence how emotions like regret and envy impact decision-making within and ultimately across these groups. While our work contributes to generalized theory, future research could further examine these distinctions to yield more nuanced insights.

Relatedly, the randomized design controlled for heterogeneity in new ventures; participants in all conditions were provided the same early-stage tech-oriented venture. This was based on prior research and designed to fit the research question. While this design allows *ceteris paribus* hypothesis testing and supports causal inference, it may also limit the generalizability of the findings; similar results may not necessarily emerge for other types of venture investment opportunities (e.g., later-stage firms).

Also, the investors were effectively from the USA and UK. These are the two largest markets for venture capital among Western Countries; they are also where much of the research referenced in our paper stems from –suggesting relative representativeness and backwards

comparability of our sample and results. While we have no theoretical reason to expect venture investors in other contexts to react differently to counterfactuals, the generalizability of these results to other contexts remains to be verified by future work.

In terms of the dependent variable, we chose to measure initial willingness to invest. While initial interest in investment is a common dependent variable for entrepreneurship research (e.g., Drover et al., 2017b; Murnieks et al., 2016) and determines whether further consideration is given (e.g., due diligence) prior to any definitive investment (e.g., Zacharakis, 2010; Lerner 2016), it is of course not the same as actual investment. Relatedly, the reported baseline interest of around 50% observed is higher than ultimate investment rates. Given the research question and controlled experimental design, more extreme values (toward 0% or 100%) would have been concerning. Thus, while the study can speak to the relative effects of the randomized counterfactuals, the results should not be interpreted to reflect (or generalize) the literal probability of ultimate investment. Further, as there is not an optimal way to measure investment experience, we note the lack of comparability of different experience measures and encourage future research to distinguish how our findings hold among investors with different success records in their past investments.

Finally, apart from the extensions mentioned above, our study opens several avenues for future research. An important question concerns how *retrospective* and *prospective* counterfactuals may interact in shaping investors' judgments. Future research could study the effects of counterfactuals on actual investments longitudinally, to understand time lags and provide evidence of the final outcomes over time. Future work could also examine whether and when prospective counterfactuals influence actual investment behavior, beyond their effect on willingness to invest, potentially influencing herding behavior in VC markets. Moreover, it remains to be explored whether similar effects arise when positive counterfactuals are made salient (e.g., "imagine you invested in this opportunity, and it turned out to be very profitable").

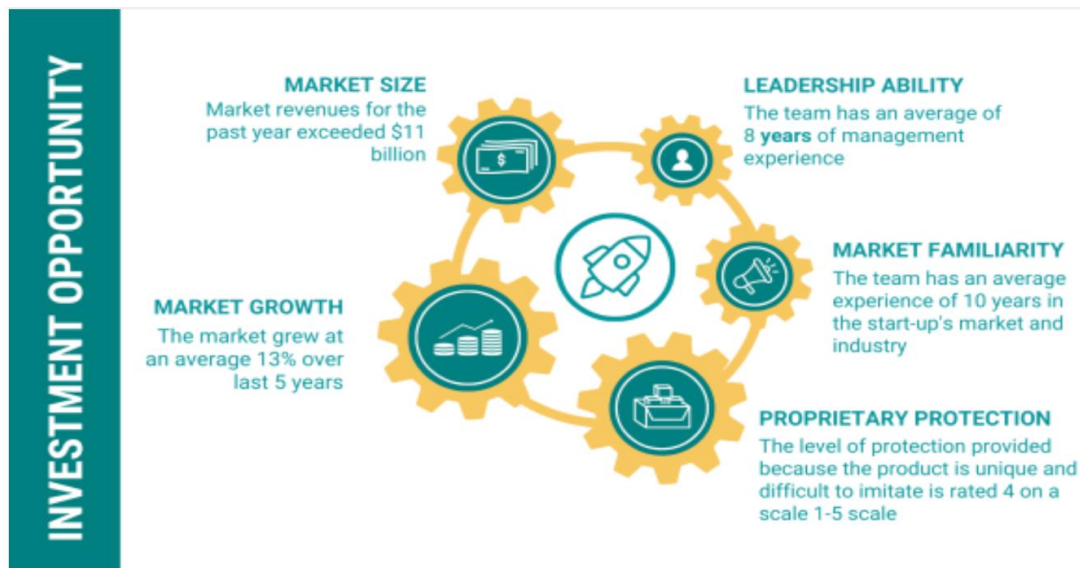
Addressing these questions can help identify additional boundary conditions of our findings and further clarify the cognitive–emotional mechanisms underlying investor decision making.

Conclusion

This work advances our understanding of counterfactual thinking in new-venture investment decisions. The findings underscore the interplay between individual and social dimensions of decision-making, revealing that social counterfactuals amplify the effects of commission-related errors, reducing investment willingness. Contrary to popular conceptions of FOMO as a widespread driver of venture investment, we find evidence supporting a greater sensitivity to potential errors of commission (in early-stage investment decision making), where concerns over potential losses outweigh those of missed opportunities. These insights enrich theoretical understanding of investor decision making, and offer a basis for subsequent research and practical guidance on strategies to align with the cognitive and emotional dynamics of investment evaluation. In early-stage investing, faced with the omnipresent threat of Type I and Type II errors, it appears to investors you are more damned if you do invest (in failures) than if you don't (in successes)—especially when others are watching.

Appendices

Appendix 1: Opportunity Presented to Investors



Appendix 2: Main Analysis Control Comparison

n = 444	No Controls		Source Control		Full Controls	
	Estimate	Pr(> z)	Estimate	Pr(> z)	Estimate	Pr(> z)
Constant	55.163	0.000	50.272	0.000	42.809	0.000
Condition:						
Social/Commission	-15.864	0.000	-15.733	0.000	-14.724	0.000
Condition:						
Social/Omission	-0.175	0.966	-0.210	0.959	-0.153	0.970
Condition:						
Individual/Commission	-4.962	0.206	-4.836	0.212	-5.283	0.176
Condition:						
Individual/Omission	-1.064	0.782	-1.214	0.749	-1.227	0.748
Source: Prolific			8.224	0.001	9.326	0.001
Investment Experience					0.001	0.952
VC					2.450	0.401
Angel					3.640	0.235
Age					0.102	0.290
Gender: Non-Male					-1.210	0.694
Log (Scale)	3.267	0.000	3.254	0.000	3.250	0.000
McKelvey-Zavoina R²	0.050		0.073		0.069	
Adj. McKelvey-Zavoina R²	0.041		0.062		0.048	

Appendix 3: Individual/Social - Omission/Commission Interaction

n = 444	Estimate	Pr(> z)
Constant	44.833	0.000
Social Counterfactual	-10.902	0.005
Omission Counterfactual	3.591	0.346
Social X Omission	11.919	0.032
Source: Prolific	9.263	0.001
Log (Scale)	3.260	0.000

*Baseline Case: Individual-Commission.

Appendix 4: Experience - Treatment Interactions

n = 444	Experience		Experience x Treatment	
	Estimate	Pr(> z)	Estimate	Pr(> z)
Constant	50.098	0.000	53.540	0.000
Condition: Individual/Omission	-1.227	0.747	-2.296	0.601
Condition: Individual/Commission	-4.878	0.209	-8.175	0.071
Condition: Social/Omission	-0.205	0.960	-3.532	0.457
Condition: Social/Commission	-15.799	0.000	-18.774	0.000
Source: Prolific	8.402	0.001	7.230	0.011
Experience	0.004	0.828	-0.169	0.157
Individual/Omission X Exp.			0.081	0.549
Individual/Commission X Exp.			0.194	0.134
Social/Omission X Exp.			0.214	0.200
Social/Commission X Exp.			0.180	0.135
Log (Scale)	3.254	0.000	3.249	0.000
McKelvey–Zavoina R²	0.073		0.081	
Adj. McKelvey–Zavoina R²	0.060		0.060	

Appendix 5: Participant Source - Treatment Interactions

n = 444	Estimate	Pr(> z)
Constant	52.722	0.000
Condition: Individual/Omission	-8.163	0.172
Condition: Individual/Commission	-3.792	0.526
Condition: Social/Omission	-8.621	0.172
Condition: Social/Commission	-14.642	0.015
Source: Prolific	4.108	0.459
Individual/Omission X Prolific	11.457	0.137
Individual/Commission X Prolific	-1.916	0.806
Social/Omission X Prolific	14.068	0.085
Social/Commission X Prolific	-1.977	0.800
Log (Scale)	3.245	0.000
McKelvey-Zavoina R²	0.088	
Adj. McKelvey-Zavoina R²	0.070	

Appendix 6: Summary Statistics & Randomization Checks - Supplemental Study

Summary Statistics

n	254
Duration (mean (SD))	179.94 (93.33)
Condition (%)	Control: 88 (34.6); Individual: 84 (33.1); Social: 82 (32.3)
Inv. Prob, (mean (SD))	54.06 (24.69)
Inv. Experience (mean (SD))	4.53 (6.31)
Age (mean (SD))	41.04 (11.69)
Gender (%)	Male: 176 (69.3); Non-Male: 78 (30.7)
VC (%)	No: 141 (55.5); Yes: 113 (44.5)
Angel (%)	No: 195 (76.8); Yes: 59 (23.2)
Type	Commission: 69 (27.2); Omission: 121 (47.6)

Randomization Checks

Variable	Method	Test Statistic	P- Value
Inv. Experience	ANOVA	2.532	0.082
Age	ANOVA	1.875	0.156
Gender	Chi-Squared	2.579	0.276
VC	Chi-Squared	1.000	0.607
Angel	Chi-Squared	0.111	0.946

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