Widening or Closing the Gender Gap:
Ventures' Competitiveness Framing and VC Investment

Yajing Li
College of Business
Lehigh University
27 Memorial Drive West
Bethlehem, PA 18015, USA
Email: yal725@lehigh.edu

Xiumei Li
I.H. Asper School of Business
University of Manitoba
181 Freedman Crescent
Winnipeg, Manitoba R3T 5V4, Canada
Email: xiumei.li@umanitoba.ca

Donal Crilly
London Business School
London, United Kingdom
Email: dcrilly@london.edu

(Please do not distribute this working paper without the authors' permission. Thank you!)

Abstract: Ventures led by female founders encounter disadvantages in securing venture capital (VC) financing. We argue that female founders can mitigate this gap by adopting competitiveness framing—language that highlights a competitive position and orientation. Although this framing violates traditional gender expectations, we draw on expectancy violation theory to theorize that it signals desirable competence and will be perceived positively by VCs. Based on a sample of 1,579 U.S. IT ventures, we find that the gender gap in investment diminishes when female founders use a higher level of competitiveness framing. Furthermore, this effect is amplified when VCs have prior investment ties with the venture, underscoring the joint importance of counter-stereotypical framing and venture-VC familiarity in entrepreneurial finance.
Keywords: venture capital, entrepreneurial framing, female founders, expectancy violation theory

INTRODUCTION

Due to resource constraints and the imperative to survive and grow, entrepreneurs often depend on funding from investors such as venture capitalists (VCs) (Drover et al., 2017). In the context of entrepreneurial financing, ventures led by female founders are consistently found to face disadvantages (see a review by Jennings & Brush, 2013). A principal mechanism underlying this gender gap is investors' negative bias against female founders, whom they perceive as lacking competence (Lee & Huang, 2018). Recognizing the critical role of financing in entrepreneurship, both scholars and practitioners have focused on strategies to help female founders.

One strategy that has received increasing scholarly attention is framing, defined as "the use of rhetorical devices in communication to mobilize support and minimize resistance" (Cornelissen & Werner, 2014, p. 185; see also Cattani, Deichmann, & Ferriani, 2022; Snihur, Thomas, Garud, & Phillips, 2022). Extant research advises female founders to adopt framing *congruent* with female gender stereotypes. For example, female founders' use of social impact framing, which is congruent with feminine gender roles and enhances perceptions of warmth, can help mitigate gender bias (Lee & Huang, 2018). This recommendation is grounded in role congruity theory (Biddle, 1979; Eagly, 1987; Eagly & Karau, 2002) and gender-based backlash effects (Rudman & Phelan, 2008), both of which posit that when women adopt masculine characteristics, they are penalized for violating expected gender roles.

However, challenging the universal backlash effect, subsequent scholars argue that whether stereotype-inconsistent behaviors are evaluated positively or negatively depends on the specific context (Jussim et al., 1987). Expectancy violation theory posits that audiences react positively when a focal actor exhibits unexpected (counter-stereotypical) yet *desirable* traits

2

(Jussim et al., 1987). Drawing on this theory, we argue that certain *violating* (counter-stereotypical) framing strategies may benefit female founders in the VC financing context.

We develop a theory on how and when a counter-stereotypical competitiveness framing strategy can help reduce the gender gap in VC financing. We begin with the gender gap baseline hypothesis that ventures led by female founders receive less VC investment (Kanze et al., 2018), partly due to perceptions of lower competence (Jennings & Brush, 2013). We argue that competitiveness framing is desirable for VCs because it emphasizes competence, which resonates with VCs' expectations. Leveraging expectancy violation theory (Jussim et al., 1987), we contend that competitiveness framing can benefit female founders because, while competitiveness framing violates feminine expectations, such a violation aligns with VCs' evaluative criteria. Furthermore, we posit that this effect is contingent on venture-VC familiarity, where previous interactions foster trust and reduce interpretive ambiguity, thereby strengthening the benefits of counter-stereotypical framing for female founders.

Empirically, we test our theory using archival data from 1,579 U.S. information technology (IT) ventures seeking VC investment. First, we establish the existence of a gender gap: ventures led by female founders receive less VC investment. Second, we show that competitiveness framing helps attract VC financing. Third, we find that the negative effect of having female founders is mitigated at higher levels of competitiveness framing. Finally, our results show that the effect of competitiveness framing on reducing the gender gap is stronger when venture-VC familiarity is higher.

This paper makes three main contributions to the extant literature. First, it contributes to gender and entrepreneurship research (Jennings & Brush, 2013). While prior work has primarily focused on the benefits of stereotype-congruent framing strategies (Lee & Huang, 2018), we

highlight counter-stereotypical framing strategies, specifically competitiveness framing, as an effective strategy for female founders to reduce the gender gap in VC financing. Second, we extend the entrepreneurial framing literature (Cattani et al., 2022; Snihur et al., 2022) by introducing and theorizing competitiveness framing as a novel linguistic device. We also identify venture-VC familiarity as an important source of audience heterogeneity that shapes the effectiveness of framing strategies. Third, we contribute to scholarship on the intersection of gender, stereotypes, and social evaluations. While role congruity theory posits that gender-congruent behaviors receive positive evaluations (Eagly & Karau, 2002) and gender-violating behaviors may lead to backlash (Rudman & Phelan, 2008), we build on expectancy violation theory (Jussim et al., 1987) and show that violating gender stereotypes, through female founders' competitiveness framing, can yield positive outcomes in the VC financing context. We thus highlight context-specific audience expectations as a key condition shaping whether counter-stereotypical behavior is rewarded. Practically, our findings provide an actionable rhetorical strategy for female entrepreneurs navigating gendered dynamics in capital markets.

THEORY DEVELOPMENT

Female Founders

In the entrepreneurial context, VCs are pivotal to the success of ventures that often grapple with limited financial resources and managerial expertise. Beyond offering financial capital, VCs contribute important mentoring and networking assistance (Drover et al., 2017). However, it can be challenging for VCs to evaluate ventures that have a short history and lack performance records (Stinchcombe, 1965). This challenge is particularly pronounced in evaluating high-tech ventures associated with high technological uncertainty (Deeds et al., 1997). Among various pieces of information, one crucial aspect that VCs seek is information about the

founders (Plummer et al., 2016). Founder attributes, including educational background, industry experience, and entrepreneurship experience, tend to significantly influence their ventures' growth potential (Colombo, 2021; Ko & McKelvie, 2018; Shepherd et al., 2021). Indeed, as one investor from a leading Silicon Valley VC firm said, "the founder is the anchor, more than just an idea person, who understands the whole thrust behind the technology" (Roberts & Barley, 2004, p. 2). In the absence of objective markers such as financial performance, investors' assessments hinge disproportionately on founder characteristics (Lee & Huang, 2018).

Gender is a highly visible demographic characteristic affecting social evaluation (Rudman & Phelan, 2008). Consequently, the gender of founders has been shown to influence VC investment (Guzman & Kacperczyk, 2019). Ventures led by female founders encounter disadvantages in securing external investment compared to their male counterparts (Kanze et al., 2018). Differences in investors' role expectations for men versus women offer a compelling explanation for this gender gap (Lee & Huang, 2018). Roles are socially shared expectations that apply to individuals who are members of a particular social category (Biddle, 1979). Gender roles encompass social beliefs about the attributes of men and women. These role expectations or norms contribute to stereotypes, described as "cognitive structures that contain the perceiver's knowledge, beliefs, and expectancies about some human group" (Hamilton & Trolier, 1986, p. 133). Traditional gender roles dictate that men are expected to be breadwinners and compete in the workplace, while women are often associated with roles as homemakers, performing domestic and maternal duties. Consequently, gender stereotypes persist, portraying women as warmer and more caring, but less competent, than men (Eagly & Karau, 2002).

Entrepreneurship has traditionally been characterized as a more masculine arena, with male role models dominating entrepreneurial narratives (Gupta et al., 2008, 2009). As Collins,

Moore, & Unwalla (1964: 5) noted, "we may feel about the entrepreneur, he emerges as essentially more masculine than feminine." Aligned with the stereotype theory (Ellemers, 2018; Hilton & Von Hippel, 1996), VCs tend to evaluate female founders more negatively because the entrepreneur role and the female gender role are perceived as incongruent. Thus, investors may possess a biased perception that female founders' ventures are less competent and less likely to succeed. For example, scholars have found that ventures with female founders are perceived as less viable (Lee & Huang, 2018) and have worse venture funding outcomes (Guzman & Kacperczyk, 2019; Huang et al., 2021; Kanze et al., 2018; Snellman & Solal, 2023). Even when female and male entrepreneurs present the same pitch content, investors still exhibit a preference for ventures led by men (Brooks et al., 2014). Therefore, we propose the baseline hypothesis that, in line with previous literature, a gender bias exists against ventures with female founders in securing VC funding.

Baseline Hypothesis: The presence of female founders is negatively related to the amount of VC funding received.

Entrepreneurial Framing

Entrepreneurial framing involves entrepreneurs' use of rhetorical devices to "construct meaning around novel endeavors to influence audience engagement by focusing attention on selected salient features of their venture" (Snihur et al., 2022, p. 578). Scholars increasingly examine how framing strategies help entrepreneurs secure legitimacy and external support (Cattani et al., 2022). For example, entrepreneurs employ leadership framing that highlights their leadership position in a market to mobilize support (Snihur et al., 2018). Relatedly, entrepreneurs benefit from the use of both novelty framing, highlighting the new features of their offering, and

familiarity framing, highlighting the connections of their offering to existing ones, to attract VC investment (Pan et al., 2020).

Given the prevailing gender bias in entrepreneurial financing, one critical question arises: Can female founders use a framing strategy to help address the anticipated disadvantage? This question is important because, as we argued before, investors hold distinct normative expectations of male and female founders (Fiske et al., 1987a), and these gender expectations can influence investors' evaluation of founders' specific framing strategies (Heilman & Okimoto, 2007; Polin et al., 2023).

In what follows, we first introduce competitiveness framing and argue how it positively influences VC financing (Hypothesis 1). Then, we theorize that competitiveness framing will bring positive violations for female founders and reduce the gender gap in VC financing (Hypothesis 2). Finally, we consider investor heterogeneity and theorize on how Venture-VC familiarity serves as a boundary condition for the extent to which competitiveness framing can reduce the gender gap (Hypothesis 3).

Competitiveness Framing

The entrepreneurial landscape is marked by intense competition, as ventures contend not only with each other but also with established incumbents. Competition often unfolds as a zero-sum game, wherein one actor's success comes at the expense of another, and ventures engage in a competitive scramble for the same scarce resources (Kilduff et al., 2016). Within the psychology literature, competitiveness is conceptualized as a personality trait, defined as the individual's desire to win the competition and outperform others (Spence & Helmreich, 1978). Building on these theoretical foundations, we introduce *competitiveness framing*, defined as entrepreneurs' use of linguistic representations that emphasize the competitive position and

orientation of their ventures. For instance, a marketing venture, The Trade Desk, used "pioneers of real-time bidding" and "fastest growing RTB media buying platform" to highlight its competitive advantages over competitors (Business Wire, April 16, 2013).

We posit that ventures' competitiveness framing is effective in attracting VC investment by fostering audience resonance. Resonance refers to the process through which a message aligns with audiences' beliefs, values, and aspirations (Snihur et al., 2022), prompting positive evaluations (Giorgi, 2017). Resonance is critical in that framing results in favorable outcomes only if it aligns with the goals and expectations of the audience (Giorgi, 2017). In our context, as key financial resource providers for ventures, VCs invest with the primary objective of gaining financial returns from the success of their portfolio ventures. However, early-stage ventures offer limited concrete evidence of their potential, so VCs must rely on signals and narratives. When making investment decisions, VCs seek indicators of a venture's profitability potential (Petkova et al., 2014). Competitiveness framing sends a signal of competence. An entrepreneur who has thoroughly researched the competitive landscape and articulates how their venture will outcompete others comes across as committed, well-prepared, and strategic (Martens et al., 2007; Pollack et al., 2012). It demonstrates that the entrepreneur is not naively optimistic but rather is keenly aware of competitive risks and has plans to overcome them. By emphasizing their competitiveness, ventures distinguish themselves from competitors, portray themselves as competent players in the market, and consequently position themselves as worthy of investment (Navis & Glynn, 2011). We argue that this competitiveness framing mitigates uncertainty about the venture's ability to navigate competition and resonates with VCs' aspirations. Thus, lacking objective indicators of competence, entrepreneurs can use competitiveness framing as a linguistic

tool to convey competence, which resonates with VCs' aspirations for high-potential and high-growth opportunities.

Professionals also support this theoretical argument. For example, Silicon Valley VCs reveal that "a common mistake made by entrepreneurs is to underestimate competition – the entrepreneur can easily be blinded by the brilliance of his/her plan and fail to objectively evaluate the differential advantage provided by his/her products" (Hoyt, Ranzetta, & Strebulaev, 2012, p. 6). When asked, "how do you evaluate potential venture opportunities?" a partner from a leading Silicon Valley VC firm answered that one important "factor involves a competitive edge that is long-lasting" (p. 2) and "differentiation is important to sustain a competitive advantage" (p. 9) (*How venture capitalists evaluate potential venture opportunities*, 2004). Thus, we hypothesize that:

Hypothesis 1: The level of competitiveness framing is positively related to the amount of VC funding received.

Competitiveness Framing and Female Founders

Prior literature argues that *congruent* framing, such as social impact framing that aligns with traditional female role expectations, can mitigate the gender gap in evaluations of early-stage ventures (Lee & Huang, 2018). According to role congruity theory (Biddle, 1979; Eagly, 1987; Eagly & Karau, 2002), evaluators reward behavior consistent with expected social roles. In line with this theory, the display of masculine behaviors by women is seen as a violation of gender-role expectations, resulting in what is known as the backlash effect (Rudman & Phelan, 2008). For example, when women engage in counter-stereotypical or masculine behaviors like self-promotion, they may incur social costs (Heilman et al., 2004; Heilman & Okimoto, 2007; Phelan & Rudman, 2010; Rudman, 1998). Consequently, one may expect that the use of

masculine framing could exacerbate the disadvantage female founders face in securing VC funding.

However, challenging the universal backlash effect, scholars have argued that *incongruent* or counter-stereotypical violations can be viewed positively or negatively depending on the specific context (Jussim et al., 1987). Expectancy violation theory posits that counter-stereotypical cues influence social judgments more strongly than stereotype-confirming ones (Jussim et al., 1987). Specifically, audiences tend to react more positively when the focal actor displays unexpected (counter-stereotypical) yet *desirable* traits. Drawing on this theory (Jussim et al., 1987), we argue that when women exhibit male-typed behaviors that violate gender expectations in ways deemed desirable, they receive positive evaluations. For example, psychology studies have shown that women are rewarded when perceived as competent (Ma et al., 2022) or when they use an agentic voice (McClean, Kim, & Martinez, 2022). In the crowdfunded microlending context, women benefit from expressing masculine facial expressions of agentic emotions (Davis et al., 2021).

Specifically, building on expectancy violation theory, we propose that when female founders use competitiveness framing, their ventures are more positively evaluated by VCs because such framing signals the agentic trait of competence. Agency denotes individuals striving to achieve goals, which is a trait stereotypically associated with men (Bakan, 1966; Davis et al., 2021; McClean et al., 2022). Within this framework, competent agency refers to the "possession of the skills and talents that enable one to help a group or organization advance towards accomplishing its goals" (Rosette, Koval, Ma, & Livingston, 2016, p. 431). As we argued in Hypothesis 1, competitiveness framing conveys competence for future success, which embodies stereotypically masculine traits (Niederle & Vesterlund, 2011; Saccardo et al., 2018).

Thus, when female founders, who are generally perceived as less competent or agentic, employ a higher level of competitiveness framing, they violate gender -stereotypical expectations. These violations are especially salient in the high-tech entrepreneurship context, where gendered stereotypes are deeply entrenched (Gupta et al., 2008, 2009).

As articulated in Hypothesis 1, competitiveness framing is *desirable* in the VC financing context because it conveys competence and potential for future success. Investors, motivated by maximizing returns (Drover et al., 2017), interpret competitiveness framing as a signal of agentic efforts to enhance their competitive positions. Although female founders may typically be perceived as less competent or agentic, adopting competitiveness framing can potentially elevate their ventures' perceived competence. Thus, when female founders use this framing, it creates a positive expectancy violation as both desirable and unexpected, thereby reducing the gender gap in VC investment. Conversely, for male founders, competitiveness framing yields a smaller marginal benefit since it already aligns with prevailing expectations. Consequently, when female founders increase competitiveness framing, they improve their chances of securing VC financing and reduce the gender gap. Thus, we hypothesize that:

Hypothesis 2: The level of competitiveness framing will reduce female founders' disadvantage in VC funding, such that the negative effect of female founders on the amount of VC funding received will be weaker (less negative) when ventures use a higher level of competitiveness framing.

The Moderating Role of Venture-VC Familiarity

To this point, our theorizing has treated VCs as a homogeneous audience. According to expectancy violation theory, audiences' interpretation of a violation depends on the inherent desirability of the violation *and* their attitude towards the violator (Burgoon, 1993; Burgoon &

Hale, 1988; Burgoon & Jones, 1976). Specifically, VCs vary in their familiarity with a focal venture, and this heterogeneity has important theoretical implications. For example, some VCs may be engaging with a venture for the first time, while others may have established repeated interactions. Scholars may argue that familiarity with the venture may shape how investors respond to violations of gender stereotypes. Prior research suggests that familiarity can attenuate reliance on stereotypes: as observers gain more information, they tend to shift away from category-based (stereotypical) heuristics to individuated judgments (Fiske et al., 1987b). Accordingly, VCs who possess extensive knowledge of a focal venture may put less emphasis on gendered stereotypes. Yet, familiarity is not uniformly beneficial. Other research documents that repeated exposure may reinforce stereotyping, particularly when initial impressions anchor subsequent interpretation (Higgins & Bargh, 1987; Hilton & Von Hippel, 1996).

To reconcile these perspectives, we draw on the idea of interpretive ambiguity. As previously argued, framing is a purposive linguistic effort by entrepreneurs to shape investor interpretation (Fiss & Zajac, 2006). However, such framing may introduce interpretive ambiguity. Since ventures lack objective indicators of financial performance, venture framing and its meaning may be open to contestation by VCs who may be skeptical that the venture's actions will match its rhetoric. In the case of potential ambiguity, the audience's attitude is especially salient in influencing the final interpretation of an expectancy violation (Burgoon, 1993; Seigner et al., 2022).

Accordingly, we propose that the effectiveness of competitiveness framing in reducing the gender gap in VC investment depends on the level of venture-VC familiarity. Repeated interactions between ventures and VCs facilitate information exchange and build familiarity (Gulati, 1995). This familiarity enables VCs to gain confidence in a venture's stated initiatives

and behaviors through knowledge-based trust (Lioukas & Reuer, 2015). This effect is particularly relevant in the VC context, where VCs not only invest money but also put extensive efforts into mentoring and governance (Drover et al., 2017). Thus, familiarity with the focal venture allows VCs to better learn about, trust, and positively interpret female founders' competitiveness framing as a credible signal. In such cases, the expectancy violation is both inherently desirable and positively received by the audience. In contrast, when VCs lack familiarity with a venture, they may not develop the same understanding of strategic intent and dismiss female founders' competitiveness framing as mere rhetorical embellishment. As a result, the framing may fail to produce a positive evaluative shift, and the effect of gender-challenging framing may be muted. We hypothesize the following three-way interaction effect and summarize all hypotheses in Figure 1.

Hypothesis 3: The level of venture-VC familiarity enhances the positive moderating effect of competitiveness framing on the relationship between female founders and the amount of VC funding received.

---Insert Figure 1 here---

METHOD

Data and Sample

We drew our sample from the U.S. information technology (IT) industry. We chose the IT industry because IT ventures actively seek VC investment. For example, in the U.S., the software industry received the largest VC investment in both 2000[1] and 2022 (approximately 90 billion U.S. dollars) (Statista, 2023). Notable VC-backed IT companies include Cisco Systems, Intel, Sun Microsystems, and Yahoo (Hellmann, 2000). In constructing our sample, we used the

---

[1] Source: https://graphics.wsj.com/venture-capital-deals/

VentureXpert database, a prominent startup database widely employed by both industry professionals and academia (Sorenson & Stuart, 2008). Initially, we obtained a sample of 5,620 U.S. IT ventures founded between 2003 and 2012.

Subsequently, we gathered founder data for ventures from various sources, including Crunchbase, VentureXpert, BoardEx, LinkedIn, and Google searches. Our initial goal was to obtain the founders' names and gender information. We began by utilizing the Crunchbase database, which provides business information, including details about the founders of ventures. Our approach involved searching Crunchbase and cross-referencing it with the VentureXpert database using the venture name, founding year, and founding state as matching criteria. In instances where a venture could not be located in Crunchbase, we retrieved executive information from the VentureXpert database and retained it only if the job title indicated "founder." This process yielded names and gender information for 3,618 founders.

Next, our objective shifted to obtaining education and employment information for these founders. We conducted a matching process by comparing the founders' first names, last names, and venture names with the BoardEx database. BoardEx collects education and employment history details of directors from various public sources, including regulatory filings, annual reports, proxy statements, company websites, press, and regulatory news wires. If a founder was not found in BoardEx, we attempted to retrieve their LinkedIn profile URLs directly from Crunchbase. If that was not possible, we conducted Google searches using the founder's and venture's names and selected the highest-ranked LinkedIn URL. Following this step, we hired research assistants to collect and organize education and employment history from the LinkedIn profiles. We double-checked to ensure that the focal venture was present in the LinkedIn employment history. For 55 founders with employment history but missing education

information, we conducted manual Google searches to fill in the gaps. This process produced education and employment information for founders in 2,601 ventures.

Following prior research on entrepreneurial framing (Taeuscher & Rothe, 2024), we focused on analyzing framing through ventures' press releases. To collect this data, we leveraged the LexisNexis database, which serves as a comprehensive information source covering press releases from diverse business wires and newspapers. We triangulated multiple news outlets, including Business Wire, Canadian NewsWire, Gannett News Service, M2 Presswire, Marketwired, PR Newswire, and the Associated Press (Pollock et al., 2008) to ensure a thorough compilation of ventures' press releases. Finally, we organized our data by arranging the framing data and investment events in chronological order, such that each investment event corresponded with the framing data that preceded it. Because of our primary interest in framing, we excluded observations where no press release was issued. This process resulted in a final sample comprising 1,579 U.S. IT ventures involved in 3,075 investment events occurring between 2003 and 2014.

Measures

Dependent variable

Our unit of analysis is the venture round (Katila et al., 2008). *VC funding amount* was measured as the total amount of funding a venture received in an investment round. To address skewness, we applied a natural logarithm transformation.

Independent variables

Female founder. Following previous literature (e.g., Snellman & Solal, 2023), female-founded ventures are those ventures with at least one female founder. *Female founder* was coded as 1 if at least one founder of the focal venture was female, and 0 otherwise.

Competitiveness framing. Following previous literature on entrepreneurial framing (e.g., Taeuscher & Rothe, 2024), we operationalized competitiveness framing using a dictionary approach. In developing and validating the dictionary, we followed the three-step procedure established in previous studies (Gamache et al., 2015). First, we began with lists of competitiveness keywords validated in prior studies (Andreou et al., 2020; Fang et al., 2023). The authors then reviewed and discussed the word list, reaching a mutual agreement to retain only those words with strong theoretical alignment to competitiveness framing. This process resulted in an initial dictionary of 69 words.

Second, we assessed content validity. We recruited 50 U.S.-based coders who worked in finance and had investment experience. We asked them to evaluate whether each word was relevant to competitiveness. We supplemented our original list with 21 random words (30%) to ensure the rating process was robust. After excluding words that experts did not identify as competitive, our final competitiveness framing dictionary contains 60 words (see Table A1 in the Appendix).

Third, we evaluated convergent and discriminant validity. To assess convergent validity, we expected ventures that score highly on competitiveness framing to also exhibit elements of assertive, promotion-focused communication. To test this, we compared our competitiveness framing score with an independent measure of promotion-focused framing derived from previous literature (Gamache et al., 2015). Indeed, we found a strong positive correlation between competitiveness framing and promotion-focused language in the press releases ($r = .491$), indicating that our measure taps into a related underlying dimension of assertive strategic orientation.

To assess discriminant validity, we compared our competitiveness framing measure with a related but distinct framing construct, innovativeness framing. Innovativeness framing highlights a venture's innovativeness and distinction from established practices (Taeuscher & Rothe, 2024). We selected innovativeness framing as a comparison construct because it is conceptually related to competitiveness framing: both seek to attract investor attention by making the venture stand out (Snihur et al., 2022). However, they represent distinct dimensions of entrepreneurial communication. While innovativeness framing emphasizes novel distinction, competitiveness framing focuses on positioning in the competitive landscape. We applied the innovativeness framing dictionary from previous literature (McKenny et al., 2018), and found a low correlation ($r = .144$).

Finally, to compute competitiveness framing, we analyzed press releases using Linguistic Inquiry and Word Count (LIWC) (Pennebaker et al., 2015a), a widely used software package in organization, management, and entrepreneurship research for text analysis (e.g., Kanze et al., 2018). We calculated the measure as the total number of competitiveness keywords divided by the total number of words across all press releases published by ventures during each relevant period (i.e., between a venture's founding date and its first investment event date, or between two consecutive investment event dates). This percentage-based measure ensured that the competitiveness framing values were not driven by the number of press releases.

Moderating variable

Venture-VC familiarity. Familiar investors at the focal round are those investors who have invested in the focal venture in the previous round. For the focal venture i at round t, *venture-VC familiarity* is the ratio of the number of familiar investors to the total number of investors. To illustrate, consider two scenarios. In scenario A, venture A has five investors who

are all new to the venture, so the level of venture-VC familiarity is 0. In scenario B, venture B has four new investors and one familiar investor, so the level of venture-VC familiarity equals 0.2 (= 1/(1+4)). Then, venture-VC familiarity is higher in scenario B than in scenario A.

Control variables

First, we controlled for the founders' characteristics, as investors often assess the quality of the founding team (i.e., human capital) when evaluating ventures. Human capital, including knowledge, experience, and expertise, can be developed through education and experience (Becker, 2009). For education, signaling theory suggests that higher education levels reduce information asymmetry in the labor market (Spence, 1973). Thus, entrepreneurial teams with more human capital (e.g., Ph.D. degrees) tend to have higher VC valuations (Hsu, 2007). We coded *founder education level* by examining the highest degree among founders as follows: 3 for Ph.D. degrees, 2 for master's degrees, and 1 otherwise. *Founder elite school* was coded as 1 if at least one founder's degree was from the Ivy League, Stanford, Berkeley, or MIT,[2] and 0 otherwise. In terms of experience, we considered founder backgrounds in VC and entrepreneurship as relevant working experiences. *Founder VC experience* was coded as 1 if at least one founder had worked in the VC industry and 0 otherwise. *Serial entrepreneur founder* was coded as 1 if at least one founder had founded other ventures before the focal venture and 0 otherwise. We also included *male founder count*, measured as the number of male founders on the founding team, to control for gender composition effects.

Second, we controlled for the venture's characteristics. Given the limited performance history of young ventures and the challenges associated with their evaluation, VCs may exhibit reluctance to invest in such ventures (Stuart et al., 1999). For this reason, we controlled for

---

[2] Stanford, Berkeley, and MIT are added considering the importance of STEM majors in the IT industry.

venture age, measured as the number of years since the founding of the venture. Similarly, we included dummy variables for the *venture stage* (e.g., early, expansion, or later stage) and *round number*, as reported by VentureXpert (Guler, 2007). In our sample, California, Massachusetts, and New York represent the three clusters that received the largest VC investments. Thus, *venture location* was coded as 1 if the venture was located in the state of California, Massachusetts, or New York, and 0 otherwise. Using venture state dummies instead produced consistent results. Regarding prior financing information, we controlled for the focal venture's *prior round VC funding amount*, measured as the natural logarithm of the funding amount received in the previous round, and the focal venture's *prior round number of investors*, measured as the count of investors in the previous round. Furthermore, to account for the intensity of a venture's press releases, we included the *number of press releases* each venture issued during the same specific period used for calculating competitiveness framing (Petkova et al., 2013). To control for the effect of the length of an investment round on a venture's press release intensity, we included *round duration*, measured as the time elapsed in years between two consecutive investment events.

Finally, recognizing the influence of general economic conditions, the state of the VC funding supply market, and the specific venture industry on available VC financing (Gulati & Higgins, 2003), we included *year* and *industry* (two-digit SIC) fixed effects.

Analytical Procedures

Following previous research (Katila et al., 2008), we used the Generalized Estimating Equations (GEE) regression method to empirically test our theoretical model. This method is particularly suited for handling autocorrelation arising from multiple observations within the same subject (Liang & Zeger, 1986). Because our study involves multiple funding rounds of a

single venture, which introduces autocorrelation, it is appropriate to use GEE. In all models, we specified a normal distribution with an identity link function and implemented a within-group (i.e., industry, measured at two-digit SIC) correlation structure (Ballinger, 2004). To evaluate and test model fit, we reported the Quasi-likelihood under the Independence model Criterion (QIC).

Results

Table 1 provides the descriptive statistics and correlations of variables used in this study. Tests reveal a mean-variance inflation factor (VIF) of 4.49, which is below the suggested threshold of 10 for the risk of multicollinearity (Vittinghoff et al., 2012).

---Insert Table 1 about here---

Table 2 presents the GEE regression results. In Model 1, we included the control variables only. In Model 2, we included the two independent variables female founder and competitiveness framing. In Model 3, we included the two-way interaction term female founder × competitiveness framing. In Model 4, we included the moderator venture-VC familiarity and the three-way interaction term female founder × competitiveness framing × venture-VC familiarity.

Baseline Hypothesis suggests that the existence of female founders will be negatively related to the amount of VC funding received. In Model 2, the coefficient of female founder is negative ($\beta = -0.186$, $p = .000$), supporting the Baseline Hypothesis. Because our dependent variable is logarithmically transformed, the regression coefficient can be interpreted as the percentage change in the dependent variable associated with a one-unit change in the independent variable. Specifically, having a female founder would be associated with a reduction of approximately 17.0% in the amount of VC funding. In our sample, the average VC funding

amount is $5.1 million, which means that ventures with female founders, on average, experience a funding reduction of around $0.9 million.

Hypothesis 1 suggests that the level of competitiveness framing will be positively related to the amount of VC funding received. In Model 2, the coefficient of competitiveness framing is positive ($\beta = 0.035$, $p = .000$), supporting Hypothesis 1. To interpret the substantive effect, a one standard deviation increase in competitiveness framing would result in approximately a 3.6% increase in VC funding, equivalent to about $0.2 million in our sample.

Hypothesis 2 suggests that when ventures use a higher level of competitiveness framing, the negative effect of female founders on the amount of VC funding will be weaker. In Model 3, the coefficient of the interaction term female founder × competitiveness framing is positive ($\beta = 0.088$, $p = .045$), supporting Hypothesis 2. To interpret the substantive effect, a one-standard-deviation increase in competitiveness framing would decrease the effect of female founders on the amount of VC funding by 60.7%. We plotted the interaction effect in Figure 2. The negative relationship between having a female founder and the amount of VC funding is attenuated at higher levels of competitiveness framing (i.e., two standard deviations above the mean) compared to lower levels (i.e., two standard deviations below the mean).[3]

---Insert Table 2 and Figure 2 here---

Hypothesis 3 suggests that when venture-VC familiarity is higher, the positive interaction effect between competitiveness framing and female founders on the amount of VC funding will be stronger. In Model 4, the coefficient of the three-way interaction term female founder × competitiveness framing × venture-VC familiarity is positive ($\beta = 0.296$, $p = .042$), supporting Hypothesis 3. To help understand the three-way interaction, we present the sub-sample analysis

---

[3] We also provide an alternative visualization for this interaction effect by plotting competitiveness framing on the horizontal axis and using separate lines for male and female founders (see Figure A1 in the Appendix).

(see Table 3). At a higher level of venture-VC familiarity (i.e., above the mean), the interaction effect of competitiveness framing and female founders on the amount of VC funding is positive ($\beta = 0.210$, $p = .001$). However, at a lower level of venture-VC familiarity (i.e., below the mean), such an interaction effect is not found ($\beta = -0.072$, $p = .403$). Thus, competitiveness framing is more effective in reducing the disadvantage of female founders in seeking investment when venture-VC familiarity is higher.

<div align="center">---Insert Table 3 here---</div>

Following previous literature (Hayes, 2017), we further probed the three-way interaction by estimating the marginal effect of female founders across different levels of competitiveness framing and venture-VC familiarity. As shown in Table 4, under low competitiveness framing, the presence of a female founder is associated with negative effects on VC funding across all levels of venture-VC familiarity, ranging from -0.265 ($p = .016$) at low familiarity to -0.233 ($p = .011$) at high familiarity. Although the magnitude of the negative effect diminishes slightly as venture-VC familiarity increases, the effect remains negative throughout. In contrast, under high competitiveness framing, the female founder effect varies substantially by venture-VC familiarity. At low venture-VC familiarity, the effect remains negative (-0.340, $p = .000$). At medium venture-VC familiarity, the effect becomes marginal (-0.097, $p = .054$). At high venture-VC familiarity, the effect turns positive and pronounced (0.152, $p = .005$), indicating that female founders may not only overcome bias but also benefit. Figure 3 offers a visual illustration of these dynamics. The red solid line (high competitiveness framing) rises with venture-VC familiarity and turns positive at high levels, while the blue dashed line (low competitiveness framing) stays flat and negative. These patterns provide further support to Hypothesis 3, showing

that venture-VC familiarity strengthens the effectiveness of competitiveness framing in reducing the funding gap faced by female founders.

<center>---Insert Table 4 and Figure 3 here---</center>

Supplementary Analyses

(1) Aggressive competitiveness framing. While our core argument is that competitiveness framing serves as a positive expectancy violation for female founders, we extend our analysis to probe the boundaries of this effect. Theoretically, it is interesting to explore whether aggressive and extreme levels of competitiveness framing could backfire since female founders using aggressive forms of competitiveness might be viewed as highly role incongruent, therefore producing negative reactions. We decomposed competitiveness frames into aggressive and non-aggressive competitiveness frames, using two approaches.

First, we recruited 50 U.S.-based coders who worked in finance and had investment experience. We asked them to evaluate whether each of the 60 competitiveness words carried an aggressive tone. This approach yielded two sub-dictionaries: aggressive (36 words) and non-aggressive (24 words). The resulting dictionaries are presented in Table A2 in the Appendix. We then re-estimated our models using each dictionary. Results show that non-aggressive competitiveness framing replicates the findings based on the full dictionary, supporting all three hypotheses. In contrast, while aggressive competitiveness framing (36 words) is positively associated with the investment amount (H1, $p < .001$), its interaction effect with female founders is not supported (H2, $p = .416$), suggesting that aggressive competitiveness framing does not benefit female founders.

Second, we used the LIWC sentiment dictionary and identified negative sentiment words in our competitiveness framing dictionary (Pennebaker et al., 2015b). This yielded 7 aggressive

<center>23</center>

(aggress, battle, beat, combat, fight, threat, war) and 53 non-aggressive words. Results show that non-aggressive competitiveness framing again supports all three hypotheses. However, aggressive competitiveness framing (7 words) does not predict investment amount (H1, p = .691), and its interaction with female founders is negative (H2, $p < .001$), which suggests that when the competitiveness framing is extremely aggressive and warlike (which can be considered undesirable; see Cotter Salvado & Crilly, 2025), it may instead create negative violations and harm female founders. This empirical pattern supports the theoretical idea that there is an important nuance in what constitutes a desirable behavior for competitiveness. Competitiveness framing is viewed as positive and can help female founders, whereas competitiveness that edges into war or extreme aggressiveness is received negatively.

(2) Reverse causality. In our main analyses, we organized our data to ensure that the independent variable, competitiveness framing, preceded the dependent variable, VC funding amount. To further address the potential reverse causality concern, where ventures receiving higher VC funding amounts might subsequently adopt a higher level of competitiveness framing, we conducted a supplementary analysis. In this analysis, the independent variable was VC funding amount at round t-1, and the dependent variable was competitiveness framing at round t. The results (Table A3 in the Appendix) show that the relationship between VC funding amount (t-1) and competitiveness framing (t) is not supported ($\beta = 0.011$, $p = .269$). Thus, our analysis provides no evidence of reverse causality.

(3) Omitted variables bias. Scholars may worry about the endogeneity issues that some unobserved variables could simultaneously drive the identities of venture founders, venture framing, and the outcome of VC investment. In other words, ventures do not randomly get founders or randomly choose framing language. To check this issue, we conducted a pre-

registered experiment[4] that allowed us to establish a causal link between venture competitiveness

framing, female founders, and financing outcomes. After dropping participants who failed

manipulation and attention checks, we recruited 944 U.S. adults with investment experience

from Prolific. Participants were informed that their task was to evaluate the provided information

about one startup to assess its growth potential and make investment decisions. We used a 2×2

between-subjects design in which participants were randomly assigned to one of the four

conditions: the founder's gender (female vs. male) and the competitiveness framing (high vs.

low). We manipulated the gender of the founder by using names and photos. We manipulated the

venture framing through product descriptions: In the low competitiveness framing condition, the

description stated: "Our product performs well in both functionality and speed." In the high

competitiveness framing condition, the description stated: "Compared with competitors, our

product has achieved a competitive advantage position in both functionality and speed." To

ensure consistency in the evaluation process and control for confounding variables, the founder's

and the venture's background information were constant across conditions. After reading the

scenario, participants were asked to rate their investment interest on a 1-7 scale. The

experimental results closely mirrored our archival findings: when the pitch used high

competitiveness framing, the negative effect of having a female founder on investor interest was

weakened relative to the low competitiveness framing condition (interaction effect: $b = 0.345$, p

$= .096$).

DISCUSSION

Female founders face persistent disadvantages in securing external finance because the

prevailing entrepreneurial prototypes are implicitly masculine (Jennings & Brush, 2013). In this

---

[4] https://aspredicted.org/kdzk-qwgj.pdf

paper, we examine a competitiveness framing strategy that violates traditional gender expectations, as an alternative to the established approach of gender stereotype-congruent framing. Because investors tend to perceive female founders as less competent, we theorize that competitiveness framing can serve as a positive expectancy violation. Such framing effectively challenges gender stereotypes and thereby reduces the penalties female founders face in securing financing. Consistent with our theorizing, we find that a higher level of competitiveness framing narrows the gender gap in VC investment in the US IT industry. Furthermore, venture-VC familiarity enhances the positive moderating effect of competitiveness framing on female founders' funding outcomes.

Gender and Entrepreneurial Framing

This study makes three contributions to the extant literature. First, it contributes to the literature on gender and entrepreneurship (Jennings & Brush, 2013). While prior research on the well-established gender gap in entrepreneurship has primarily focused on the benefits of congruent framing to reduce the gender gap in financing (Lee & Huang, 2018), our study challenges this perspective. We integrate insights from framing literature (Snihur et al., 2022) and expectancy violation theory (Jussim et al., 1987). We provide evidence that competitiveness framing and founder gender jointly affect the evaluation of ventures and demonstrate that competitiveness framing, despite violating expectancies for female roles, aids female founders in reducing the gender gap. In particular, we offer new insight that, compared with male founders, female founders can effectively deploy the competitiveness framing strategy to attract VC funding. This interaction effect provides nuanced insight into research on gender inequality in the entrepreneurship context and deepens our understanding of how to close the gender gap in entrepreneurial financing.

Second, our study contributes new insights into the entrepreneurial framing literature (Cattani et al., 2022; Snihur et al., 2022) by introducing a new type of entrepreneurial framing strategy—competitiveness framing. We provide evidence that female founders can use competitiveness framing to help obtain financial resources such as VC investments. Furthermore, this paper contributes to the emerging stream of framing literature on factors that shape the effectiveness of framing (e.g., Taeuscher & Rothe, 2024). We further challenge the view of consistently desirable framing by exploring how competitiveness framing's influence on the gender gap in entrepreneurial financing is contingent on VC heterogeneity. This highlights that the effectiveness of framing strategies depends on audience interpretation. We find that venture-VC familiarity strengthens the effectiveness of competitiveness framing in reducing the gender gap. In particular, the effect of competitiveness framing in reducing the gender difference in VC investment disappears at low levels of venture-VC familiarity. A key implication is that audience heterogeneity could shape the effectiveness of framing strategies and thus influence their impact on the gender gap.

Third, this study also engages with the research on stereotypical behaviors and gender bias in social evaluations. Key to social role theory is the notion that gender roles prescribe the expected behavior for both women and men (Eagly & Karau, 2002). Previous studies on role congruity theory (Eagly & Karau, 2002) suggest that women should avoid behaviors that violate gender roles, because women with more masculine characteristics may lead to backlash (Rudman & Phelan, 2008). For example, women who display traditionally masculine behaviors often face negative consequences, such as lower likability ratings or a reduced likelihood of being hired or promoted (Heilman et al., 2004; Phelan & Rudman, 2010; Rudman, 1998). While we do not intend to reject previous knowledge, we aim to identify the conditions under which

violating gender stereotypes might be beneficial for women (Jussim et al., 1987). Our paper identifies female founders' competitiveness framing as a strategy that, although perceived as masculine, is desirable for VCs and can effectively reduce the gender gap in entrepreneurial financing. We provide evidence that certain types of counter-stereotypical framing can positively affect VCs' perceptions of female founders.

In making these contributions, this study also offers practical implications for entrepreneurs. Most fundamentally, it emphasizes the role of framing strategies in seeking entrepreneurial financing. Specifically, we provide evidence that entrepreneurs, both male and female, will benefit from competitiveness framing in attracting VCs. Our results further confirm that female founders face a funding disparity in male-dominated industries such as the IT industry. Female founders should be aware of this potential bias. Yet, our results also provide compelling evidence for a framing strategy that female founders can use to address the gender gap. For example, by emphasizing their competitiveness and competency, female founders can impress investors and counter prevailing stereotypes about them.

Limitations and Future Research Directions

It is important to acknowledge some limitations of this paper. First, we focus on the outcome of VC investment. It is crucial to recognize that we do not directly observe the process of investor evaluation. For example, it would be valuable to investigate whether investors attribute the framing to the venture or its founder(s), as this distinction represents a promising avenue for further research. Specifically, it would be interesting to examine systematically whether women can avoid backlash by framing counter-stereotypical behaviors in impersonal or venture-focused terms, thus sidestepping direct challenges to gender norms attached to individuals. Future studies could examine the processes of investor evaluation by collecting

28

detailed VC evaluation scores and comments on venture candidates through surveys of VCs or coding archival data from multiple VC firms. Furthermore, besides VCs, it is valuable to explore other investor types. For example, angel investors often develop more personal, friendship-like relationships with entrepreneurs (Huang & Knight, 2017). Thus, future studies could collect data from angel investors and test for potential theoretical distinctions between VC and angel investors.

Second, because of data collection efforts, our sample ends in 2014. However, we recognize the importance of major gender equity events in the intervening period, including the MeToo movement and the evolving discourse on DEI. Thus, we encourage scholars to explore how social events could act as boundary conditions on our theoretical model. For example, if social movements (e.g., MeToo) and changes in public discourse reduced the implicit biases on female entrepreneurs among VCs, we might expect the gender gap and the effectiveness of competitiveness framing to shrink.

Third, we focus on female founders in the context of entrepreneurship. However, we acknowledge that other key individuals, such as female CEOs and TMTs, are also important (Mah et al., 2023). Nevertheless, it is difficult to trace a venture's annual executive information from publicly available archival data. Our dataset also does not have information on the gender composition of each VC firm's partnership team. It would be valuable to examine whether the presence of female VC partners influences the effectiveness of counter-stereotypical framing strategies. Future studies could gather primary data on female executives and VC partners to explore how their presence shapes entrepreneurial financing outcomes.

Finally, another limitation is related to the empirical context. In the high-tech IT industry, competitive growth strategies are often highly valued. In a high-tech, high-growth environment,

investors expect and encourage founders to think about beating rivals and capturing markets. This context likely amplifies the positive violation effect of competitiveness framing by female founders. Thus, future studies could explore whether positive violations of competitiveness framing for female founders apply across various industry contexts. It would be particularly beneficial if scholars could theorize about industry characteristics that can act as boundary conditions.

CONCLUSION

Contrary to arguments that women-led ventures incur backlash for adopting role-incongruent communication, we theorize and empirically demonstrate that ventures founded by women secure greater funding when they employ competitiveness framing—an approach deemed desirable by VCs yet at odds with prevailing gender stereotypes. This fundraising advantage is amplified when VCs have prior investment ties with the focal venture. Taken together, our findings advance theories of gendered framing by showing that violating gender norms can serve as an effective resource-acquisition strategy, particularly under conditions of venture-VC familiarity.

References

Andreou, P. C., Harris, T., & Philip, D. (2020). Measuring Firms' Market Orientation Using Textual Analysis of 10-K Filings. *British Journal of Management*, *31*(4), 872–895. https://doi.org/10.1111/1467-8551.12391

Bakan, D. (1966). *The duality of human existence: An essay on psychology and religion.*

Ballinger, G. A. (2004). Using generalized estimating equations for longitudinal data analysis. *Organizational Research Methods*, *7*(2), 127–150.

Becker, G. S. (2009). *Human capital: A theoretical and empirical analysis, with special reference to education*. University of Chicago Press.

Biddle, B. J. (1979). *Role Theory*. Elsevier. https://doi.org/10.1016/C2009-0-03121-3

Brooks, A. W., Huang, L., Kearney, S. W., & Murray, F. E. (2014). Investors prefer entrepreneurial ventures pitched by attractive men. *Proceedings of the National Academy of Sciences*, *111*(12), 4427–4431.

Burgoon, J. K. (1993). Interpersonal expectations, expectancy violations, and emotional communication. *Journal of Language and Social Psychology*, *12*(1–2), 30–48.

Burgoon, J. K., & Hale, J. L. (1988). Nonverbal expectancy violations: Model elaboration and application to immediacy behaviors. *Communications Monographs*, *55*(1), 58–79.

Burgoon, J. K., & Jones, S. B. (1976). Toward a theory of personal space expectations and their violations. *Human Communication Research*, *2*(2), 131–146.

Cattani, G., Deichmann, D., & Ferriani, S. (2022). *The generation, recognition and legitimation of novelty*. Emerald Publishing Limited.

Collins, O. F., Moore, D. G., & Unwalla, D. B. (1964). *The enterprising man*. Michigan State University Press.

Colombo, O. (2021). The Use of Signals in New-Venture Financing: A Review and Research Agenda. *Journal of Management*, *47*(1), 237–259. https://doi.org/10.1177/0149206320911090

Cornelissen, J. P., & Werner, M. D. (2014). Putting Framing in Perspective: A Review of Framing and Frame Analysis across the Management and Organizational Literature. *Academy of Management Annals*, *8*(1), 181–235. https://doi.org/10.1080/19416520.2014.875669

Cotter Salvado, J., & Crilly, D. (2025). Analyst reaction to war-related language: source domains and the role of market structure and market share. *Organization Science*.

Davis, B. C., Warnick, B. J., Anglin, A. H., & Allison, T. H. (2021). Gender and Counterstereotypical Facial Expressions of Emotion in Crowdfunded Microlending. *Entrepreneurship Theory and Practice*, *45*(6), 1339–1365. https://doi.org/10.1177/10422587211029770

Deeds, D. L., Decarolis, D., & Coombs, J. E. (1997). The impact of firm-specific capabilities on the amount of capital raised in an initial public offering: Evidence from the biotechnology industry. *Journal of Business Venturing*, *12*(1), 31–46. https://doi.org/10.1016/S0883-9026(97)84970-1

Drover, W., Busenitz, L., Matusik, S., Townsend, D., Anglin, A., & Dushnitsky, G. (2017). A review and road map of entrepreneurial equity financing research: Venture capital, corporate venture capital, angel investment, crowdfunding, and accelerators. *Journal of Management*, *43*(6), 1820–1853. https://doi.org/10.1177/0149206317690584

Eagly, A. H. (1987). Reporting sex differences. *American Psychologist*, *42*(7), 756–757.

Eagly, A. H., & Karau, S. J. (2002). Role congruity theory of prejudice toward female leaders. *Psychological Review*, *109*(3), 573–598. https://doi.org/10.1037/0033-295X.109.3.573

Ellemers, N. (2018). Gender stereotypes. *Annual Review of Psychology*, *69*(1), 275–298.

Fang, Y., Fiordelisi, F., Hasan, I., Leung, W. S., & Wong, G. (2023). Corporate culture and firm value: Evidence from crisis. *Journal of Banking and Finance*, *146*, 106710. https://doi.org/10.1016/j.jbankfin.2022.106710

Fiske, S. T., Neuberg, S. L., Beattie, A. E., & Milberg, S. J. (1987a). Category-based and attribute-based reactions to others: Some informational conditions of stereotyping and individuating processes. *Journal of Experimental Social Psychology*, *23*(5), 399–427.

Fiske, S. T., Neuberg, S. L., Beattie, A. E., & Milberg, S. J. (1987b). Category-based and attribute-based reactions to others: Some informational conditions of stereotyping and individuating processes. *Journal of Experimental Social Psychology*, *23*(5), 399–427.

Fiss, P. C., & Zajac, E. J. (2006). The symbolic management of strategic change: Sensegiving via framing and decoupling. *Academy of Management Journal*, *49*(6), 1173–1193.

Gamache, D. L., McNamara, G., Mannor, M. J., & Johnson, R. E. (2015). Motivated to acquire? The impact of CEO regulatory focus on firm acquisitions. *Academy of Management Journal*, *58*(4), 1261–1282.

Giorgi, S. (2017). The mind and heart of resonance: The role of cognition and emotions in frame effectiveness. *Journal of Management Studies*, *54*(5), 711–738.

Gulati, R. (1995). Social Structure and Alliance Formation Patterns: A Longitudinal Analysis. *Administrative Science Quarterly*, *40*(4), 619–652. https://doi.org/10.2307/2393756

Gulati, R., & Higgins, M. C. (2003). Which ties matter when? The contingent effects of interorganizational partnerships on IPO success. *Strategic Management Journal*, *24*(2), 127–144. https://doi.org/10.1002/smj.287

Guler, I. (2007). Throwing good money after bad? Political and institutional influences on sequential decision making in the venture capital industry. *Administrative Science Quarterly*, *52*(2), 248–285.

Gupta, V. K., Turban, D. B., & Bhawe, N. M. (2008). The effect of gender stereotype activation on entrepreneurial intentions. *Journal of Applied Psychology*, *93*(5), 1053–1061. https://doi.org/10.1037/0021-9010.93.5.1053

Gupta, V. K., Turban, D. B., Wasti, S. A., & Sikdar, A. (2009). The role of gender stereotypes in perceptions of entrepreneurs and intentions to become an entrepreneur. *Entrepreneurship Theory and Practice*, *33*(2), 397–417.

Guzman, J., & Kacperczyk, A. (Olenka). (2019). Gender gap in entrepreneurship. *Research Policy*, *48*(7), 1666–1680. https://doi.org/10.1016/j.respol.2019.03.012

Hamilton, D. L., & Trolier, T. K. (1986). *Stereotypes and stereotyping: An overview of the cognitive approach.*

Hayes, A. F. (2017). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. Guilford publications.

Heilman, M. E., & Okimoto, T. G. (2007). Why are women penalized for success at male tasks?: The implied communality deficit. *Journal of Applied Psychology*, *92*(1), 81–92. https://doi.org/10.1037/0021-9010.92.1.81

Heilman, M. E., Wallen, A. S., Fuchs, D., & Tamkins, M. M. (2004). Penalties for success: Reactions to women who succeed at male gender-typed tasks. *Journal of Applied Psychology*, *89*(3), 416–427. https://doi.org/10.1037/0021-9010.89.3.416

Hellmann, T. (2000). Venture capitalists: the coaches of Silicon Valley. *The Silicon Valley Edge*, *113*(6), 276–294.

Higgins, E. T., & Bargh, J. A. (1987). Social cognition and social perception. *Annual Review of Psychology*, *38*(1), 369–425.

Hilton, J. L., & Von Hippel, W. (1996). Stereotypes. *Annual Review of Psychology*, *47*(1), 237–271.

How Venture Capitalists Evaluate Potential Venture Opportunities (2004).

Hoyt, D., Ranzetta, T. G., & Strebulaev, I. (2012). *Venture capital deal sourcing and screening*. Stanford Graduate School of Business E (447).

Hsu, D. H. (2007). Experienced entrepreneurial founders, organizational capital, and venture capital funding. *Research Policy*, *36*(5), 722–741. https://doi.org/10.1016/j.respol.2007.02.022

Huang, L., Joshi, P., Wakslak, C., & Wu, A. (2021). Sizing up entrepreneurial potential: Gender differences in communication and investor perceptions of long-term growth and scalability. *Academy of Management Journal*, *64*(3), 716–740. https://doi.org/10.5465/AMJ.2018.1417

Huang, L., & Knight, A. P. (2017). Resources and relationships in entrepreneurship: An exchange theory of the development and effects of the entrepreneur-investor relationship. *Academy of Management Review*, *42*(1), 80–102.

Jennings, J. E., & Brush, C. G. (2013). Research on Women Entrepreneurs: Challenges to (and from) the Broader Entrepreneurship Literature? *Academy of Management Annals*, *7*(1), 663–715. https://doi.org/10.5465/19416520.2013.782190

Jussim, L., Coleman, L. M., & Lerch, L. (1987). The nature of stereotypes: A comparison and integration of three theories. *Journal of Personality and Social Psychology*, *52*(3), 536.

Kanze, D., Huang, L., Conley, M. A., & Higgins, E. T. (2018). We ask men to win and women not to lose: Closing the gender gap in startup funding. *Academy of Management Journal*, *61*(2), 586–614. https://doi.org/10.5465/amj.2016.1215

Katila, R., Rosenberger, J. D., & Eisenhardt, K. M. (2008). Swimming with sharks: Technology ventures, defense mechanisms and corporate relationships. *Administrative Science Quarterly*, *53*(2), 295–332. https://doi.org/DOI 10.2189/asqu.53.2.295

Kilduff, G. J., Galinsky, A. D., Gallo, E., & Reade, J. J. (2016). Whatever It Takes to Win: Rivalry Increases Unethical Behavior. *Academy of Management Journal*, *59*(5), 1508–1534. https://doi.org/10.5465/amj.2014.0545

Ko, E. J., & McKelvie, A. (2018). Signaling for more money: The roles of founders' human capital and investor prominence in resource acquisition across different stages of firm development. *Journal of Business Venturing*, *33*(4), 438–454. https://doi.org/10.1016/j.jbusvent.2018.03.001

Lee, M., & Huang, L. (2018). Gender bias, social impact framing, and evaluation of entrepreneurial ventures. *Organization Science*, *29*(1), 1–16. https://doi.org/10.1287/orsc.2017.1172

Liang, K.-Y., & Zeger, S. L. (1986). Longitudinal data analysis using generalized linear models. *Biometrika*, *73*(1), 13–22.

Lioukas, C. S., & Reuer, J. J. (2015). Isolating Trust Outcomes From Exchange Relationships: Social Exchange and Learning Benefits of Prior Ties in Alliances. *Academy of Management Journal*, *58*(6), 1826–1847.

Ma, A., Rosette, A. S., & Koval, C. Z. (2022). Reconciling female agentic advantage and disadvantage with the CADDIS measure of agency. *Journal of Applied Psychology*, *107*(12), 2115.

Mah, J., Kolev, K., McNamara, G., Pan, L., & Devers, C. E. (2023). Women in the C-Suite: A Review of Predictors, Experiences, and Outcomes. *Academy of Management Annals*, *2*(17), 586–625.

Martens, M. L., Jennings, J. E., & Jennings, P. D. (2007). Do the stories they tell get them the money they need? The role of entrepreneurial narratives in resource acquisition. *Academy of Management Journal*, *50*(5), 1107–1132.

McClean, E. J., Kim, S., & Martinez, T. (2022). Which Ideas for Change Are Endorsed? How Agentic and Communal Voice Affects Endorsement Differently for Men and for Women. *Academy of Management Journal*, *65*(2), 634–655. https://doi.org/10.5465/amj.2019.0492

McKenny, A. F., Aguinis, H., Short, J. C., & Anglin, A. H. (2018). What Doesn't Get Measured Does Exist: Improving the Accuracy of Computer-Aided Text Analysis. *Journal of Management*, *44*(7), 2909–2933. https://doi.org/10.1177/0149206316657594

Navis, C., & Glynn, M. A. (2011). Legitimate distinctiveness and the entrepreneurial identity: Influence on investor judgments of new venture plausibility. *Academy of Management Review*, *36*(3), 479–499.

Niederle, M., & Vesterlund, L. (2011). Gender and competition. *Annual Review of Economics*, *3*(1), 601–630.

Pan, L., Li, X., Chen, J., & Chen, T. (2020). Sounds novel or familiar? Entrepreneurs' framing strategy in the venture capital market. *Journal of Business Venturing*, *35*(2), 105930. https://doi.org/10.1016/j.jbusvent.2019.02.003

Pennebaker, J. W., Boyd, R. L., Jordan, K., & Blackburn, K. (2015a). *The development and psychometric properties of LIWC2015*.

Pennebaker, J. W., Boyd, R. L., Jordan, K., & Blackburn, K. (2015b). *The development and psychometric properties of LIWC2015*.

Petkova, A. P., Rindova, V. P., & Gupta, A. K. (2013). No news is bad news: Sensegiving activities, media attention, and venture capital funding of new technology organizations. *Organization Science*, *24*(3), 865–888. https://doi.org/10.1287/orsc.1120.0759

Petkova, A. P., Wadhwa, A., Yao, X., & Jain, S. (2014). Reputation and decision making under ambiguity: A study of US venture capital firms' investments in the emerging clean energy sector. *Academy of Management Journal*, *57*(2), 422–448.

Phelan, J. E., & Rudman, L. A. (2010). Prejudice toward female leaders: Backlash effects and women's impression management dilemma. *Social and Personality Psychology Compass*, *4*(10), 807–820.

Plummer, L. A., Allison, T. H., & Connelly, B. L. (2016). Better together? Signaling interactions in new venture pursuit of initial external capital. *Academy of Management Journal*, *59*(5), 1585–1604. https://doi.org/10.5465/amj.2013.0100

Polin, B., Doyle, S. P., Kim, S., Lewicki, R. J., & Chawla, N. (2023). Sorry to ask but… how is apology effectiveness dependent on apology content and gender? *Journal of Applied Psychology*.

Pollack, J. M., Rutherford, M. W., & Nagy, B. G. (2012). Preparedness and cognitive legitimacy as antecedents of new venture funding in televised business pitches. *Entrepreneurship Theory and Practice*, *36*(5), 915–939.

Pollock, T. G., Rindova, V. P., & Maggitti, P. G. (2008). Market watch: Information and availability cascades among the media and investors in the U.S. IPO market. *Academy of Management Journal*, *51*(2), 335–358. https://doi.org/10.5465/AMJ.2008.31767275

Rosette, A. S., Koval, C. Z., Ma, A., & Livingston, R. (2016). Race matters for women leaders: Intersectional effects on agentic deficiencies and penalties. *The Leadership Quarterly*, *27*(3), 429–445.

Rudman, L. A. (1998). Self-promotion as a risk factor for women. *Journal of Personality and Social Psychology*, *74*(3), 629–645.

Rudman, L. A., & Phelan, J. E. (2008). *Backlash effects for disconfirming gender stereotypes in organizations*. *28*, 61–79. https://doi.org/10.1016/j.riob.2008.04.003

Saccardo, S., Pietrasz, A., & Gneezy, U. (2018). On the size of the gender difference in competitiveness. *Management Science*, *64*(4), 1541–1554.

Seigner, B. D. C., Milanov, H., & McKenny, A. F. (2022). Who can claim innovation and benefit from it? Gender and expectancy violations in reward-based crowdfunding. *Strategic Entrepreneurship Journal*, *16*(2), 381–422. https://doi.org/10.1002/sej.1426

Shepherd, D. A., Souitaris, V., & Gruber, M. (2021). Creating New Ventures: A Review and Research Agenda. *Journal of Management*, *47*(1), 11–42. https://doi.org/10.1177/0149206319900537

Snellman, K., & Solal, I. (2023). Does Investor Gender Matter for the Success of Female Entrepreneurs? Gender Homophily and the Stigma of Incompetence in Entrepreneurial Finance. *Organization Science*, 1–20. https://doi.org/10.2139/ssrn.3720647

Snihur, Y., Thomas, L. D. W., & Burgelman, R. A. (2018). An ecosystem-level process model of business model disruption: The disruptor's gambit. *Journal of Management Studies*, *55*(7), 1278–1316.

Snihur, Y., Thomas, L., Garud, R., & Phillips, N. (2022). Entrepreneurial Framing: A Literature Review and Future Research Directions. *Entrepreneurship: Theory and Practice*, *46*(3), 578–606. https://doi.org/10.1177/10422587211000336

Sorenson, O., & Stuart, T. E. (2008). Bringing the Context Back In: Settings and the Search for Syndicate Partners in Venture Capital Investment Networks. *Administrative Science Quarterly*, *53*(2), 266–294. https://doi.org/10.2189/asqu.53.2.266

Spence, J. T., & Helmreich, R. L. (1978). *Masculinity and femininity: Their psychological dimensions, correlates, and antecedents*. University of Texas Press.

Statista. (2023). *Value of venture capital (VC) investment in the United States in 2022 by industry*. https://www.statista.com/statistics/423054/venture-capital-investments-usa-by-industry/

Stinchcombe, A. L. (1965). Organizations and social structure. In J. G. March (Ed.), *Handbook of organizations* (pp. 142–193). Rand-McNally.

Stuart, T. E., Hoang, H., & Hybels, R. C. (1999). Interorganizational endorsements and the performance of entrepreneurial ventures. *Administrative Science Quarterly*, *44*(2), 315–349. https://doi.org/10.2307/2666998

Taeuscher, K., & Rothe, H. (2024). Entrepreneurial framing: How category dynamics shape the effectiveness of linguistic frames. *Strategic Management Journal*, *45*(2), 362–395. https://doi.org/10.1002/smj.3554

Vittinghoff, E., Glidden, D. V., Shiboski, S. C., & McCulloch, C. E. (2012). *Regression Methods in Biostatistics: Linear, Logistic, Survival, and Repeated Measures Models*. Springer.

Table 1. Descriptive statistics and correlations [a]

Variables	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. VC funding amount [b]	15.454	1.413														
2. Female founder	0.097	0.295	−.056													
3. Competitiveness framing [c]	2.719	1.283	.068	−.051												
4. Venture-VC familiarity	0.463	0.383	.000	−.053	.041											
5. Founder education level	1.599	0.734	.030	.080	.042	.021										
6. Founder elite school	0.359	0.480	.080	.100	−.062	.010	.213									
7. Founder VC experience	0.165	0.371	.083	.030	−.004	.003	−.012	.092								
8. Serial entrepreneur founder	0.312	0.463	−.056	.022	−.056	−.028	.061	.003	.006							
9. Male founder count	1.443	0.776	.056	−.284	.060	−.024	.124	.046	.077	.162						
10. Venture age	3.767	2.234	.186	−.037	.126	.184	.032	−.005	−.059	−.090	−.062					
11. Venture location	0.712	0.453	.177	.060	−.033	.025	.050	.210	.053	−.020	.015	−.041				
12. Prior round VC funding amount [b]	11.585	6.685	.238	−.064	.059	.690	.045	.044	.038	−.037	−.002	.290	.078			
13. Prior round number of investors	2.246	1.995	.228	−.034	.050	.556	−.001	.043	.059	−.045	−.026	.254	.102	.679		
14. Number of press releases	5.875	8.611	.193	−.041	−.012	.075	.015	−.023	.018	−.036	.028	.231	.013	.155	.134	
15. Round duration	1.735	1.561	.017	.049	.002	−.387	−.015	−.028	−.040	−.024	−.030	.286	−.080	−.541	−.353	.123

[a] *N*=3,075.
[b] The variable was logarithm transformed.
[c] The measure represents percentage.

Table 2. GEE regression results

Variables	Model 1		Model 2		Model 3		Model 4	
	Coeff.	p value	Coeff.	p value	Coeff.	p value	Coeff.	p value
Intercept	15.416 (0.178)	.000	15.556 (0.217)	.000	15.663 (0.239)	.000	15.431 (0.268)	.000
Study variables								
Female founder			−0.186 (0.048)	.000	−0.414 (0.143)	.004	−0.154 (0.289)	.593
Competitiveness framing			0.035 (0.005)	.000	0.028 (0.005)	.000	0.060 (0.017)	.001
Venture-VC familiarity							−0.857 (0.102)	.000
Female founder × Competitiveness framing					0.088 (0.044)	.045	−0.061 (0.092)	.506
Female founder × Venture-VC familiarity							−0.510 (0.477)	.285
Competitiveness framing × Venture-VC familiarity							−0.067 (0.031)	.030
Female founder × Competitiveness framing × Venture-VC familiarity							0.296 (0.146)	.042
Control variables								
Founder education level	−0.014 (0.026)	.594	−0.007 (0.025)	.771	−0.010 (0.025)	.686	−0.006 (0.028)	.831
Founder elite school	0.073 (0.033)	.027	0.089 (0.032)	.005	0.090 (0.032)	.005	0.081 (0.031)	.008
Founder VC experience	0.168 (0.021)	.000	0.171 (0.021)	.000	0.173 (0.021)	.000	0.152 (0.023)	.000
Serial entrepreneur founder	−0.080 (0.017)	.000	−0.068 (0.019)	.000	−0.071 (0.018)	.000	−0.074 (0.020)	.000
Male founder count	0.086 (0.010)	.000	0.062 (0.010)	.000	0.060 (0.010)	.000	0.049 (0.009)	.000
Venture age	−0.023 (0.016)	.147	−0.026 (0.016)	.113	−0.026 (0.016)	.106	−0.023 (0.013)	.074
Venture location	0.414 (0.040)	.000	0.421 (0.041)	.000	0.422 (0.041)	.000	0.398 (0.038)	.000
Prior round VC funding amount	0.380 (0.014)	.000	0.378 (0.014)	.000	0.377 (0.014)	.000	0.390 (0.014)	.000
Prior round number of investors	−0.002 (0.009)	.832	−0.001 (0.009)	.869	−0.001 (0.009)	.900	0.039 (0.008)	.000
Number of press releases	0.014 (0.001)	.000	0.014 (0.001)	.000	0.014 (0.001)	.000	0.013 (0.001)	.000
Round duration	0.129 (0.020)	.000	0.131 (0.020)	.000	0.130 (0.020)	.000	0.124 (0.018)	.000
Venture stage dummies	Yes		Yes		Yes		Yes	
Round number dummies	Yes		Yes		Yes		Yes	
Year dummies	Yes		Yes		Yes		Yes	
Industry dummies	Yes		Yes		Yes		Yes	
N	3,075		3,075		3,075		3,075	
QIC	3019.245		3017.876		3017.496		3016.358	

Note: Robust standard errors are in parentheses.

Table 3. GEE regression results – Split-sample tests based on the mean of venture-VC familiarity

Variables	Model 5 (below mean)		Model 6 (above mean)	
	Coeff.	p value	Coeff.	p value
Intercept	16.698 (0.442)	.000	12.010 (0.658)	.000
Study variables				
Female founder	−0.034 (0.285)	.904	−0.721 (0.223)	.001
Competitiveness framing	0.047 (0.013)	.000	0.009 (0.011)	.413
Female founder × Competitiveness framing	−0.072 (0.086)	.403	0.210 (0.064)	.001
Control variables				
Founder education level	−0.025 (0.022)	.266	0.000 (0.033)	.998
Founder elite school	0.006 (0.067)	.934	0.148 (0.026)	.000
Founder VC experience	0.090 (0.040)	.026	0.268 (0.039)	.000
Serial entrepreneur founder	−0.064 (0.019)	.001	−0.081 (0.040)	.042
Male founder count	0.076 (0.038)	.044	0.048 (0.023)	.034
Venture age	−0.004 (0.031)	.910	−0.042 (0.007)	.000
Venture location	0.468 (0.051)	.000	0.402 (0.053)	.000
Prior round VC funding amount	0.376 (0.029)	.000	0.397 (0.016)	.000
Prior round number of investors	−0.035 (0.020)	.085	0.041 (0.010)	.000
Number of press releases	0.017 (0.003)	.000	0.012 (0.001)	.000
Round duration	0.103 (0.025)	.000	0.123 (0.039)	.002
Venture stage dummies	Yes		Yes	
Round number dummies	Yes		Yes	
Year dummies	Yes		Yes	
Industry dummies	Yes		Yes	
N	1,369		1,706	
QIC	1319.250		1660.838	

Note: Robust standard errors in parentheses.

Table 4. Conditional marginal effects of female founder across levels of competitiveness framing and venture-VC familiarity

Venture-VC familiarity	Low competitiveness framing (below mean)				High competitiveness framing (above mean)			
	dy/dx	*SE*	*p* value	*[95% CI]*	*dy/dx*	*SE*	*p* value	*[95% CI]*
Low	–0.265	0.110	.016	[–0.481, –0.049]	–0.340	0.078	.000	[–0.494, –0.186]
Medium	–0.249	0.060	.000	[–0.366, –0.132]	–0.097	0.051	.054	[–0.196, 0.002]
High	–0.233	0.092	.011	[–0.413, –0.053]	0.152	0.054	.005	[0.047, 0.257]

Low, medium, and high venture-VC familiarity correspond to Mean–1 SD, Mean, and Mean+1 SD, respectively.
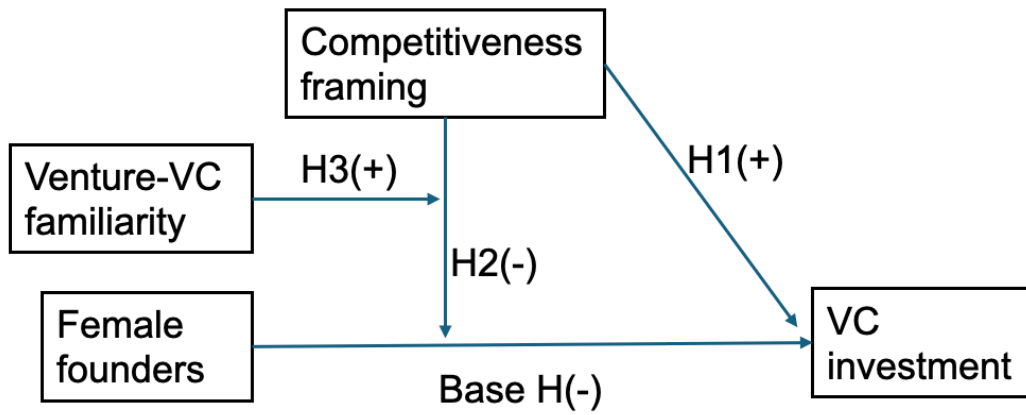
Figure 1. Theoretical model

Figure 2. The interaction effect of female founder and competitiveness framing on VC funding

Interaction of Founder Gender and Competitiveness Framing

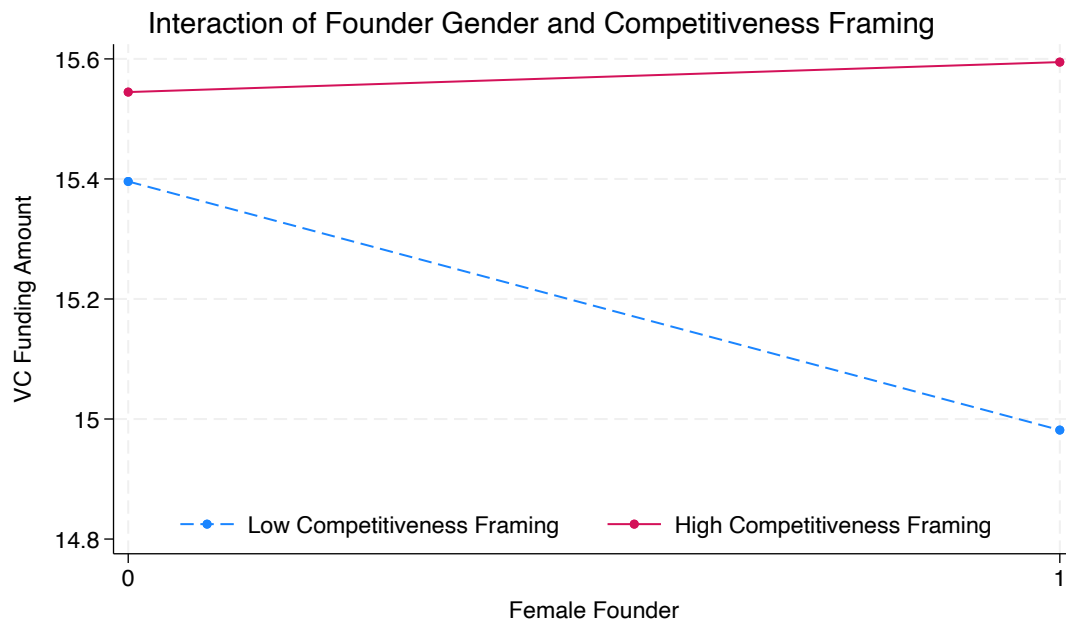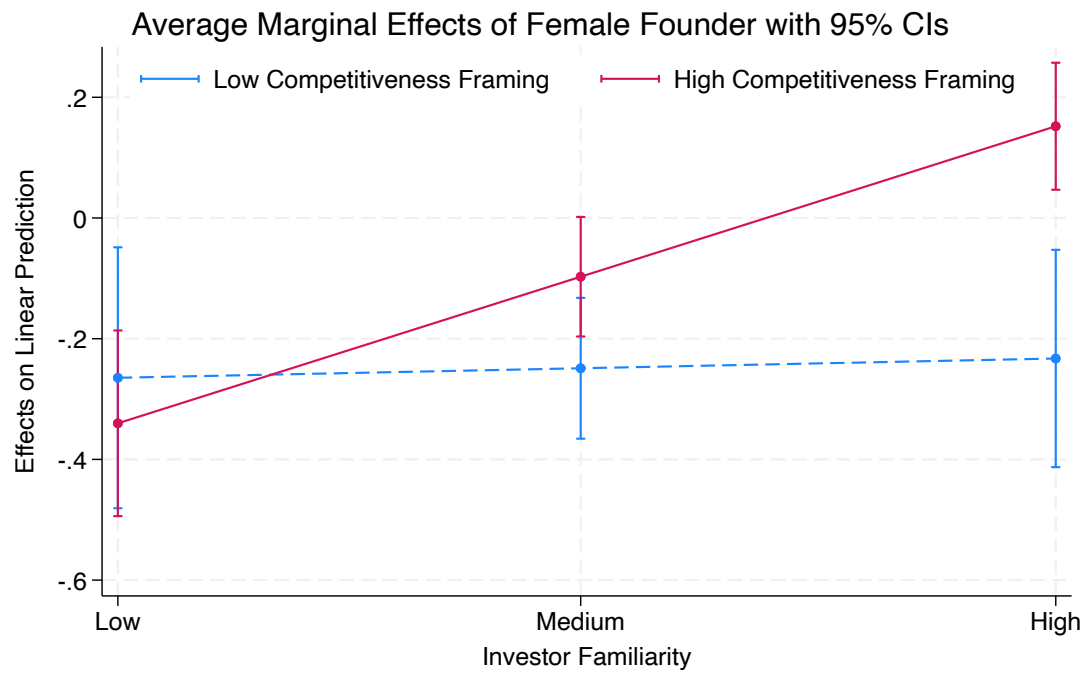**Figure 3. Marginal effects of female founder on VC funding at varying levels of competitiveness framing and venture-VC familiarity**

Average Marginal Effects of Female Founder with 95% CIs

Appendix

Table A1. Competitiveness framing dictionary [a]

accomplish*	develop*	rapid*
achiev*	domina*	react*
acquir*	edge	reputa*
acquis*	establish*	respond*
advanc*	expan*	result*
advantag*	fast*	rival*
aggress*	fight*	satisf*
analy*	gain*	speed*
battle*	goal*	status
beat*	grow*	strateg*
build*	improv*	strength*
challeng*	market*	strong*
client*	outpac*	succeed*
combat*	perform*	success*
compete*	pioneer*	superior*
competing	plan*	target*
competit*	position*	threat*
conquer*	power*	value*
contend*	pressur*	war
counter*	profit*	win*

[a] Asterisks indicate word stems.

Table A2. Aggressive and non-aggressive competitiveness framing dictionary [a]

Aggressive	Non-aggressive
advanc*	accomplish*
advantag*	achiev*
aggress*	acquir*
analy*	acquis*
battle*	build*
beat*	client*
challeng*	contend*
combat*	develop*
compete*	edge
competing	establish*
competit*	expan*
conquer*	gain*
counter*	goal*
domina*	grow*
fast*	improv*
fight*	market*
outpac*	position*
perform*	profit*
pioneer*	rapid*
plan*	reputa*
power*	result*
pressur*	satisf*
react*	status
respond*	value*
rival*	
speed*	
strateg*	
strength*	
strong*	
succeed*	
success*	
superior*	
target*	
threat*	
war	
win*	

[a] Asterisks indicate word stems.

Table A3. Reverse causality test results

Variables	Coeff.	p value
Intercept	1.450 (0.116)	.000
Study variable		
Prior round VC funding amount	0.011 (0.010)	.269
Control variables		
Female founder	−0.025 (0.031)	.432
Founder education level	0.058 (0.014)	.000
Founder elite school	−0.193 (0.018)	.000
Founder VC experience	0.060 (0.029)	.037
Serial entrepreneur founder	−0.126 (0.024)	.000
Male founder count	0.093 (0.018)	.000
Venture age	0.054 (0.017)	.002
Venture location	−0.044 (0.069)	.526
Prior round number of investors	0.004 (0.011)	.686
Number of press releases	−0.007 (0.002)	.000
Round duration	−0.026 (0.021)	.205
Venture stage dummies	Yes	
Round number dummies	Yes	
Year dummies	Yes	
Industry dummies	Yes	
N	3,075	
QIC	3012.022	

Note: Robust standard errors in parentheses.

Figure A1. The interaction effect of competitiveness framing and female founder on VC funding

Interaction of Competitiveness Framing and Founder Gender