OPPOSITES ATTRACT

EXPERIMENTAL EVIDENCE ON THE EFFECTS OF GENDER IN VENTURE CAPITALISTS' INVESTMENT DECISION-MAKING

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Opposites Attract: Experimental evidence on the effects of gender in venture capitalists' investment decision-making

Abstract:

Female founders are known to raise less venture funding than their male counterparts. The conventional argument is that an increase of women in investment committees would increase the capital allocated to female founders. However, the female venture capitalists' willingness to invest in female founders remain untested. We examine the effect of gender homophily on investment decision-making by conducting an experimental study sending out a pitch deck with an attached survey to 1,152 venture capitalists in Europe asking them to evaluate a business idea and allocate money from a fictional fund. All other things equal, the gender of the founders were randomly changed. Contrary to research suggesting that venture capitalists invest in founders who are similar to themselves, we find no evidence to support the theory of homophily. Our findings reveal that venture capitalists evaluate founders of the opposite gender higher and are more willing to invest in their ventures. We conclude that female venture capitalists are less likely to invest in female founders and draw upon tokenism theory to discuss the implications of our findings.

Keywords:

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1.   Introduction

When asked to name a successful entrepreneur, most people think of Mark Zuckerberg (Facebook), Jeff Bezos (Amazon), or Elon Musk (Tesla and SpaceX). In other words, the general image of an entrepreneur tends to be that of a man (Ahl, 2006; Bardasi, Sabarwal, & Terrell, 2011). However, over the past years, many women have become successful business leaders, and women are launching more businesses than ever before (Goethals & Hoyt, 2017). In Sweden, 32% of companies founded in 2017 were launched by women (Tillväxtanalys, 2018), yet, less than 1% of venture capital (VC) financing was allocated to female founders in 2018 (DI Digital, 2019). Comparable studies in other countries have shown similar findings. For example, in the UK, for every £1 of VC investment, all female-founders get less than 1p (AllRaise, 2018; British Business Bank, 2019). This disparity has raised the question of whether gender is an issue in deals between VC firms and female-founded businesses (Greene, Brush, Hart, & Saparito, 2001).

Entrepreneurship and the creation of new-to-the-world ventures are critical activities in modern economics. The formation of these ventures is considered to be vital for economic growth and prosperity. However, for these ventures to flourish, capital funding is necessary, which makes the matchmaking of them to potential investors essential (Timmons & Bygrave, 1986). Given the statistics, it seems that female founders face disadvantages in growing their businesses. Conventional wisdom suggests that venture capitalists (VCs) invest more in male-founded companies due to biases against female founders (S. Marlow & McAdam, 2013) and research has found that gender biases lead to the existing funding gap (Brooks, Huang, Kearney, & Murray, 2014; C. Brush, Greene, Balachandra, Davis, & Blank, 2014; Greene et al., 2001; Jennings & Brush, 2013).

The question that follows is: who is making these funding decisions that result in a disproportionate allocation of capital? Gompers and Wang (2017) documented a systematic and persistent lack of women and ethnic minorities among both founders and the VCs that fund them. The makeup of the venture capital industry is particularly homogeneous, where only a small percentage of women are making investment decisions (C. G. Brush, Carter, Gatewood, Greene, & Hart, 2004). To demonstrate the homogeneity, Allbright (2017) published a report showing that only 3 out of 92 partners in VC and private equity companies in Sweden are women. The report reveals that partners who happened to be named Johan or Henrik make up a total of 11 percent, whereas women make up only 3 percent. The percentage of female VCs is similar in the US (AllRaise, 2018) and the UK (British Business Bank, 2019).

Homophily, which entails the higher rate occurrence of contact between people who are similar has been shown to impact outcomes in a variety of social settings (M. McPherson, Smith-Lovin, & Cook, 2001). Thus, it stands to reason that homophily has substantial implications for funding decisions; VCs would evaluate founders that are similar higher and invest more money in their businesses. Some scholars have observed that VCs prefer investing in startups with founders who are socially similar to themselves (P. A. Gompers & Wang, 2017; Hegde & Tumlinson, 2014). AllRaise, an organization dedicated to diversity in VCs and founders, argues that an increase of women in investment committees would increase the capital allocated to female founders. Other researchers

have made similar arguments - that the gender funding gap will disappear when women fund women (Raina, 2016). "If more women participate as venture capitalists, it might open the doors for women seeking capital" (C. Brush, Carter, Gatewood, Greene, & Hart, 2001). The theory of homophily could explain these arguments - that women will support other women.

Purpose and research question

To explore these possibilities, we develop and test a framework that draws upon the research evidence on two distinct psychological mechanisms. First, homophily points out that people tend to connect with similar others. Secondly, and contrary to homophily, tokenism theory asserts that in a specific context, women may behave in an unsupporting way toward other women. The nature of the venture capital industry offers a particularly intriguing setting for further inquiry; the homogeneous environment and organizational arrangements may facilitate the production of gender discrimination, a context where gender biases are prevalent.

Building on this premise, we aim to broaden the perspective of research in gender disparities in venture capital funding, by distinguishing between the gender of the VCs (C. G. Brush, Carter, Greene, Hart, & Gatewood, 2002). We embrace a micro-level approach by conducting an experimental study looking at the initial contact between founders and a VC. We depict a scenario of a VC receiving an unsolicited pitch deck by email. The *cold* (unsolicited) submission process in the funding pipeline has been empirically overlooked, despite it being a common way of initial contact between investors and founders (Tyebjee & Bruno, 1984). Additionally, our thesis attempts to answer he call in the existing literature to examine the role of gender homophily in the venture capital investment decision-process (C. Brush, Greene, Balachandra, & Davis, 2018). Our approach allows us to test for the presence of underlying gender biases in the macro-level funding environment and we propose that biases exist among both female and male investors.

Our experimental research is relatively unique to the extent that we cover the venture capital environment in Europe and enables us to attain a better understanding of the moderating influence of gender. We use the following research question:

To what extent is the initial impression of a business idea moderated by gender a predictor of access to venture funding, and do these impressions differ between female and male VCs?

2.   Theoretical framework

2.1.   Literature review

Over the past decades, there has been a dramatic growth in the rise and presence of female-founded businesses. Parallel to this growth, academic research on female entrepreneurship has accelerated. While the first studies on entrepreneurship made no distinction between gender, literature reviews have shown that historical perceptions of entrepreneurial activities are of a masculine character (Ahl, 2006; Bardasi et al., 2011). One of the earliest extensive studies on female entrepreneurship was the Diana Project, which raised the issue of women disproportionately receiving funding compared to the actual share of female founders. The report notes that historically, we know very little about investment in female-founded companies. The numbers presented show that between 1953 and 1998, venture capital funding went to 7,916 male-founded businesses and only 395 to female-founded ones (C. Brush et al., 2001). More recent studies have shown that gender causes more difficulties for female founders seeking financing for example through microloans (Brana, 2013); informal investment (Burke, van Stel, Hartog, & Ichou, 2014); and private investments (Gicheva & Link, 2013).

Sustained interest in gender disparities in venture funding remains among researchers who suggest that female founders raise less capital compared to their male counterparts due to gender biases (Brooks et al., 2014; C. Brush et al., 2014; Greene et al., 2001; Jennings & Brush, 2013). Some scholars have shown that female founders are less likely to utilize external financing (Coleman & Robb, 2012; Orser, Riding, & Manley, 2006), however, scholars agree on the fact that when they do raise capital, they raise less than male founders (Coleman & Robb, 2009). Given that financial resources are crucial for the growth of new ventures, this statistic gives female founders a disadvantage in developing their businesses. Venture capital plays an important role, especially in the commercialization stage of a company's life, as more than 80% of the money goes into activities that are required in order to grow the business (Zider, 1998).

Studies suggest that rather than looking for great ideas, VCs actually look for great founders who satisfy a function of conditions: qualification for the position, the founder's skills, reputation, the willingness to take risks, and the ability to sell oneself (Chandler & Hanks, 1994; Zider, 1998). It is stated that founders who satisfy these conditions come to the table with a strong negotiating position. A historical literature review showed that public perceptions of entrepreneurial activities that result in ideal new organizations are closely linked to stereotypically masculine characteristics (Bardasi et al., 2011). For instance, Bird and Brush (2002) found literature in psychology that explicitly described entrepreneurs as men. The general argument goes that the "ideal" entrepreneurial attributes are associated with men rather than women (Ahl, 2006).

Research has suggested that financiers perceive female founders to lack some of these important entrepreneurial attributes. Becker-Blease & Sohl (2007) found that financiers perceive men to have more attributes associated with successful entrepreneurship. Other studies proposed that women are seen as more risk-averse (S. Marlow & Swail, 2014; Shapiro, Hass, Maxfield, & Gupta, 2015), while male entrepreneurs are seen as more

capable and trustworthy (Becker-Blease & Sohl, 2007). This perceived lack of fit for women make them less likely to pursue and to be selected for male gender-associated roles such as that of an entrepreneur or a managerial position (Catalyst, 2007).

Heidi Rozen, a successful VC, became the subject of a case study by Frank Flynn at the Columbia Business School. Flynn presented the original case study with Heidi's name on it to half of his students, and to the other half he gave the same identical case, but the protagonist's name was changed to "Howard". Students rated Heidi and Howard as equally competent. Yet, Howard came across as more appealing. Consequently, all else equal, gender created vastly different results. Social science studies have confirmed that people evaluate others based on different stereotypes: gender, age, race, etc. (Kernahan & Davis, 2007). In the case study, Heidi violated the students' stereotypical expectations, whereas Howard lived up to them. In another study, students were asked to vote if they would hire a male or female job applicant with an identical track record (Steinpreis, Anders, & Ritzke, 1999). Both female and male students were more likely to vote for the male job applicant.

A role congruity theory of prejudice toward female leaders proposed that women are perceived less favorably than men as potential occupants of leadership roles and that behavior that fulfills the prescriptions of a leader role is evaluated less favorably when it is enacted by a woman (Eagly & Karau, 2002). Women in these male associated positions face higher standards and are perceived either as competent or liked, but rarely both (Catalyst, 2007). Women are more likely to have their performance devalued, less likely to receive opportunities for career advancement, and more likely to encounter challenges and skepticism when starting and running ventures. While gender has an impact on leadership and entrepreneurship, the relationship is more complex than this.

The biggest obstacles, however, stem from stereotypes and prejudices that women face. Although explicit biases toward women have decreased, subtle biases remain, perhaps even more damaging, limiting women's access to power (Hoyt, 2010). A meta-analysis by Koenig, Eagly, Mitchell, and Ristikari, (2011) found a strong and robust tendency for people's intuitive notions of leadership to be viewed as culturally masculine. The implications are straightforward: Men fit cultural construals of leadership and entrepreneurship better than women and therefore have better access to these roles.

However, the unexplored question that remains, is: what are the implications of women's own stereotypes and biases toward other women?

2.2. Homophily

Aristotle's noted that people "love those who are like themselves" (Aristotle & Gudeman, 1934).

In their classic paper on homophily, the sociologists McPherson, Lynn Smith-Lovin and James Cook (2001) wrote that similarity breeds connection. Specifically, they noted a phenomenon of contact between similar people occurring at a higher rate than among a diverse group of people. The result is that the structure of people's network ties, including marriage (Kalmijn, 1998), friendship (Verbrugge, 1977), career (Ibarra, 1992; Ibarra,

1995), instrumental network (Lincoln & Miller, 1979) and other types of relationships are homogeneous with regard to sociodemographic, behavioral and intrapersonal characteristics. Consequently, homophily has implications for the information people receive, the attitudes they form, and the interactions they experience (M. McPherson et al., 2001). Thus, it stands to reason that homophily also has strong implications for funding decisions. More specifically, that VCs evaluate higher, and invest in founders that are similar to themselves.

In order to better understand the influence of homophily on VCs' investment decision-making, we need to distinguish between choice homophily and induced homophily. The two govern the amount of observed homophily, where choice homophily is the individual's tendency to choose similar others, whereas induced homophily is dictated by the composition of the group (M. McPherson et al., 2001).

In the context of women's exclusion or limited access to networks, homophily has been widely used to study these phenomena and the findings are highly consistent. Men tend to have more homophilous networks, especially in environments where they are of majority (Brass, 1985; Ibarra, 1992; Ibarra, 1997). Ibarra (1992) found this pattern especially strong when considering high-status positions. If one gender group possesses higher-status, its group members are more likely to prefer an in-group interaction, whereas members of the lower-status group prefer intergroup engagement (Ibarra, 1992). Ibarra's study (1992) showed that men were more likely to form homophilous and possess stronger homophilous ties, while women showed a differentiated network pattern in which they obtained social support from women and instrumental access through ties to men. Other studies have also showed that both men and women use men in their networks to accomplish tasks, although the network of women included fewer men (Aldrich, Reese, & Dubini, 1989). A meta-analysis by Koch, D'Mello and Sackett (2015) revealed that men preferred men over women for both male-dominated and female-dominated jobs. Also, quite surprisingly, female raters gave men an advantage in female-dominated jobs.

Although, homophily is not defined exclusively by gender, the venture capital industry becomes especially interesting to study by virtue of its homogenous makeup. Homophily has previously been used to explain outcomes in investment decisions (Hegde & Tumlinson, 2014); hiring choices (P. Gompers & Kovvali, 2018); angel investing (Becker-Blease & Sohl, 2007); crowdfunding (Greenberg & Mollick, 2017). Some scholars have observed that as a result of homophily, VCs prefer to invest in startups with founders who are socially similar to themselves (Franke, Gruber, Harhoff, & Henkel, 2006; P. A. Gompers & Wang, 2017; Hegde & Tumlinson, 2014). Gompers, Mukharlyamov, and Xuan (2016) demonstrated that VCs are more likely to collaborate with others who share the same ethnic, educational, or career background as themselves. They also found that this tendency to homophily reduces the probability of their investment success, and that this detrimental effect is most prominent for early-stage investments. In his Harvard Business Review article "The Other Diversity Dividend" Gompers (2018) further argues that the industry's homogeneity is continuously reinforced by venture capital firms' hiring decisions. Gompers also presents its impact on financial outcomes, as the more homogeneous partnerships, the lower their performance. For example, partners with shared educational background had 11.5% lower success rates of acquisitions and IPOs than for those with partners from different educations. Shared

ethnicity had an even stronger effect, reducing investments comparative success rate by 26.4%-32.2%.

2.3. Tokenism

We further elaborate on theories that might explain the funding gap by adding a concept of closed social groups that limit women's participation in the workplace.

In 1977 Kanter conceptualized a framework of skewed groups that contain a large predominance of one type (dominants) over another (tokens). Particularly, Kanter investigated interpersonal relationships between men and women in organizations that were predominantly male and argued that when women are a minority at the top of organizations, they are referred to as "tokens". By taking an approach that incorporates the micro-level psychological processes with the more macro-level group disposition, she found that tokens are likely to be more scrutinized, pressured to side with the majority against their kind, and expected to conform to stereotypes. Kanter explained her findings with the concept of a numeric gender imbalance; specifically, a proportional representation of less than 15% attributed to negative consequences for women. She noted that this situation is especially common for women in management roles, but also faced by women entering typical male fields.

Kanter's findings have been replicated in a variety of settings and similar negative consequences have been found for women (Floge & Merrill, 1986; Hammond & Mahoney, 1983; Martin, 1994; Yoder, Adams, & Prince, 1983; Zimmer, 1988). Kanter further argued that the negative impacts only extended to female tokens. Other research has found that tokenism cannot explain experiences of male tokens in female-dominated environments. In fact, token men in predominantly female occupations generally encounter advantages which tend to enhance their career (Evans, 1997; Grimm & Stern, 1974; Heikes, 1991; Williams, 1992). Similar findings have been made on Wall Street, although very few men worked in female-dominated groups, those who did earned high pay (Roth, 2004).

Kanter's original work considered tokenism as an inter-group phenomenon, however, we believe that tokenism is applicable in the context of the venture capital industry for two main reasons. First, we argue that tokenism is applicable in the clearly male dominated industry (AllRaise, 2018; British Business Bank, 2019). Secondly, we propose that the relationship between VCs and founders is comparable to that of managers and subordinates. VCs are actively involved in the management of their portfolio companies and sometimes even willing to take over day-to-day operations (Sahlman, 1990). Most relationships also call for a board representation in the company for the VCs (Barry, Muscarella, Peavy Iii, & Vetsuypens, 1990).

Some of the first scholars on tokenism (Kanter, 2008; Martin, 1994) argued that women's position in these male dominated environments will improve when their proportion is increased. Similarly, more recent researchers have suggested that tokenism is likely to continue to work against women, until they reach a critical mass of 30%-40%, of which studies show that an increased number of women substantially contributes to innovation (Torchia, Calabrò, & Huse, 2011); return on investment (Joecks, Pull, & Vetter, 2013)

and accounting returns (Post & Byron, 2015). For example, Torchia, Calabrò & Huse (2011) found that the at least 3 women on corporate boards in Norway constituted the critical mass. Other scholars have also found evidence that higher representation of female executives enabled women to reverse the gender gap in rewards (Joshi, Son, & Roh, 2015).

Kanter discusses that the skewness generates certain perceptions of the tokens by the dominants, which in turn determine the interaction dynamics between the two. These dynamics create pressures that dominants impose on tokens and token responses have identifiable characteristics. Generally, the token may respond in two different ways. They can either accept their isolate and remain as such or they can try to become insiders, by defining themselves as exceptions and consequently turn against their own group. Kanter calls this popularized hypothesis as the "women-prejudiced-against-women" or the "queen bee syndrome".

The queen bee syndrome was first introduced by Staines, Tavris and Jayaratne (1974). They studied women's attitudes toward the Women's Liberation Movement and found that some women were against changes in traditional gender roles. Contrary to the homophily theory, the queen bee syndrome suggests that women who reach high-level positions in male dominated industries have done so by distancing themselves from other women (Derks, Ellemers, Van Laar, & De Groot, 2011; Derks, Van Laar, Ellemers, & De Groot, 2011). As a consequence, they try to prevent the promotion of other women (Mavin, 2008).

Research on the queen-bee syndrome has been replicated in a variety of settings (Baumgartner & Schneider, 2010; Derks et al., 2011; Ellemers, Van den Heuvel, De Gilder, Maass, & Bonvini, 2004; Johnson & Mathur-Helm, 2011; Rindfleish, 2000). Ergo, the queen bee syndrome is considered to lead to and sustain the gender discrimination in the workplace (Derks, Van Laar, & Ellemers, 2016). The syndrome predicts the behavior of women, and therefore, does not take into account the behavior of men. It should be emphasized that this phenomenon occurs in environments where women are exposed to gender discrimination. While this discrimination can motivate some women to take action to eliminate this discrimination, some women may put on their queen bee crown and work to increase their individual chances to move forward in their career.

Table 1. Individual and Structural Perspectives on Investment Decision-Making

Characteristic	Individual Perspective	Structural Perspective
Focus of analysis	Individual psychological process	Individual psychological process and macro-level group structure
Theoretical basis	Homophily	Tokenism
Main assumptions	People tend to connect with similar others	Tokens turn against similar others
Action	Active	Reactive
Proposed governance mechanism	Characteristics	Group composition
Criticism	Multidimensional complexity	Context based
Reference publications	Lincoln & Miller (1979) McPherson & Smith-Lovin (1987) McPherson, Smith-Lovin & Cook (2001)	Staines, Tavris & Jayaratne (1973) Kanter (2008)

2.4. Hypotheses

The assumption that female tokens will be instrumental in their relationships with other women has theoretical and empirical support by the principle of homophily (Ibarra, 1992; J. M. McPherson & Smith-Lovin, 1987) which assumes that individuals prefer to interact with similar others. However, there are a number of studies that show that female tokens sometimes prefer to be highly distinct members in their work groups and actively keep other women from entering their group (Cooper Jackson, 2001; Kanter, 2008).

In order to reconcile these two bodies of research with opposing arguments and the empirical evidence that either counter or support the notion that female tokens in the venture capital industry will be supportive of female founders, we hypothesize that the operation of homophily leads to the following predictions:

> **H1a:** A female VC is more likely to evaluate female founders' pitch decks higher than male founders' pitch decks.
> **H1b:** A male VC is more likely to evaluate male founders' pitch decks higher than female founders' pitch decks.

> **H2a:** A female VC is more likely to invest in female founders than male founders.
> **H2b:** A male VC is more likely to invest in male founders than female founders.

To test our hypotheses, we conducted an experimental study.

3.   Method

Stereotypes and prejudices are hard to detect. For many of us, they are subconscious, and thus the most apparent difficulty lies in their measurability. We apply an experimental approach in order for us to illuminate gender biases in venture funding. In general, scientific research reduces the influence of the investigator's own biases by being open to scrutiny. We provide a detailed description of the method we used.

In order to conduct the experiment, we began by constructing a survey with a pitch deck attached. A pitch deck is a brief presentation of a business idea, which entrepreneurs seeking funding to their business commonly send VCs as a first introduction. We outlined our pitch deck according to an order recommended by Sequoia, a recognized VC firm (Sequoia, 2019).[1]

As a business idea, we presented an existing US ridesharing company, and the choice was based on two considerations. First, novelty: while having secured funding in the US, the concept in Europe is still novel. Secondly, gender ambiguity: although it is a tech company, it could not intuitively be associated with a specific gender.

The founding team presented consisted of two co-founders, either all-female or all-male. The names of the entrepreneurs were randomly chosen among the most common Swedish first and last names (Statistikdatabasen, 2019). We found the entrepreneurs' pictures by searching the names on Crunchbase. Furthermore, we chose the pictures in order to not provoke any additional biases towards traits, such as ethnicity, age, or sexual orientation. Also, we chose a founding team of two entrepreneurs with different relevant educational backgrounds since the complementarity of the team is a critical aspect of VCs' investment decision-making (Alemany & Andreoli, 2018).

All recipients were provided with the same information about the context of the survey in the attached email. The participants were told that the study was about the state of European venture capital, but they were not told about anything related to gender in order to avoid affecting their responses.

The process of assigning recipients of pitch decks with either an all-female or an all-male founding team was randomized evenly by Qualtrics. In other words, 50% of the survey recipients were asked to evaluate a pitch deck with an all-female founding team, and 50% with an all-male founding team. The pitch deck attatched to the survey was split into two phases, a pretest, and a post-treatment test. The presentation of the founding team was re-ordered to be the slide exposed immediately after the pretest phase. In the pretest phase, the VCs were asked to evaluate the business idea, and after answering the evaluation criteria for this section, directly exposed to a slide of the founding team. Subsequent slides were related to the business model, competitors and financials. In the post-treatment evaluation, the VCs were asked to evaluate innovativeness, the entrepreneurs' qualifications, market acceptance, return on investment and exit possibilities. The VCs were also asked to name the criterion they consider to be the most important and evaluate

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[1] See appendix for the complete survey and pitch deck.

how the business idea they had seen matched their criterion. Finally, the VCs were asked to allocate capital to this business, from a fictional fund of €20 MEUR.

We chose the survey criteria based on MacMillan, Siegel, and Narasimha's (1985) research on determining the most critical measures for VCs. We asked the VCs to rate these criteria by a 7-point Likert scale (1 = Very Low, 7 = Very High).

Our research design included two points of experimental control over the study. First, we held the content of the survey constant across conditions. Secondly, we controlled for interviewer effects, the possibility for us to affect the the VCs' evaluation. Additionally, the experiment was quick to administer as it was sent out to the VCs by attachment to the email. The VCs could complete the survey wherever they wanted, adding convenience for the respondents. However, in order for us to collect data and control for the VCs influencing each other, we explicitly set a deadline for survey completion and asked them not to disclose any information to a third party.

Sample

In order to reach relevant participants, we did a strategic non-probability sampling (Bell, Bryman, & Harley, 2018). A purposive sampling allowed us to seek VCs that most accurately represented the population of VCs relevant to the research question.

VC firms tend to be located in very concentrated areas (Alemany & Andreoli, 2018). Thus, we chose our sample firms among all European capitals, foremostly by a search of the member lists of each country's venture capital associations. The firms included early stage (including pre-seed, seed, start-up and other early stage) and later stage venture capital firms. The VC sample was chosen based on role descriptions that indicated an investment decision-making role. The objective of this purposive way of sampling was to have a representative sample of the European venture capital landscape.

The data was collected by manually sending out the survey by email with individual links to 1,152 VCs in Europe. The individual links were used in order to code all recipients with either 1 or 0, female or male respectively, and in order to control for which links had been used to complete the survey. A reminder email was sent two days later to the recipients who had not clicked on their link.

3.1. Limitations

Quantitative research poses at least three limitations as a research method. First, testing for validity includes the notion by fiat in the measurement process as proposed by Cicourel (1964). When members of a sample answer the survey, it is assumed that they interpret the terms similarly. Our research method does not allow us to ascertain how respondents interpreted the questions. However, we used criteria based on research by MacMillan, Siegel, and Narasimha (1985), on the most important criteria used by VCs. Secondly, the reliance on instruments and procedures hinder the connection between research and everyday life. Thirdly, analysis of relationships between variables creates a static view of the research participants' decision-making that is independent from their lives.

Furthermore, we considered some disadvantages of a self-completion survey and tried to control for them. For example, we could not help respondents if they had difficulties in answering. To limit complications, we provided instructions and our contact details. Also, we could not make the VCs elaborate on an answer and we do not know how and if respondents interpreted the evaluation criteria as we intended them. We also tried to control for the intrusion of non-respondents by sending surveys to the VCs' work email addresses.

Additionally, after the evaluation of the pretest, respondents were not able to change their answers. In that way, we could control for the VCs answering the questions in a correct order and thus, not affecting the post-treatment evaluation. Other considerations, such as partly answered surveys, were recognized as missing data and is not included in the analysis.

We consider one major limitation regarding our sample being the fact that the population of female VCs is small, and note that we might not get statistically significant results.

3.2. Reflexive and ethical considerations

The conducted research considered the ethical principles of business research. When sending out the survey, we explicitly stated that respondents were anonymized in a way that does not allow them to be identified. The structure of the outreach email and the attached survey was composed with the principle of informed consent in mind, meaning that participant was given as much information as might be needed for them to take an informed decision on whether or not they wish to participate in the research. The participants were told that the study concerned the state of European venture capital, whereas nothing related to gender was mentioned in order to avoid affecting their responses.

4.   Results and Analysis

Table 2. Survey Sample Descriptive Statistics

Survey Summary	*n*
Total VCs contacted	1152
Female VCs contacted	230
Male VCs contacted	922
Emails *bounced*	151
VCs declined participation	4
Total VCs opened survey	261
Total VCs completed survey	159
Female VCs completed survey	35
Male VCs completed survey	124
Surveys with female founders	87
Surveys with male founders	72

Note: Emails *bounced* means the email was returned because it could not be delivered.

In table 2 we provide a summary of our sample. Out of a total of 1,152 VCs contacted, 230 (20.0%) were women and 922 men. We used a tool called Email Hunter to search the VC firms' domain names for contact information, as a consequence 151 of the emails could not be delivered, mostly due to incorrect contact details. Four of the VCs kindly declined participation because of time restriction.

261 VCs opened the survey link, and 159 completed the survey, yielding a dropout rate of 39.1%. Out of the 102 partly completed surveys, there were no particular patterns of dropout that were of interest; the dropouts were evenly divided among the slides with a slightly higher rate after slide 5 and slide 10 respectively where the criteria questions had been placed. Given that the questions demanded more time and effort compared to inspecting pitch deck slides, those are naturally expected dropout points.

In total, 159 VCs participated in the experiment, of which 35 were female VCs and 124 male VCs. We recognize that the female VC sample is small. However, it gave a favorable representation of the population as we obtained a response rate of 15.9%.

Table 3. Most Important Criterion Frequency Table

Criterion	Female VCs	Male VCs	Total	%
Team	13	67	80	50%
Other	7	23	30	19%
Scalability	3	5	8	5%
Market	1	5	6	4%
Team & Product	-	6	6	4%
Growth	2	4	6	4%
Traction	3	3	6	4%
Product	-	4	4	3%
Disruption	1	3	4	3%
Unit economics	3	-	3	2%
CSR	2	1	3	2%
Return	-	3	3	2%

Table 3 shows the frequency of each manually written criterion that the VCs considered the most important when investing. Synonyms and similar words have been combined to remove redundant categories, for example *big market* and *market opportunity* are put into *Market*, *returns* and *return on equity* into *Return*. *Team* (50%) was by far the most common criterion, followed by *Scalability* (5%).

The category *Other* (19%) represents all of the answers that were unique and not synonymous with another word. *Other* also contains 11 answers where the VC did not choose a single criterion but rather misinterpreted the question and wrote a list of multiple criteria, making it impossible to judge which one was considered the most important.

The criterion category *Team* is a combination of the words *team* (59 counts), *founder* (11 counts), *management* (7 counts) and *people* (3 counts). This criterion was considered the most important for both female and male VCs.

Measurements

Table 4 lists the variables used to perform multiple linear regression analysis for all VCs' responses. We analyzed all data in Stata.

Table 4. Experiment Variable Statistics and Funds Allocated Correlations

	Mean	SD	Min	Max	Funds Allocated Correlation	n
Unique Selling Proposition	3.50	1.37	1	7	0.11	159
Market Volume	4.06	1.32	1	7	0.17^	159
Market Growth	4.56	1.08	2	7	0.16^	159
Total Pretest Interest	4.28	0.82	2	6	0.22*	159
Innovativeness	3.72	1.16	1	6	0.22*	159
Entrepreneur Qualifications	4.60	1.16	1	7	0.15	159
Market acceptance	4.72	1.19	1	7	0.06	159
Return on Investment	4.33	1.24	1	7	0.36***	159
Exit Possibilities	4.39	1.48	1	7	0.17^	159
Criterion Fit	3.87	1.40	1	7	0.28**	114
Total Posttest Evaluation	4.29	0.88	1.4	6.3	0.28***	159
Funds Allocated	597799	897524	0	7000000		159
Female VC	0.22	0.42	0	1	0.06	159
Female Founders	0.55	0.50	0	1	0.08	159
Female VC X Female Founders	0.10	0.30	0	1	0.02	159

Note: Female VC X founders is an interaction between the dichotomous variables *Female VC* and *Female Founders*. Spearman's rho was used for correlations between ordinal and categorical variables.

^$p < .1$
*$p < .05$
**$p < .01$
***$p < .001$

Independent variables. Our study seeks to understand what impact the gender of founders has on business evaluations and investment decisions, and if there is a difference in outcome depending on whether the VC is female or male. To analyze the data, we utilized the dichotomous variable *Female VC* where 1 = a female VC and 0 = a male VC. Similarly, *Female Founders* is a binary treatment and control variable where 1 = pitch deck with female founders and 0 = pitch deck with male founders. To find out if the gender of the VC had a moderating effect we introduced the interaction *Female VC X Female Founders* between the two variables.

Dependent variables. We used three dependent variables to test for the outcomes of the experiment. First, a combined mean of the six post-treatment evaluation questions called *Total Posttest Evaluation*, which gives us an overall view of how the VC considered the business proposition according to the most common criteria used when evaluating. The first five questions used standardized likert scales of 1-7. However, *Criterion Fit* had the added option of responding with "Impossible to judge from the pitch deck" to make sure that the VCs did not try to put in an arbitrary value that had no relevance toward the total evaluation. 45 VCs chose the impossible-to-judge option, and their *Total Posttest Evaluation* is calculated without the value from *Criterion Fit*.

The second dependent variable *Funds Allocated* is an absolute number of euros that each respondent chose to invest, and the variable could accept any integer from 0 to 20,000,000. To account for possible mistakes when manually typing in the numbers, we have adjusted four answers that were significantly different from the others.

Table 5. Corrected Funds Allocated

Input	Corrected to
1	400000
4	4000000
500	500000
1000	1000000

Lastly, we analyzed the input from the standalone criterion question *Return on Investment* as a general indicator of expected returns. The variable answers a question very similar to *Funds Allocated* and they are significantly correlated ($r = 0.36, p < 0.0001$). One of the disadvantages with the absolute numbers in *Funds Allocated* is the fact that 62 (39.0%) of the VCs chose not to invest; they allocated 0 euros. While 0 euros is an entirely valid sum of investment, it does not allow us to accurately predict whether that particular VC had any preferences toward investing in a female or male founding team. Since all of the VCs were forced to select their expected *Return on Investment*, this variable has the advantage of explaining some of the preferences that *Funds Allocated* cannot.

Control. To better isolate the effects of gender we add the control variable *Total Pretest Interest* to understand what the VC's initial interest was before seeing the treatment slide. This variable is a combined mean of the three first criteria questions in the pretest. The reason for not keeping all three answers as separate predictors is the high correlation between *Market Volume* and *Market Growth* ($r = 0.37, p < 0.0001$): The respondents had mostly treated the two criteria as the same metric. By linearly combining the answers into a single variable, we solve the issue of multicollinearity in our models. The control variable increases our prediction accuracy when the sample is small, as we get two separate points of measure: before and after.

Table 6. Mean Data and Differences in Responses for Male and Female VCs

	Female VC Female Founders $n = 16$	Female VC Male Founders $n = 19$	**Difference in responses**	Male VC Female Founders $n = 71$	Male VC Male Founders $n = 53$	**Difference in responses**
Pretest Interest						
Unique Selling Proposition	3.50	4.21	**0.71**	3.85	4.08	**-0.23**
Market Volume	4.06	4.47	**-0.41**	4.14	4.49	**-0.35**
Market Growth	4.56	4.58	**-0.21**	4.65	4.64	**0.01**
Total Pretest Interest	4.04	4.42	**-0.38**	4.21	4.40	**-0.19**
Posttest Evaluation						
Innovativeness	3.19	3.74	**-0.55**	3.94	3.58	**0.36^**
Entrepeneur Qualifications	4.69	4.74	**-0.05**	4.72	4.38	**0.34**
Market Acceptance	4.06	5.00	**-0.94***	4.83	4.66	**0.17**
Return on Investment	4.12	4.89	**-0.77^**	4.38	4.13	**0.25**
Exit Possibilities	4.38	4.89	**-0.52**	4.52	4.04	**0.48^**
Criterion Fit	3.09	4.31	**-1.22***	4.08	3.64	**0.44**
Total Posttest Evaluation	4.00	4.59	**-0.60***	4.42	4.09	**0.33***
Funds Allocated	468750	878947	**-410197**	633803	487736	**146067(*)**

Note: Robust regression *p*-values in parantheses.
  ^$p < .1$
  *$p < .05$
  **$p < .01$
  ***$p < .001$

Comparison between groups

Table 6 provides an overview of all the means and differences between survey responses for treatment (seeing the female founders' pitch deck) and control (seeing the male founders' pitch deck) for both female and male VCs (*Female VC* = 1 and *Female VC* = 0). The *p*-values and beta coefficients used as differences between columns are obtained by performing multiple linear regression on each survey answer using *Female VC*, *Female Founders*, and *Female VC X Female Founders* as predictors.

Under pretest interest we find the first three answers from the survey: *Unique Selling Proposition*, *Market Volume*, and *Market Growth*. As expected, all of the differences are non-significant; we can assume that the difference of means is entirely by chance since the treatment and control pitch decks were randomly distributed. Female VCs' difference in responses for *Unique Selling Proposition* stands out ($b = -0.71$, $p = .13$). Though, with a small sample of 35 female VCs, this is not surprising as the standard error is 0.46. On average, the female VCs who would later see a female founding team evaluated the business lower during the pretest than those who would receive a female founding team, but the total difference was non-significant ($b = -0.38$, $p = .18$). For the male VCs we see an evaluation in a similar direction, with a non-significant difference ($b = -0.19$, $p = .20$)

In the posttest evaluation there are two significant differences for female VCs: *Market Acceptance* (b = -0.94, p < .05) and *Criterion Fit* (b = -1.22, p < .05). Given the few female VCs and 9 different criteria questions, it is likely that one or two answers would randomly show up as significant and it is not possible to draw any conclusion from these values alone, especially since *Criterion Fit* is uniquely related to the specific criterion chosen by the VC. It is also worth noting that *Return on Investment* is non-significant for both female and male VCs.

By looking at all of the posttest evaluation answers, starting from the female VCs' perspective, we find that each criterion's evaluation is in favor of male founders. We see a similar pattern from the male VCs' perspective, except reversed. The male VCs evaluated all six criteria higher for the female founders. The *Funds Allocated* show an even greater difference, women invested almost twice as much capital into the male founders' pitches, although, it was within the standard error of 304435 and non-significant (p = .18). However, we did find a significant difference for male VCs by performing a robust regression that reduced the weight of the cases with large absolute residuals. If we imagine that all of these symmetrical opposing answers occurred purely by chance, we could set up a probability tree with four different outcomes, each with a probability of .25, and as we expand the tree by an additional six levels of branches for a total of seven questions, we derive the calculation 4^7 = 16384. The probability drops to .00006. The results are lined up so perfectly symmetrical that one must ask if one has hit the lottery and is about to commit a type I error by rejecting a true null hypothesis.

Not surprisingly, the *Total Posttest Evaluation* differences do show up as significant (b = -0.60, p < .05) for the female VCs, in favor of the male founders and slightly stronger than the pretest total of -0.38 points, a decrease of -0.22 points. Inversely, the male VCs who initially had a negative total difference during the pretest instead show a significant positive total difference in the posttest (b = 0.33, p < .05) in favor of the female founders.

4.1. Analysis of Hypothesis 1a and 1b

Table 7. Multiple Linear Regression

| | Total Posttest Evaluation | | | |
	1	2	3	4
Total Pretest Interest	0.34***	0.34***	0.35***	0.34***
	(0.08)	(0.08)	(0.08)	(0.08)
Female VC		0.06	0.08	0.50*
		(0.16)	(0.16)	(0.22)
Female Founders			0.205	0.39**
			(0.14)	(0.15)
Female VC X Female Founders				-0.86**
				(0.32)
Constant	2.85***	2.83***	2.64***	2.58***
	(0.35)	(0.36)	(0.38)	(0.37)
n	159	159	159	159
R^2	0.10***	0.10***	0.11***	0.15***

Note: Standard errors in parentheses.

  $^\wedge p < .1$
  $^* p < .05$
  $^{**} p < .01$
$^{***} p < .001$

Table 7 shows the multiple linear regressions performed on the dependent variable *Total Posttest Evaluation.* The first model introduces the control variable *Total Pretest Interest* which significantly predicted the pitch deck post-treatment evaluation of the VC $F(1,157)$ = 17.12, $R^2 = 0.10$, $p < .001$. Inserting the independent variables *Female VC* and *Female Founders* did not significantly improve the models 2 and 3. By adding an interaction and allowing *Female VC* to act as a moderator for *Female Founders*, we increased the explanatory value of model 4 and all variables besides *Female VC* were significant ($p < .01$). The introduction of the pretest interest control variable improved the prediction of each independent variable when compared to the results from Table 3 where *Total Posttest Evaluation* was regressed with the independent variables alone. Figure 1 illustrates the 4th and final model's adjusted means and standard errors for all groups.

Figure 1. Interest-Adjusted Total Posttest Evaluation
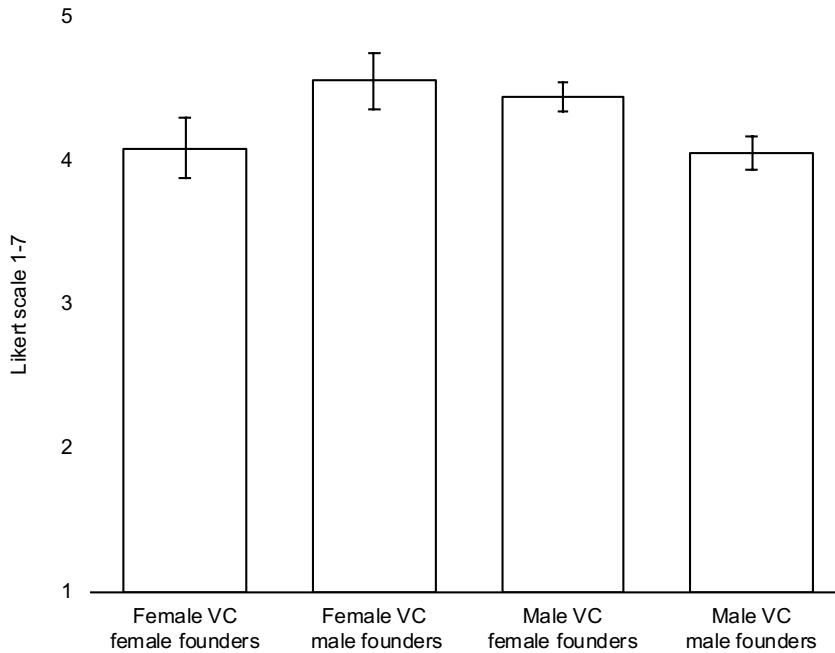
The evaluation differences are all significant and predicted the outcome ($F(4,154) = 6.94$, $R^2 = 0.15$, $p < .0001$), except between *Female VC male founders* and *Male VC female founders*. Female VCs evaluate male founders' pitch decks higher and conversely; we see the inverse relationship where male VCs evaluate female founders' pitch decks higher. Consequently, the data refute Hypothesis 1a and 1b.

H1a	A female VC is more likely to evaluate female founders' pitch decks higher than male founders' pitch decks.	Rejected
H1b	A male VC is more likely to evaluate male founders' pitch decks higher than female founders' pitch decks.	Rejected

The criteria used provided high validity for our experiment since they are directly transferable to attitudes toward founders without us explicitly asking about gender. Additionally, evaluating pitch decks is a day-to-day task of VCs which gives our experiment external validity, as respondents were able to conduct the survey in a natural environment.

In line with our theoretical framework, we hypothesized that due to gender homophily VCs would evaluate founders of the same gender as themselves higher. Our results, however, show no evidence of homophily. We see that female VCs significantly and consistently evaluated male founders higher on all criteria. Similarly, we see that male VCs consistently evaluated female founders significantly higher.

Our findings are not in line with prior research that indicated that VCs prefer male founders (Brooks et al., 2014). Our data question these prior results and suggest instead that the gender of the founders was positively correlated to a higher evaluation if the gender was different from that of the VC. Being a female founder was positively evaluated by a male VC, whereas being a male founder was positively evaluated by a female VC.

The results further suggest that the female VCs' evaluation of female founders was particularly modest. Kanter's (2008) theory of tokenism has been used to explain similar behavior of women in position of power not supporting junior women (Baumgartner & Schneider, 2010; Derks et al., 2011; Ellemers et al., 2004; Johnson & Mathur-Helm, 2011; Rindfleish, 2000), explicitly calling it the queen-bee-syndrome.

Surprisingly, we see a similar pattern among the male VCs evaluating male founders notably low. The result is in contrast to our hypothesis that male VCs would invest in male founders as a consequence of gender homophily. While tokenism and the queen-bee-syndrome can be used to explain female VCs' behavior, these theories do not take into account the behavior of men. Instead, we suggest that this behavior may be a consequence of increased media attention and subsequent awareness of the gender disparity in venture funding among VCs.

4.2. Analysis of Hypotheses 2a and 2b

Table 8. Multiple Linear Regression

	Funds Allocated			
	1	**2**	**3**	**4**
Total Pretest Interest	145247^	146718^	151635^	145206^
	(86387)	(86534)	(87645)	(87361)
Female VC		126717	133594	388520
		(171097)	(172429)	(238563)
Female Founders			57632	173837
			(144877)	(162811)
Female VC X Female Founders				-528946
				(343710)
Constant	-24295	-58490	-112598	-151535
	(376706)	(380064)	(404638)	(403658)
n	159	159	159	159
R^2	0.02^	0.02	0.02	0.04

Note: Standard errors in parentheses.

^$p < .1$
*$p < .05$
**$p < .01$
***$p < .001$

Table 8 is very similar to table 7; it depicts the previous models with the dependent variable *Funds Allocated* instead, but we find no significant values in any of the models. *Total Pretest Interest* is not able to accurately predict the funding outcome ($F(1,157) =$ 2.83, $R^2 = 0.02$, $p < .1$). As mentioned before, this is largely due to the many VCs who decided not to invest and the skewed distribution of the investments, visible in table 9. However, when performing a robust regression on the fourth model, we significantly predict the *Funds Allocated* with $F(4,154) = 2.87$, $R^2 = 0.07$, $p < .05$.

Table 9. Funds Allocated Frequency Table

Funds allocated	Female VC Female Founders	Female VC Male Founders	Male VC Female Founders	Male VC Male Founders	Total	%
7 000 000	-	1	-	-	1	0.6%
4 000 000	-	-	-	1	1	0.6%
3 000 000	-	-	1	1	2	1.3%
2 000 000	-	2	10	4	16	10.1%
1 500 000	-	-	1	1	2	1.3%
1 000 000	5	2	13	4	24	15.1%
500 000	4	7	14	7	32	20.1%
300 000	1	-	-	-	1	0.6%
250 000	-	-	1	2	3	1.9%
200 000	1	1	1	3	6	3.8%
150 000	-	-	-	1	1	0.6%
100 000	-	-	-	5	5	3.1%
50 000	-	-	1	2	3	1.9%
0	5	6	29	22	62	39%

Table 9 reveals the skewed distribution of *Funds Allocated*. The numbers are not rounded; they are kept in their original format as written by the VCs. 0 euros (62 counts) is the most common investment, followed by 500,000 (32 counts) and 1,000,000 (24 counts). We also see that one female VC invested 7,000,000 euros in a male founding team, resulting in a great increase of the mean.

Figure 2. Interest-Adjusted Funds Allocated

25
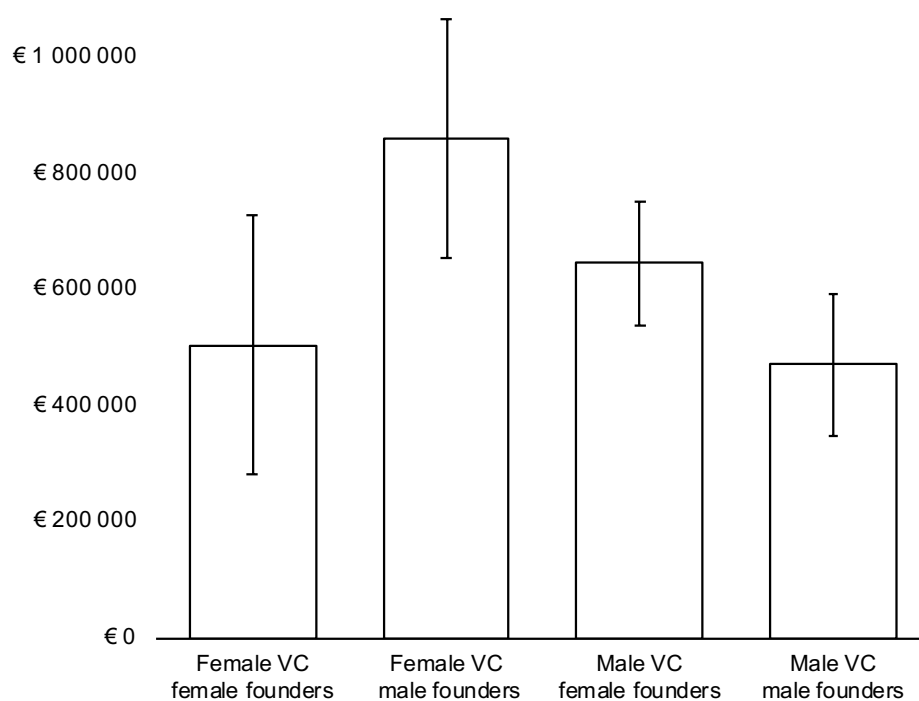
Figure 2 presents the non-significant results from the multiple linear regression analysis' model 4 in Table 8 with interest-adjusted means and standard errors for all groups. It is difficult to infer anything from the bars as the differences are all within the standard errors. The robust regression, on the other hand, indicates that the investing pattern is very similar to the evaluation of the pitch decks; the female VCs had a preference toward investing in male founders and inversely, male VCs appear to invest more money in the female founders' venture. We find no support for Hypothesis 2a and 2b which predicted the opposite outcomes for our experiment.

Table 10. Multiple Linear Regression

	Return on Investment			
	1	2	3	4
Total Pretest Interest	0.34**	0.34**	0.35**	0.34**
	(0.12)	(0.12)	(0.12)	(0.12)
Female VC		0.28	0.30	0.76*
		(0.23)	(0.23)	(0.32)
Female Founders			0.10	0.31
			(0.20)	(0.22)
Female VC X Female Founders				-0.95*
				(0.46)
Constant	2.88***	2.80***	2.70***	2.63***
	(0.51)	(0.51)	(0.55)	(0.54)
n	159	159	159	159
R^2	0.05**	0.06**	0.06*	0.09***

Note: Standard errors in parentheses.

$^\wedge p < .1$
$^* p < .05$
$^{**} p < .01$
$^{***} p < .001$

Lastly, table 10 details the regression models with the dependent variable *Return on Investment*. Contrary to the first model in Table 6, *Total Pretest Interest* now significantly predicts *Return on Investment* with $F(1,157) = 8.41$, $R^2 = 0.05$, $p < .01$. By adding all three independent variables, model 4 significantly explains the expected return on investment for the female VCs but non-significantly for the male VCs ($F(4,154) = 3.66$, $R^2 = 0.09$, $p < .01$).

Figure 3. Interest-Adjusted Return on Investment
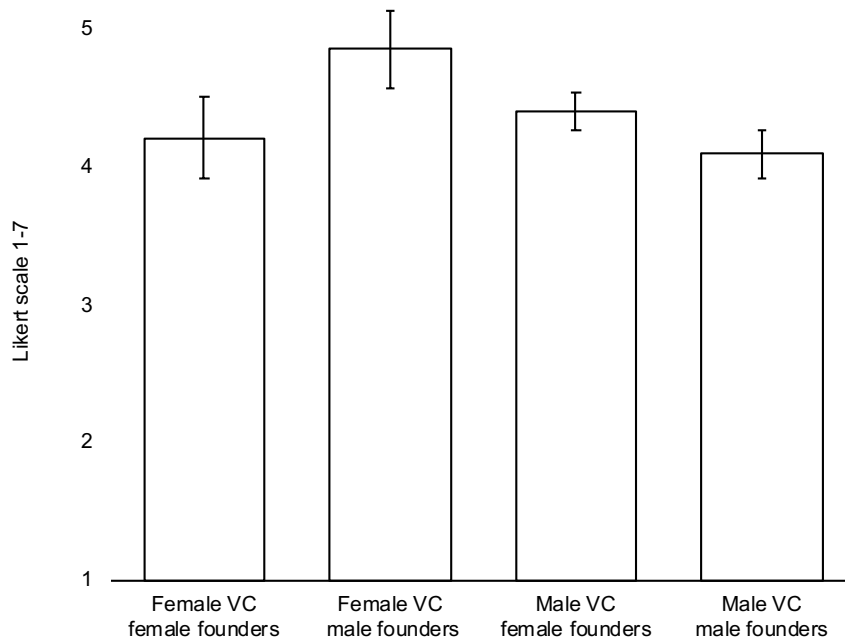
In the final figure 3, we once again see the interest-adjusted means and standard errors from the regression analysis' fourth model, this time with the dependent variable *Return on Investment*. The model did not significantly predict whether the male VCs expected a higher return from a female-led venture, but provides some additional explanatory power for testing our Hypothesis 2a; there is a significant difference between how much return the female VCs expected to generate on female founders' ventures compared to that of male founders'. We can deduce that if a female VC's firm required them to invest in an identical venture, they would be inclined to invest in the one that was led by a male founding team. The data, coupled with the results from Figure 3, refutes Hypothesis 2a: a female VC is, in fact, more likely to invest in male founders than female founders.

H2a	A female VC is more likely to invest in female founders than male founders.	Rejected
H2b	A male VC is more likely to invest in male founders than female founders.	Not supported

Similarly to Hypotheses 1a and 1b, we hypothesized that gender homophily would moderate VCs' willingness to invest in founders of the same gender as themselves. Female VCs would invest more in female founders, while male VCs would invest more in male founders. We found no evidence for homophily for Hypotheses 2a and 2b. However, Hypothesis 2b could not be rejected on a statistically significant level.

This result appears to be consistent with a recent examination of founders seeking angel funding (Becker-Blease & Sohl, 2007) which could not confirm that female angel investors would be more willing to invest in female founders, and men angel investors in male founders. This result is in contrast to prior findings in the context of venture capital; VCs tend to invest in founders that are similar to themselves (Franke et al., 2006; P. A. Gompers & Wang, 2017; Hegde & Tumlinson, 2014).

Our results suggest a propensity among female VCs to invest in female founders. We argue that the theory of tokenism offers an explanation for this behavior in the context of the male-dominated venture capital industry. Subsequently and in line with Kanter's (2008) arguments, studies have proposed that such a behavior is only going to cease when women reach a critical mass of representation in these male-dominated environments (Joecks et al., 2013; Joshi et al., 2015; Post & Byron, 2015; Torchia et al., 2011).

Our findings are unexpected and particularly noteworthy, since they identify a new pattern of gender-based decision-making in venture funding. We further discuss the implications of our results and pose suggestions for future research.

5.   Discussion

This thesis aimed to broaden the perspective of research in gender disparities in venture capital funding, by distinguishing between the gender of the VCs. We used the following research question:

To what extent is the initial impression of a business idea moderated by gender a predictor of access to venture funding, and do these impressions differ between female and male VCs?

This thesis has identified and elaborated on how gender homophily contributes to the evaluation of new venture ideas and investment decision-making in the initial, unsolicited contact between founders and VCs. Our thesis took a micro-level approach to examine the macro-level venture funding; specifically, we looked at the early stage of the funding pipeline that relates to the initial contact between founders and potential investors. Our thesis provides new evidence of disparities between female and male VCs' funding decision-making. Our thesis contributes to research on gender disparities in venture funding by attempting to answer the calls in literature to examine the impact of the VCs' gender (C. G. Brush et al., 2002) and the role of gender homophily in the venture capital investment decision-process (C. Brush, Greene, Balachandra, & Davis, 2018; C. G. Brush et al., 2002).

Despite the possible existence of homophily effects among women, our findings indicate that female VCs are less likely to evaluate higher and invest in female founders, which may create barriers for female founders seeking funding from female VCs, at least during the initial cold-submission phase. We do not intend to imply that explicit and implicit discrimination against women by men in organizational settings no longer exists. Rather, we believe that it is vital to recognize that women as tokens face challenges that may make it troublesome to advocate for other women. The fact that female VCs were less likely to invest in female founders suggests that the funding disparity may not be corrected by merely increasing the proportion of women in investment committees. This observation challenges the proposition that more female VCs will open the doors for more funded female founders (C. Brush et al., 2001). Yet so far, the recommendations that have been targeted toward increasing the proportion of women in VC focused on individuals behavior, such as men mentoring women (Noe, 1988; Prime & Moss-Racusin, 2009), women supporting each other (Ely, Ibarra, & Kolb, 2011; Yang, Chawla, & Uzzi, 2019), and female founders adopting a different style of pitching and answering questions (Kanze, Huang, Conley, & Tory Higgins, 2018).

When researching this thesis, we attended several events targeted for female founders and investors in order to get a deeper understanding of the venture landscape. Often, at these events, there was only one man present. Occasionally, the participation of men was prohibited. In line with Prime, and Moss-Racusin, C.A (2009) findings that before individuals will support initiatives toward equality, they must first recognize that the inequality exists; we argue that both genders need to be included in the conversation. Men who were more aware of gender bias were more likely to say that it was important to them to achieve gender equality.

The more that both men and women call out biases, the more the venture ecosystem will nurture and fund the high-potential founders. Therefore, in diversity and inclusion initiatives to eliminate gender biases, men have a critical role to play. We believe that it will require stories of success to make the benefits of investing in diverse teams evident to everyone. Moreover, and most importantly, it will require an understanding that change will not happen overnight. Thus, patience and persistence are necessary to achieve true equality.

Gender biases are rarely overt, or even intentional and identifying the sources of persistent gender inequality offers a compelling, yet challenging, agenda for research. We acknowledge that it is difficult to test for attitudes explicitly without influencing respondents' answers. Given the scope of our research, we believe that the conclusions made can be transferable to venture capital investment decisions in Europe.

The implications of this thesis do not specifically address female founders nor female investors; rather, we direct our findings and the discussion that follows to the broader venture capital industry. However, we also recognize the limitations of our research method and give suggestions for future research.

5.1. Limitations and future research

The limitations of this research point toward indications for future research.

One limitation of our study, and an essential pathway for future research, may lie in the gender and geographic composition of our sample as the survey respondents were mostly male, which reflects the population of the venture capital industry. Our study targeted European VCs. Future research should explore a more generous sample of female investors to bring clarity to these issues. In order to increase the reliability of the results, we propose future research to replicate the experiment. We have attempted to state our procedures as clearly as possible in order for the experiment to be replicable.

We extended the homophily and tokenism theories to the venture funding context, and we suggest that future research examines he critical mass that could cease gender discrimination in venture capital. Kanter (2008) argued that tokenism was likely to occur in groups in which 15% or fewer of the members had a distinguishing characteristic. Other studies have questioned this numeric and shown the critical mass to be at least 30% (Joecks et al., 2013; Torchia et al., 2011). Further research is needed to determine the conditions that will dilute or intensify female tokens' evaluation of other women.

We call for further theoretical developments in a different context to see if female investors possess biases that reinforce gender inequality. We explored the interaction during initial unsolicited contact and suggest that future research examine behaviors directly, for example, during physical pitches, investor committee meetings, networking events, among others. Future research can build on these insights by examining investors' funding interest as the decision-making process moves further down the funding pipeline. Finally, while our study was limited to female tokens and the male majority, future research could focus on other underrepresented groups in venture capital.

6.   Conclusion

Male founders are known to raise more capital than their female counterparts and studies suggests that VCs invest more in male-founded companies due to biases against female founders (Brooks et al., 2014; C. Brush et al., 2014; Greene et al., 2001; Jennings & Brush, 2013). Some studies have reasoned that the concept of homophily to explain why VCs prefer to invest in founders that are similar to themselves (Franke et al., 2006; P. A. Gompers & Wang, 2017; Hegde & Tumlinson, 2014). Since the venture capital industry is predominantly male, suggestions have been made that an increase in the proportion of women making investment decisions would decrease the unproportionate allocation of capital to male founders (AllRaise, 2018; C. Brush et al., 2001; Raina, 2016). We integrate this foundation, specifically by distinguishing between the gender of the VCs. With an experimental study, we tested for the presence of bias in the initial contact between a VC and a founder by depicting the scenario of a VC receiving a cold-submitted pitch deck by email.

This thesis helps to broaden the perspective of research on gender disparities in venture capital funding by contending that female VCs may not be as prone to invest in female founders as previously suggested. Therefore, our thesis raises new questions regarding female founders' access to venture capital. The findings are unexpected and particularly noteworthy since they recognize that the funding gap may not be solely attributable to the lack of female VCs. By recognizing that females as tokens in the venture capital industry face barriers that may make it troublesome to advocate for other women. Future research on this topic would benefit not only VC firms and founders, but the society as a whole. Finally, our sui generis data offer new a new perspective to the investigation of gender disparities in venture funding.

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8. Appendix

Exhibit 1: Pitch deck pretest slides 1-5

Exhibit 2: Pretest survey questions

Q1-Q3 Now that you have seen a little bit of the company Züm, we need your opinion on the following criteria. Please select the answer that best represents your view on Züm and its potential.

	Very low (1)	Moderately low (2)	Slightly low (3)	Average (4)	Slightly high (5)	Moderately high (6)	Very high (7)
Unique selling proposition (2)	○	○	○	○	○	○	○
Market volume (3)	○	○	○	○	○	○	○
Market growth (4)	○	○	○	○	○	○	○

Exhibit 3: Posttest pitch deck slides 6-10

Note that respondents saw either an all-female or an all-male founding team. The following slides were identical for everyone.

Exhibit 4: Posttest survey questions

Q4-Q8 Please consider the following criteria. Select the answer that best represents your view on Züm and its potential.

	Very low (1)	Moderately low (2)	Slightly low (3)	Average (4)	Slightly high (5)	Moderately high (6)	Very high (7)
Innovativeness (2)	○	○	○	○	○	○	○
Entrepreneur qualifications (3)	○	○	○	○	○	○	○
Market acceptance (6)	○	○	○	○	○	○	○
Return on investment (4)	○	○	○	○	○	○	○
Exit possibilities (5)	○	○	○	○	○	○	○

Q9.1 Please write down the most important criterion for you when investing in a company (it doesn't have to be any of the criteria mentioned in this survey).

Q9.2 How well does Züm correspond with the criterion you just wrote down?

	Impossible to judge from pitch deck (0)	Very low (1)	Moderately low (2)	Slightly low (3)	Average (4)	Slightly high (5)	Moderately high (6)	Very high (7)
Züm's criterion fit (1)	○	○	○	○	○	○	○	○

Q10 Lastly, imagine that you have €20,000,000 in your fund. How much would you be willing to invest in Züm?

○   Allocate funds _____