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What do they think and what do they say? Gender bias, entrepreneurial attitude in writing and venture capitalists' funding decisions

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ABSTRACT

This study shows that women may be at a disadvantage when signaling that they are “entrepreneurial” to venture capitalists. We demonstrate how gender-based disadvantages may arise from role incongruence in entrepreneurship by analyzing multi-source data from 131 venture capital applications, venture capitalists' cognitions, and their funding decisions. Our analysis indicates that women who signal an entrepreneurial attitude are more likely to elicit prevention considerations from venture capitalists, whereas men who signal such an attitude are more likely to elicit promotion considerations. We also find that promotion considerations increase the amount of financing, whereas prevention considerations decrease the amount of financing. Our study increases knowledge about the gendered cognitions that underlie implicit bias among investors and knowledge about the effects of regulatory focus on funding outcomes by exploring the interaction between gender and entrepreneurial attitude.

1. Introduction

A key question in the entrepreneurship literature is why financiers overwhelmingly tend to provide venture capital to men more than to women (Brush et al., 2014). Research has started to attribute this difference to what it means to be entrepreneurial in society. Clearly, entrepreneurship is commonly looked upon as a masculine pursuit, and the attitude of being entrepreneurial is signaled as aggressive, innovative, risk taking, autonomous, and proactive (Alsos and Ljunggren, 2016). Accordingly, studies have suggested that social gender constructions portray women and men entrepreneurs differently and that women may be at a disadvantage for not being naturally linked to such behaviors (Bruni et al., 2004). This situation influences perceptions of credibility, potentially creating barriers for women to access finance (Chatman and Flynn, 2001; Eagly and Karau, 2002). When facing financiers, women and men may therefore face different standards for evaluation.

Despite previous debate, prior research has for long failed to show clear guidance about how the traditional masculine qualities of entrepreneurship undermine the credibility of women entrepreneurs and what venture capitalists (VCs) would welcome in evaluations. Would it pay off for women to send signals to VCs indicating that they have an entrepreneurial attitude characterized by aggressiveness,

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risk taking, innovativeness, and proactiveness? Does it matter whether it is a man or woman who sends these signals? Assuming that misalignment may stem from gender bias in decision making, we argue that bias may arise from an inconsistency between the predominantly communal qualities associated with women and the predominantly agentic qualities associated with success as an entrepreneur. Interestingly, few—if any—studies have examined how signaling an entrepreneurial attitude by women and men entrepreneurs elicits different considerations in VCs' minds and influences access to finance.

To address this research gap, we explore VCs' evaluations of entrepreneurial attitude signals. Consistent with what is often discussed as the core of entrepreneurial behavior, we refer to such signals as competitive aggressiveness, autonomy, innovativeness, proactiveness, and risk taking (Lumpkin and Dess, 1996). Our goal is to show how signaling an entrepreneurial attitude triggers thoughts that induce VCs to approve or deny funding for women and men entrepreneurs. Moreover, drawing upon Eagly and Karau's (2002) role congruity theory, we extend this view on stereotyping by identifying and researching a stereotype paradox that has been neglected thus far: if women entrepreneurs conform and signal what is in line with their gender role—namely, that they do not have an entrepreneurial attitude—they can fail to meet the masculine role requirements of entrepreneurship in the minds of VCs; however, if they conform to the entrepreneurial role by sending clear signals of an entrepreneurial attitude (i.e., risk taking, aggressiveness, innovativeness, autonomy, and proactiveness) in funding applications, we theorize that they fail to conform to the female gender role and will be perceived as less competent.

We use data from 131 venture capital applications to analyze our theoretical claim. We combined these data with data on the considerations that the signals elicit in the VCs' minds when examining entrepreneurs' funding applications and subsequent secondary data on the scope of funding awarded to entrepreneurs. To analyze the VCs' cognitions, we used cognitive grid analysis, a cognitive mapping method using cognitive scripts (Malmström et al., 2015), to identify the VCs' prevention and promotion considerations when evaluating proposals for finance. Prevention considerations are defined as thoughts about the potential gains from investing in an entrepreneur, and promotion considerations are thoughts related to avoiding mistakes by not losing from investing in an entrepreneur (Higgins, 1997, 1998). Drawing these distinctions is an important step in unpacking why and how gender discrimination occurs for women entrepreneurs in the venture capital context, which has previously been proven through the analysis of question-answer interactions between entrepreneurs and investors (Kanze et al., 2018). However, our focus on the considerations (e.g., investor statements and rhetorical questions as opposed to questions that are directly posed to entrepreneurs) and thus the cognitive origins of gender characterization is a contribution that goes beyond previous work and is something that has rarely been studied because of the difficulties in gathering real-life data on how cognitive gender stereotypes manifest in investors and their decision making (e.g., Carter et al., 2007). We also used another set of data from recordings of the discussions the VCs had when making their finance decisions and validated our key results. Fig. 1 illustrates our approach and the data sources we used to examine the VCs' evaluations of entrepreneurial attitude signals, potential gender bias, and decision outcomes.

2. Theoretical background

2.1. Stereotyping, cognitive evaluation, and gender differences in financial decision making

A number of empirical studies have confirmed that financiers perceive that men have more of the qualities associated with successful

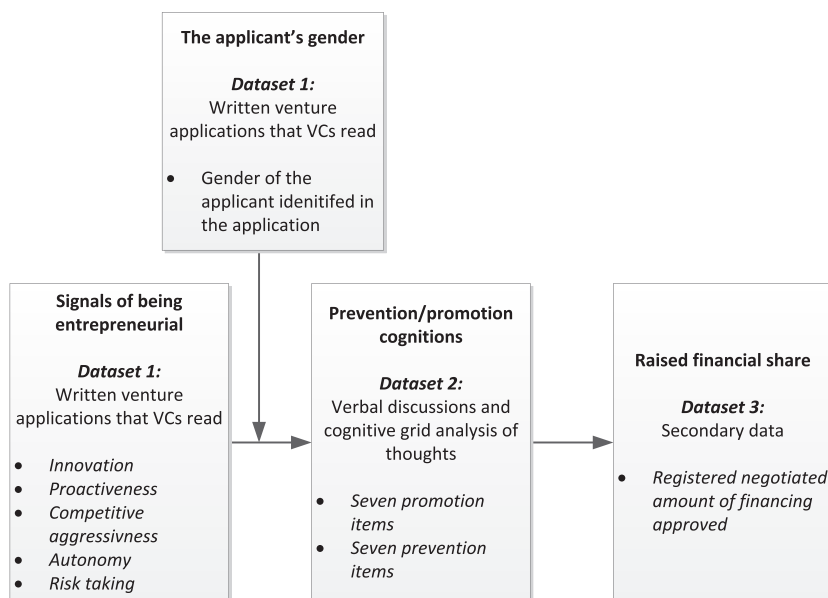


Fig. 1. Illustration of our overall hypothesized framework and data sources used to examine the VCs' evaluations of entrepreneurial attitude signals, potential gender bias, and decision outcomes.

entrepreneurship than women (Eddleston et al., 2014) and that women are perceived to be less competent or trustworthy than men (Becker-Blease and Sohl, 2007), and women-led ventures as less legitimate and riskier than those owned by men (Greene et al., 2001). From this perspective, therefore, VCs seemingly make sense of the world by matching entrepreneurial qualities to the features of gender stereotypes (Gupta et al., 2014), which research has shown to contribute to women's disadvantage when accessing finance (Godwin et al., 2006; Alsos and Ljunggren, 2016).

Accordingly, a simple implication from previous studies is to encourage women to compensate by overly signaling they have an entrepreneurial attitude. However, we argue that such an approach is too simplified and develop theory to reason that the signals communicated via a funding application help financiers understand the nature of a venture's potential but that this method has limitations. Signals of entrepreneurial qualities may generate interest and encourage VCs to consider a venture worthy of financing. As such, signaling entrepreneurial qualities may reduce the perceived uncertainty and risk associated with financing an entrepreneurial opportunity (Cohen and Dean, 2005) and may convince VCs of assured success (Crowe and Higgins, 1997). Logically, therefore, the more an entrepreneur signals his or her entrepreneurial qualities, the more likely a VC is to grant the venture greater amounts of financing. However, under certain circumstances, intense signaling might not create such a positive impression. When a woman signals her entrepreneurial qualities, the impression may be that the opportunity is not convincingly enough to make VCs invest. The opportunity may be perceived as too risky to finance perhaps because of incongruity with the qualities associated with women's gender role. We theoretically arrive at this conclusion by taking a position from role congruity theory, which has received solid support in gender research outside entrepreneurship.

According to role congruity theory, gendered qualities are *communal* or *agentic* (Eagly, 1987; Eckes, 1994). Communal qualities are more strongly attributed to women, characterizing women as predominantly affectionate, helpful, kind, sympathetic, interpersonally sensitive, and gentle. In contrast, agentic qualities are more strongly attributed to men, characterizing men as predominantly competitive, aggressive, ambitious, dominant, forceful, independent, self-sufficient, self-confident, and prone to act as a leader (Heilman et al., 1989; Schein, 1975, 2001). Therefore, individuals tend to expect women and men to differ, especially in areas that are associated with greater gender differences, such as the qualities of a successful entrepreneur. We argue that the perceived congruity of *male*, *masculine*, and *entrepreneur* implies a natural "fit" that gives men a significant advantage over women when they are evaluated as entrepreneurs. We posit that women who signal being entrepreneurial will be at a disadvantage in terms of access to finance. Accordingly, when VCs assess women's ventures and men's ventures, they are more likely to convert entrepreneurial signals into distinct sets of considerations.

Given that recent research has shown that VCs' questions can differ in promotion and prevention focus depending on the gender of the focal entrepreneur (Kanze et al., 2018), we theorize that VCs' promotion vs. prevention cognitions (considerations) may serve as critical key precursors to their decision making. These cognitions underneath decision motivations have been highlighted in previous research (e.g., see Zhu and Meyers-Levy, 2007). As such, we theorize that VCs who are known to make goal-oriented decisions based on either (1) attaining growth-oriented gains by financing and changing to a better state for promotion or (2) maintaining non-losses, not losing financing, and not changing to a worse state for prevention (Higgins, 1998; Higgins and Cornwell, 2016) will develop similar thoughts when assessing funding applications. We expect VCs' thoughts with a *promotion focus* to emphasize achieving growth-oriented gains facilitated by capital. Example thoughts include "How do they intend to acquire customers?" and "What does their revenue forecast look like?" Prevention thoughts, in contrast, focus on maintaining non-losses and not losing capital. Example thoughts include "What does customer retention look like?" and "Are they operating at breakeven?" (Kanze et al., 2018).

The above arguments suggest that when women entrepreneurs send signals of autonomy, proactiveness, competitive aggressiveness, innovativeness, and risk taking, they may unintentionally impede their access to finance because of the perceived incongruity between being a woman embodying such agentic qualities and being an entrepreneur. Such deviation will likely result in a more negative evaluation. This reasoning implies that gender-based disadvantages may arise from role incongruence in entrepreneurship. Specifically, women entrepreneurs will be perceived as less competent because they are stereotypically considered to lack agentic characteristics which are believed to be needed to successfully be innovative, risk taking, and competitive. This role incongruence represents a deeper difficulty with establishing trust in entrepreneurs' competence (Brockner et al., 2004). When an individual signals his or her entrepreneurial attitude, this makes the entrepreneur-gender association salient, cognitively triggering the candidate's role of "entrepreneur" in the VC's mind, which is congruent for men (presence of established trust in competence) but not for women (lack of established trust in competence). This argument is consistent with the findings of Balachandra et al. (2019), who showed bias against the display of feminine-stereotyped behaviors by men and women and also reported support for bias toward perceptions of competence. In light of these arguments, we propose that men entrepreneurs who signal agentic qualities that correspond to a role-congruent entrepreneurial profile will elicit promotion considerations from VCs. In contrast, women who signal agentic qualities consistent with an entrepreneurial profile will elicit prevention considerations from VCs. This reasoning implies that we expect gender to moderate the relationship between signals of an entrepreneurial attitude and VCs' promotion/prevention reactions. We therefore propose the following hypotheses:

Hypothesis 1a. Men who strongly signal an entrepreneurial attitude to VCs will elicit more promotion considerations than women who strongly signal an entrepreneurial attitude to VCs.

Hypothesis 1b. Women who strongly signal an entrepreneurial attitude to VCs will elicit more prevention considerations than men who strongly signal an entrepreneurial attitude to VCs.

Given VCs' inclination to support achievement and growth over safety and security when financing ventures (Buchner et al., 2017; Drover et al., 2017; Croce et al., 2015), it seems reasonable to expect that promotion considerations will encourage VCs to finance larger proportions of ventures than prevention considerations. When their thoughts turn to a promotion focus, VCs anticipate accomplishments

and goal achievement. Their attention is also placed on attaining gains, and their thoughts are directed toward noticing the presence or absence of positives and avoiding non-gains (Zhu and Meyers-Levy, 2007). Therefore, when VCs' thoughts turn to opportunities for gain, their focus will overrule concerns over any inherent risks (Higgins and Spiegel, 2004). When promotion considerations—opposed to prevention considerations—are elicited, Kanze and coauthors (2018) previously theorized and found evidence for that when ventures are portrayed in an advantageous light, entrepreneurs have the opportunity to acquire larger amounts of venture capital. Therefore, we propose that a higher degree of promotion considerations elicited from VCs will significantly increase entrepreneurs' access to venture capital because these promotion considerations focus on the potential for gains.

In contrast, a prevention focus directs thoughts toward security, responsibility, and the need to maintain conservative goals. Then, VCs become concerned with not making mistakes and ensuring non-losses. They question whether the entrepreneur can be trusted to run the venture in a competent, diligent manner (Brockner et al., 2004). Therefore, prevention considerations in VCs' minds are associated with a negative outcome in terms of raising finance (Zhu and Meyers-Levy, 2007). We expect that the greater presence of prevention considerations in VCs' minds will significantly decrease entrepreneurs' access to funding. This reasoning leads to our final hypotheses:

Hypothesis 2a. If VCs cognitively focus more on promotion considerations when evaluating entrepreneurs, these VCs will allocate relatively more funding than if they cognitively focus on fewer promotion considerations when evaluating entrepreneurs.

Hypothesis 2b. If VCs cognitively focus more on prevention considerations when evaluating entrepreneurs, these VCs will allocate relatively less funding than if they cognitively focus on fewer prevention considerations when evaluating entrepreneurs.

3. Method

3.1. Research setting

We collected data from 131 (39 women, 92 men) funding applications to Swedish government VCs and the considerations VCs raised when evaluating these applications. We visited the government VCs regularly over a period of two years. On these visits, we met each VC. They brought six to eight of the latest applications they were about to make decisions on. We asked them to rate each application in relation to other applications using a cognitive grid structure that was designed to reflect the most salient parts of the VCs' cognitive structure. Consistent with recommendations on how to arrange cognitive mapping with cognitive scripts (Malmström et al., 2015), the cognitive grid was created based on initial observations of the VCs' decisions and conversations with the participants. Following these initial interviews, we identified and measured promotion and prevention cognitions using evaluation procedures. We combined these data with a database containing application information, a national venture registration database, and information on documented decision outcomes related to the financial share each venture raised out of the total investment value.

3.2. Dependent variable

To avoid potential measurement problems, we used a ratio measurement based on secondary data gathered for performance measurement once the evaluation discussions had ended. This measure covered the amount of approved financing in relation to the total financing applied for or required by the entrepreneur, that is, the portion of approved financing out of the total financing requested. We call this ratio the raised financial share. This measure offers more accurate insight into the gender and financing structures.

3.3. Mediating variables

To measure these mediating variables, we developed the cognitive grid approach based on Kanze et al.'s (2018) study, in which promotion and prevention dualities in investor-entrepreneur relationships were identified and tested. Although we study cognitions, we realized thoughts resembled how the VCs discussed and expressed themselves, which we also could validate in our study.

Promotion considerations. Kanze et al.'s (2018) constructs appear inside parentheses below. We operationalized Kanze et al.'s (2018) constructs for our setting. Focusing on thoughts that promote a venture or entrepreneur refers to thinking about how investing may improve future gains in terms of the following: ability to achieve specific goals (*customer acquisition/growth*); clear strategic vision for the venture (*strategic vision*); enthusiasm for the venture, credible impression, and trust in the entrepreneur's abilities (*promotion of the entrepreneur*); and expansion to new markets/exports and launch of new concepts (*sales/market size*). Cronbach's alpha was .750.

Prevention considerations. We also operationalized Kanze et al.'s (2018) construct for this dimension. Focusing on prevention thoughts about a venture or entrepreneur refers to thinking about the situation as maintaining the current status quo or avoiding losses in terms of the following: scope of the entrepreneur's experience in the industry and the entrepreneur's management experience (*vetting the team*); functional customer/market structure (*customer retention*); the venture's competitiveness (*market share*); functional organizational structure (*operating efficiency*); stability in production organization (*stability*); and the venture's profitability (*net margin*). Cronbach's alpha was .849.

As a robustness check, we coded the VCs' reasoning as they voiced their thoughts while scoring the ventures on the promotion and prevention scales. We applied the following criteria: 1 = "not clearly reasoned" or "not reasoned at all," 2 = "some reasoning," and 3 = "clear and/or thoroughly reasoned." Each member of the research team coded the VCs' responses in isolation and then crosschecked this coding to ensure inter-rater reliability, which was high. We then tested the correlation between this coding and the VCs' scores. The "talk" of promotion matched the construct of promotion thoughts at a level of 0.814**. The "talk" of prevention matched the construct of prevention thoughts at a level of 0.874**. We then ran the regressions, replacing the mediating variable with our "talk" measures. We

were broadly able to replicate our results from the original regressions.

3.4. Independent and moderating variables

Entrepreneur's gender. A value of 1 indicated male applicant entrepreneurs, and a value of 0 indicated female applicant entrepreneurs. Following Muravjev et al.'s (2009) reasoning, we tested the impact of gender on the mediating variables (i.e., promotion and prevention questions) and on the dependent variable (i.e., raised financial share).

Entrepreneurial attitude signals in venture applications. We used Short et al. (2010) dictionary of terms for the following entrepreneurship dimensions: autonomy, innovativeness, proactiveness, competitive aggressiveness, and risk taking. This dictionary contains 244 words and has been validated as a reliable instrument (Zachary et al., 2011). In this text-analysis process, we entered the dictionary into computer-aided text analysis software (NVivo). We analyzed the applications based on the amount of content they contained that was listed in the dictionary. We built text strings for the entrepreneurial attitude dimensions, which we then uploaded to the software to statistically analyze entrepreneurship signaling in applications. We also analyzed the applications to determine whether all entrepreneurial attitude signals had been detected and included in the results.

Our *interaction variable* captured interaction between gender and entrepreneurial attitude (Wiklund and Shepherd, 2005) to test the potential effect of gender depending on the level of entrepreneurship signaled. We tested the effects of the interaction between entrepreneurial signals and gender. Our goal was to understand how this interaction affects access to finance (Saparito et al., 2013; Covin and Slevin, 1989).

3.5. Control variables

To assess the clarity of the relationships between the independent and dependent variables, we controlled for additional venture information contained in the applications. We specifically controlled for both financial and non-financial information in terms of the amount of capital sought, industry, turnover in sales, product information, own equity, market research, patents and licenses, unpaid debt at enforcement authority, equity ratio, and operating margin.

4. Results

4.1. Descriptive statistics

Table 1 presents all means, standard deviations, and correlations for the variables that were included in this study. Table 2 reports the results of the regression models that were used to evaluate the framework and hypotheses regarding promotion and prevention questions. The results show that gender had a moderating influence, leading VCs to raise more promotion question when evaluating applications in which men entrepreneurs signaled an entrepreneurial attitude ($\beta = 0.20$, $p < .05$), thereby supporting Hypothesis 1a. Moreover, the results show that the interaction between gender and entrepreneurial signaling ($\beta = -0.21$, $p < .05$) had a negative impact on the level of prevention questions raised, thereby supporting Hypothesis 1b. Table 3 shows the final model and the test for Hypotheses 2a and 2b.

Model 2 includes the direct effects of levels of promotion and prevention questions and control variables to test for possible linear effects. The results for Model 2 show that the influence of raising promotion questions was positive and linear ($\beta = 0.32$, $p < .01$) and the influence of raising prevention questions was negative ($\beta = -0.40$, $p < .01$). This result implies that eliciting promotion questions from VCs generally helps raise more capital, whereas eliciting prevention questions from VCs generally hinders access to larger shares of capital. Furthermore, the results show that the more financing sought, the more difficult it is to raise larger financial shares. Thus, Hypotheses 2a and 2b is supported.

To confirm the interactions, we plotted the results. Fig. 2 shows that men entrepreneurs who signal high levels of entrepreneurial attitude elicit promotion questions from VCs. This is not the case for women entrepreneurs. Fig. 3 shows that women who signal high levels of entrepreneurial attitude instead elicit prevention questions from VCs. This result highlights that the most deserving women entrepreneurs experience the most cognitive resistance from VCs.

Overall, our use of alternative measures to validate the effects indicates the results are comparable although talk and thoughts are quite different. We observed that the interactions in the regressions were similar and significant although some control variable coefficients were no longer significant for promotion talk. Therefore, we conclude that our theory of interactions is valid when both promotion and prevention report consistent results.

5. Conclusion

The present research helps explain a role congruency problem that develops when women and men entrepreneurs are evaluated after submitting applications for venture capital. Our findings are consistent with Kanze et al. (2018) in that women get asked more prevention questions and men get asked more promotion questions even when they pitch their companies with similar degrees of promotion and prevention language. In advancing Kanze et al.'s study, our work demonstrates the process by which this occurs. As such, we find that women may be at a disadvantage when signaling they are entrepreneurial to VCs and that they receive significantly less venture capital for their ventures. Importantly, our results show that the most deserving women entrepreneurs ironically face the most cognitive resistance from VCs. Gender stereotypes may therefore be costly and restrict effective and rational decision making in the distribution of

Table 1
Means, standard deviations, and correlations.

	Mean	Std. Deviation	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Equity ratio	26.77	40.37	1														
Operating margin	8.58	46.05	.01	1													
Market research	.18	.38	-.16*	-.04	1												
Product information	.18	.39	-.10	-.04	.43**	1											
Unpaid debt at enforcement authority	.11	.31	.03	.01	.27**	.18*	1										
Patents and licenses	6.15	38.99	.53**	-.03	-.07	-.05	-.02	1									
Amount sought	298.507	443.445	.04	-.04	.07	-.01	.04	.10	1								
Industry sector	.52	.50	-.08	.09	.11	-.08	-.03	-.00	-.01	1							
Turnover	115.679	633.010	.01	-.01	.07	.06	-.05	.12	.06	.02	1						
Equity share	69.64	29.38	-.18	.05	-.21*	-.43**	-.07	-.19	-.11	-.10	-.19	1					
Gender	.72	.45	.09	.04	.08	.00	.12	.10	.20**	-.05	-.05	-.21*	1				
Entrepreneurial signals	153.90	129.92	-.07	.13	.21*	.35**	-.15	-.08	.02	-.04	.06	-.15	.05	1			
Prevention	4.39	1.15	.20**	.02	-.09	-.03	.03	-.14	.14	-.25**	-.13	.03	.01	-.10	1		
Promotion	4.99	.93	.10	-.05	-.15*	-.13	-.20**	.03	-.10	.09	.05	.00	-.03	-.34	.42**	1	
Raised financial share	36.32	18.40	-.14	-.00	.08	.10	-.09	.09	-.32**	.12	.10	-.08	-.30**	.07	-.35**	.03	1

Notes. Reliability indices (α) are displayed in parentheses on the diagonal.

Correlation is significant at the 0.05 level (two-tailed). * $p < .05$.

Correlation is significant at the 0.01 level (two-tailed). ** $p < .01$.*

Table 2
Regression analysis. Dependent variable: promotion and prevention considerations.

	Dependent variable: promotion considerations						Dependent variable: prevention considerations					
	Base model (M1)		Independent effects (M2)		Interactio effects (M3)		Base model (M1)		Independent effects (M2)		Interaction effects (M3)	
	Coefficient	Standard errors	Coefficient	Standard errors	Coefficient	Standard errors	Coefficient	Standard errors	Coefficient	Standard errors	Coefficient	Standard errors
Constant	5.15***	.13	5.06***	.14	5.07***	.14	4.80***	.14	4.92***	.13	4.90***	.18
Equity ratio	.11	.12	.23*	.13	.25*	.13	.36***	.13	.27**	.17	.26**	.16
Operating margin	-.06	.15	-.28**	.52	-.28**	.50	.03	.17	.14	.63	.14	.64
Market research	-.28	.22	-.15	.21	-.15	.21	.01	.24	-.01	.27	-.01	.26
Product information	-.20	.22	-.06	.25	-.05	.25	-.07	.23	-.04	.27	-.05	.28
Unpaid debt at enforcement authority	.35	.24	-.21*	.24	-.22*	.24	.15	.27	-.01	.30	-.01	.30
Patents and licenses	.04	.09	.01	.09	.01	.08	-.20*	.10	-.21*		-.20*	.11
Amount sought	-.07	.07	-.13	.08	-.12	.07	.13†	.08	.14		.12	.09
Industry sector	.27†	.16	.16†	.016	.15†	.16	-.25**	.17	-.26**		-.25**	.19
Turnover	-.02	.10	-.05	.09	-.07	.09	-.12	.08	-.12		-.11	.08
Equity share	-.01	.06	-.06	.06	-.07	.06	-.02	.07	.03		.04	.08
Gender			.18†	.08	.22*	.09			-.01	.10	-.04	.11
Entrepreneurial signals			.09	.08	.06	.10			-.09	.11	-.05	.12
Gender x Entrepreneurial signals					.20*	.09					-.21*	.11
R ²	.24**		.28***		.28***		.11**		.28***		.33***	
Adjusted R ²	.15**		.18***		.23***		.08**		.20***		.24***	

†p < .10.

*p < 0.05.

**p < 0.01.

***p < 0.001.

Table 3
Regression analysis. Dependent variable: raised financial share.

	Dependent variable: raised financial share			
	Base model (M1)		Independent effects (M2)	
	Coefficient	Standard errors	Coefficient	Standard errors
Constant	3.60***	.05	3.67***	.07
Equity ratio	.04	.06	.08	.06
Operating margin	-.11	.21	.06	.25
Market research	.04	.09	.02	.10
Product information	.09	.10	.07	.12
Unpaid debt at enforcement authority	-.08	.12	-.01	.13
Patents and licenses	.15		.07	.04
Amount sought	-.35**		-.24*	.03
Industry sector	.05		-.09	.08
Turnover	.11		.03	.04
Equity share	-.11		-.01	.03
Gender	-.07	.04	-.15	.05
Entrepreneurial signals	-.12	.04	-.15	.04
Gender x Entrepreneurial signals	.05	.04	-.14	.04
Prevention			-.40**	.04
Promotion			.32**	.04
R ²	.22*		.31**	
Adjusted R ²	.10*		.18**	

†p < .10.
*p < 0.05.
**p < 0.01.
***p < 0.001.

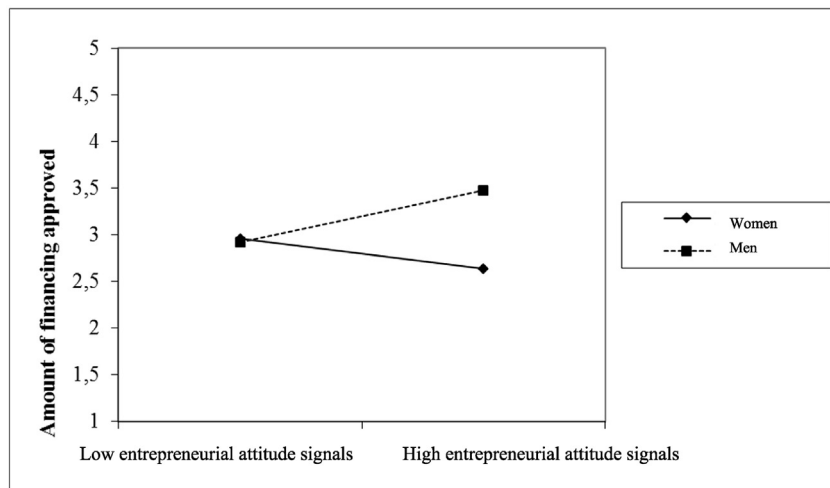


Fig. 2. Moderating effect of gender and entrepreneurial attitude on raised finance: promotion.

venture capital. However, by identifying the role of two core cognitions involved in evaluations of entrepreneurial projects—prevention and promotion considerations—and validating these cognitions with the talk associated with the evaluations, we believe we have identified a practically relevant approach to start to address the stereotype problem associated with gender and venture capital. For the entrepreneurship literature and for practitioner understanding, our study provides several takeaways. First, we were able to explore the cognitive underpinnings of VCs’ decisions related to promotion and prevention, introducing the involvement of gender stereotypes in this process, which had not been established in prior work. Second, we were able to exploit heterogeneity in entrepreneurial attitude to more sharply define the conditions under which men and women entrepreneurs will trigger promotion or prevention considerations in VCs. Third, we were able to replicate the effect of promotion and prevention on funding, but importantly, we did so based on funding received given funding sought, meaning that we further isolated the VC side from the entrepreneur side and thereby addressed a major debate in the literature.

Like every study, this research has certain limitations. Obviously, we cannot guarantee the generalizability of these results. We studied government VCs, who are similar to traditional VCs but have a few key differences. One difference, which may be a basis for

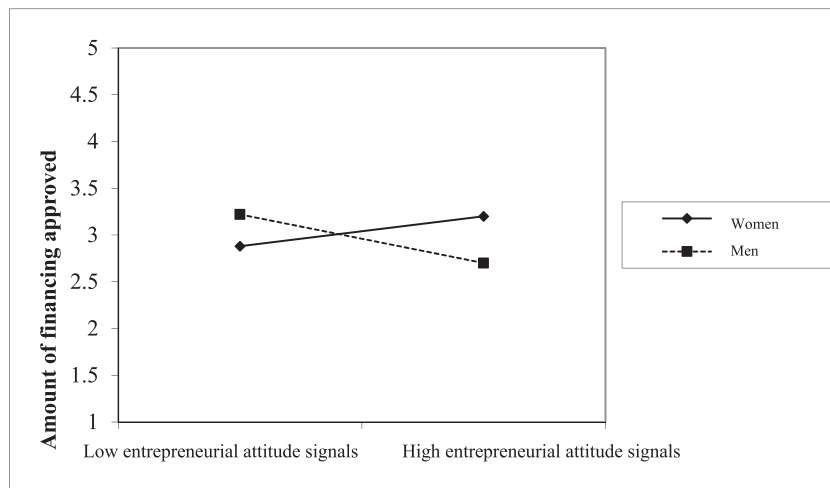


Fig. 3. Moderating effect of gender and entrepreneurial attitude on raised finance: prevention.

caution in generalizing our findings, is that while a traditional venture capital fund is built to generate ROI within a particular timeframe (e.g., 10 years), the government VCs that we studied have less pressing ROI requirements. This implies that prevention/promotion dimensions are relevant for government VCs but may be less significant than in traditional venture capital funds. Although the character of our sample implies our results stem from a more conservative setting, which suggests that identifying gender bias, as we theorize, in our sample should be more difficult than identifying such bias in a sample of traditional VCs, we still advocate being cautious in generalizing our findings. We encourage future research to investigate how our model works with other types of investors. However, our results should apply to investors' evaluations in other countries because the primary concepts in this study are largely transferrable across cultures and nations. We hope that these results will encourage additional research into how perceptions of gender, entrepreneurial signaling, and gender roles enable our understanding of financing. In addition, more knowledge is needed to understand how and why financiers' cognitions are gendered and how these gendered cognitions influence funding allocation. As such, future studies should investigate how gendered cognitions are articulated and expressed in decision making. Such research may provide interesting insights that extend beyond financiers' evaluations and the allocation of finance.

CRedit authorship contribution statement

Malin Malmström: Conceptualization, Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Project administration, Software, Supervision, Validation, Visualization, Writing - original draft, Writing - review & editing. **Aija Voitkane:** Software. **Jeaneth Johansson:** Data curation. **Joakim Wincent:** Conceptualization, Formal analysis, Funding acquisition, Investigation, Methodology, Software, Supervision, Validation, Writing - original draft, Writing - review & editing.

Appendix A. Supplementary data

Supplementary data related to this article can be found at <https://doi.org/10.1016/j.jbvi.2019.e00154>.

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