ADVANCING GENDER EQUALITY IN VENTURE CAPITAL

WHAT THE EVIDENCE SAYS ABOUT THE CURRENT STATE OF THE INDUSTRY AND HOW TO PROMOTE MORE GENDER DIVERSITY, EQUALITY, AND INCLUSION

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FOREWORD

Purpose. This research report describes the current state of gender equality in the U.S. venture capital (VC) industry and offers a practical way forward to close its significant gender gaps. It is intended to be an accessible resource for practitioners in the venture ecosystem, as well as a helpful reference document for journalists, scholars, and others interested in understanding gender dynamics in venture capital.

This document draws on an 18-month academic research project by the Women and Public Policy Program at Harvard Kennedy School as part of its gender and technology research portfolio. This document also incorporates an extensive review of existing academic and popular literature related to gender in venture capital and entrepreneurship. The research team thanks the New England Venture Capital Association and Culturintel for their collaboration on the study.

Navigating this document. This report begins with a case for change highlighting why we should care about gender equality in VC in the first place, followed by an introduction to an ecosystem approach to advancing gender equality and diversity and inclusion (D&I) in venture capital. After that, two main sections – on venture capitalists and on entrepreneurs, respectively – delve into the detailed causes and effects of the gender gaps we observe in the venture ecosystem, as well as suggested actions to close these gaps based on research. We conclude with a discussion on why progress on gender equality in VC has been so slow, and how it can be accelerated going forward.

Our focus is intentionally on organizational and individual levers to promote change. Scholarship from the last 10-20 years is emphasized in the literature review, although earlier, seminal works are included where their influence continues to be felt and where they remain relevant to the discourse. Footnotes contain additional detail. The author takes full responsibility for any errors.

Throughout the document, colored and highlighted summary text boxes offer key takeaways from each section for speed of perusal.

A note on gender and race. We acknowledge that the concept of gender is complex and does not exist on a binary. We also acknowledge that biological sex as assigned at birth and gender or gender identity are distinct. Nonetheless, today's empirical research and the vast majority of the popular literature on the venture capital industry still generally exists on the woman-man or female-male gender binary because this is how most data are collected. As such, this document examines gender in the binary context and uses "female" and "woman" interchangeably to refer to individuals who self-identify as female, and likewise for male. Moreover, given the extremely small numbers of women in venture capital to begin with, very little academic research exists on the intersectional experiences of women (and for that matter, men) of different races and ethnicities. This is a major limitation since extant research in other contexts suggests that women of different races have meaningfully different experiences. In this document, intersectional data are highlighted wherever possible; however, it is important to acknowledge that the analyses presented are primarily based on white, heterosexual women and men's experiences and the generalizability of the findings to other demographic groups is as of yet unknown.

WHY SHOULD VCS CARE ABOUT GENDER EQUALITY?

Gender equality in venture capital is important not only because it is the right thing to do, but also because it is the smart thing to do. Academic research shows that VC firms with 10% more female investing partner hires make more successful investments at the portfolio company level; have 1.5% higher fund returns; and see 9.7% more profitable exits. As for investments, there is some evidence to suggest that startups (co-)founded by women perform better over time than those founded by men. On the flipside, studies show that lack of demographic diversity among venture investing teams is associated with around 20% lower investment performance. What's more, female-founded startups perform 24% worse when financed by all-male VCs compared to gender-diverse VCs. Adding more women into the venture ecosystem – as investors, as founders, and as leaders of portfolio companies – is thus an evidence-based way to increase returns across the whole industry.

Gender diversity and gender equality in venture capital is fundamentally a moral issue. Excluding half of the population from a sector of the economy that is responsible for substantial wealth generation, job creation, and wage growth (Gompers & Wang, 2017a) is, quite simply, unfair and wrong. But it is also unwise. While there is overall only a small amount of research on the relationship between gender diversity and financial performance in the venture capital industry, the evidence we do have very strongly suggests that including more women in VC is the smart thing to do financially. Not only does increasing gender diversity improve financial performance for VC firms; homogeneity in venture capital, including in investments made and among portfolio companies, also harms financial performance.

Gender diversity among investors boosts financial performance for VC firms. The most robust, convincing evidence supporting gender diversity's positive effects on VC returns comes from Paul Gompers and colleagues, who analyze commercial data on 14,000 VC investments in 42,000 individual startups from 1990 to 2016 – essentially all venture deals in that time period (Blanding, 2018). They find that VC firms that grow their share of female partner hires by 10% experience a 1.5% increase in fund returns every year, as well as 9.7% more profitable exits, on average (Gompers & Kovvali, 2018). In economic terms, these results are striking. The median VC fund's return is around 14-15%, but funds with a female partner return around 16-17% (Blanding, 2018). On average, only 28.8% of all VC investments have a profitable exit; this figure rises to approximately 31% for VC firms with a female partner (Gompers & Kovvali, 2018). Gompers and colleagues hypothesize that the increases in performance are attributable to a combination of three factors: one, women face an uphill climb to make partner in a VC firm, and the few that do might therefore be exceptionally qualified; two, female VCs may be more open to investment opportunities that their male counterparts miss; and three, gender diversity gives rise to novel, alternative perspectives that may be helpful for investment decisions (Blanding, 2018). Separately, Raina (2016) also finds, based on Crunchbase data, that having a female partner improves the chances of a successful exit for a VC firm's female-led portfolio companies (there was no effect on male-led portfolio companies).

What causes some VC firms to have more female investors than others? Interestingly, there is strong evidence of a positive relationship between the gender of venture capitalists' children and both their propensity to hire women *and* their fund's performance (Gompers & Wang, 2017b).[1] In other words, when a son is replaced with a daughter for a senior male VC, there is a 24% increase in the probability of hiring a senior female VC into that firm, with stronger effects for male VCs with tenures longer than five

[1] The study examines 1,403 VCs (10% women) serving on their portfolio companies' boards, with investment data drawn from the VentureSource database and demographic data from various other databases; the data cover the period from 1990 to 2016. The share of female hires increases by 1.93% from a base rate of 8.03% – a 24% increase – for every son replaced with a daughter for the existing partners in the VC firm.

years in the firm (they exert more influence in hiring). The relative effect of having a daughter rather than a son by existing VCs also translates into a 2.88% increased likelihood of deal success and a 3.2% increase in net internal rate of return. Thanks to the instrumental variable design of the study,[2] these effects are considered causal despite being based on observational data (Gompers & Wang, 2017b). The results are also in line with other academic research showing that parenting daughters increases feminist sympathies and that men with daughters therefore tend to exhibit less biased behaviors toward women (e.g., Glynn & Sen, 2015; Washington, 2008). Thus, gender diversity in and *around* the venture capital industry – in this case, gender diversity in investors' families – can have a significantly positive impact on its bottom line.[3]

Gender-diverse portfolio companies appear to be better investments. Besides benefiting from diversifying their own ranks, VC firms may also benefit from investing in more gender-diverse portfolio companies. Here, the evidence is less academically rigorous but directionally indicative. A study commissioned by the Small Business Association, examining all U.S. VC investments from 2000 to 2010,[4] concludes that the performance of VC firms improves as the ratio of investment in women-led businesses, defined as having a woman on the management team, increases (DuBow & Pruitt, 2017; JMG Consulting & Wyckoff Consulting, 2013). First Round Capital, a seed-stage tech VC firm, found in 2015 that among its 300 deals over ten years, investments in startups with at least one female founder performed 63% better than those with all-male founding teams in terms of the appreciation in value compared to the initial investment (First Round Capital, 2015; Murray, 2018). Moreover, three of First Round Capital's all-time top ten investments had gender-diverse founding teams.

Similarly, Babson College's Diana project on entrepreneurship finds that startups with a female executive are more likely to receive later-stage funding (Brush, Greene, Balachandra, & Davis, 2014). Indeed, a Boston Consulting Group analysis shows that among 350 companies participating in the Mass Challenge startup accelerator program – 258 founded by men and 92 (co-)founded by women – the female-(co-)founded startups generated 10% more in cumulative revenue ($730,000 vs. $662,000) over five years (Abouzahr, Taplett, Krentz, & Harthorne, 2018; Bounds & Ram, 2019). Accounting for investment size, the female-(co-)founded startups returned 78 cents per dollar invested while the male-founded startups delivered 31 cents (Abouzahr et al., 2018). Thus, in this dataset, female entrepreneurs generated more than twice the revenue per dollar invested compared to male entrepreneurs. However, the limitation of the latter two studies is the non-random nature of the samples since companies in First Round Capital's portfolio and those participating in Mass Challenge are hardly representative of all startups in the United States.

Lack of gender diversity is associated with decreased financial performance in VC. While gender diversity boosts financial performance in VC, the reverse is also true. Academic research shows that homogeneous investment teams perform worse than diverse teams, especially when investment partners are similar to each other on dimensions unrelated to ability. A three-decade study examining the selection of investment partners on syndicated deals[5] not only finds that similar VCs tend to invest together – evidence of "homophilic selection in collaboration"[6] based on gender, ethnicity, academic institution, and

[2] Instrumental variable (IV) regression is an econometric technique that allows researchers to draw causal inferences from observational data. An IV is a third variable, Z, that is used in regression analysis when the explanatory variable, X, and response variable, Y, are endogenous, i.e., influenced by each other in some way. IV techniques apply when the correlation between X and Y is described by Z, which is associated with X in some way and also associated with Y, but only through Y's direct association with X. In this case, the researchers are interested in the effects of increases in a VC firm's gender diversity (X) on the firm's investment performance (Y). The average number of daughters of the existing investing partners (Z) is used as an instrument for the variations in the female hire ratio, with the key assumption that the effect of parenting daughters (Z) affects venture capital investment performance (Y) *only* through the proportion of female partners hired (X). For more on IVs, see Nichols (2007).

[3] Based on the $91.6 billion total raised by over 800 startups through initial public offerings (IPOs) between 1990 and 2010, Gompers and Wang (2017) estimate that the relative effect of having a daughter versus a son is that an additional $4.5 billion could have been raised through IPOs.

[4] The study examines 2,500 VC firms, 18,900 startups, 92,500 management team members, and 90,000 investment rounds in VentureXpert from 2000 to 2010.

[5] The individual VC leading an investment in a startup often identifies other VCs at different firms to partner with on that particular deal, such that a follow-on investor is chosen by the initial investor from a pool of potential co-investors. This is called a syndicated deal (Gompers, Mukharlyamov, & Xuan, 2016).

[6] Homophily is the tendency of individuals to associate and bond with similar others.

past employer – but also that collaboration on the basis of affinity-based characteristics, such as ethnicity or prior employment, is associated with a 20% or greater reduction in the probability of a successful exit outcome (Gompers, Mukharlyamov, & Xuan, 2016).[7] The cost of affinity-based syndication is particularly high for early-stage investments. It appears that the driver for worse investment performance in homogeneous investor pairs is poorer decision-making after the initial investment regarding things like company strategy and hiring (Gompers & Kovvali, 2018; Gompers, Mukharlyamov, & Xuan, 2016).

Furthermore, lack of gender diversity among VCs hurts the performance of some of their portfolio companies, as measured by exits via acquisition or initial public offering (IPO). Female- and male-led startups perform equally well when financed by investor syndicates that include female general partners (GPs), but female-led startups perform 24% worse when financed by all-male VCs (Raina, 2019). Investor gender is directly responsible for this performance gap such that "some intrinsically valuable female-led startups do not succeed because of VC financing." If this discourages women from starting new ventures, "some valuable projects are never undertaken due to the possibility of VC-induced failure" (Raina, 2019).

These findings are supported by empirical evidence from a closely related context: the Harvard Business School MBA program, which is a major feeder into the VC industry (Gompers, Huang, & Wang, 2017). In a sample of 3,684 MBAs, students exhibit more homophily based on demographics (gender and ethnicity) than experience (education and past work experience) in self-directed team formation in a startup setting.[8] Furthermore, homophily is not linked to better performance or outcomes among top teams.[9] This is relevant to the VC industry where returns are generated at the top by the most successful investments (Gompers et al., 2017). It is also consistent with the well-established academic literature showing that diverse teams perform better than homogeneous teams on a variety of tasks, including creative problem-solving (e.g., Hoogendoorn, Osterbeek, & Van Praag, 2013; Phillips, Liljenquist, & Neale, 2009; Woolley, Chabris, Pentland, Hashmi, & Malone, 2010). Specifically, teams of randomly selected problem solvers outperform teams comprised of the best-performing problem solvers because the former have greater diversity (Hong & Page, 2004).

VCs should care because gender inequality hits their bottom line directly. Based on the numbers in venture capital, one could argue that the industry might benefit from better decision-making. In spite of VC's reputation as a rain-making industry, the average VC firm does not return money, post-fees, to its investors, and 80 of 100 VC firms do not beat a public market benchmark (Brush et al., 2014). Indeed, a slightly older study examining VC firms between 1986 and 1999 found that 29 firms invested $21 billion (14% of industry capital) and returned $85 billion in that time, a 3.6x multiple, while the remaining crop of more than 500 firms invested $160 billion and returned $85 billion, a 0.4-0.6x multiple on average (Mulcahy, Weeks, & Bradley, 2012). Thus, a very small number of top VC firms drives the returns for the entire industry. A newer analysis by Paul Gompers and Sophie Wang (2017a) shows that of 11,832 VC deals between 1990 and 2016, only 28.7% were a success overall[10] with 14.2% resulting in an IPO.

Adding more women into the venture ecosystem – as investors, founders, and leaders of portfolio companies – has the potential to increase these numbers across the whole industry and deliver both greater financial returns and better decision-making. In today's world, it is an opportunity that cannot be missed.

[7] The study examines 3,510 individual VCs investing in 12,577 portfolio companies from 1975 to 2003, with investment data drawn from the VentureSource database and demographic data from various other databases. The authors distinguish between two types of personal characteristics: affinity-based characteristics, which are not ability-related and do not correlate with individual performance (e.g., gender, ethnicity, sharing a past employer in common); and ability-based characteristics (e.g., a degree from a top university). Gender is a statistically significant factor in syndication decisions. A pair of VCs are more likely to collaborate on a syndicated deal if they attended the same university (34.4% more likely) and if they belong to the same minority group (39.2%).

[8] The study examines 3,684 Harvard Business School MBA students (40% women; 40% White, 12% Asian American, 5% African Americans, 4% Hispanic, and 35% international) in a first-year required entrepreneurship course between 2012 and 2016. Students self-select into teams of 5-7 for a semester-long course (FIELD3) where they start and run a real business. Homophily in ethnicity and gender increases the probability of forming teams by 25% while homophily in education and past work experience increases the probability of forming teams by 17% and 11%, respectively.

[9] Homophily based on ethnicity does improve performance for teams in the bottom quantiles, lifting them up to the median. The authors hypothesize that this happens because of enhanced communication and reduced conflict in the groups.

[10] Overall success is defined as the deal's acquisition value being greater than the total capital invested (deal acquisition values drawn from Capital IQ).

AN ECOSYSTEM APPROACH TO ADVANCING GENDER EQUALITY IN VENTURE CAPITAL

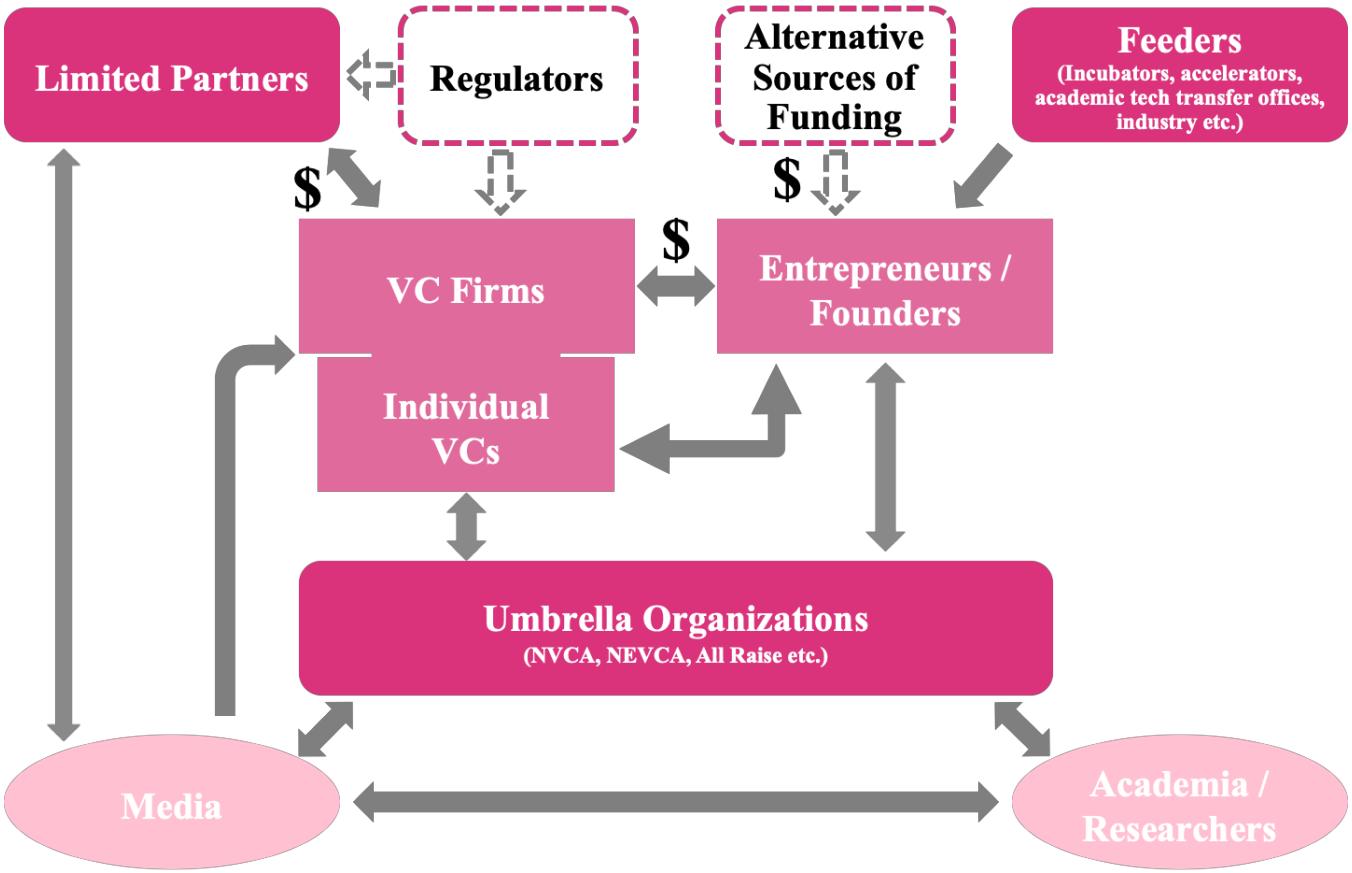

Figure 1. **The U.S. Venture Capital Ecosystem.**

Figure 1 depicts the venture capital ecosystem, or the interconnected system of actors and their relationships that comprises the venture capital industry in the United States. The actors at the heart of this complex network –venture capital firms, which are comprised of individual venture capitalists – have not only the most responsibility for, but also the most influence on, the state of gender equality in the industry. For that season, the recommendations for advancing gender equality in VC that are presented in this report primarily target VC firms.

However, given the interconnected nature of the industry, *all* actors in the ecosystem have a part to play in addressing venture capital's exclusion of a large segment of society and the talent pool, namely, women and racial minorities. In fact, examples like that of the United Kingdom on the topic of increasing women's representation on corporate boards have shown that an ecosystem approach can be very effective in tackling complex, industry-wide, socio-cultural challenges (Beshears, Bohnet, & Sanford, 2017). In such an ecosystem approach, each actor does what is within their own span of control to make progress on the issue at hand, in addition to influencing other actors to do their part. No single actor can be expected to solve a challenge like gender inequality alone, but with cooperation, pressure, and aligned efforts from all sides, meaningful progress can be achieved, and often surprisingly quickly.

Table 1 on the following page presents summary recommendations of what each of the actors in the U.S. venture capital ecosystem can and should do to bring about greater gender equality in VC.

Table 1. **Actions for Venture Capital Ecosystem Actors to Advance Gender Equality**

VC Firms	• Institute more structure into the hiring process for own VC firm and portfolio companies
	  o Create formal and well-thought-out job descriptions
	  o Pre-determine evaluation criteria
	  o Require diverse slates and balanced short lists in hiring
	  o Implement structured interviews (see Appendix A for details)
	  o Introduce work sample tests
	  o Consider a centralized process for bundled hiring
	• Equalize access to feedback, mentorship, and resources for success
	  o Distribute resources and opportunities to succeed equally
	  o Make sure that everyone has mentors both inside *and* outside the firm
	• Standardize and de-bias the funding and pitching process
	  o Implement structured pitch sessions (see Appendix A)
	  o Assess pitches independently first, then discuss as a team
	  o Evaluate pitches and ventures jointly and simultaneously
	  o Consider blind evaluations of pitch decks
	  o Expect investors to explain reasoning when female and minority founders are not funded
	  o Provide constructive, specific, actionable feedback to founders
	• Track diversity and inclusion-related data to expose inequities and set targets to remedy them
	  o Track diversity and inclusion data for own firm and portfolio companies (see Appendix B)
	  o Set diversity and inclusion targets for own firm and portfolio companies
	  o Assign specific accountability for meeting diversity and inclusion goals
	  o Consider sharing some data, goals, and/or progress publicly

Individual VCs	• Broaden own networks and actively seek out diverse investors and founders • Mentor, sponsor, and coach female VCs and founders • Model inclusive, respectful culture and behaviors in all interactions • Recognize that diversity and unconscious bias trainings alone are not the solution
Entrepreneurs / Founders	• Build gender diverse and inclusive companies (leveraging research and recommendations from this report) • Expose female employees to leaders, boards, and VCs to build pipeline • Serve as a visible role model for future founders, including in the media
Limited Partners (LPs)	• Include questions about gender diversity and inclusion in the due diligence process to put gender equality on VC firms' agenda (as LPs evaluate VC firms for investment) • Set and enforce targets of gender representation and gender inclusion for VC firms and their portfolio companies • Set standards for consideration of gender in the due diligence process
Feeders	• Boost the pipeline of diverse talent into the VC ecosystem by diversifying own programs (e.g., accelerators, incubators, academia) • Develop closer relationships with VC firms and individual VCs to facilitate connections for founders (e.g., academic technology transfer offices, business school career offices)

Umbrella Organizations	• Provide D&I training and resources for VC firms, VCs, and founders • Facilitate access to the existing diverse pipeline by developing and disseminating list(s) and/or databases of diverse VC investors and founders • Highlight and celebrate female role models by elevating the work of female VCs and entrepreneurs within the venture community • Develop programs to expose junior female VCs to mentors and role models across the industry and across the experience/tenure spectrum • Develop programs to connect female founders with investors • Shift social norms around D&I in the industry through publicity campaigns, communications (including naming and shaming and positive public recognition), events, and other activities
Media	• Actively cover gender in VC as a topic • Highlight and celebrate female role models by elevating the work of female VCs and entrepreneurs to a mainstream audience • Use proven social strategies such as naming and shaming, public pressure, and positive public recognition to drive behavior change
Academia / Researchers	• Conduct more research on gender dynamics in the VC industry, especially experimental studies wherever possible • Partner directly with actors in the ecosystem to study and generate more actionable, evidence-based insights on what works to advance gender equality
Regulators	• Use regulatory tools, including rules, guidelines, investigations, and litigation, to pressure limited partners and VC firms to make gender equality a priority (note: regulators are not currently a major player in the venture ecosystem)
Alternative Sources of Funding	• Pressure traditional VC firms to make gender equality a priority by providing founders an alternative source of venture funding (note: alternative funding providers are not currently a major player in the venture ecosystem)

"We were sort of nervous about introducing [more structured organizational processes] at first 'cause we didn't know whether the older guys would want to do it. -- Honestly, the feedback we got when we first did it was, 'Oh my God, this is amazing, why haven't we been doing this for, like, ever.' I'm really proud of that. I think it's been really good for our firm."

Male tech investor (Chilazi, Asundi, & Bohnet, 2018)

VENTURE CAPITALISTS AND GENDER EQUALITY

Gender equality among venture capitalists and within venture capital firms is the first component of gender equality in the overall venture capital ecosystem that we examine. Gender equality among VCs matters greatly because investors play a pivotal gatekeeping role in the modern, technology-driven innovation economy. By selecting which ideas, companies, and individuals get an opportunity to succeed through venture funding, VCs shape the economy and society of the future. When half of America's population and workforce is largely excluded from this process – as women essentially are today, both as VCs and as venture-backed entrepreneurs – the consequences can be dire and far-reaching for all of us.

Figure 2 represents the three key types of gendered barriers – industry-wide, organizational, and interpersonal – that female venture capitalists face and that male venture capitalists largely do not. This section examines each of these barriers in turn, seeking to understand how and why they arise, how they create an unlevel playing field for women and men in VC, and how they can be dismantled.

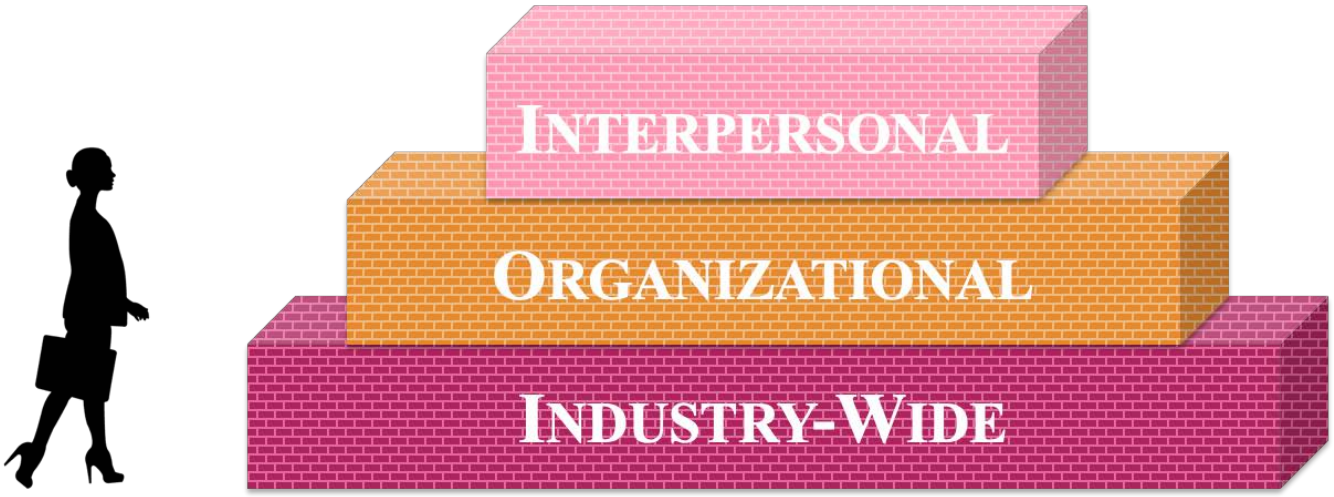

Figure 2. **Barriers to Gender Equality in Venture Capital.**

The venture capital industry overall is well-studied, but the gender dynamics within it are much less so. The most prominent and prolific scholar at the intersection of gender and venture capital is Paul Gompers of the Harvard Business School, who, along with his various co-authors, has written the single largest body of work on the topic. We draw heavily on his work in this report, but also note that more research is urgently needed in this area. Venture capital is, in fact, quite an attractive field to study because the nature of VC deal-making, in addition to extant VC transaction data, makes it possible to conduct interesting analyses and measure individual investor performance in a precise way (Gompers, Mukharlyamov, Weisburst, & Xuan, 2014).[11]

[11] VC deals are individually led and VCs typically join the boards of the companies they have invested in, which allows researchers to tie individual VCs to specific companies for the purposes of analysis. Moreover, since performance and outcome measures in the industry are financial, performance can be easily measured. When combined with demographic data on VCs and firm-level data on VC firms, this provides for a rich dataset for investigation.

INDUSTRY-WIDE BARRIERS TO GENDER EQUALITY

"The people who are the decision-makers are all white guys. All of the assistants are women. There aren't any African Americans."

Female life sciences and healthcare investor (Chilazi et al., 2018)

The structure of the venture capital industry makes it a fundamentally unlevel playing field for women and men. Six key interrelated, industry-wide factors explain why the deck is stacked against women in venture:

1. Venture capital is historically male-dominated, which has led to a staggering overrepresentation of men as VCs today. Only 21% of all investment professionals and approximately 11% of investing partners are women. Around three-quarters of U.S. VC firms do not have a single female partner.

2. VCs are extremely homogeneous and similar to each other in terms of gender, race, educational background, and work experience. This demographic uniformity resulting from a common human tendency of individuals to associate and bond with similar others – homophily – has not only perpetuated the exclusion of women in the past, but continues to hamper the VC industry's ability to diversify today.

3. Most VC firms are small with low turnover, so hiring is infrequent. This makes it more difficult and time-consuming to diversify the ranks, especially for the smallest firms (larger VC firms are demonstrably more likely to hire women and have more female employees).

4. There is a very strong perception that there are not enough qualified women to fill the VC pipeline. The data, however, call this argument into question. Women make up more than 40% of the student body at the top ten U.S. business schools, as well as 36% of entering investment bankers and 45% of entering management consultants. Moreover, women earn the majority of *all* postsecondary degrees and are even close to parity in science and engineering degrees specifically. The fact is that there are *significantly* more women with the requisite backgrounds for venture capital than there are female VCs.

5. Networks are vital for VCs, and in an industry that is overwhelmingly male on both sides – around 90% of VCs are male and 85-90% of founders receiving VC funding are male – women are at a great disadvantage. Men tend to want to network, socialize, co-invest, and otherwise partner with other men. Moreover, men tend to benefit more from their networks than women.

6. The lack of role models resulting from the above factors makes it even harder for women to aspire to, enter, and succeed in, VC. One cannot be what one cannot see, and being the "only" in a sea of "others" puts women at an informational, psychological, and relational disadvantage.

All of these factors result in a strong status quo bias, or an implicit acceptance of and preference for the way things are. Admittedly, many of these industry-wide dynamics, such as the small size of most VC firms, will be difficult to change in the short term.

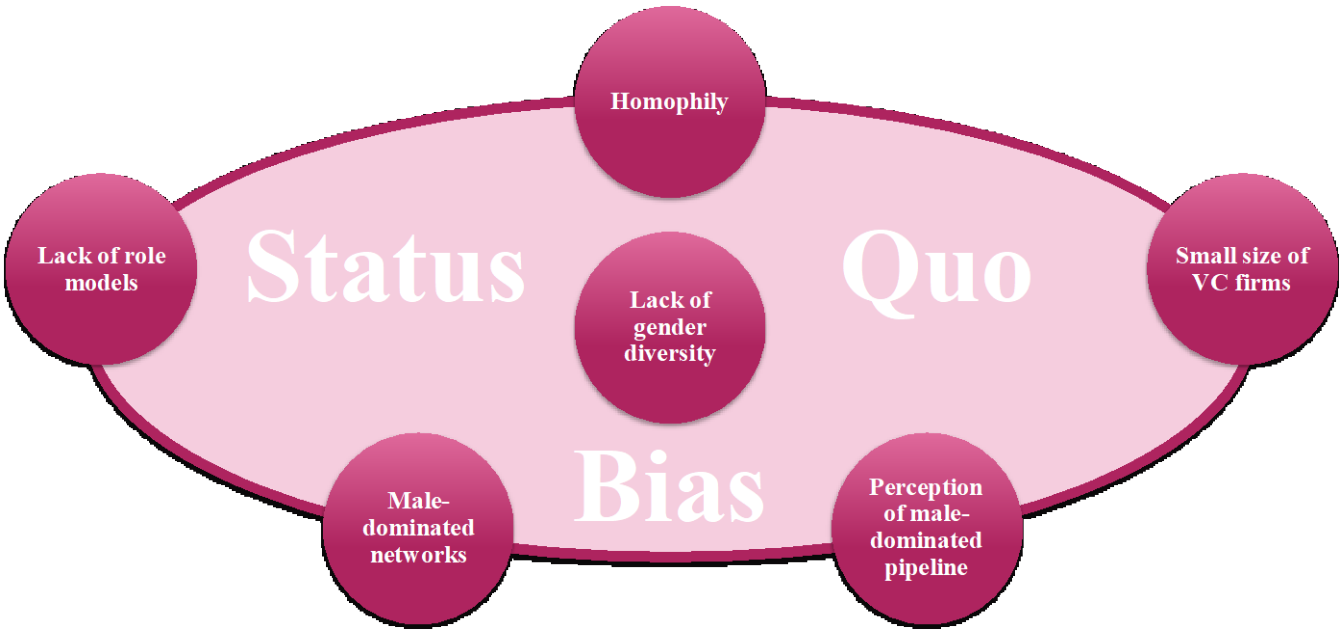

Figure 3. **Industry-Wide Barriers to Gender Equality in Venture Capital.**

Several aspects of the venture capital industry's fundamental structure, history, and culture make it an unlevel playing field for women compared to men (see Figure 3). This is consequential because while less than 1% of small businesses use venture capital (Gompers & Wang, 2017a; National Venture Capital Association [NVCA], 2016), and only about 1% of all businesses in the United States *ever* receive venture financing (Brush, Greene, Balachandra, & Davis, 2017), more than 60% of IPOs involve venture financing (Gompers & Wang, 2017a). Moreover, by all accounts, the VC industry is stronger than ever with greater fund sizes, larger deals, and bigger exits: in 2018, more than 8,400 venture-backed startups raised approximately $130 billion in venture financing (Haque, 2019)[12] from a pool of 1,336 (as of 2016) active VC firms in the United States (NVCA & Deloitte, 2016).[13] There is no doubt that venture capital is a key driver of the innovation economy and overall societal prosperity.

Figure 3 summarizes the industry-wide barriers to gender equality and inclusion in venture capital. This section explores these structural impediments and how they can be dismantled.

> *"This industry feels [like] less of a meritocracy but more of a mirrortocracy."*
>
> Richard Kerby, Partner at Equal Ventures (Kerby, 2018)

Women are dramatically underrepresented in today's American venture capital industry. The overwhelming male domination of venture capital today is a significant contributor to the gender inequality of the industry (see Appendix C). On the investment side of U.S. VC firms, women make up 21% of all investment professional roles from Associate to Partner, up from 15% in 2016 (NVCA & Deloitte, 2016, 2019), and by most estimates, approximately 11% of investment partners, or individuals with direct influence over investments (NVCA & Deloitte, 2016).[14] Around three-quarters of U.S. VC

[12] In a sign of venture capital's current strength, LPs provided U.S. VC firms with the highest amount of capital since the dot-com craze ($56 billion to 256 venture funds in 2018) while the total value of venture-backed exits ($120+ billion by 864 companies in 2018) surpassed records from 2000 (Haque, 2019).
[13] Firm-reported data were collected through a survey in July-August 2016. Active VC firms had to meet one of the following criteria: 1) raised a fund from 2008 to 2015; 2) invested $5 million or more in 2015; 3) was identified as a growth equity firm in NVCA's 2015 Yearbook; 4) was a corporate venture group that made 10+ investments from 2011 to 2015; or 5) was an NVCA member firm as of March 2016 (NVCA & Deloitte, 2016).
[14] The NVCA-Deloitte surveys define investment partners as Managing General Partners, Managing Partners, General Partners (GPs), Founding Partners or Managing Directors (MDs), or Partners designated as Senior and Investment Professionals. The 2016 survey reports 11% female investment partners while the 2018 second edition survey, published in 2019, reports 14%. All Raise (n.d.) likewise estimates that 11% of VC decision-makers are women. All Raise

firms do not have a single female investing partner (All Raise, n.d.),[15] and among firms that do, 74% have only one single female investing partner (NVCA & Deloitte, 2019). Figure 4 shows the share of women at all levels of the U.S. venture capital industry in 2018, according to a National Venture Capital Association and Deloitte (2019) survey. These numbers make venture capital investing one of the most male-dominated professions in the country (Bureau of Labor Statistics, 2018). Things might be moving in the right direction, however: 2018 saw the largest number of women ever – 36 – added as VC investment partners in a single year (Hinchliffe, 2019), and the share of female investment partners increased to 14% from 11% since the first, 2016 edition of the NVCA-Deloitte survey.

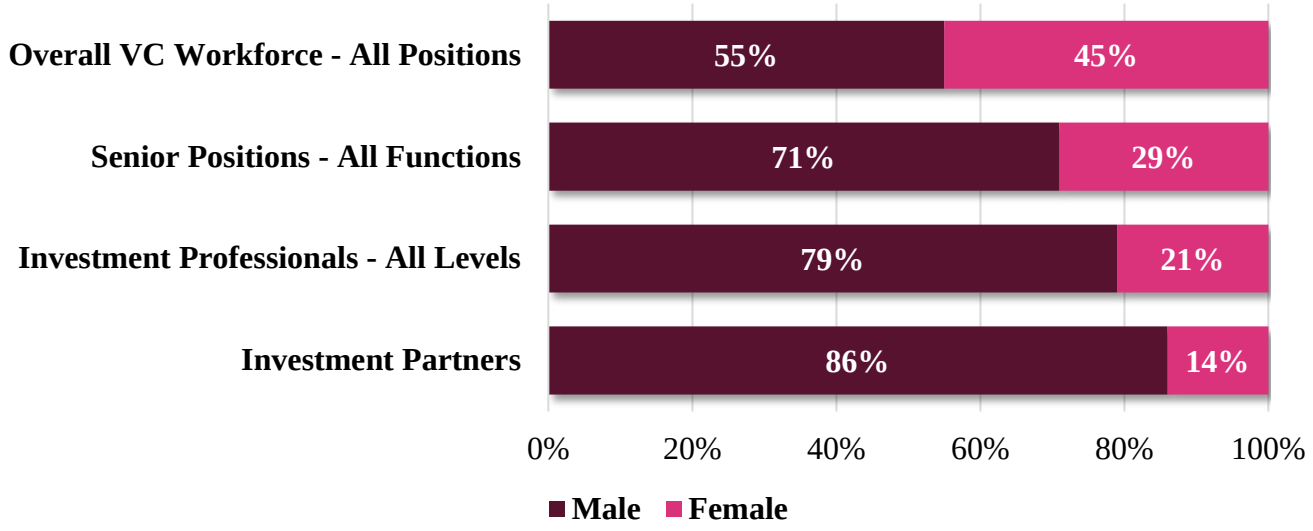

Figure 4. **Gender in the U.S. Venture Capital Industry (2018).**

In addition to a massive gender gap, VC suffers from a massive racial gap. Based on The Information's VC Diversity Index, among 100 women surveyed at the 102 largest U.S. venture capital firms, there was only one Hispanic female partner, one Native American female partner, and no African American female partners (Bernard, 2019). By contrast, there were 71 White female and 37 Asian female investment decision-makers at the surveyed firms.[16]

Female representation among venture capitalists varies by investment industry. Healthcare has the highest representation of female VCs (10.5%), followed by consumer goods (8.2%) and consumer services (7.2%); IT has the lowest proportion of female VCs at 5.5% (Gompers & Wang, 2017a). The representation of female VCs also varies by firm size, with larger VC firms more likely to employ and hire women than smaller ones. Across the venture capital workforce, larger VC firms with 21 or more employees have more female employees at 47% than mid-sized firms with 6-20 employees at 45% and small firms with five or fewer employees at 33% (NVCA & Deloitte, 2019). Large VC firms with more than 11 partners are also nearly twice as likely to hire women compared to small firms with fewer than five partners (Gompers & Wang, 2017b).[17] Just under half of female VCs are partners in micro or small firms with assets under management (AUM) of less than $250 million, with the other half in medium-to-mega funds (All Raise, n.d.).[18]

includes partners, GPs, and MDs with check-writing ability at firms with fund sizes greater than $25 million; it excludes life science and healthcare firms and corporate VCs from its numbers. Globally, women held 15% of partner roles at accelerators and corporate venture firms in 2017 (Teare & Desmond, 2017).

[15] All Raise (n.d.) puts the share of VC firms without a female partner at 71%; NVCA and Deloitte (2019) at 68%; Gompers et al. (2017) at 75-80%; and Konrad and Carson (2018) at 74%.

[16] Gompers and Wang (2017a) note that among both women and men, Asians are statistically overrepresented in venture capital and entrepreneurship.

[17] The average female hiring ratio of small VC firms with fewer than five partners is 5.29%; that of large firms with more than 11 partners is 10.18%.

[18] Women in micro ($25-$100 million AUM) and small ($101-$250 million AUM) venture funds make up 45% of all female VCs. Women in medium ($251-$550 million AUM), large ($551-$1,600 million AUM), and mega ($1,601+ million AUM) funds make up the other half, or 55%, of all U.S. female VCs.

There is some evidence to suggest that newer VC firms are doing better on gender representation. In the U.S., new fund formation is driving the fastest growth of women as VC investors (All Raise, n.d.).[19] Globally, according to Crunchbase data, 21% of venture and micro-venture firms launched between 2014 and 2017 had at least one female founder – nearly three times the share in global top 100 VC firms, which tend to be older and more established (Teare & Desmond, 2017). It also seems that the presence of women as VC firm (co-)founders correlates with more women as investors. Globally, at 63 VC firms with at least one female co-founder, an average of 44% of investing partners are women (Teare & Desmond, 2017).

Homophily characterizes the VC industry: most investors are extremely similar to each other. VC has historically been dominated by white men with a very particular profile.[20] This homophily in the industry – the demographic uniformity resulting from a common human tendency of individuals to associate and bond with similar others – has not only perpetuated the exclusion of women in the past, but continues to hamper the VC industry's ability to diversify today. Gender patterns tend to be replicated from one organizational generation to the next, and mid-to-senior VCs who leave their established firms to start their own funds are likely to perpetuate the overrepresentation of men. This is the finding from a study of a similar industry – Silicon Valley law firms – where founders of new law firms who had experience with women in leadership in their old firms are more likely to include women in prominent positions in their new firms (Phillips, 2005). Conversely, founders from firms where female subordination had been institutionalized are less likely to place women in leadership positions in the new firms they found (Phillips, 2005).

> *"The venture capital world is incredibly homogenous, consisting mostly of white men from liberal arts colleges who majored in economics and attended business school. Harvard Business School alone accounts for some 25% of VCs."*
>
> Blanding (2018)

What exactly does homophily in venture capital look like? A study of 11,555 VCs shows that they tend to have business-oriented backgrounds, including undergraduate degrees in economics, business, or finance; an MBA from a top business school; and work experience in investment banking, consulting, or large technology companies (Gompers & Wang, 2017a). A separate 2008 survey of VCs corroborates these findings: 36% earned technical degrees, 28% began their careers as entrepreneurs, and 42% graduated from Harvard, Stanford, the University of Pennsylvania, Duke, and/or MIT (Tinkler, Whittington, Ku, & Davies, 2015). One VC's analysis of an open-source demographic dataset of approximately 1,500 venture capitalists yields very similar findings. Nearly 60% of VCs in the United States are white men and 40% attended either Harvard or Stanford (Kerby, 2018). Among African American investors, who overall make up about 3% of VCs, over 50% attended Harvard or Stanford (Kerby, 2018), suggesting that individuals who are different from the VC norm on one demographic dimension may need to be similar on some other dimension(s) in order to make it into the industry.

> *"[VC] is just an old boy, white network that has developed from the '60s. -- The old boy networks are still very much intact."*
>
> Male life sciences and healthcare investor (Chilazi et al., 2018)

Lack of diversity begets lack of diversity. The severe underrepresentation of women is a major structural impediment to equality and inclusion in VC because the proportions or relative numbers of different types of individuals shape interaction dynamics (Kanter, 1977b). In settings where some types of people are overwhelmingly dominant numerically ("dominants") – such as men in venture capital – the individuals who are different from them ("tokens" or, in VC, women) are disproportionately scrutinized and

[19] Older data show that female VCs are statistically more likely to join older and larger firms with more formalized processes around recruitment (Gompers et al., 2014). However, given that these findings are based on a dataset covering the period from 1975 to 2003, they do not capture latest trends.
[20] In 2018, U.S. VC firms were 76-80% white across all levels and functions (NVCA & Deloitte, 2019).

their differences from the dominant group tend to be exaggerated (Kanter, 1977b). As a result, the minority, or the tokens, face undue performance pressures while the majority (un)consciously ostracizes them and views them through a stereotypical lens. This can lead to biased assessments, devaluation of performance, and stymied advancement opportunities for the minority (Heilman, 2001).

These are exactly the dynamics at play in today's venture ecosystem. The lack of female role models in the industry is well-documented (e.g., Burleigh, 2015), as are the detrimental effects of not having role models in one's work life (e.g., Master, Cheryan, & Meltzoff, 2016). The current homogeneity in the industry therefore makes it harder for all VCs not only to diversify their own ranks but also to nurture diverse entrepreneurs and inclusive portfolio companies (Project Include, 2016). In fact, in a survey of 93 female VCs, 20% saw the scant representation of female entrepreneurs as a hindrance to their deal flow (Gompers et al., 2014). And in a recent online simulation study on hiring decisions, female employers hired the female candidate 50% of the time while men hired her only 40% of the time, suggesting that getting more women into VC may be easier the more of them are already there (Gompers & Kovvali, 2018). Unfortunately, the status quo bias arising from the chicken-and-egg nature of the diversity problem – VC is homogeneous because VC is homogeneous – can demotivate some VCs from even attempting to address it (Chilazi, Asundi, & Bohnet, 2018).

Even language reflects the gender status quo in VC. As a norm, a "venture capitalist" or an "entrepreneur" is inherently assumed to be a man, with "female VCs" or "woman founders" marked separately by gendered language (Lewis, 2006). By extension, the characteristics, behaviors, and standards of the majority group in venture – i.e., men – become a universal norm that is applied to everyone. Consequently, we observe female VCs and entrepreneurs seeking to negate the inherently gendered nature of the field they are in as they try to avoid being labeled as deviating from the norm (Lewis, 2006). Such denial can paradoxically serve to harm women in the venture ecosystem if they believe that the gendered disadvantages women face in venture have been eliminated and gender is no longer an issue (Lewis, 2006).

VC firms are small with low turnover and infrequent hiring. The typical U.S. VC firm is small with a median of three investment partners (Gompers & Wang, 2017a), and a median of eight and average of 17 employees (NVCA & Deloitte, 2016, 2019). Given their small size, VC firms make hiring decisions infrequently. In a sample of 1,403 VCs from 1990 to 2016, firms made, on average, 4.58 new hires in any five-year window, translating to a senior hire perhaps once every three to five years (Gompers & Wang, 2017b). In a survey of 203 VC firms in 2018, turnover in senior investment positions was only 7% and turnover in junior investment positions was 19% (NVCA & Deloitte, 2019).[21] Not surprisingly, these hires tend to be dominated by men. Of the VC firms in Gompers and Wang's (2017b) study, 72.1% have never had a female investor and 19.2% have exactly one female; on average, 8% of new hires across VC firms are women. The authors point out that such stark numbers can be the result of even a very small bias in favor of men in the hiring process, given that the ultimate hiring decision is binary in nature. Moreover, the "aggregation of such binary outcomes across firms can result in the overall lack of diversity across an entire industry", with homophily particularly likely to influence hiring decisions in small organizations like VC firms (Gompers & Wang, 2017b).

The lack of women in VC is thought, mostly incorrectly, to result from a lack of pipeline. The lack of suitable and well-qualified female candidates for VC positions – i.e., pipeline – is one of the most oft-cited reasons for women's underrepresentation in VC (Chilazi et al., 2018). If only there were more qualified female candidates available, the argument goes, there would be more women as VCs.

[21] The second edition of the NVCA-Deloitte survey was conducted in October-December 2018 with 203 firms participating (compared with 217 firms in the 2016 edition of the survey) and providing information on 2,712 U.S.-based full-time employees (compared with 2,502 in 2016). Active VC firms had to meet one of the following criteria, slightly changed from 2016: 1) raised a fund from 2010 to 2017; 2) made one or more investments in a U.S.-based company in 2017, limited to VCs that were raising a fund, and made at least five investments in the past five years; 3) was identified as a growth equity firm in NVCA's 2018 Yearbook; 4) was a corporate venture group that made 10+ investments from 2013 to 2017; or 5) was an NVCA member firm as of May 2018.

It is true, of course, that women are currently underrepresented in some of the educational tracks relevant to VC (Cheryan, Ziegler, Montoya, Jiang, & Albarracín, 2017). Women's share of computing occupations has declined from its high of 36% in 1991 to 25% in 2015, with racial minorities barely registering in the single digits in computing (Ashcraft, McLain, & Eger, 2016).[22] Even fewer women hold roles in innovation occupations like software development and technology leadership, and 88% of IT patents between 1980 and 2010 went to all-male invention teams (Ashcraft et al., 2016).

In order to better understand the larger gender gaps in participation in computer science, engineering, and physics compared to similar STEM fields like biology, chemistry, and mathematics, Cheryan et al. (2017) develop a three-part model. They find that the factors explaining the gender representation gap are a masculine culture that creates and signals a lower sense of belonging to women; lack of early exposure to and experience with computer science, engineering, and physics; and differential self-efficacy, or women's lower estimation of their abilities.[23] Importantly, only the second of these factors has anything to do with pipeline. Besides, the first and third factor are linked since fields with larger representational gaps also tend to have larger gender gaps in self-efficacy (Cheryan et al., 2017).

The underrepresentation of women in STEM, however, cannot fully explain the dismal numbers in VC. STEM education is but one possible background for VCs, and even in STEM fields, women are quickly catching up. Women's proportion of science and engineering degrees has grown substantially across degree levels over the past 25 years with women now earning more than 40% of all science and engineering degrees (Gompers & Wang, 2017a).[24] Likewise, the fraction of MBA degrees earned by women has increased steadily from around 35% in 1990 to 47% in 2013 (Gompers & Wang, 2017a). Even among the top ten U.S. business schools, which are major feeders into VC, women make up more than 40% of the MBA student population (Ethier, 2018). More broadly, American women are more highly educated than men across all levels of the education spectrum, earning the majority of all postsecondary degrees (Carnevale, Smith, & Gulish, 2018).[25] Yet, the percentage of women in VC has remained steady at approximately 8% from 1990 to 2016, according to one dataset (Blanding, 2018), indicating that even with more qualified women in the "pool", they are not making it into the VC "pipeline".

Thus, the data and evidence challenge the pipeline argument for the lack of women in VC. It is true that women's entry into venture capital – hovering at around 9% since the late 1990s – has been significantly lower compared to other high-skilled occupations like medicine and law (Gompers & Wang, 2017a). But their persistent underrepresentation is not due to a lack of education, training, or appropriate work experience. Indeed, women make up a much higher fraction of the pool of potential candidates for VC and entrepreneurial roles than they do of VCs and founders (Gompers & Wang, 2017a). The share of women in occupations relevant to VC is also much higher than their share in venture itself: for example, entry into investment banking is around 36% female and entry into consulting is around 45% female (Gompers & Wang, 2017a). Said differently, women, African Americans and Hispanics have statistically "meaningfully and persistently lower representation than would seem appropriate given their proportions of those with requisite backgrounds to enter the sectors" (Gompers & Wang, 2017a).[26] Therefore, supply-side explanations for the severe underrepresentation of women in VC are not the full story, and various other explanations explored here – including structural impediments, homophily, gender bias, and an inhospitable culture – are more likely to explain VC's abysmal gender numbers.

[22] Hispanic women hold 1% and African American women hold 3% of computing occupations.

[23] The authors note that "fields with bigger gender gaps in self-efficacy generally have bigger gender gaps in participation", so self-efficacy is inherently tied to extant diversity and inclusion dynamics. Furthermore, evidence for gender gaps in self-efficacy is more mixed than evidence for the other two factors.

[24] In 2016, women earned over 50% of bachelor's degrees and 46% of master's degrees in science and engineering. For science and engineering PhDs, the fraction of degrees granted to women grew from below 30% in the 1990s to above 40% in 2012.

[25] Women overtook men in associate's degree attainment in 1977-78 (today, women earn 61% of associate's degrees); bachelor's degree attainment in 1981-82 (today, 57%); master's degree attainment in 1986-76 (today, 60%); and doctoral degree attainment in 2005-06.

[26] Gompers and colleagues have constructed a comprehensive dataset of every VC organization and investor in the U.S. from 1990 to 2016, building on data from VentureSource combined with various other databases for demographic information. They find that of 11,555 VCs, 91.2% are men and 8.5% are women (86.3% White, 10.6% Asian, 2.5% Hispanic, 0.3% African American). Of 42,502 founders, 91.1% are men and 8.6% are women (79.6% White, 15.8% Asian, 3.8% Hispanic, 0.4% African American).

> *"[Venture] is all based on who you know and who is sharing opportunities with you."*
>
> Male tech investor (Chilazi et al., 2018)

Networks. The importance of networks in the venture ecosystem cannot be overstated. Academic research has long shown that the venture capital industry is tightly networked with direct and indirect relationships playing a critical role in deal sourcing, deal syndication, and decision-making (Brush et al., 2017). Simply put, relationships and networks form the foundation of a VC's ability to generate investment success because they provide access to future deal opportunities with startups and other VC firms (Nanda, Samila, & Sorenson, 2018). Not surprisingly, a survey of 885 institutional VCs shows that the majority of deals are either sourced or discovered through a VC firm's existing networks or "proactively self-generated" (Gompers, Gornall, Kaplan, & Strebulaev, 2016).[27]

Venture networks also have a self-perpetuating quality because the industry is so well-connected. VC firms with a track record of success get to see and evaluate more deals, which – especially if VCs are relatively similar in their ability to predict a venture's future performance – increases their chances of selecting *more* successful deals. This "access channel" could be significant in perpetuating performance differences between VC firms over time (Nanda et al., 2018).

In an industry that is overwhelmingly male on both sides – approximately 90% of VCs are male and upwards of 85-90% of founders receiving VC funding are male – women are at an inherent disadvantage due to the fact that social networks tend to be segregated by attributes like gender, race, and socioeconomic status (McPherson, Smith-Lovin, & Cook, 2001). Since women are less embedded than men in the key networks that offer information and support, they are also handicapped in activities like negotiations, where success depends on those ingredients (Tinsley & Ely, 2018). Research further suggests that men benefit more from their networks than women. While female and male Wall Street analysts have, on average, an equal number of school-based connections, male analysts are slightly more accurate in predicting the performance of the firms they cover whose boards they are connected to, and more likely to have their investment recommendations followed (Fang & Huang, 2017).[28] While network connections improve forecast accuracy and recommendation impact for all analysts, men benefit more from their connections in terms of investment performance and evaluation by others (Fang & Huang, 2017).

Finally, relationships and networks are vital to VCs not only for deal flow, but also for getting into the industry in the first place, and then succeeding in it. Women are hamstrung in these respects as well. The informal, apprenticeship-based nature of VC (discussed in greater depth in the next section) makes relationships the main vehicle for learning the ins and outs of the industry (Chilazi et al., 2018), and men are more likely to organically mentor other men in this way (McPherson et al., 2001). Women are also at an informational disadvantage purely by virtue of the vanishingly few other women they are surrounded by in VC (Bohnet, 2016). Compared to a male colleague, an aspiring female venture capitalist has many fewer examples to look to in determining how to become successful at investing. Thus, women are also at a relational and psychological disadvantage due to the lack of role models (Bertrand & Duflo, 2016). It is important to note that simply getting more women into the VC industry won't solve the problem if women are not incorporated into the existing networks informationally and relationally.

[27] Per the survey, over 30% of VC deals are generated through professional networks, 30% are proactively self-generated, 20% are referred by other VCs, 8% come from portfolio companies, and 10% come inbound from startups. For every deal invested in per year, the median VC considers 100 deals.
[28] The study examined 1,815 Wall Street analysts and their school ties, market forecasts, and investment recommendations between 1993 and 2009.

WHAT WORKS: DISMANTLING INDUSTRY-WIDE BARRIERS

Dismantling industry-wide barriers in venture capital comes down to counteracting homophily and its effects: male-dominated networks, the lack of role models, and the (perceived) lack of a diverse pipeline. Women's underrepresentation in venture capital is somewhat of a chicken-and-egg problem, and while it means that nudging progress will be difficult in the beginning, it also means that increasing the number of female VCs even slightly will make it easier to bolster their ranks further. Highlighting and elevating existing female role models, providing mentorship and connections to women to expand female *and* male VCs' networks, and facilitating VC firms' access to female talent will be key.

Increase the number of women in VC to create more role models and change the dynamic. The importance of representation and role models cannot be overstated and the positive effects of female role models on women's sense of belonging and persistence in traditionally male-dominated fields has been documented by a large body of academic research (e.g., Master et al., 2016). Increasing the number of women in the venture capital ecosystem – as VCs, as founders, and as startup leaders – is critical not only to make the environment better for women in the short term, but also to change stereotypes about venture as well as the attitudes of people in the industry in the long term (Kaden, 2019).

Bertrand and Duflo (2016) chronicle three essential benefits from increased exposure to counterstereotypical role models. First, having more women in leadership in VC will increase their power over decisions regarding the structure and operation of the industry. Second, seeing more female leaders and their various personal styles in action will influence the opinions of the white male majority and reduce the negative effects of gender stereotypes on women.[29] Third, role models may affect women's own views and aspirations regarding venture capital and their ability to succeed in the industry. This last point is especially important because it suggests that the more women there are in the venture capital industry, the easier it will be to attract future generations of them.

In venture capital, where a relatively small number of senior investors and decision-makers wields outsize influence, little changes can yield big effects. Given that most VC firms are small, adding a few women into the investor group can already change the social, cultural, and decision-making dynamics (Gompers & Kovvali, 2018). Ensuring that female VCs are featured and highlighted in every industry event, conference, panel discussion, and presentation opportunity can start to shift perceptions of their representation relatively quickly.

Provide mentorship and sponsorship to women and underrepresented groups in VC. Mentorship can bring significant benefits to female VCs trying to navigate an uneven professional landscape. In larger organizations, mentoring has been shown to be mildly helpful to increase diversity overall, and it shows the largest positive effects for African American women (Kalev, Dobbin, & Kelly, 2006). In other contexts, mentoring has been shown to improve networks through access to organizational leaders and through legitimacy-enhancing signals (Srivastava, 2015). Moreover, women in male-gendered industries benefit noticeably from mentoring in terms of career progress, satisfaction, and compensation (Ramaswami, Dreher, Bretz, & Wiethoff, 2010). In venture capital specifically, Gompers et al. (2014) find that more comprehensive mentoring and formal feedback systems that equalize access to informal knowledge in VC firms can help to ensure equal investment performance among female and male VCs.

[29] In particular, the authors note that having more diverse female leaders can help to reduce role incongruity over time. As society gets exposed to female leaders who are, for example, nice and strong or accommodating and effective at the same time, the inconsistencies between the leader stereotype and the female gender stereotype diminish, leading to less prejudice against female leaders.

Indeed, female VCs report that firms with formal systems and processes in place do "a substantially better job in providing career opportunities for women" (Gompers et al., 2014).

While efforts to connect female VCs to mentors outside their firms can also help, and are especially critical in building women's networks across the industry, these studies speak to the importance of intra-firm mentorship specifically. Senior male VCs should therefore actively mentor, coach, and promote their female colleagues in their own firms.

Facilitate access to female talent. The best way to counteract the pervasive pipeline argument for the lack of women in VC will be to show, once and for all, that there are plenty of qualified women for VC firms to choose from for their ranks. Industry-wide umbrella organizations can play a crucial role in compiling lists and databases of female candidates for opportunities like VC investment roles, portfolio company leadership, advisory roles, and board seats. Examples from other contexts, such as the British Broadcasting Corporation's effort to increase the share of women among its on-air expert contributors, show that fixing the pipeline is often as simple as knowing where to look and looking a little bit harder (Rattan, Chilazi, Georgeac, & Bohnet, 2019). Indeed, some of this is already happening in venture capital through grassroots efforts and through network organizations that compile lists of their members for career advancement purposes (Schoellkopf, 2014).[30]

Another aspect of facilitating access to female talent in the venture ecosystem is building a stronger pipeline for the future. Besides business and finance, today's VCs often have backgrounds as founders, so increasing gender equality in entrepreneurship is vital. Startup accelerators and other organizations that nurture and promote founders and startups can play a role in closing VC's gender gap by ensuring that they have a balanced slate of applicants and enrollees. To do this, accelerators should actively recruit promising female entrepreneurs and connect them with VCs not only for investment purposes but also for future career opportunities. Additionally, accelerators should ensure that they have sufficient numbers of female experts across industries to serve as role models and mentors (Abouzahr et al., 2018). Startups themselves can help to build the pipeline by exposing their female workforce to senior entrepreneurs and venture capitalists, since such networks and relationships serve as the basis for future job opportunities.

> *"Venture investment has the privilege of granting companies runway with which to build the future. It is a scary thought particularly as technology's impact on humanity accelerates that this future is in the hands of an undiverse minority."*
>
> Niklas Zennström, Founding Partner & CEO at Atomico (Diversity VC & OneTech, 2019)

[30] See, for example, the Hire More Women in Tech website that lists various databases of female talent for technology roles.

ORGANIZATIONAL BARRIERS TO GENDER EQUALITY

The way VC firms are structured and run is a major barrier to gender equality in the venture capital industry. Four key interrelated, organization-level factors explain why the deck is stacked against women in VC firms:

1. VC firms do not prioritize D&I internally or in their investing. The human resources (HR) function tends to be highly informal and only 34% of VC firms have staff dedicated do D&I. In the investment process, more than half of investors rank "founder commitment to a diverse team" as their lowest concern, and only 5% rank diversity as their top concern.

2. Due to the small size of most VC firms and the deprioritization of HR and D&I, talent management processes in venture capital are extremely informal. At most three in ten VC firms have formal procedures for leadership development, mentorship, retention, promotion, recruitment, and hiring; only a third of firms have a human capital strategy. However, as academic research suggests, formality of firm processes correlates with higher representation of women in VC: firms with formal mentorship and recruitment programs have 16 and nine percentage points more women in leadership, respectively, than peer firms without formal programs.

3. In the absence of structured processes, VC firms make talent management decisions informally, which renders them highly susceptible to biases like pattern-matching (availability bias) and overconfidence. Hiring tends to happen through networks without formal job descriptions, job postings, or evaluation criteria, elevating the importance of cultural fit. Since good fit is definitionally masculine in the male-dominated world of VC, firms end up replicating the existing prototype of success – white men – through their recruitment, hiring, and promotion practices.

4. VC firms generally do not collect or share D&I-related data. One-sixth of U.S. VC firms do not collect employee data on any demographic metrics such as gender and race, and even those that do collect some data often do not make the information accessible internally or externally. Research shows that data transparency is a critical tool in driving D&I change and accountability, so the lack of data collection and reporting is a major impediment to progress.

While the above are major barriers to gender equality in venture capital, the good news is that organizational structures and processes are relatively easy to redesign to level the playing field.

Academic research suggests that gender biases in venture capital are most "likely to occur at the level of the company, or potentially at the level of entire industries or VC-funded companies as a whole" (Aidis & Schillo, 2017). However, in many ways, VC firms as organizational units have been overlooked in the venture industry's diversity and inclusion conversation, which has instead focused on changing the attitudes and beliefs of individual investors (Chilazi et al., 2018). Shifting the conversation is important because changing biased, subjective, or otherwise suboptimal organizational practices will be essential if we are to create a more level playing field for women and men in VC.

Figure 5 summarizes the organizational barriers to full gender equality and inclusion in venture capital. This section explores these firm-level barriers, why they arise, and what can be done about them.

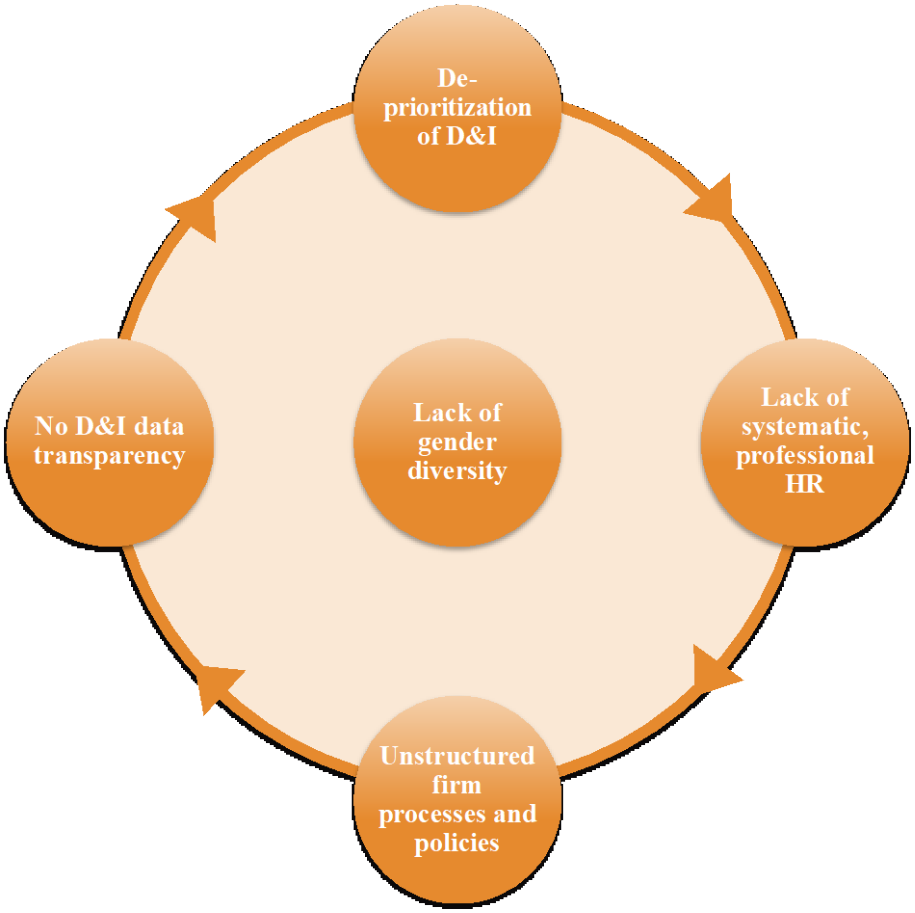

Figure 5. **Organizational Barriers to Gender Equality in Venture Capital.**

Diversity and inclusion is not a priority for VC firms. While there has, especially recently, been increasing talk about the importance of diversity and inclusion in venture capital (e.g., Coren, 2018), the numbers prove that results have yet to be seen. VCs themselves express that D&I is not a priority for them (Truong, 2017). According to a 2016 LinkedIn survey of 285 VC and angel investors as well as 322 startup founders, less than 5% of investors rank diversity as their "top concern" in the investment process, and more than 50% of investors rank "founder commitment to a diverse team" as their lowest concern (Fairchild, 2016). Recent in-depth interviews with VCs reveal that even firms that express being "very focused" on D&I have no concrete actions or results to show for this commitment (Chilazi et al., 2018).

This lack of attention to D&I extends to VCs' portfolio companies. In the above LinkedIn survey, a majority of both VCs and founders report not being aware of any initiatives to increase diversity among their portfolio companies and founding teams; three-quarters of VCs report not having any initiatives at their firms to increase the diversity of founders in their portfolio (Fairchild, 2016).[31] In fact, VCs consider the diversity of founding teams to be the least important criterion when deciding on investments (Kapor Center, n.d.). Nonetheless, VCs estimate that 31% of their portfolio companies will be female-founded within five years (Fairchild, 2016). This tremendous disconnect speaks to the pervasive sense that diversity will somehow automatically "happen" in the venture industry, without the

> *"If I could wave a [magic] wand, I would find a way that our partnership found more time to really tackle these tough issues, talk about them. We're just too busy doing what we do."*
>
> Female life sciences and healthcare investor (Chilazi et al., 2018)

[31] According to similar numbers from the Kapor Center (n.d.), 80% of VCs state that their portfolio companies have no active diversity or inclusion efforts.

need for conscious effort on behalf of VC investors and firms. Research, however, disputes this notion, suggesting that beliefs about gender diversity "create a self-fulfilling cycle" where countries, industries, and organizations that view gender diversity as important capture benefits from it, while others don't (Turban, Wu, & Zhang, 2019). If the venture world doesn't take seriously the promise of gender diversity and inclusion, it may not reap rewards from it.

This is not to say that there are no attempts to change the status quo in the VC industry. Organizations and movements like Project Include, All Raise, #MovingForward,[32] Founders for Change,[33] Diversity VC's Toolkit,[34] and others are making valiant efforts to put D&I on venture capitalists' agenda (Diversity VC, n.d.; Fahs, 2019; Founders for Change, n.d.; Project Include, 2016; Schubarth, 2018). Many U.S. VC firms have signed on to pledges or made high-level public statements in support of advancing diversity and inclusion (NVCA, 2016).[35] In the Netherlands, where venture capital's gender funding dynamics are very similar to the U.S.,[36] 25 venture capital investors recently committed to a three-year pledge – #FundRight – that calls for the participating VC firms to achieve 35% female representation across their firms and leadership levels while also asking that future investments go to startups with a minimum 35% female workforce and "significant" female founder presence (Zillman & Hinchliffe, 2019).

In addition, there are several smaller grassroots efforts in the U.S. to engage individual VCs in change, such as the Start with Eight initiative that has spread to more than 40 VC firms across the country (Rosen, 2018). It encourages VCs to pledge to meet with eight female entrepreneurs they do not yet know in an effort to broaden their own networks and extend funding opportunities to more female founders (Rosen, 2018).[37] As important and constructive as all of these efforts are, as of this writing, they remain voluntary and largely limited to those investors and VC firms that are already most positively disposed towards diversity and inclusion. At the same time, the data make it clear that the reality on the ground for most VCs is shifting at a glacial pace. Thus, there is still no systemic, industry-wide movement for increased gender equality in VC (Chilazi et al., 2018).

> *"[Investors] want to spend most of their time working on their companies and investments. They don't want to spend half of their time interviewing 2,000 people when they only need one person who can get the job done."*
>
> Female tech investor (Chilazi et al., 2018)

Human resources management is often not systematic or professional in VC firms. Given that D&I is not a priority for VC firms, it is not too surprising that only 34% of VC firms have staff dedicated to D&I (NVCA & Deloitte, 2019).[38] In fact, the HR function more broadly tends to be highly informal in venture firms (Chilazi et al., 2018). In the absence of dedicated staff, VC firms either outsource HR activities or task non-expert senior leaders, such as CFOs and Managing Directors, with them (NVCA & Deloitte, 2016).[39]

[32] #MovingForward has enlisted approximately 90 VC firms to make their harassment policies publicly available on the VentureMovingForward.org website; an additional 33 VC firms have made their policies available by email (Fahs, 2019).
[33] The #FoundersForChange pledge states: "I believe in a more diverse and inclusive tech industry. I am dedicated to having a diverse team and board, and when I have a choice of investment partners in the future, the diversity of their firms will be an important consideration" (Founders for Change, n.d.). Notably, there are no specific targets associated with the pledge. Many participating founders recognize that they themselves aren't living up to the goals of the pledge and that there is no concrete action plan to share the various disparate diversity initiatives going on in different VC firms (Tam, 2018).
[34] Diversity VC offers a practical toolkit for VC firms to increase diversity and inclusion with specific action items (Diversity VC, n.d.).
[35] The National Venture Capital Association's (2016) report, *Building a More Inclusive Entrepreneurial Ecosystem*, contains various examples of actions that VC firms have committed to in order to advance diversity and inclusion in the industry.
[36] In the Netherlands, 1.6% of venture capital (vs. 2.3% in the U.S.) goes to all-female founders and 6.8% (vs. 10.4%) to mixed-gender founding teams.
[37] The Start with Eight initiative was launched by Chip Hazard, a General Partner at Boston-based Flybridge, in 2017 when he realized that 90% of his meetings about prospective investments were with men.
[38] Up from 16% in the 2016 NVCA-Deloitte survey.
[39] Of 153 VC firms in the survey, 16% report outsourcing HR and 24% report outsourcing recruitment.

VC firms lack structure and formalized organizational processes, especially around talent management. The academic literature and recent empirical data agree that informality in organizational processes is pervasive and problematic in venture capital.

In her classic study of a large corporation, Kanter (1977a) finds that (white) male advantage in the workplace is reinforced and perpetuated by organizational ambiguity, the important role played by trust in organizational relationships, and the need for employees to fit in. Ely and Meyerson (2000) provide more examples of how organizations' social practices, which include formal processes as well as informal interactions between colleagues, favor men even when they appear gender-neutral on the surface. The gist of this academic literature is that when organizations are built on a foundation of informality, trust, and the supremacy of relationships, anyone who is demographically dissimilar from the majority is faced with additional obstacles to advancement and success (Baron, Hannan, Hsu, & Koçak, 2007).

Across various metrics, it is clear that the VC industry lacks structure around strategy, organizational processes, and data collection related to D&I and HR more broadly – perhaps a predictable consequence of the general deprioritization of these areas in VC. Informality in VC firms' organizational processes extends to all aspects of talent management. This includes sourcing and hiring candidates; performance evaluations and promotions; work allocation; compensation decisions; setting organizational policy (e.g., around work-life practices and harassment reporting); and the venture funding process itself (Chilazi et al., 2018).

The numbers prove the point, although there seems to have been some recent progress. The NVCA-Deloitte surveys of U.S. VC firms in 2016 and 2018 find that the share of firms having formal programs for leadership development, mentorship, retention, promotion, recruitment, and hiring has increased from at most one-tenth in 2016 to between 14% and 30% in 2018, depending on the program; between a half and seven in ten of responding firms have informal talent management programs (NVCA & Deloitte, 2016, 2019).[40] Similarly, 35% (vs. 24% in 2016) of firms have a human capital strategy, 31% (vs. 17%) have an inclusion strategy, and 32% (vs. 15%) have a diversity strategy (NVCA & Deloitte, 2016, 2019).[41] While the vast majority of firms have *some* formalized organizational policies, such as an employee handbook or a code of conduct, only 44% of firms have a designated internal contact person for reporting misconduct while 35% do not have and do not plan to have any anti-harassment and discrimination programs at all (NVCA & Deloitte, 2019).[42]

This is hugely important because informality and lack of structure in organizational processes has been shown to lead to more bias and less diversity in decision-making (Bohnet, 2016). As we would expect, the presence of formal HR and D&I processes and strategy appears to correlate empirically with the percentage of female employees in venture capital firms. VC firms with formal mentorship and recruitment programs have 16 and nine percentage points more women in leadership, respectively,[43] than peer firms without formal programs (NVCA & Deloitte, 2016). Similarly, firms with formal D&I programs focused on leadership development have six percentage points more female investment partners (NVCA & Deloitte, 2019). VC firms that have a human capital strategy have, on average, 54% female and non-white employees compared with 41% in firms without a human capital strategy (NVCA & Deloitte, 2016). Furthermore, firms with a human capital strategy have four percentage points more women in leadership than peer firms without a strategy (NVCA & Deloitte, 2016). The correlation is even more pronounced for diversity strategy – firms with one have ten percentage points more women in

[40] In 2018, 201 firms provided answers to this section of the survey (vs. 153 in 2016). Of responding firms, 23% (8% in 2016) reported having a formal program for leadership development; 19% (5% in 2016, note: n = 154 in 2016) for mentorship; 14% (4%, n = 156) for retention; 15% (5%, n = 156) for promotion; 30% (10%, n = 156) for recruitment; and 26% (10%, n = 156) for hiring. Many more firms reported informal programs: 58% (47% in 2016) of firms had an informal program for leadership development; 54% (42%) for mentorship; 52% (37%) for retention; 50% (39%) for promotion; 68% (50%) for recruitment; and 68% (54%) for hiring.

[41] N = 157 for 2016 and n = 201 for 2018 (all participating firms did not respond to all sections of the surveys).

[42] Of 203 VC firms, 83% have an employee handbook, 80% have an anti-harassment policy, and 77% have a code of conduct. However, only 29% have mandatory prevention programs and 10% have optional prevention programs to address harassment and discrimination.

[43] Women in leadership is defined as women in senior positions across all functions in a given firm.

leadership than ones without – and inclusion strategy – firms with one have seven percentage points more women in leadership than ones without (NVCA & Deloitte, 2016).[44]

In the absence of structured processes, intuition trumps objectivity. Left to their own devices without structure and process, humans tend to make less objective and more biased decisions (Bohnet, 2016). No wonder, then, that "pattern-matching" (or availability bias), where investors rely on their gut instinct in intuitively determining how similar a current situation is to previous situations, is one of the ways in which bias creeps into VCs' decision-making (Sachs, 2018). Academic research shows that VCs are overconfident in their predictions of both very high and very low levels of success for startups: if investors foresee either massive success or total failure in the cards for a venture, they are more likely to be overconfident in that assessment (Zacharakis & Shepherd, 2001). Even though overconfidence itself does not necessarily lead to biased judgments, it can lead to suboptimal decision-making by restricting learning, inhibiting further information-gathering, and inviting snap determinations (Zacharakis & Shepherd, 2001). In other words, reducing overconfidence and availability bias can help VCs make better decisions.

> *"There is just that pattern recognition."*
>
> Female life sciences and healthcare investor (Chilazi et al., 2018)

Women are disadvantaged in VC hiring. Hiring in the venture capital industry is highly informal with firms mostly relying on their networks to source candidates. The NVCA and Deloitte (2016) survey of 217 U.S. VC firms found that by far the most common method for identifying candidates for open VC positions was notifying peers in the VC industry, followed by notifying one's own firm internally. Most positions, especially senior roles, are filled internally, i.e., without a formal job posting, through networks (NVCA & Deloitte, 2016). Given the homophily and male-dominated nature of networks in VC, this makes it much less likely for women to find out about, be sought for, and get hired into investing positions.

The gendered nature of VC hiring runs even deeper. Rivera (2012) has shown that hiring is a process driven not only by skills and competence, but also by cultural matching between candidates and companies. Cultural fit is used as a criterion for screening and evaluating potential new hires, and candidates that are culturally similar[45] to the assessors are believed to be superior (Rivera, 2012). In other words, merit is defined in the image of the people already in the firm and hiring becomes an exercise in finding new joiners who are as similar and "fun to hang out with" as possible, which results in people disproportionately hiring others like themselves (Rivera, 2015).

> *"[The way] we all hire people is do I like that person? Am I having fun talking to them in this interview? Do I have things in common with them? If you hire people that way, you do not end up with diversity, even if everybody looks different when you look at them."*
>
> Female life sciences and healthcare investor (Chilazi et al., 2018)

An example of this is fit evaluations in the context of specific skills and competencies. Case in point: in the minds of both women and men, creativity is associated with stereotypically masculine traits like independence, autonomy, and daring rather than with stereotypically feminine traits like sensitivity or cooperation (Adams, 2015; Proudfoot, Kay, & Koval, 2015). As a result, evaluators tend to underestimate women's creativity and conclude that men are more creative than women (Adams, 2015). This is a particularly salient finding since creativity and innovation are highly prized competencies in VC.

To summarize, in venture capital, where good fit is definitionally masculine, organizational processes interact with individual cognitive and affective processes to perpetuate the underrepresentation

[44] The second edition NVCA-Deloitte survey (2019) reports similar results: VC firms that have either a diversity strategy or an inclusion strategy or both have 20% female investment partners, compared with 11% at firms with neither.
[45] Rivera defines cultural similarities as shared tastes, experiences, leisure pursuits, and self-presentation styles.

of women. In looking for fit, VC firms – intentionally or unintentionally – look to replicate the existing prototype of a white man (Chilazi et al., 2018).

VC firms are secretive about their diversity and inclusion data. One of the major impediments to progress on gender diversity and inclusion is the lack of transparency around D&I data in venture capital. The first problem is that many VC firms do not even collect basic demographic data on their employees and portfolio companies. While the majority of VC firms collect data on their employees' race or ethnicity (65%) and marital status (78%), only a third of firms collect data on dependent care status (NVCA & Deloitte, 2019). Roughly one-sixth of U.S. VC firms do not collect employee data on any of the above metrics (NVCA & Deloitte, 2019).[46]

The second problem is that individual VC firms are extremely reluctant to share their own data publicly (Project Include, 2016), especially as it relates to diversity and inclusion, and most datasets are either proprietary or expensive, making it difficult for scholars to study the industry (Ewing Marion Kauffman Foundation, 2016). While there are several well-known databases containing information on VC firms and their investment activities, each of these has limitations and none has anything more than surface-level data related to D&I (see Appendix C). Thus, the lack of data is a major structural barrier to understanding, tracking, and remedying the gender gaps in venture capital.

[46] N = 203 U.S. VC firms.

WHAT WORKS: DISMANTLING ORGANIZATIONAL BARRIERS

Dismantling organizational barriers in venture capital comes down to counteracting informality and its effects: homophily-driven, biased talent management processes, and lack of transparency. This can be done by structuring HR procedures, especially recruitment, hiring, work allocation, and performance evaluation; assigning accountability for D&I within VC firms and portfolio companies; and increasing rigor around D&I data tracking and reporting.

Develop formalized and structured talent management processes. The evidence in favor of formalized organizational structures and processes in order to improve diversity and reduce bias is overwhelming. For example, a study of 516 organizations reveals that recruitment through informal networks is associated with an increase in men's share of management roles while open recruitment practices are associated with more women in management roles (Reskin & McBrier, 2000). The bureaucratization of high-technology startups has been shown to improve employment prospects for women, specifically in technical and scientific roles (Baron et al., 2007).[47] This is thought to result from more structured organizational policies that improve accountability and reliability (Baron et al., 2007). Furthermore, the formalization of organizational processes can increase the salience of merit-based, as opposed to, e.g., homophily-based, qualifications (Yang & Aldrich, 2014), leading to fairer and more objective decision-making. No wonder, then, that even in VC there is a growing recognition that grassroots efforts to increase gender equality are no longer sufficient and that "top-down macro solutions" are needed to move the needle (Murray, 2018).

The following are specific, evidence-based examples of formal organizational processes and policies that will help to level the playing field for all employees.

Require diverse slates and balanced short lists in hiring. The demographic composition of the hiring pool is a critical enabler of VC firms' ability to bring in more diverse talent. Research shows that balanced candidate pools and shortlists lead to more diversity in hiring (Bernard, 2019; Johnson, Hekman, & Chan, 2016). Specifically, shortlists needs to have a minimum of two female or racially diverse candidates in order for them to have any statistical chance of being hired; one is not enough (Johnson et al., 2016).[48] In finalist pools with only one woman, her difference from the norm is magnified, which can increase perceptions of riskiness and cause evaluators to prefer a member of the majority simply due to status quo bias, i.e., our tendency to prefer to stick to the tried and true alternative (Samuelson & Zeckhauser, 1988).

Determine job description and evaluation criteria in advance. Whether VCs are evaluating people in the context of hiring or promoting them or evaluating founders and ventures in the context of funding them, making the decision criteria explicit in advance can lead to more objective and unbiased decisions. Evidence shows that if assessment criteria are not specified and agreed upon ahead of time, people tend to select applicants who are similar to them, or similar to the prototype (e.g., a male VC for an open

[47] This research is based on the Stanford Project on Emerging Companies (SPEC), a panel study of young high-tech firms in Silicon Valley. The sample of startups consists of firms that are no more than 10 years old and that have grown to over 10 employees.

[48] In a non-peer-reviewed, three-part study, the authors investigate the effect of the demographic composition of the finalist pool on the ultimate hiring decision. Experimental study 1 entails 144 undergraduates reviewing the qualifications of three finalist job candidates and reveals that when the majority of finalists are African American, an African American candidate is preferred for hire (and vice versa for white candidates). Experimental study 2 involves 200 undergraduates reviewing the qualifications of three finalist job candidates and yields similar results, this time for gender instead of race. When two of the three finalists are of one gender, that gender is recommended for hire. Observational study 3 validates these findings in the context of a university's hiring of white and nonwhite women and men for academic positions. The sample is 598 finalist candidates for various jobs (finalist pools range from three to 11 with the average being four candidates), 174 of whom received offers over a three-year period. Controlling for the number of female and male finalists, the likelihood of hiring a woman is 79.14 times greater if there are at least two women in the finalist pool. Similarly, the likelihood of hiring a minority candidate is 193.72 times greater if there are at least two minority candidates in the finalist pool. The effects hold across the size of the finalist pool, although cases with no female or minority applicants are excluded from the analysis.

investor role), regardless of qualifications (Norton, Vandello, & Darley, 2004; Uhlmann & Cohen, 2005).[49] In the context of hiring, formalized and gender-neutrally written job descriptions that outline the required qualifications and serve as the basis for selecting candidates help to attract more female candidates (Gaucher, Friesen, & Kay, 2011); reduce the role of bias in decision-making (Bohnet, 2016); and increase women's sense of belonging and identification with the job (Stout & Dasgupta, 2011).

Select candidates using work sample tests and structured interviews. Nearly a century of research into hiring and selection has shown that work sample tests – tasks that are designed to mimic the actual job as closely as possible, such as coding assignments for software engineers or due diligence exercises for aspiring venture capitalists – are the best and most predictive hiring method (Schmidt & Hunter, 1998). However, work sample tests are rarely, if ever, deployed in VC firms. By contrast, unstructured (informal) interviews, which are widely used in venture capital hiring, have been shown to have very little validity in predicting future performance on the job (Dana, Dawes, & Peterson, 2013). Unstructured interviews invite evaluator bias by providing lots of irrelevant information about a candidate, i.e., "noise" in the form of things like gender and grooming style, that can distract the interviewer and make it more difficult to focus on actual diagnostic information. Moreover, interviewers have been shown to make sense of even completely random interview responses, essentially projecting their own biases onto whatever the candidate says (Dana et al., 2013). In plain terms, the evidence-based recommendation regarding unstructured interviews is to not conduct them at all (Dana et al., 2013). Instead, any interviews should be structured and standardized to enable objective data collection and decision-making (Levashina, Hartwell, Morgeson, & Campion, 2014; McDaniel, Whetzel, Schmidt, & Maurer, 1994; see Appendix A).

Institute blind evaluations in hiring, promotions, and the funding process. Blind evaluations, or removing demographic information like names from selection and/or evaluation contexts such as hiring, have been extensively studied and shown to reduce discrimination (e.g., Goldin & Rouse, 2000; Rinne, 2018).[50] Reviewing candidates or applications blindly (a.k.a. anonymously) removes discriminatory barriers and bias facing counterstereotypical and/or minority individuals, such as women in VC, and in so doing helps to shift the focus of evaluations onto skills and qualifications. Blind evaluations are also relatively easy and costless for organizations to implement (Bohnet, 2016; Rinne, 2018). Thus, blind evaluations have the potential to significantly level the playing field in the VC industry.

Although there are no publicly available examples of VC firms that have implemented blind evaluations in their internal HR processes (as far as the author of this document is aware), several VC firms around the world have announced versions of blind evaluation procedures in the context of their funding decisions. Fuel Ventures, a U.K.-based seed stage funder to tech companies, is running a three-month trial anonymizing its pitch decks; the results will be announced later in 2019 after the trial is over **(**Zerucha, 2019).[51] Two-year-old Swedish EQT Ventures has so far invested in 22 startups with checks ranging from €3 million to €75 million using an AI-driven evaluation platform (Mirhaydari & Clark, 2018b). Covington, Kentucky-based Connetic Ventures operates a similar machine learning-led funding process fully online (Gabrielson, 2018).[52] Social Capital, which was among the pioneers in blind evaluation when it launched its Capital as a Service model in 2017, reported having used the algorithm to

[49] In separate studies with similar findings, Uhlmann and Cohen (2005) show that merit is defined in a way that always favors the male applicant for a male-gendered role, such as that of a police chief (e.g., education is perceived to be a more important qualification when the male applicant has it and the female doesn't, and vice versa), and Norton, Vandello and Darley (2004) show that evaluators always prefer male candidates for stereotypically male jobs in construction (and evaluators justify their hiring decision by using qualifications selectively, just like in the other study).

[50] For an excellent summary of the best available academic evidence on the benefits and drawbacks of blind recruitment/hiring, see Rinne (2018). Blind recruitment is most helpful when the current hiring process is highly discriminatory against some applicants. Conversely, the one instance where blind hiring does not work well is when an organization is already positively discriminating in favor of minority applicants (i.e., when affirmative action is present).

[51] Fuel Ventures' trial was inspired by the discovery that only 4% of the more than 4,000 pitch decks it had received over the last four years came from female founders; 13% of pitch decks had a woman on the founding team.

[52] Connetic Ventures reports that 42% of its portfolio companies are headed by female and minority founders.

assess 5,000 startups and invest in 60 – 30% with female founders and 80% with non-white founders – before the firm ceased its traditional VC operations in September 2018 (Brustein, 2018; Clark, 2019).[53]

In addition to the diversity and equity rationale, there is an economic rationale for blind evaluations in the context of venture funding decisions. Assessing startups and their funding applications manually is a labor- and time-intensive process, which inherently limits the number of deals a VC firm can do. Automating the screening and evaluation process allows not only for a (potentially) greater number of deals but also a lower cost per deal and faster turnaround (Brustein, 2018; Gabrielson, 2018). It may also allow a more diverse set of ventures to get funded since investors can spread their bets more widely instead of focusing exclusively on companies with unicorn[54] potential (Brustein, 2018).

Technology-assisted evaluation methods are not without their drawbacks, however. Algorithmic bias has already been documented by several studies in varying contexts (e.g., Kay, Matuszek, & Munson, 2015; Miller, 2015) and is a concern anytime human review and decision-making is replaced by machine learning. Even when an algorithm doesn't in itself discriminate against a particular group, such as women, the unexpected interactions between an algorithm and exogenous economic forces can result in gender-unequal outcomes (Lambrecht & Tucker, 2017). Ultimately, bias in algorithms is an empirical issue that must be investigated and mitigated for each individual algorithm in use. Yet, the risk of algorithmic bias should not deter the VC industry from harnessing the potential of algorithms for blind evaluations both in their internal and founder-facing processes – after all, the current, human-led processes are verifiably rife with bias.

Make talent management decisions simultaneously rather than sequentially. Joint and comparative (i.e., simultaneous) evaluations, especially of people, have been shown to result in less biased and more diverse decision-making (Bohnet, van Geen, & Bazerman, 2016; Read & Loewenstein, 1995). The human brain naturally judges things comparatively, and in the absence of a direct comparison, such as when evaluating just one job candidate in isolation, it resorts to the "prototype" as a point of comparison (Bohnet, 2016). In male-dominated contexts like venture capital, this prototype is most often a white man, which creates a significant disadvantage for female and minority candidates who do not "look the part" (Bohnet, 2016). However, evaluating people in batches – i.e., comparing multiple candidates against each other at the same time, and making multiple decisions simultaneously regarding hiring, promotions, work allocation, funding opportunities, or pay increases and bonuses – can prevent this kind of stereotypical evaluation and allow for better cognitive calibration (Bohnet et al., 2016; Chang, Kirgios, Rai, & Milkman, 2019). Quite simply, diversity is more likely to emerge when people make portfolio decisions than when they focus on one decision at a time.

Distribute career advancement opportunities and stretch assignments equally. Giving everyone an equal chance to succeed and showcase their abilities is essential to creating a level playing field at work. However, performance support bias has been shown to result in some people having more opportunities to shine than others – in other words, organizations support their employees differentially (Madden, 2012). Specifically, men are more likely to be assigned high-profile "glamour work" that puts them on the fast track for promotion and gets them noticed, while women and people of color are assigned mundane yet necessary "office housework" that is not highly valued for career advancement (Williams & Multhaup, 2018). Due to gender stereotypes and social backlash, women are more likely to feel pressure to agree to do unglamorous, non-promotable tasks (Babcock, Recalde, Vesterlund, & Weingart, 2017). Over time,

[53] In Social Capital's model, founders uploaded data about themselves and their venture and an algorithm blindly decided whether they should be funded or not, with checks ranging from $50,000 to $250,000. In September 2018, Social Capital announced that it would no longer raise outside capital from LPs and would instead convert itself into technology holding company investing internal money with a drastically reduced headcount. Tribe Capital, a new VC firm founded by three Social Capital alumni (Ted Maidenberg, Arjun Sethi, and Jonathan Hsu), is continuing Social Capital's data-driven investment approach although it is unclear whether their model involves the blinding of founders' demographic data.

[54] Unicorns are defined as startups valued at over $1 billion (Chen, 2017).

these disparities in opportunity, which have nothing to do with talent or ability, lead to some people having a robust track record of accomplishments while others seemingly have a "thin file" (Bohnet, 2017). Much of this is organizationally driven because managers and leaders are typically in charge of assigning work and projects to employees.

VC firms can help to close this opportunity gap for their employees by monitoring work allocation and ensuring equal and equitable access to glamour work, i.e., stretch assignments and high-visibility projects or opportunities. On the flipside, mundane but necessary office housework tasks such as meeting logistics and note-taking should be equally shared among all employees, or assigned to administrative staff (Williams & Multhaup, 2018). Furthermore, VC firms should make sure that all employees have the same resources to succeed in their work. This includes not only tangible resources, such as assistants and data, but also developmental resources, such as honest and comparative feedback on performance.

Assign specific accountability for diversity and inclusion. Assigning accountability for diversity efforts and outcomes seems to be one of the most promising methods to bring about change. In large companies, appointing a full-time diversity staffer or a diversity committee increases the share of African American women in management by 30% and African American men in management by 14%, on average (Kalev et al., 2006). While these findings are based on large companies in more traditional sectors of the economy,[55] the authors note that they may be even *more* effective in startups that tend to evolve faster.

Set numerical D&I targets and track the data. Targets and goals help increase task completion by focusing attention, creating a sense of shared purpose, and mobilizing resources (Bohnet, 2016; Harkin et al., 2016). VC firms should set specific targets – by gender, race, and any other dimensions of diversity they deem relevant – for representation at all levels in their own firms and portfolio companies. The data should be tracked regularly and ideally reported at least internally, if not also externally (Epton, Currie, & Armitage, 2017; see Appendix B). Transparency has been shown to improve objectivity and reduce biased behaviors (Bohnet, 2016; Lerner & Tetlock, 1999), so external accountability around diversity and inclusion metrics is particularly encouraged.

Traditionally, the conversation and scholarship surrounding the representation of women in the venture ecosystem has focused on three main dimensions: the share of female venture capital investors, the share of female founders (entrepreneurs), and the share of venture funding going to female founders. But it is important to remember that gender representation in the venture ecosystem also encompasses women in other functions or roles in VC firms, as well as in the overall startup workforce and on leadership teams of portfolio companies. All of this data should be measured and tracked. An example of data transparency on this dimension is the Women's Leadership in Entrepreneurial Ventures (WLEV) Index, which analyzes and scores VC firms' portfolios based on their proportion of women as founders, leaders, and managers (Gender Metrics, n.d.).[56] In the absence of voluntary disclosure and transparency from VC firms, other indices have similarly sprung up to help assess and track gender diversity in the industry.[57]

[55] The analyses are based on U.S. federal data examining the workforces of 708 private sector organizations from 1971 to 2002. The analyses are supplemented with survey data on these employers' employment practices.

[56] As of January 2019, the WLEV Index includes 64 U.S.-based VC firms whose portfolio companies include at least one woman on all three leadership dimensions (founder, leader, manager). Index scores range from 0 to 100 with the highest score of 100 indicating that a VC firm's portfolio companies are 100% female-founded (a woman/women as founders or co-founders in a funded company), female-led (a woman/women as CEO, COO, CFO, CTO, CIO, CMO, President, Chairwoman, and/or Executive Director), and female-managed (a woman/women in other C-suite positions and/or other senior positions including SVP, VP, Managing Director, and General Counsel). At present, the highest-scoring VC firms hover around 30-35 for the percentage of female founders; around 35-40 for the percentage of female-led portfolio companies; and 30-35 for the percentage of female managers in portfolio companies.

[57] For example, The Information's VC Diversity Index ranks VC firms on gender, racial, and age diversity based on PitchBook, LinkedIn, and company data. The Index currently includes 73 firms representing over $210 billion in AUM. To be included, a VC firm needs to be making (at least) Series A and Series B investments; have a minimum of $250 million in AUM; and have raised a new fund in the past five years or be currently making new investments. Smaller firms (under $250 million AUM) can be included if they have high mindshare in the industry per Mattermark's Mindshare Score.

Actively promote D&I in portfolio companies, starting from the very beginning. In the hectic early days of a startup, founders may deprioritize D&I in the face of concerns that appear more pressing (Gompers & Kovvali, 2018). Knowing that it is far easier to build a diverse and inclusive organization from the ground up than it is to fix a homogeneous behemoth later on, VC firms should formalize processes to encourage D&I in portfolio companies from the get-go with accountability to specific targets, especially since currently less than one-fifth of VC firms report requesting D&I information from their portfolio companies (NVCA & Deloitte, 2019).

Engage limited partners (LPs) to press for progress. Limited partners are the source of the capital that VC firms invest, and they therefore hold considerable influence in the industry. As the capital providers, LPs have the power to pressure VC firms to make changes to their organizational processes and policies. It has been suggested anecdotally that LPs are starting to exert more influence on VC firms to be diverse and inclusive in their investments and internal processes (Coren, 2018; Lev-Ram, 2018), and in a global survey of limited partners and general partners, 65% of LPs expressed the view that gender diversity of investment teams is an important consideration when committing capital to funds (International Finance Corporation [IFC], 2019).[58] However, only 36% of U.S. VC firms report that LPs have requested D&I information from them in the last 12 months (NVCA & Deloitte, 2019). Globally, GPs report that less than 30% of their LPs view gender diversity as an important consideration when making investment decisions; only 25% of LPs actually ask about gender diversity of investment teams when conducting due diligence; and only 20% of LPs make gender diversity a condition of committing capital (IFC, 2019).

Clearly, LPs could do much more to push for increased gender diversity and inclusion among VC firms and their investments, and there is some evidence that this is starting to happen. Last year, for example, the Institutional Limited Partners Association released a revised Due Diligence Questionnaire and Team Diversity Template that, for the first time, includes a guide to measuring gender and racial diversity at VC firms and portfolio companies as well as specific questions about VC firms' talent management and harassment policies (Institutional Limited Partners Association, 2018). Thus, besides influencing individual VC firms, LPs as a group are in a position to set new standards for the industry around diversity and inclusiveness.

[58] The focus of the IFC report is largely on venture capital in emerging markets, but its findings closely mirror those from the U.S. context.

INTERPERSONAL BARRIERS TO GENDER EQUALITY

The interpersonal dynamics in the venture capital industry give rise to the third major set of barriers to gender equality. Five key interrelated factors explain why the culture of VC is so unwelcoming and inhospitable to women:

1. Women are fundamentally disadvantaged in pursuing male-stereotyped roles, such as leadership and venture investing, because there exists a perceived incongruity between the attributes of women and the requirements of those roles. These societal gender stereotypes, which all Americans more or less share (due to social conditioning), make female VCs less positively viewed than their male counterparts; less likely to attain leadership roles; and less likely than men to be recognized as effective in leadership roles. Women are damned if they do and damned if they don't: by acting as leaders and VCs, women go against feminine stereotypes and are penalized; by acting feminine, women aren't seen as VC-like and leader-like, and are again penalized in terms of career success.

2. The numerous documented biases in VC, as well as the demonstrable underrepresentation of women in the industry, make it clear that venture capital is *not* a meritocracy. Yet, many if not most VCs continue to believe that it is. Research shows that environments that promote ideals of meritocracy can ironically be *more* biased against women than environments that openly allow for the possibility of bias, so until venture capital comes to terms with the fact that it is not a fair, level playing field for women and men, full gender equality will continue to be elusive.

3. A masculine "bro" culture reigns in VC and produces organizational dysfunction in the form of, for example, low psychological safety, overly aggressive behaviors, extreme competitiveness, excessive risk-taking, lack of work-life support, abuse and bullying, and sexual harassment.

4. Sexual harassment is a major issue in venture capital. Reliable and systematic academic evidence of its prevalence does not exist, but across four industry surveys, at least 50% of female VCs and entrepreneurs (vs. less than 10% of men) report personally experiencing sexual harassment. Such a toxic environment is not conducive to women's success.

5. Female VCs face gender bias in feedback, mentorship, and their interactions with founders. These biases can have dire effects. The lack of contribution from male VCs to their female colleagues' investment success, attributable fully to a lack of intra-firm mentorship and feedback, results in 15% lower investment performance for female VCs; the performance gap disappears in older, larger VC firms and in firms with multiple female VC partners. Moreover, 59% of female VCs express being disadvantaged because of their gender in terms of deal sourcing, deal quality and staffing, and deal execution.

These stereotypes and biases are an enormous barrier to women's entry into, and persistence and success in, venture capital. Unfortunately, research suggests that this barrier will be very difficult to dismantle in the near term because of the intractable nature of individual-level unconscious bias.

> *"There is a deeply embedded sense that men and women are essentially different; this generates and sustains a hierarchical ordering which elevates the masculine and subordinates the feminine. In short, we not only expect women to be different from men, we also expect that which is associated with them to be deficient."*
>
> Marlow and McAdam (2013)

At the interpersonal level between individuals, conscious and unconscious biases against women abound in venture capital. While they are often dismissed by the men who are not their target, they are keenly felt by the women whose career trajectories and success opportunities are inhibited by them (Chilazi et al., 2018). The evidence, both academic and empirical, is clear, however: gender bias is one of the most significant drivers of gender inequality in venture capital.

Figure 6 shows the interpersonal barriers to gender equality in venture capital. This section explores what these barriers and biases are, how and why they come about, and how and why they create a discriminatory, unwelcoming environment for women in VC.

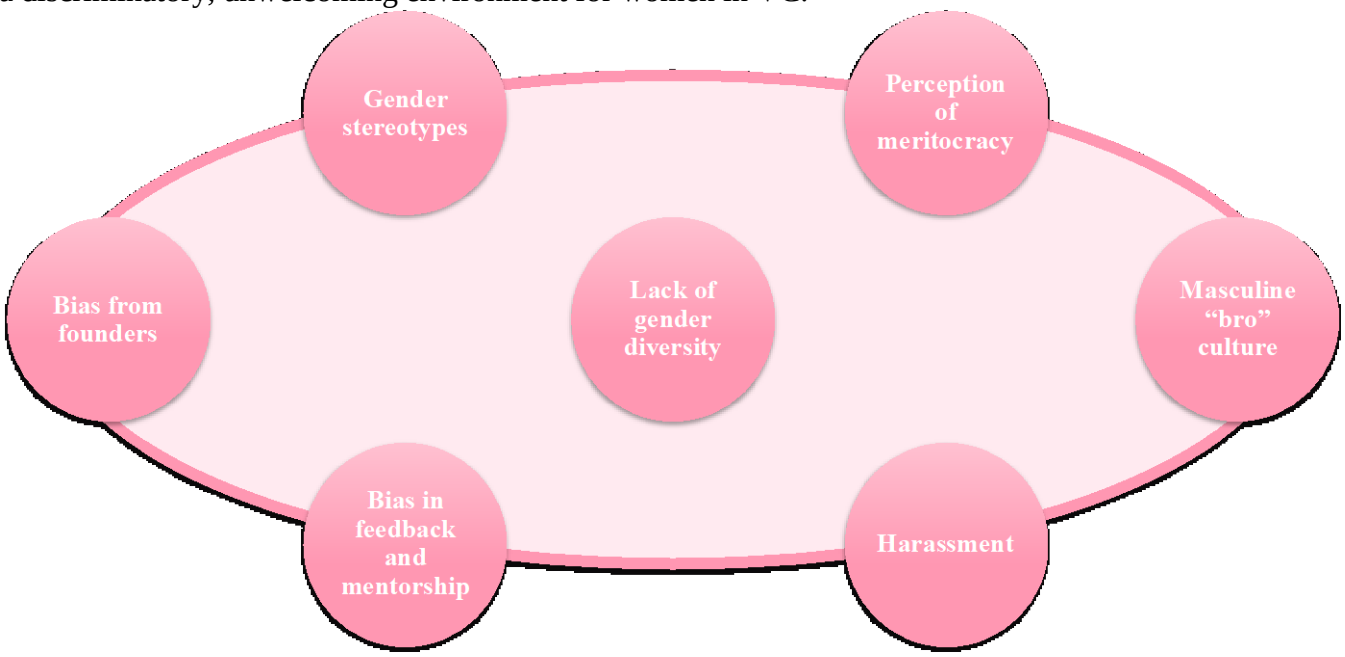

Figure 6. **Interpersonal Barriers to Gender Equality in Venture Capital.**

Gender biases are connected to societal stereotypes. Eagly and Karau's (2002) foundational role congruity theory stipulates that women are fundamentally disadvantaged in pursuing male-stereotyped roles, such as leadership, because there exists a perceived incongruity between the attributes of women and the requirements of leadership roles. Across American society, leadership and related attributes like agency, confidence, ambition, and competitiveness are strongly stereotyped as male (Fiske, Cuddy, Glick, & Xu, 2002), whereas the female gender role is stereotyped as communal, supportive, and nurturing (Eagly & Karau, 2002). Clearly, these are in conflict.

Stereotypes operate not only on the level of what we think women and men *are* and do – as descriptive stereotypes – but also on the level of what we believe women and men *should* be and do – as prescriptive stereotypes (Eagly & Karau, 2002). This doubly constrains female leaders: they face backlash for fulfilling the leader role *and* in so doing violate our expectations of how they should behave as women, and vice versa (Eagly & Karau, 2002). Men, however, do not face this so-called competence-likeability trade-off (or double bind) since there is no mismatch between the stereotypes of leaders and of men. Simply put, men fit social and cultural definitions of leadership better than women, and therefore not only have easier access to leadership roles but also have an easier time being successful in them (Koenig, Eagly,

Mitchell, & Ristikari, 2011). Substantial experimental evidence proves that, per role congruity theory, women are generally rated less favorably when displaying agentic, leader-like behaviors because these male-stereotyped behaviors are seen as undesirable in women (Eagly & Karau, 2002).

A flipside of these gender biases is that women are rewarded for conforming to their gender role and exhibiting nonthreatening behaviors high in warmth, a feminine trait, and low in competence, a masculine trait (Fiske et al., 2002). As such, in VC, women are overrepresented in non-investing functions like marketing, communications, and investor relations, which are 75% female (NVCA & Deloitte, 2016).[59] These roles, which are more oriented toward feminine-stereotyped behaviors like cooperation, communication, and relationship management, allow women to remain congruent with female gender stereotypes, which is more difficult in masculine-typed investing roles. Viewed through the lens of venture capital's masculinity contest culture (see below), the double bind is exacerbated for female venture professionals who may opt – consciously or subconsciously – to forego the contest as investors and instead contribute to their (mostly male) colleagues' success in supporting roles in order to survive in the industry (Berdahl, Glick, & Cooper, 2018).

One way in which role congruity theory manifests itself in venture capital is evidenced by comments like this one by Jeff Jordan, a General Partner at Andreessen Horowitz where two new female partners had recently been hired: "The two [Connie Chan and Katie Haun] are insanely qualified and well-respected by all the other GPs. Katie is also freaking awesome. In both of these cases, we're very proud of the quality of the person" (Marinova, 2018b). The need to overemphasize successful female investors' qualifications reveals the underlying assumption that women are not generally cut out for senior leadership roles in VC.[60]

Over the last decade, the academic literature on stereotypes has increasingly focused on two broad categories or dimensions of stereotypical decision-making: warmth and competence (Fiske et al., 2002), or expressed slightly differently, perceived trustworthiness[61] and perceived competence (Johnson, Stevenson, & Letwin, 2018). Several academic studies have shown that women are generally viewed as warmer and more trustworthy than men, while men are viewed as more competent than women (Johnson et al., 2018). By extension, or perhaps circularly, roles that require high competence tend to me male-gendered and male-stereotyped (Johnson et al., 2018).

Stereotypes persist in part because the lack of women in leadership, and in the VC ecosystem, means that women and men alike don't have an opportunity to update their beliefs. Bertrand and Duflo (2016) describe a model where individuals' underlying beliefs, including sexism, interact with statistical discrimination (basing decisions on the average observed characteristics of a group) to reinforce each other. If there is strong resistance against having female leaders in society, it is likely that people have never witnessed a woman in a leader role. This, in turn, makes women a riskier prospect as future leaders since people have much more precise priors, or preexisting notions, about men as leaders. If, on top of this, women are perceived as less competent, as they often are, it is even more difficult for them to prove people wrong and give members of society a chance to update their beliefs (Bertrand & Duflo, 2016).

Not surprisingly, academic research finds that the gendered perceptions of occupations and industries can arise from the imbalanced representation of women and men in them (Glick, 1991). A large meta-analysis of gender bias in work settings confirms that men are preferred for traditionally male-dominated jobs, like VC, and that this bias is exhibited more strongly by men (Koch, D'Mello, & Sackett,

[59] By comparison, women make up 45% of the overall VC workforce according to a NVCA survey of 2,502 people employed in 217 U.S. VC firms.
[60] Comments like this by VC Michael Moritz in 2015 also demonstrate how women are not seen as equally competent in venture capital: [Speaking of how VC firms would love to hire women but lack qualified female candidates] "What we're not prepared to do is lower our standards" (Konrad & Carson, 2018).
[61] Perceived trustworthiness captures assessments of a person's intentions and their likeliness to take advantage of the assessor, rather than assessments of ability, which are captured in competence (Johnson et al., 2018).

2015).[62] Additional information provided to evaluators is only helpful in attenuating this gender bias when it specifically indicates high competence of the people being assessed (Koch et al., 2015).

All of this amounts to a systematic disadvantage for women as they try to operate in the strongly male-stereotyped fields of venture, finance, investing, and entrepreneurship (e.g., Ahl, 2006; Gupta, Turban, Wasti, & Sikdar, 2009). A robust body of evidence both from academic research and survey studies demonstrates that women in VC face an unlevel playing field due to gender bias, and the following sections explain exactly why and how that is.

In the face of strong evidence to the contrary, VCs persistently believe in meritocracy. The implausibly low representation of women in venture capital, along with all the research presented in this report chronicling the various biases and obstacles to equality in the industry, make it clear that everyone does *not* have an equal chance to succeed in VC. Rather than being selected purely based on ability, as would be the case in a truly meritocratic system, investors and founders are selected for opportunities and investment based on a complex confluence of factors that demonstrably includes non-merit-based considerations, such as gender and race.

> *"There is a lot of noise around the bro culture in tech. Yes, that exists. However, tech is an incredibly meritocratic industry."*
>
> Maia Heymann, Co-Founder and General Partner at Converge (Leung, 2017)

In spite of the fact that venture capital is decidedly *not* a meritocracy (Bacon, 2013), many VCs persistently continue to believe that it is (e.g., Chilazi et al., 2018; LaFrance, 2016; Leung, 2017; Merchant, 2013).[63] Unfortunately, research shows that environments that promote ideals of meritocracy can ironically be *more* biased against women than environments that openly allow for the possibility of bias (Castilla & Benard, 2010). In organizations that regard themselves as meritocratic, managers give men higher rewards than equally-performing women. This concept of the paradox of meritocracy (Castilla & Benard, 2010) is complemented by the concept of performance-reward bias, which explains how equivalent performance evaluation ratings can translate into more positive career outcomes for men than women (Castilla, 2008). These differential outcomes have been documented in venture capital as well (e.g., Gompers et al., 2014; see below).

> *"The venture capital community is 'color-blind' and 'operates fully on a meritocracy.'"*
>
> Ted Schlein, Managing and General Partner at Kleiner Perkins (Merchant, 2013)

The myth and paradox of meritocracy can help us understand some of the cultural underpinnings of women's underrepresentation in venture capital. Today's successful (often white and male) investors, who have triumphed in the current system, naturally believe that their achievements are in large part due to their abilities. Following this logic, people who have not succeeded in the current system have likely not done so due to their lack of ability. Now, if one were to recognize the unfairness and unmeritocratic nature of the current system, that would raise uncomfortable questions about the nature of one's own success. If the system isn't entirely meritocratic, did I achieve my success as a result of my superior abilities and efforts, or is it possible that others who aren't experiencing the same level of success could have been equally as deserving?

This line of thinking leads to two psychological threats: a meritocratic threat, or the unnerving possibility that one's accomplishments are not fully earned, and a group-image threat, or the fraught association with a group that has unfair social advantages (Knowles, Lowery, Chow, & Unzueta, 2014). In a study on race, subjects were found to manage these psychological threats by denying the existence of

[62] The meta-analysis (a statistical analysis combining the results of multiple scientific studies) examines 136 independent effect sizes from experimental studies (n = 22,348).

[63] For example, in a non-representative survey of approximately 50 Silicon Valley executives, start-up founders, and tech thinkers by *The Atlantic* in 2016, men were three times as likely as women to say that Silicon Valley is a meritocracy (LaFrance, 2016).

any advantage (privilege), or by distancing themselves from the advantaged group of people, or by striving to dismantle systems of privilege (Knowles et al., 2014). Only the third approach, which entails a recognition of the paradox of meritocracy, is successful at reducing inequality. Therefore, shattering the false perception of a meritocratic VC industry is necessary for venture capital to reach full gender equality.

> *"Some firms say, I'm worried about survival, I'll worry about diversity later. But it's really hard to start from a frat boy startup culture and move to one that is open and inclusive."*
>
> Paul Gompers, Eugene Holman Professor of Business Administration at Harvard Business School (Blanding, 2018)

The masculine "bro" culture is very real in VC. Venture capital is a classic environment for so-called masculinity contest culture where stereotypically masculine traits and behaviors, such as ruthlessness, toughness, and winner-take-all competition, are prized above all else (Berdahl et al., 2018).[64] Research shows that environments with masculinity contest culture produce organizational dysfunction in the form of things like low psychological safety, overly aggressive behaviors, excessive risk-taking, lack of work-life support, abuse and bullying, sexual harassment of women in particular, and extreme competitiveness (Berdahl, Cooper, Glick, Livingston, & Williams, 2018; Williams, 2017). In addition, masculine cultures create and signal a lower sense of belonging to women than men (Cheryan et al., 2017). There is clear evidence of all of this dysfunction in venture capital.

> *"You know, the number of sexual innuendoes that have come across that really clarify what men in this space might think of the opposite gender can be very telling."*
>
> Female tech investor (Chilazi et al., 2018)

Harassment is rampant for women in VC. In the past few years, especially since the launch of the #MeToo movement in October 2017, the venture ecosystem has seen a number of high-profile sexual harassment scandals (Benner, 2017). Even before #MeToo, anecdotes of overt sexism and sexual harassment indicated an endemic problem in the VC industry (Pao, 2017; Williams, 2015). In response, in 2018 the National Venture Capital Association released a sample code of conduct as well as model sexual harassment and discrimination policies and related HR best practices for VCs and startups (NVCA, 2018). While this is a great step in the right direction, the venture ecosystem has a long way to go to fix its pervasive harassment issues.

Harassment in VC, whether sexual or not, runs the gamut from microaggressions and low-grade bullying to extremely hostile workplaces and full-on sexual assault. Unfortunately, reliable and systematic data on the types and prevalence of sexual harassment across the U.S. venture capital industry do not exist. The best data come from four surveys, all of which have small and non-representative samples and three of which were conducted before the eruption of the #MeToo movement.[65] While these surveys don't meet the high academic thresholds of statistical significance, they nonetheless present a remarkably coherent picture: across the four surveys, a large majority of female VCs and entrepreneurs report personally experiencing sexism and/or sexual harassment.

[64] The authors identify four key components of masculinity contest cultures. One, displaying any kind of weakness, such as vulnerable emotion or self-doubt, is frowned upon and supreme outward confidence is the norm. Two, strength and stamina are prized in the form of rewarding things like athleticism and excessively long work hours. Three, work trumps all other priorities, such as family, and unyielding commitment to the organization is expected. Four, fierce competition (accompanied by a lack of trust) is the prevailing way of doing things and winners are seen as more masculine than losers.

[65] In addition to the four surveys, the Kapor Center (n.d.) reports that 45% of female VCs have witnessed overt sexism, compared with only 9% of their male peers, and that nearly 50% of female founders report experiencing harassment, such as being propositioned in exchange for funding or connections.

A 2016 LinkedIn survey of 285 VC and angel investors as well as 322 startup founders revealed that nearly 80% of female VCs had witnessed sexism in the industry, compared with only 28% of male VCs; similarly, a majority of female founders had witnessed sexism while raising capital, compared with only 8% of male founders (Fairchild, 2016).[66] In a smaller Women in Tech survey of 210 Silicon Valley women conducted in 2015, 60% of respondents reported personally experiencing unwanted sexual advances, two-thirds of them from a superior, and 90% reported witnessing sexist behavior at company offsites and/or industry conferences (Women in Tech, 2017).[67] A survey of 88 female founders who have been through the Y Combinator accelerator program showed that over one in five had been sexually harassed by a VC or an angel investor in the form of sexual overtures or quid pro quo harassment (Shoot, 2018).[68] Lastly, in global online surveys of 950 adults in the tech industry in 2017, 44% of female founders reported experiencing harassment, compared with only 10% of male founders (Women Who Tech & Lincoln Park Strategies, 2017).[69] Specific harassment behaviors in investor meetings included comments on physical appearance (experienced by 37% of female founders vs. 11% of male founders), comments on age (33% vs. 26%), and questions about dating life (25% vs. 3%). Of particular note are certain harassment behaviors that were *exclusively* experienced by women: 28% of women reported being on the receiving end of doubts about their ability to lead the startup because of gender; 16% reported receiving questions about their plans to start a family; 14% reported requests for a date; and 10% reported being propositioned for sex (Women Who Tech & Lincoln Park Strategies, 2017).

Mothers in venture capital encounter additional discrimination. VCs who are mothers are faced with the well-documented motherhood penalty (Correll, Benard, & Paik, 2007) whereby their commitment to the work is doubted, their competence questioned, and their advancement opportunities curtailed (Chilazi et al., 2018). This may be particularly salient in venture capital because data suggest that many investors subscribe to traditional attitudes about work and family. In interviews with 21 venture capitalists in New England, nearly a fifth of female and male VCs expressed very traditional gender attitudes relegating full responsibility for family duties to women (Chilazi et al., 2018). Also, in a national survey of 217 venture capital firms, male VCs were more likely to be married (69%) and have dependents (56%) than their female counterparts, of whom 53% were married and 44% had dependents (NVCA & Deloitte, 2016). Academic research has theorized that an individual's personal approval of traditional gender roles influences the "strength of the incongruity they perceive between female gender roles and leader roles" (Eagly & Karau, 2002), which may explain why women face more bias in contexts like VC.

Female VCs face bias in mentorship and feedback in their own firms. Due to the homogeneous and homophilic nature of the VC industry and investing syndicates (Gompers, Mukharlyamov, & Xuan, 2016), female venture capitalists have poorer mentorship prospects than their male counterparts (McPherson et al., 2001). This bias can have surprisingly large effects, as quantified in the following study.

VCs' future investment performance has been found to hinge on three key factors. First, a venture capitalist's own prior investment track record strongly predicts future performance for both women and men (Gompers et al., 2014). Second, the track record of co-investors outside a VC's own firm also strongly influences future investment performance for women and men: the better the co-investors have done in

[66] The online survey was administered between August 25 and September 21, 2016 through random invitations. Of 607 total respondents, 285 were VC and angel investors and 322 were (co-)founders of startups across industries with fewer than 200 employees. Respondents self-identified their gender and race.
[67] The online survey was administered between April and May 2015. Of 210 female respondents, 91% lived in Silicon Valley; 77% were 40 years old or older; and 75% had children. Respondents' professions included CxO (25%), VC (11%), entrepreneur (11%), and venture marketer (11%), with the remainder being employees at large tech companies. Besides harassment, respondents reported other biased behaviors, such as demeaning comments from male colleagues (87%), lack of access to the same opportunities as male peers (59%), and being asked to do lower-level tasks than male peers (47%).
[68] The survey, conducted by the non-profit Callisto, was sent to 125 of the 384 female founders who have participated in Y Combinator and signed up for the YC female founder email list. Among 88 female founders that responded, 19 experienced sexual harassment by VCs or angel investors, with 18 reports of unwanted sexual overtures or sexual badgering, 15 of sexual coercion or quid pro quo harassment, and 4 of unwanted sexual contact (Y Combinator, 2018).
[69] The online surveys were administered worldwide in July 2017. Of 950 adult tech investors, founders, and employees who responded, 77% were women and 77% were based in the U.S.

the past, the more likely the current investment is to be successful (Gompers et al., 2014). Third, the track record of fellow VCs *from the same VC firm* also affects investment performance, but in different ways for women and men. Male VCs benefit from having intra-firm colleagues with strong investment track records, i.e., their own future performance is positively impacted by their colleagues' past investment success, whereas female VCs do not receive any benefit from having successful colleagues (Gompers et al., 2014). This lack of contribution from male investors in a given VC firm fully explains the 15% lower investment performance that is observed among female VCs across all venture investments from 1975 to 2003 (Gompers et al., 2014).[70] Importantly, the performance gap disappears in older, larger VC firms as well as in firms with multiple female VCs (Gompers et al., 2014).

The authors conclude that female VCs are disadvantaged by bias in informal mentoring, feedback, and the attitudes of entrepreneurs, though the evidence for the latter is mostly anecdotal; all of these effects are ameliorated in larger firms with more formal feedback systems, mentorship structures, and organizational hierarchies (Gompers et al., 2014). Indeed, their survey of 93 female VCs finds that 18% feel that they receive less formal feedback and 29% feel that they receive less informal feedback from their colleagues than male VCs; the numbers are comparable for mentorship (Gompers et al., 2014). This finding is in line with other research showing that inequality in job performance for organizational minorities, such as women, partially results from manager bias and social isolation (Kalev et al., 2006).

> *"Entrepreneurs just don't take me as seriously as my male counterparts. My questions get less attention when the companies present in front of the partnership. I feel that being a woman lowers the perceived quality of my contribution."*
>
> Female investor (Gompers et al., 2014)

Female VCs also face bias from entrepreneurs. In addition to battling the effects of gender bias in their own firms, female VCs face bias from the entrepreneurs they interact with. In a survey of 93 female VCs, many discussed feeling disadvantaged in the deal sourcing process due to their gender, and 65% stated that some founders would rather work with male VCs (Gompers et al., 2014). Furthermore, 59% expressed having been disadvantaged in VC because of their gender in terms of interactions with outside investors and partners, deal quality and staffing, and deal execution (Gompers et al., 2014).

This may have something to do with VCs' backgrounds. Male VCs are more likely than female VCs to have backgrounds as entrepreneurs (17.1% of male VCs vs. 8.0% of female VCs), as CEOs (19.6% vs. 11.8%), and in product development (11.1% vs. 6.1%). This can disadvantage female VCs since it might make them less attractive partners in the eyes of founders who are looking for expertise and advice precisely in these domains (Gompers et al., 2014).

[70] The study is based on a comprehensive sample of all venture capital investments from 1975 to 2003. This includes information on 3,225 male VCs and 212 female VCs (6.2% of the sample). Female VCs are represented in 5.4% (1,418 of 26,087) of all deals and 4.6% (213 of 4,622) of IPOs. In their analyses, the authors control for education, work experience, ethnicity, industry, and time periods.

WHAT WORKS: DISMANTLING INTERPERSONAL BARRIERS

Traditionally, efforts to increase gender equality in VC have focused on overcoming interpersonal barriers, reducing unconscious bias, and changing the way individuals interact with each other. These approaches include unconscious bias trainings, which have become a popular way to address venture capital's gender equality problem. While the interpersonal barriers to diversity and inclusion in VC – gender biases, stereotyping, harassment, a belief in meritocracy, and masculine culture – remain significant, overcoming them will require solutions that are cultural and organizational, rather than interpersonal or individual, in nature. Academic evidence suggests that de-biasing individual minds (through trainings or otherwise) does little to change behavior. Instead, the VC industry needs to address the roots of gender inequality through interventions aimed at the organizational level (and, to a lesser degree, at the industry-wide level). Therefore, this report is purposefully light on recommendations to dismantle interpersonal barriers.

Influence individual actions through behavioral strategies. Changing or influencing people's behavior is much easier than changing their hearts and minds. In fact, evidence shows that behaviors can change even when underlying attitudes and beliefs do not (Bohnet, 2016). Fortunately, decades of behavioral science research offers a slew of promising strategies to nudge more inclusive behaviors. Actors in the VC ecosystem aiming to overcome biases and stereotypes can deploy the following strategies:

- **Shift social norms** through communication, publicity campaigns, and naming and shaming. Highlighting examples of individual VCs and VC firms performing desirable inclusive behaviors encourages others to follow suit because people and organizations are susceptible to social pressure (Paluck & Shepherd, 2012). Similarly, public commitments – importantly, with specific targets and accountability attached – work to nudge positive behaviors because of their social and transparent nature (Service et al., 2014).
- **Harness the power of networks** because peers shape each other's behavior, provide mutual support, and enable collective action. This strategy can be particularly effective among senior male leaders in the VC industry, where a small number of initial D&I champions can leverage social relationships to recruit their male peers to push for ecosystem-wide change (Beshears et al., 2017).
- **Consider rewards and sanctions** to promote D&I. Financial incentives can be very effective, but more creative incentives like competitions and lotteries can also work well (Service et al., 2014).
- **Facilitate plan-making** because identifying barriers to action and developing specific plans to address them makes behavior change more likely (Service et al., 2014).

Reduce bias in individual decision-making. Individual VCs can take steps to improve their decision-making and reduce the potential for biases like groupthink and overconfidence by imagining scenarios where the current assumptions would not apply (counterfactual thinking); by recording decision processes and outcomes for future reference (e.g., in hiring and funding decisions); and by using process aids, such as checklists and lists of specific criteria, to break decisions down into specific components (Janis, 1982; Zacharakis & Shepherd, 2001).

Do not rely on diversity and unconscious bias trainings alone. Research indicates that traditional diversity trainings and attempts to reduce managerial bias through feedback are not effective to increase workforce diversity (Kalev et al., 2006). In fact, in many contexts, such interactive training workshops can lead to backlash and even more biased behaviors due to psychological reactance (Kalev et al., 2006). That said, emerging evidence suggests that educating people on their unconscious biases is in some cases associated with less biased behaviors, especially among individuals who are already most equality-minded

(Alesina, Carlana, La Ferrara, & Pinotti, 2018).[71] And in a recent study, a one-hour online diversity training is shown to be associated with *attitudinal* change among groups of employees who were relatively less supportive of women before the training (Chang et al., 2019).[72] By contrast, the study finds that *behavior* change around gender inclusion is concentrated among those employees – women in the United States – who already had the most supportive attitudes toward women before the training (Chang et al., 2019). Thus, even in cases where diversity training is effective at changing gender inclusion behaviors, it may not influence the people most in need of behavior change.

In any case, awareness-raising around unconscious bias should be coupled with tangible tools that help people to change their behaviors for maximum impact (Bohnet, 2016) as well as other, more comprehensive organizational diversity and inclusion initiatives over a longer period of time (Bezrukova, Spell, Perry, & Jehn, 2016).[73] One-off bias and diversity trainings cannot by themselves overcome the interpersonal barriers to gender equality among venture capitalists.

[71] The authors study teachers' bias in grading immigrant and native children in Italian middle schools and find that math teachers with stronger stereotypes give lower grades to immigrants compared to natives with the same performance. When teachers' own stereotypes are revealed to them through an Implicit Association Test (IAT), they increase the grades given to immigrants.

[72] The study is a randomized controlled field experiment in a global organization with 3,016 employees (61.5% male; 38.5% U.S.-based with 63 countries represented overall) participating in a voluntary one-hour online diversity training. The training is found to have a significant positive effect on attitudes toward women on three measures: willingness to acknowledge that one's own gender biases match those of the general population; willingness to acknowledge discrimination against women and support for policies to help women (effect driven by non-U.S. employees); and a situational judgment test that captures gender-inclusive behavioral intentions in realistic workplace scenarios (effect driven by non-U.S. employees). Behavior change is likewise assessed on three measures: nominations for mentoring (significant effect on women selected for mentoring by female employees in the U.S. only); nominations to recognize a colleague's excellence (no significant effect); and responses to a request to have a conversation with a female or male new hire (significant effect only among women wishing to speak with female new hires).

[73] In a meta-analysis of 260 studies assessing the effects of diversity training, the authors find that the positive effects were greater when training was "complemented by other diversity initiatives, targeted to both awareness and skills development, and conducted over a significant period of time" (Bezrukova et al., 2016).

ENTREPRENEURS AND GENDER EQUALITY

Gender equality in entrepreneurship and entrepreneurial fundraising is the second component of gender equality in the overall venture capital ecosystem that we examine. Gender equality in entrepreneurship matters greatly because entrepreneurship is a central path to job creation, economic growth, and prosperity (Brooks, Huang, Kearney, & Murray, 2014), and because entrepreneurs who have access to venture capital are a vital source of economy-wide innovation: companies that at some point received VC funding are responsible for 44% of the research and development spending among U.S. public companies (Gompers & Wang, 2017a). If women are not equally represented in the innovation engine of our economy, that will have momentous consequences for all of society.

This section explores the nature of entrepreneurship in the United States, the nature and causes of the gender gap in venture funding, and potential solutions. The academic literature on entrepreneurship overall, and gender in entrepreneurship in particular, is vast, especially compared to the literature on gender in venture capital specifically. Our goal, therefore, is to summarize and highlight the most relevant aspects of the gender in entrepreneurship literature rather than to review it in full detail.[74]

ENTREPRENEURSHIP AS AN INHERENTLY MALE-TYPED DOMAIN

An extensive body of academic research shows that entrepreneurship is viewed as an intrinsically masculine activity. This stereotype of founders as male, when implicit rather than explicitly stated, has been shown experimentally to lower entrepreneurial intentions for women. Indeed, women engage in entrepreneurial activity at half the rate of men and make up only around 15-20% of U.S. startup founders. Larger ventures are more likely to have at least one female (co-)founder.

"[The entrepreneur is a man of daring and decisiveness who is motivated by the] dream and the will to found a private kingdom, usually, but not necessarily, also a dynasty. -- The impulse to fight, to prove oneself superior to others, to succeed for the sake, not of the fruits of success, but of success itself… Our type seeks out difficulties, changes in order to change, delights in ventures."

Schumpeter (1983, pp. 93-94)

Entrepreneurship is construed as an inherently masculine activity in the academic literature. In the academic literature, it is well-established that entrepreneurship is a heavily male-stereotyped domain, not only because of the low numerical representation of women but also because of the inherent way in which entrepreneurship is conceptualized (e.g., Aidis & Schillo, 2017; Gupta et al., 2009). Ahl (2006) identifies five "discursive practices" in academic entrepreneurship literature that demonstrate how exactly entrepreneurship is male-construed.[75] First, the classic image of an entrepreneur is that of a "heroic self-made man", of which there are very few. Second, entrepreneurship is viewed as a positive force leading to economic growth and societal improvement characterized by innovation, progress, and risk-taking, all of which are male-gendered attributes (Eagly & Karau, 2002). Third, women and men are viewed as essentially different in the context of entrepreneurship, with women's ventures and activities assessed in comparison to those of men, which are taken to be the default. Fourth, the family sphere is considered to be women's primary

[74] Our discussion is generally limited to the traditional VC funding context, so evidence from angel investing and crowdfunding platforms is mostly excluded.
[75] Ahl's (2006) five discursive practices are based on an analysis of 81 research articles (73 empirical and 8 conceptual) on women's entrepreneurship published between 1982 and 2000 in four leading academic entrepreneurship research journals.

responsibility and also entirely separate from work; thus, women's dual responsibilities of taking care of both work and family are seen to disadvantage them vis-à-vis men. Fifth, entrepreneurs are viewed as solo artists who earn their successes or failures all by themselves, without regard for contextual or societal factors such as legislation, networks, or access to relevant education (Ahl, 2006).

Built on these five discursive practices, strongly-held views about the masculinity of entrepreneurship have been reinforced by academia's continued fascination with inherent differences between female and male founders, despite mounting evidence to the contrary (Ahl, 2006). Regardless of divergent outcomes for their ventures, such as gender differences in funding, female and male entrepreneurs are not essentially different (Ahl, 2006). Indeed, a Norwegian study of early-stage startups supports the view that women and men are similar in terms of their fundraising perceptions and behaviors (Alsos, Isaksen, & Ljunggren, 2006). Survey data of more than 600 entrepreneurs and more than 600 VCs in the U.S. further underpin this conclusion: the similarities between female and male founders far outweigh any differences (Padnos, 2018).

The male gendering of entrepreneurship is nonetheless significant because, just like on the VC side, it creates an environment that intrinsically disadvantages women. In a role that is characterized by such masculine words and concepts as "innovation, change, risk-taking, opportunity recognition, driving force, and economic growth" (Ahl, 2006), female entrepreneurs face a difficult challenge of balancing their gender identity with the professional identity required for success. As Eagly and Karau's (2002) foundational role congruity theory predicts, female entrepreneurs are discriminated against for acting and being feminine, since it violates the norms and expectations of their male-typed industry, but they are also penalized for acting and being masculine, since that violates the norms and expectations for their gender (Balachandra, 2018). As a result, female entrepreneurs are "more likely to have their performance devalued, less likely to receive opportunities for career advancement, and more likely to encounter challenges and skepticism in starting and running ventures" (Brooks et al., 2014). Indeed, the masculine norm of entrepreneurship has been shown to influence investment decisions (Alsos & Ljunggren, 2017). Despite recent hopeful proclamations that "the portrait of a founder or venture capitalist as a young, white male having graduated (or dropped out) from a handful of elite schools is coming to an end" (Coren, 2018), this male stereotype of entrepreneurship is still very much alive.

The inherent masculinity of entrepreneurship has, in fact, been proven experimentally. A fascinating study by Gupta, Turban, and Bhawe (2008) shows that when entrepreneurship is not presented as stereotypically female or male, people's entrepreneurial intentions are similar to when the masculine entrepreneurship stereotype is implicitly activated.[76] This suggests not only that there indeed exists a masculine stereotype of entrepreneurship, but also that said stereotype influences women and men's propensity for entrepreneurship. When entrepreneurship is explicitly presented as gender neutral, women and men report similar entrepreneurial intentions (Gupta, Turban, & Bhawe, 2008).[77] This indicates that it may be possible to diminish the effects of stereotypes, or even nullify them.[78] And when entrepreneurship is explicitly presented as masculine – the experimental condition perhaps most closely resembling the real world in 2019 – women actually report greater entrepreneurial intentions while men report lower intentions compared to when entrepreneurship is *implicitly* presented as masculine (Gupta et

[76] The sample in this experimental study consists of 469 undergraduate business students – 223 women (48%) and 246 men (52%) – at a large Midwestern university. The authors deploy a 2x6 between-subjects design with participant gender crossed with one of six stereotype activation conditions: control, explicit or implicit masculine stereotype, explicit or implicit feminine stereotype, and nullified stereotype. Participants are randomly assigned to one condition to read a one-page (fictitious) news article about entrepreneurship, which is the experimental manipulation for stereotype activation.

[77] Follow-up research by some of the same scholars shows that in the U.S., India, and Turkey, individuals who self-identify as more masculine or similar to males (male gender identification, not necessarily male sex) have higher entrepreneurial intentions (Gupta et al., 2009). Women and men, by sex, do not differ in their intentions; rather, the observed difference is driven by self-identification with male characteristics. Moreover, while both women and men perceive entrepreneurs to have predominantly male traits, only women also perceive a relationship between entrepreneurial and feminine traits.

[78] The authors are not able to successfully activate a feminine stereotype of entrepreneurship in the study, or redefine entrepreneurship as a feminine role: "Some occupations may be so strongly male typed that people are unable to associate them with feminine characteristics. -- It may be that redefinition of a masculine stereotype as feminine is only possible when the alternative stereotype actually exists in society" (Gupta et al., 2008).

al., 2008). This finding is in line with other academic research showing that individuals tend to reject explicit stereotypes while conforming to implicit ones (e.g., Kray, Thompson, & Galinsky, 2001).

Besides entrepreneurship itself, the modi operandi within the industry are also heavily male-gendered. For example, pitching is viewed as a "confrontational, competitive, and judgmental" enterprise (Brush et al., 2017); these attributes, of course, are male-stereotyped (Eagly & Karau, 2002). Likewise, the competitive nature of securing partnership in VC firms is male-typed and may undervalue more stereotypically feminine practices like cooperation and mutual support (Brush et al., 2017). No wonder that in a survey asking more than 600 entrepreneurs and more than 600 VCs to rank top success attributes for founders, only three of the top ten success attributes were seen to be equally prevalent in female and male founders (Padnos, 2018). The majority of both female and male VCs indicated that most of the attributes were more likely to be held by male founders (Padnos, 2018). In this environment, women and their ventures are likely to be perceived as less legitimate by VCs (Greene, Brush, Hart, & Saparito, 2001).

The numbers reveal that entrepreneurship is dominated by men. Academic research finds that entrepreneurs tend to be white men from higher-income families who generally scored higher on learning aptitude tests, had greater self-esteem, and engaged in more disruptive, illicit activities as teenagers (Levine & Rubinstein, 2013). These academic notions of entrepreneurship are supported by real-world numbers, which show just how male-dominated the field is.

Women engage in entrepreneurial activity at half the rate of men (Brooks et al., 2014), and only 15.5% of U.S.-based startups that received funding from 2009 to 2015 had at least one female founder (Teare & Desmond, 2015).[79] The NVCA reports similar numbers for the same period and shows that there was significant improvement over time with the proportion of female-(co-)founded startups jumping from 9.5% in 2009 to 18% in 2014 (NVCA, 2016).[80] These findings are echoed by the Kauffman Fellows Research Center, which analyzes a larger dataset of over 90,000 U.S. venture-backed companies between 2001 and 2018 and shows that the share of startups with at least one female founder grew from 4.3% in 2001 to 21.6% in 2018 (West & Sundaramurthy, 2019).[81] However, based on a different, comprehensive dataset of every VC firm and investor in the U.S. from 1990 to 2016, Gompers and Wang (2017a) find the share of female entrepreneurs to be lower: of 42,502 founders, 91.1% are men and 8.6% are women (the rest could not be classified). Raina (2016) similarly finds that 9% of entrepreneurs in VC-backed, high-growth technology startups are women. Female founders are more likely to helm larger ventures: 9.9% of solo-founded startups are headed up by a woman, compared with 17.6% of startups with two founders and 36.2% of startups with five or more founders (Teare & Desmond, 2015).

Women are numerically underrepresented not only as founders but also as leaders and managers in startups. Based on a study of the early-stage investment portfolios of 152 U.S. VC firms, there does not seem to be a correlation between the proportion of female founders and female leaders and managers in their startups (Aidis & Schillo, 2017).[82] In other words, venture-backed startups with many female executives do not necessarily have many female managers or founders. That said, the determinants of female representation in venture-backed companies are not yet fully understood (Aidis & Schillo, 2017). Unsurprisingly, the gender dynamics throughout the entrepreneurship pipeline translate into women's underrepresentation on the boards of companies at the IPO stage: of approximately 100 companies that went public from January to mid-August in 2019, roughly 40% had all-male boards – a statistic in line

[79] In absolute numbers, 2,226 out of 14,341 startups had at least one female founder from 2009 to 2015.
[80] The NVCA examined 14,341 U.S.-based startups between 2009 and 2014.
[81] The Kauffman Fellows Research Center analyzes Crunchbase data for over 90,000 venture-backed U.S. startups and over 400,000 employees working in these startups (including founders, C-level executives, and board members; 60,000 are women) between 2001 and 2018. The data distinguish between startups with only male founders and startups with at least one female founder (all-female-founded startups are not separately broken out in the data).
[82] In addition to the three dimensions of women's involvement that the authors examine – women as founders, leaders (executives), and managers of VC-backed ventures – they identify a fourth dimension for additional future research: women as board directors (Aidis & Schillo, 2017).

with prior research finding that, on average, 40% of companies going public through 2015 had all-male boards (Bellstrom, 2019).

Yang and Aldrich (2014), who investigate the emergence of gender inequality in mixed-sex entrepreneurial teams, theorize one possible model where merit and gender compete as organizing schemes for new ventures.[83] They find that merit becomes more important as evidence mounts for an individual's merit-based (competency) qualifications,[84] and that overall, founders' assessments of each other's competence are important in predicting status distinctions between founding team members. Nonetheless, because perceptions of competence are influenced by gender stereotypes, women's access to power in startups is persistently and pervasively constrained, especially if they co-found new businesses with their husbands (Yang & Aldrich, 2014). Perhaps in part for this reason, men are more likely than women to start multiple ventures: among top startup founders by valuation, fundraising, and growth, 30% of men and only 19% of women have started more than one company (Coren & Kopf, 2018).

[83] The authors base their paper on a nationally representative dataset of 1,214 entrepreneurs and their teams sampled from the U.S. population in 2005.
[84] The authors consider five merit-based characteristics: (1) years of work experience in the same industry as the new venture; (2) years of managerial experience; (3) startup experience; (4) highest level of education of the startup founder; and (5) years of full-time paid work experience.

THE GENDER GAP IN VENTURE FUNDING

Academic research and real-world data prove that there is a staggering gender gap in venture capital funding. Even though women are underrepresented as entrepreneurs to begin with, they receive an even smaller, disproportionately low share of VC funding: around 2% for all-female founding teams and approximately 10% for mixed-gender founding teams. Shockingly, these numbers have barely budged in the last three decades, as the 30-year average of female founders' share of VC funding is 2.4%. Generally, female founders receive approximately a quarter of the amount of funding they seek, while their male counterparts receive half, on average. Women are also underrepresented as participants in VC deals with only 5.9% of U.S. deals involving all-female founding teams or solo female founders and 15.2% involving mixed-gender founding teams. Despite all of these disadvantages, female-founded ventures perform as well as male-founded ones, controlling for relevant variables like sector, market, experience, and hours worked.

There is robust academic and real-world evidence that female founders receive substantially and disproportionately less venture capital funding than their male counterparts (e.g., Alsos et al., 2006; Bigelow, Lundmark, Parks, & Wuebker, 2014; Godwin, Stevens, & Brenner, 2006). Across the board, startups with all-male executive teams are four times more likely to receive VC funding than startups with even one woman on the executive team (Brush et al., 2017). In terms of early-stage equity investments, either in the form of venture capital or angel investments, women are also disadvantaged relative to men, and consequently launch their ventures with less funding (Brush et al., 2017).[85] Besides, startups with women on the executive team that attract VC funding tend to be older and larger in terms of both sales and the number of employees, suggesting that female-led startups need to provide more evidence and a longer track record of growth and success to receive funding (Brush et al., 2017).[86]

Female founders receive a minuscule share of VC funding in the U.S. In 2018, the latest full year for which data is available, 482 female founders – operating as solo female founders or as members of all-female founding teams – received only 2.2% of all U.S. VC funding (see Appendix C), per PitchBook and All Raise data (Hinchliffe, 2019).[87] This equates to $2.9 billion out of a total of $130 billion in venture capital dollars invested in the United States (Hinchliffe, 2019). The percentage was unchanged from the previous year, even though in dollar terms, female founders raised nearly $1 billion more in 2018 than in 2017 (Clark, 2018; Hinchliffe, 2019). By contrast, male founders or all-male founding teams received 84%, or $109.4 billion, of VC funding in 2018, while mixed-gender founding teams with at least one woman received 9.9%, or $12.9 billion (Hinchliffe, 2019).[88] As further evidence of women's marginalization in VC funding, the ten biggest deals of 2018 all involved exclusively male founders (Hinchliffe, 2019).

Besides a gender gap, there is also a dire racial gap in VC funding. Among venture-backed female founders, African American and Hispanic women in particular are severely underrepresented. Of 6,791

[85] For example, in data provided by PitchBook from their database comprising 6,793 unique startups that received VC funding between 2011 and 2013 in the U.S., 100% male-led startups are significantly more likely to receive seed-stage and early-stage financing; startups with a woman on the executive team are more likely to receive later-stage financing, though their absolute amounts still lag considerably behind those of male-led startups.

[86] Based on the same PitchBook data as above, startups with women on the executive team that attract VC funding are older, 89% larger in terms of employees, and 44% larger in terms of sales compared to startups that are led by men only. This finding holds across industries.

[87] PitchBook itself reports very similar but slightly different numbers: 2.3% of VC funding going to all-female founding teams, and 10.4% to mixed-gender founding teams in 2018 (PitchBook, 2019). See Appendix C for more details.

[88] The founders' gender could not be identified for the remaining approximately 4% of venture capital invested in 2018 (Hinchliffe, 2019). These U.S. numbers are broadly in line with global ones, which show that across the world, 10% of VC dollars and 16% of seed funding dollars went to startups with at least one female founder between 2012 and 2017 (Teare & Desmond, 2017).

female-founded startups that received VC funding between 2009 and 2017, fewer than 2% were headed up by a Hispanic woman in 2017 (Hinchliffe, 2018).

These disparate funding outcomes seem to hold for startups across the success spectrum. An analysis of the top 351 startups by valuation, fundraising, and growth founded since 2013 shows that top female founders raise substantially less money than their male counterparts – $50 million vs. $226 million – and achieve lower valuations for their companies – $65.5 million vs. $400.4 million (Coren & Kopf, 2018).[89] Moreover, 87% of top founders are on all-male founding teams (Coren & Kopf, 2018).

What is often left unsaid is that these numbers have barely moved in three decades. The 30-year average of female founders' share of VC funding is 2.4% (Greene et al., 2001), almost identical to the share in 2018. Mixed-gender founding teams received 18% of venture capital funding in 2013 per Babson College's Diana Project (Weisul, 2018a), but that share dropped to about 10% in 2018 (PitchBook, 2019).

However, early indications for the first several months of 2019 suggest that women's share of VC funding may be slowly inching up: female-only founders received 2.7% and mixed-gender founding teams received 12.0% of venture funding in 2019 through May (PitchBook, 2019). According to a different PitchBook and NVCA analysis, female founders are on track to receive 2.9% of all VC funding in the U.S. in 2019, which would represent a marginal increase from 2018 (Hernbroth, 2019). As of June 30, 2019, there had been 301 venture deals totaling $1.9 billion for female-led startups; in all of 2018, there were 536 deals totaling $3.1 billion (Hernbroth, 2019).

A new study from the Kauffman Fellows Research Center offers more hopeful news for female founders. Its analysis of a dataset of over 90,000 U.S. venture-backed companies between 2001 and 2018 shows that startups with at least one female founder raise more money at similar investment stages (in Series B, C, and D) than their male-only counterparts; the same is true for startups with at least one female C-level executive (West & Sundaramurthy, 2019).[90] While mixed-gender and all-male founding teams fundraise equally well in earlier (seed and Series A) rounds, the former seem to have an advantage in later rounds, raising on average $23 million in VC investment compared with $18 million for all-male teams (West & Sundaramurthy, 2019).[91] There is some important context for this somewhat counterintuitive finding, though: only approximately 22% of startups in the dataset have at least one female founder, and from 2001 to 2018, all-male founding teams raised three times as many early-stage rounds as mixed-gender founding teams (West & Sundaramurthy, 2019). Thus, male founders still significantly outraise female founders overall. Furthermore, this is one of very few (if not the only) studies suggesting that female founders have an edge over their male peers in venture fundraising. The overwhelming majority of research on the topic continues to report that male founders raise significantly more venture funding for their startups than female founders.

Female founders are involved in a vanishingly small portion of venture deals. In 2018, 5.9% of VC deals in the U.S. involved all-female founding teams or solo female founders, while 15.2% of deals involved mixed-gender founding teams (PitchBook, 2019).[92] These numbers represent some progress over 2017, when female-founded companies made up 4.4% of all VC deals, or 368 deals compared with 5,588 deals for all-male founding teams (Zarya, 2018). Bloomberg's longitudinal analysis shows that among 2,005 founders of 890 U.S. startups receiving at least $20 million in VC and other equity funding from 2009 to 2015, only 7% are women (Meisler, Rojanasakul, & Diamond, 2016). Lastly, 11% of U.S. firms with venture capital backing, past and present, have been founded or led by women (Brooks et al., 2014).

[89] This Quartz analysis is based on PitchBook data from its database of 20,964 venture-backed companies in the U.S. The analysis includes only startups founded in 2013 or later with a valuation of $50+ million; a valuation increase of ≥ 1 times or more vs. the previous valuation in the latest fundraising round; and $5+ million in VC funds raised. The final dataset comprises 246 women in 211 companies and 334 men in 140 companies.

[90] According to the Kauffman Fellows Research Center, total startup funding in the U.S. reached $150 billion in 2018, raised by 8,200 startup rounds.

[91] The data distinguish between startups with only male founders and startups with at least one female founder (all-female-founded startups are not separately broken out in the data).

[92] Globally, the percentage of venture-backed companies with at least one female founder has hovered around 17% for the last six years (Teare, 2018).

VCs write smaller checks for female founders than male founders. In 2017, the average deal size for female-led startups was approximately $5 million, compared with approximately $12 million for male-led startups (Zarya, 2018). Two years earlier, from 2015 to 2016, the average investment in female-led startups actually dropped by 26% while that in male-led startups increased by 12% (Gates, 2017). A review of five years of investment and revenue data conducted by the Boston Consulting Group shows that among 350 companies – 258 founded solely by men and 92 (co-)founded by women – the male-founded startups raise an average of $2.1 million while the female-(co-)founded startups raise less than half that at an average of $935,000 (Abouzahr et al., 2018). In general, female founders tend to receive approximately a quarter of the amount of funding they seek, while their male counterparts receive half, on average (Gates, 2017; Malmström, Johansson, & Wincent, 2017b).

There may also be a gender gap in startup valuations. The gender gap may extend to startup valuations, although the data are mixed. Among the top 351 startups founded since 2013, companies with all-male founding teams increase their valuation on average six-fold from the last funding round, compared with a mere 2.3-fold increase for female and mixed-gender founding teams (Coren & Kopf, 2018). In a holistic look at the U.S. VC industry between 2011 and 2013, Brush et al. (2017) likewise find that startups with female CEOs are consistently lower-valued than startups with male CEOs. On the flipside, they also find that startups with women on the founding team have higher valuations than startups with only men on the founding team.[93] As of now, this finding is not supported by much other evidence.

In spite of their handicaps, female founders perform as well as male founders. Earlier, 20th-century academic literature on entrepreneurship documented persistent underperformance of female-owned firms (Robb & Watson, 2012). This female underperformance myth is highly problematic not only because it is inaccurate but also because it has the potential to discourage women from establishing new ventures (Zolin, Stuetzer, & Watson, 2013). More recent studies have finally put the myth to rest by showing that female- and male-founded firms perform equally well, and that past observed differences were due to inappropriate performance measures and inability to control for key variables (Robb & Watson, 2012).[94]

An interview study of 11 Swedish VCs' assessments of 126 entrepreneurs' funding applications sheds light on the key gendered assumptions reinforcing the female underperformance myth in entrepreneurship. Among the VCs, female entrepreneurs are assumed to be cautious and risk-averse, and therefore seeking and/or being satisfied with smaller investments, while men are assumed to be ambitious and risk-taking; women are seen as reluctant, and men as willing, to grow their ventures; women are assumed not to have the requisite resources for aggressive growth; and women's startups are assumed to underperform while men's are assumed to perform well (Malmström, Voitkane, Johansson, & Wincent, 2018b). However, none of these assumptions are borne out by objective performance measures, which show that there are no statistical differences in the performance of female- and male-led startups that apply for funding (Malmström et al., 2018b).[95]

Further evidence bolsters this conclusion. Brush et al. (2017) show that venture-backed startups with female and male CEOs perform equally when performance is measured by the status of the venture fund.[96] Examining a five-year longitudinal database of more than 4,000 new ventures founded in the U.S.

[93] The study used PitchBook data from 2011 to 2013 and found that the difference in valuation between startups with women on the executive team and startups with all-male executive teams was $26 million in 2011, $24 million in 2012, and $27 million in 2013 (always in favor of startups with female executives). The authors note that a possible explanation is that startups with female executives tend to receive later-stage financing (Brush et al., 2017).

[94] Past studies often did not deploy size-adjusted performance measures even though female-founded startups tend to be smaller than male-founded ones; also, risk was not controlled for in most past studies even though evidence suggests that men are more risk-seeking than women (Robb & Watson, 2012).

[95] The interview study examines 11 VCs (4 women and 7 men) from two Swedish government organizations assessing funding applications by 126 entrepreneurs (43% women and 57% men). Interviews are supplemented by data from annual accounting reports for the 126 ventures.

[96] The authors construct a sample of 183 startups with female CEOs and a matched set of startups with male CEOs among a total of 6,517 startups in PitchBook's dataset from 2011 to 2013. The status of the venture fund is defined as successful (the startup realized an exit through an acquisition, merger, or IPO), continuing (the startup is continuing operations), or failed if the startup stopped operations or went out of business (Brush et al., 2017).

in 2004, Robb and Watson (2012) find that there is no significant performance difference between female- and male-owned new ventures in terms of four-year survival rates, return on assets, or Sharpe ratio (a risk-adjusted measure)[97] when controlling for demographic differences such as industry, experience, and hours worked. These findings are replicated by Zolin et al. (2013) in Australia. Marlow and McAdam (2013) also validate the conclusions and show, based largely on U.K. data, that any differences between female-owned and male-owned ventures are mostly due to market and sector, with male founders disproportionately operating in sectors with greater potential for market expansion (e.g., science, manufacturing, and technology).[98]

Finally, a recent study adds further nuance and is the first to "empirically document [a] performance gap between female- and male-led VC-financed startups" (Raina, 2019). However, this gap is not caused by founders but rather by venture capitalists. Using a novel dataset based on Crunchbase data on 2,682 startups and 3,801 founders between 2005 and 2013, Raina (2019) shows that male-led startups perform 24% better than female-led startups, but only when they are financed by all-male VCs.[99] This performance gap disappears when the VC team includes female GPs, further substantiating the thesis that female and male entrepreneurs and their ventures are inherently equally well-performing.

[97] Sharpe ratio measures an investment's return compared to its risk, and is defined as the average return earned in excess of the risk-free rate per unit of volatility (total risk). Generally, the greater the Sharpe ratio, the more attractive the risk-adjusted return (Hargrave, 2019).

[98] This sector discrepancy is itself rooted in gender bias and normative gender hierarchies that constrain women's life choices (Marlow & McAdam, 2013).

[99] The author constructs a dataset from Crunchbase that includes biographical information for the founders leading startups and the GPs of the VC firms financing them. The analysis sample includes 2,682 startups in the high-tech sector (11.0% with female founders) and 3,801 founders with initial financing rounds between 2005 and 2013. There are, on average, 0.12 female founders and 1.78 male founders per startup. Out of 25,779 GPs in the lead VC firms of initial financing round syndicates, 11.0% are female; among GPs that are appointed to startups' boards at the initial round, 3.0% are female. Startup performance is measured by exit via IPO or acquisition.

WHAT CAUSES THE GENDER GAP IN VENTURE FUNDING?

The gender gap in venture funding could be explained by factors related to entrepreneurs, investors, or both. Academic research offers some evidence in support of entrepreneur-driven explanations for the funding gap and strong evidence in support of investor-driven explanations. In reality, both contribute to an ecosystem where female and male founders do not experience equal opportunity or equal outcomes.

On the entrepreneur side, research shows that women are generally less risk-seeking than men, which could cause both their lower rates of entrepreneurship and their clustering in different and less high-growth sectors for their ventures. Research has also documented women's lower propensity to ask and negotiate *in some contexts*, but not all. Moreover, women are more pessimistic about fundraising – but this could have something to do with how investors treat them.

On the investor side, gender bias abounds. VCs evaluate founders through a gendered lens and seek to replicate past examples of success through pattern-matching, which leads female founders to be viewed as riskier and less competent while male founders are seen as higher status. As a result, VCs evaluate male founders more positively and fund their startups materially more. VCs prefer to fund pitches narrated by a male voice and rate them as more persuasive, logical, and fact-based than pitches narrated by a female voice (content being identical). VCs use gender-biased language to describe and evaluate entrepreneurs with men consistently portrayed in more positive and leader-like terms. VCs ask female and male founders different questions as part of the pitch process, which advantages men. Female founders have less access to VC networks that are critical for success. Lastly, and perhaps most importantly, venture fundraising – like entrepreneurship – is a strongly masculine domain, which intrinsically disfavors women. All of these biases and dynamics have been shown in academic studies to result in meaningful and statistically significant VC funding gaps.

Overall, there is clear, consistent, and convincing evidence of pervasive gender bias and discrimination against female entrepreneurs. It is also apparent that the way the venture fundraising and pitching process currently works fundamentally disadvantages female founders.

The sizeable academic literature on gender and entrepreneurial financing comprises two main lines of research regarding the gender gap in venture funding: entrepreneur-driven explanations and investor-driven explanations (or, in economic terms, demand- and supply-side forces, respectively). The former line of research generally argues that female founders demand less VC funding for various reasons, including lower risk appetite, preference for less capital-intensive industries, and desire to balance work and family responsibilities (Kanze, Huang, Conley, & Higgins, 2018). By contrast, the latter suggests that female founders face a discriminatory disadvantage in VC funding owing to structural factors and investor biases (Kanze et al., 2018). Both streams of research agree on the existence of a sizeable gender-based funding gap favoring men, and consequently document negative funding outcomes for female founders.

The following sections examine entrepreneur-driven explanations and investor-driven explanations in turn, recognizing that the male dominance of the overall venture ecosystem in part also helps to explain female entrepreneurs' difficulties in fundraising for their ventures (Brush et al., 2017). While the observed gender gap in entrepreneurial funding is, to some degree, an interplay between demand- and supply-side forces and this broader context, the following analysis shows that investor biases and structural realities in the venture funding process are the main drivers of the gap. Addressing these dynamics is essential if we are to reach gender parity in venture funding.

ENTREPRENEUR-DRIVEN EXPLANATIONS FOR THE FUNDING GAP

At their core, entrepreneur-driven explanations for the gender gap in venture funding argue that female founders simply have less demand for VC financing (Kanze et al., 2018). Proposed potential reasons include women's lower risk tolerance; lack of desire for aggressive growth; predominance of non-financial motivations; preference for less capital-intensive industries such as consumer products over, e.g., high tech; and work-life balance concerns and considerations (Kanze et al., 2018). In essence, entrepreneur-driven explanations assume that women don't want to lead high-growth, capital-intensive ventures.

A substantial academic literature of hundreds of studies has indeed documented women's higher risk aversion compared to men (Bohnet, 2016) and women's tendency to shy away from competitive environments (e.g., Niederle & Vesterlund, 2007). However, there are important exceptions and nuances. For example, women are equally willing to compete against themselves despite being less willing than men to compete against others (Apicella, Demiral, & Mollerstrom, 2017), and women appear to modify their risk-taking behavior depending on their situational financial security (van Geen, 2013) as well as the gender composition of their surroundings (Booth & Nolen, 2012). Women's inclination for competitive environments increases when affirmative action measures, like gender quotas, are introduced, suggesting that gender effects on competitiveness may be tied to other factors affecting gender equality (Niederle, Segal, & Vesterlund, 2013) – or other factors more broadly, since a substantial proportion of risk attitudes and behaviors is found to be environmentally determined (i.e., nurture rather than nature) in a study of Swedish stock market participation (Black, Devereux, Lundborg, & Mailesi, 2015). In this vein, some recent scholarship has begun to suggest that there may be a tendency among researchers to overestimate the difference in risk-taking between women and men (Shapiro, Hass, Maxfield, & Gupta, 2015), while others add further subtlety by suggesting that competitiveness, like risk-taking, is dependent on contextual factors such as task, time constraints, and environment (Dreber, von Essen, & Ranehill, 2013). All in all, there is credible academic evidence for some differences in risk-seeking and competitiveness between women and men, at least under certain conditions. But how much these differences contribute to the sizeable entrepreneurial funding gap is an open question.

Female and male entrepreneurs do generally operate in somewhat different sectors. Women are more likely to lead startups in consumer products, consumer services, and healthcare, while male founders are more likely to be found in financial services and B2B industries (Coren & Kopf, 2018). Female founders are also less likely than male ones to use external financing (Brush et al., 2017). Perhaps as a result, men are more likely to own larger, more profitable businesses than women (Aidis & Schillo, 2017).

If female entrepreneurs did indeed have lower ambitions for the growth of their ventures, differences in funding needs would be expected (Alsos et al., 2006). While we know that women tend to receive a smaller share of the funding they request compared to men (Gates, 2017), there is no convincing evidence that women *ask* for less venture funding than men. These types of gender discrepancies have, however, been documented in other contexts, such as salary negotiations (Bowles, Babcock, & Lai, 2007). But effects vary depending on the gender of the "requester" and the "requestee", with studies alternately showing that women demand less from male negotiation counterparts (Hernandez-Arenaz & Iriberri, 2018) and from female counterparts (Eriksson & Sandberg, 2012). Thus, we cannot draw any evidence-based conclusions about whether female entrepreneurs definitively have lower growth aspirations.

Another potential demand-side mechanism contributing to the observed gender gap in venture funding is gender status beliefs, which afford men higher status in society and which therefore can discourage women from persisting in entrepreneurial careers (Thébaud, 2015). Due to their higher social status, men have more opportunities than women to participate in entrepreneurship and to have their performance assessed favorably, which can contribute to aggregate entrepreneurship rates (Thébaud,

2015). Indeed, an examination of nearly half a million online conversations[100] of entrepreneurs shows that women have a more uncertain and pessimistic mindset toward raising capital than men and that they speak about fundraising more negatively (Culturintel, 2018a).[101] Yet, gender status beliefs do not seem to deter women from entrepreneurship: the masculine construction of entrepreneurship is more of a mental block for men than women. It is not that women do not or cannot identify themselves as entrepreneurs, but rather that men struggle to associate feminine characteristics with entrepreneurship (Gupta et al., 2009).

In summary, the academic evidence offers some support for entrepreneur-driven explanations for venture capital's gender funding gap. However, research also strongly indicates that female and male entrepreneurs are essentially similar in the ways that count (Ahl, 2006; Alsos et al., 2006; Padnos, 2018), and that when sex differences are observed in the workplace, they are rooted in organizational structures, practices, and interaction patterns rather than fixed gender traits (Tinsley & Ely, 2018). Saying as much, Babson College's Diana project states that "women seeking venture capital funding do have degrees, graduate degrees, and experience that should not preclude them from financing" (Gatewood, Brush, Carter, Greene, & Hart, 2009). In interviews with 350 female founders, they themselves identified "lack of available advisers" as the top obstacle to women's entrepreneurship (Burleigh, 2015), rather than internal hurdles. Thus, VCs play a pivotal role in generating the funding gap, and we examine them next.

INVESTOR-DRIVEN EXPLANATIONS FOR THE FUNDING GAP

> *"I don't think [the VC funding process is] the issue. I don't think anyone in our industry would deliberately select against a female-backed company or a female executive."*
>
> Male investor (Chilazi et al., 2018)

Investor-driven explanations for the gender gap in venture funding argue that female founders encounter intentional or unintentional discrimination in their pursuit of venture capital from investors. Accordingly, the academic literature documents numerous attitudinal biases as well as discriminatory behaviors by VCs in their dealings with entrepreneurs, with a direct connection to the lower amount of funding raised by women compared to men. The evidence for and against investor-driven explanations is reviewed below.

The context of entrepreneurial fundraising is inherently biased against women. A large body of academic literature over the past several decades has established that there is widespread bias against female entrepreneurs, over and above (and separate from) general unconscious bias and gender stereotypes (Balachandra, Briggs, Eddleston, & Brush, 2017). In other words, venture investors are specifically negatively disposed towards female entrepreneurs. The traditional, well-accepted, and broadly referenced explanation for this phenomenon arises from Eagly and Karau's (2002) role congruity theory, which explains that while both women and men are expected (and preferred) to behave in ways that "match" their stereotypical gender roles, only women face an incongruity as feminine stereotypes conflict with the masculine behaviors associated with successful entrepreneurship (Malmström, Voitkane, Johansson, & Wincent, 2018a). In addition, positive behaviors routinely associated with entrepreneurship are evaluated less favorably when exhibited by women in entrepreneurial roles (Malmström, Johansson, & Wincent, 2017a). Thus, men in the field of entrepreneurship have a structural advantage over women.

[100] Culturintel uses an advanced software platform to mine and structure qualitative digital data. The Culturintel algorithms scrape and listen to conversations online wherever they are occurring, and examine who is talking, where, and what they are talking about. For this study, n = 443,364 conversations (64% of conversations were by men and 36% by women; 5% of conversations were by African Americans and 3% of conversations by Hispanics).

[101] Of female entrepreneurs, 55% are uncertain (vs. 49% of men), 28% are pessimistic (vs. 13%), and 17% are optimistic (vs. 38%) about raising capital. Men are more than twice as optimistic about raising capital than any other demographic group; the most pessimistic group is African American women (38% pessimistic). Female founders' online conversations about raising capital are 44% negative (vs. 27% for men), 10% positive (vs. 23%), and 46% neutral (vs. 50%) in tone. Hispanic and African American women speak in the most negative tone about fundraising (51% and 52% of conversations, respectively).

Female entrepreneurs sense this ingrained gender bias firsthand. In online conversations, they are meaningfully more likely than men (42% vs. 26%) to discuss social barriers to raising capital, i.e., prejudice, stereotyping, and bias; men, by contrast, are more likely to discuss environmental barriers to raising capital, such as business climate, competitive threats, and regulation (Culturintel, 2018a). Hispanic and African American women are most likely of all (51% and 52% of conversations, respectively) to speak about the social barriers they experience (Culturintel, 2018a).

> *"Men are good investments until they prove otherwise. Women are unsound investments until they prove they are worth taking a risk on."*
>
> Female entrepreneur (Culturintel, 2018a)

The nature of VC decision-making can be unfavorable to women. There are numerous academic theories about how investors make investment decisions, as well as numerous studies examining venture decision-making. There is broad consensus that at a high level, resource providers, such as VCs, factor in perceptions of both the business proposition and the entrepreneur (Brooks et al., 2014). The relative importance of the different factors has not been conclusively determined – in any case, one would expect it to vary in messy real-world situations – and there are different views of what goes into the evaluation of a venture and its founder(s). Lee and Huang (2018a), for example, propose a three-part model in which VCs evaluate new ventures based on the venture, the founder, and the perception of the founder's aptitude.

As can be expected, VCs' evaluations of founders and ventures have a gender component. Tinkler et al. (2015) show that the gender of the founder shapes evaluations most when the individual, rather than the venture, is the target of evaluation. This is particularly relevant given that a survey of 885 institutional VCs shows that they view the quality of a venture's management team as a critical factor influencing deal selection and success (Gompers, Gornall, et al., 2016).[102] Management team quality – e.g., managerial ability, industry experience, and passion – trumps other considerations like business model, product, and market as the factor investors cite as far and away the most important in selecting a deal and predicting its future success (Gorman, 2016). Indeed, in nearly 85,000 online conversations, VCs are more curious about a founder's experience, compared with credentials or background, when that founder is a woman (Culturintel, 2018b).[103]

However, there is other evidence suggesting that the business model, rather than the founder(s), is the main consideration driving funding decisions. In a study of mostly male investors in a business plan competition, preparedness – as evidenced by the content of the business plan presentation – is found to be positively related to the VC funding decision, whereas passion – as evidenced by nonverbal cues like body language, tone of voice, and facial expressions – does not have statistically significant effects on funding (Chen, Yao, & Kotha, 2009).[104] The two major limitations of this study, however, are that its subjects are mostly men and that VCs' decision-making is construed as a simple persuasion process where entrepreneurs present one message, i.e., their business plan, to appeal to investors.

In any case, an important consequence of operating in ambiguous contexts, such as early-stage venture funding, is that perceptions of trust become exceedingly influential. When little information is available, both female and male crowdfunding investors are more likely to focus on entrepreneurs'

[102] The survey ran from November 2015 to March 2016 and received responses from 885 institutional VCs, some of whom were recruited through the NVCA and the VentureSource database. Most respondents were Kauffman Fellows and/or graduates of top MBA programs, and 82% were partners at their firms.

[103] Culturintel mines 84,345 online conversations between VCs and entrepreneurs, of which 17% relate to female entrepreneurs specifically (1.3% to Hispanic female entrepreneurs and 3.5% to African American female entrepreneurs). VCs are roughly equally curious about entrepreneurs' experience (36% of conversations), credentials (32%), and background (32%); when discussing female founders specifically, VCs are more curious about experience (41%).

[104] The study deploys a survey to 51 business executives, professors, doctoral students, and MBA students to develop an entrepreneurial passion and preparedness scale, which is subsequently validated with 224 undergraduate, MBA, and doctoral students. An experimental study with 126 executive MBA and MBA students (30% female, 70% male) then examines the effects of entrepreneurial passion, defined as an entrepreneur's "intense affective state accompanied by cognitive and behavioral manifestations of high personal value", on funding decisions (Chen et al., 2009). A follow-up study with 55 investors (18% female, 82% male) who serve as judges at an entrepreneurial competition with 31 business plans validates the findings.

trustworthiness rather than competence (Johnson et al., 2018).[105] Given that women are stereotypically viewed as more trustworthy than men society-wide, and the stereotype appears to extend into the entrepreneurial realm, this dynamic actually favors female founders. Analogously, among angel investors, early interest in a startup is driven by perceptions of trustworthiness and character rather than competence: entrepreneurs who are deemed trustworthy increase their chances of being funded by 10% (Harvard Business Review, 2017). These findings stand in contrast to the body of research from more formal funding contexts (e.g., Bigelow et al., 2014 – see below) that report competence evaluations as a mechanism of funder discrimination against female entrepreneurs (Johnson et al., 2018). One possible reason for this discrepancy is the fact that although all early-stage investing is uncertain, early-stage crowdfunding is especially so. So while trustworthiness appears to trump competence as an evaluation criterion in crowdfunding, with gendered effects favoring women, that does not seem to be the case in venture capital funding where gendered effects decisively favor men (Johnson et al., 2018).[106]

"As a woman of color founder, I need to work twice as hard as a white male. -- My approach is [to] hustle twice as hard. It's just the way it is."

Female entrepreneur (Culturintel, 2018a)

Female founders are viewed as less competent than their male counterparts. Tinkler et al. (2015) suggest that the gender gap in venture capital may be "rooted in biased perceptions about women's legitimacy as leaders and as technical experts." Indeed, an experimental study of simulated IPOs with MBA students shows that female startup CEOs are inordinately disadvantaged in their ability to raise funding: female founders are perceived as less capable and their IPOs are considered less attractive investments than those of their male counterparts, purely based on gender (Bigelow et al., 2014).[107] The authors conclude that "gender stereotypes are alive and well and, moreover, that such stereotypes impact investment decisions even though information is available to investors that clearly is counter to the prescriptive implications of stereotypical thinking" (Bigelow et al., 2014).

A three-part experimental study of entrepreneurial venture pitches in the U.S. provides further evidence of this. It finds that the gender and physical attractiveness of entrepreneurs significantly influences VCs' decision-making regarding funding with a "profound and consistent gender gap" in favor of men (Brooks et al., 2014). Based on an analysis of 90 randomly selected individual pitches from three pitch competitions, as well as a laboratory experiment with 194 participants and a web-based randomized controlled experiment with 521 participants, both professional VCs and nonprofessional evaluators consistently prefer entrepreneurial pitches by men. In the real-world pitch competition setting, male entrepreneurs are 60% more likely to achieve funding success; in the experimental setting with a female and male voice narrating identical pitches, 68% of participants prefer to fund the male entrepreneur (Brooks et al., 2014). Strikingly, male-narrated pitches are not only preferred for funding but also rated as more persuasive, logical, and fact-based than identical female-narrated pitches (Brooks et al., 2014).[108]

Given that female entrepreneurs are counterstereotypical, and therefore perceived as more risky or uncertain investments, the ability to indicate legitimacy and potential (e.g., through personal connections or a technical background) is more important for women than men (Tinkler et al., 2015). In a randomized controlled experiment of 114 male MBA students, entrepreneurial evaluations depend on the presence or

[105]The study on crowdfunding contexts finds that female entrepreneurs are perceived to be more trustworthy than male entrepreneurs, and that trustworthiness judgments influence an investor's propensity to provide funding. In fact, the more implicitly gender biased the investor, the higher their likelihood of investing in a woman due to these trustworthiness perceptions (conversely, investors with less gender bias are less likely to view women as significantly more trustworthy than men and thereby less likely to fund them). Male founders do not seem to benefit from increased implicit bias (Johnson et al., 2018).

[106] It is also worth noting that while trust is critical in funding relationships, under certain conditions (e.g., high expected future relationship value and low expected future exploitation risk), investors do forgive entrepreneurs for lying (Pollack & Bosse, 2014).

[107] The abilities and experiences of female founders/CEOs are rated more negatively than those of men even though they are identical in the study. Female founders/CEOs are evaluated as less experienced, less able to lead, and less able to resolve top management team and board disagreements. They are also deemed to be less favorable representatives of the company and less likely to keep the top leadership of the company together in the years after the IPO.

[108] In the laboratory and online experiments, participants rate a video pitch describing a veterinary technology startup with a computer-generated female or male voiceover (to eliminate the potential confounding effects of having two different human voices as narrators).

absence of clear performance information, and the effect is particularly pronounced for women (Tinkler et al., 2015).[109] Female entrepreneurs without a technical background are evaluated as less competent and less able to lead than technically trained women and all men; similarly, non-technical women receive meaningfully smaller investments than technical women and all men. Interestingly, personal characteristics like sociability and leadership ability are less predictive of VC support for prototypical entrepreneurs, i.e., technically-trained men, than they are for women (Tinkler et al., 2015).

But even if women were viewed as equally competent to men, that might not help close venture's gender gap. Persistent and pervasive gender bias has been shown to exist in evaluations at the top of organizations (Heilman, 2001), with direct applicability to VC and entrepreneurship. Women are handicapped both by expectations of what they are like (descriptive stereotypes) as well as expectations of how they should behave (prescriptive stereotypes), both of which can result in "devaluation of their performance, denial of credit to them for their successes, or their penalization for being competent" (Heilman, 2001). Accordingly, three experimental studies, two in the U.S. and one in the U.K., show that gender status beliefs affording men higher status across society influence evaluations of a potential entrepreneur's business idea, adversely affecting women (Thébaud, 2015).[110] Startups themselves are evaluated more positively when the founder is prototypical, such as a technically trained man (Tinkler et al., 2015). However, female entrepreneurs with particularly innovative business models can overcome some of this disadvantage, likely because innovation acts as an additional signal of ability for women and thereby counteracts low expectations of women's competence in the startup space (Thébaud, 2015).[111]

"There is conscious bias. It's a bunch of dudes funding other dudes that do dude things."

Chamath Palihapitiya, CEO of Social Capital (Marinova, 2017)

VCs' stereotypes about female founders are betrayed by their language. The above-mentioned biases translate into starkly different language that is used to describe female and male founders. Analyzing 125 governmental venture capital decision-making meetings in Sweden,[112] Malmström et al. (2017b) find that gender stereotypes influence VCs' assessments of entrepreneurial potential. Consistent with societal stereotypes that paint men as agentic and women as communal, male entrepreneurs are described as assertive, innovative, and competent while women are described in terms opposite to those connoting entrepreneurial ability, such as cautious or inexperienced (Malmström et al., 2017b).[113] This is in line with data (see Appendix D) showing that VCs look for more male-gendered characteristics, such as ambition, charisma, and confidence, in founders when considering investment (Chilazi et al., 2018).

Societal stereotypes thus serve to reinforce men's entrepreneurial potential while undermining that of women. Again, these stereotypical evaluations have a direct connection to funding: male entrepreneurs receive, on average, 52% of the amount of funding they apply for, while female entrepreneurs receive only 25%; more than half of women have their funding applications dismissed compared with only 38% of men (Malmström et al., 2017b). The authors conclude that "stereotyping through language underpins the image of a man as a true entrepreneur while undermining the image of a woman as the same"

[109] The study was conducted at the Stanford Graduate School of Business where 114 male MBA students from the Entrepreneur Club evaluated a summary of a business plan for a mobile communications platform in an online survey. The study employs a 2x2 design varying the entrepreneur's sex (female or male) and technical background (history major with no software engineering experience or computer science major with some software engineering experience) with random assignment. The authors measure evaluations of entrepreneurs in terms of assumed level of leadership capability, competence, and sociability.

[110] In the three studies, participants rate a pair of fictitious entrepreneurs who have the same gender, age, and level of qualifications, and whose startups are in the same industry. Each study manipulates the innovativeness of the business and the entrepreneur's gender in a 2x2 design with random assignment.

[111] Thébaud (2015) notes that the relative impact of gender status beliefs varies depending on the gender representation of entrepreneurs and managers in society at large, as well as the gender composition within an industry.

[112] The study was conducted over a two-year period from 2009 to 2010 and included observations of seven VCs' (2 women and 5 men) language about 99 male entrepreneurs (79%) and 26 female entrepreneurs (21%).

[113] For example, a male entrepreneur would be described as "young and promising" or "cautious, sensible, and level-headed" and a female entrepreneur as "young but inexperienced" or "too cautious and does not dare". Moreover, attributes like youth, arrogance, and cautiousness were systematically evaluated more positively in men than women.

(Malmström et al., 2017b). These findings dovetail with other studies (e.g., Smith, Rosenstein, & Nikolov, 2018) showing that women are described in more negative terms than men. They also provide evidence of the harmful role of gender stereotypes in constraining women's access to venture funding, as well as of systematic, gender-based bias against women in venture capital evaluations and resultant funding decisions.

> *"Women and men pitch differently. I think women tend to be much more careful and they're less likely to make these bold, outlandish claims with no facts or very minimal facts behind them. I feel like when I am talking to a woman entrepreneur, I'm usually getting a very measured, well-thought-out response, which may not be the enormous hockey stick that a guy pitching me the same company might show me."*
>
> Female tech investor (Chilazi et al., 2018)

VCs ask different questions of female and male entrepreneurs when they pitch. Investor questions to entrepreneurs seeking funding are a key component of the venture capital pitching process (Kanze et al., 2018). A field study of a startup funding competition reveals not only that male-led ventures raise five times more funding overall than female-led ones, but that the disparity is completely explained by the different questions both female and male investors ask founders (Kanze, Huang, Conley, & Higgins, 2017).[114] An analysis of question-and-answer interactions between VCs and entrepreneurs at the annual TechCrunch Disrupt New York from 2010 to 2016 demonstrates that male founders are asked promotion-oriented questions about the potential for gains 67% of the time, while female founders are asked prevention-oriented questions about the potential for losses 66% of the time (Kanze et al., 2017).[115] The connection to funding is direct: entrepreneurs who are asked promotion-focused questions raise significantly more funding than those who are asked prevention-focused questions (Kanze et al., 2018). A startup raises an average of $3.8 million less for every additional prevention question asked of its founder(s), with otherwise comparable startups that are asked mostly promotion questions raising an average aggregate of $16.8 million through 2017, in contrast with $2.3 million for startups that are asked mostly prevention questions (Kanze et al., 2017). Furthermore, the study shows that 85% of entrepreneurs tend to respond to a question in the same orientation as it is posed, amplifying the harmful effects of the biased questioning. These remarkable but correlational findings were confirmed in a follow-up experimental study, allowing us to be even more confident about their validity (Kanze et al., 2017).[116]

Anecdotally, female founders face more pushback than men in pitch situations; for example, they may be asked to establish their basic technical knowledge (Abouzahr et al., 2018). There is also a widespread but as-of-yet unproven perception that male founders are bolder and more aggressive in their pitches and projections (Abouzahr et al., 2018; Chilazi et al., 2018). As the above research shows, however, this could be more perception than reality – or it could be simply a reflection of investors' own biases in the questions they ask.

[114] The study analyzes Q&A interactions between 140 VCs (40% female) and 189 entrepreneurs (12% female) at the annual TechCrunch Disrupt New York funding competition from 2010 to 2016. Founders and CEOs were asked a total of 1,857 questions which yielded 1,718 unique responses. The authors track future funding rounds for all startups that launched at the competitions. Controls include entrepreneurs' past experience and various measures of startups' capital needs, quality, and age. The study builds on regulatory focus theory, which states that "individuals engaging in goal-directed behavior are motivated toward (a) attaining gains and changing to a better state for promotion, or (b) maintaining non-losses and not changing to a worse state for prevention" (Kanze et al., 2018).

[115] Promotion-oriented questions focus on hopes, achievements, advancement, and ideals, e.g., "How do you plan to monetize this?" or "What major milestones are you targeting for this year?" Prevention-oriented questions focus on safety, security, responsibility, and vigilance, e.g., "How long will it take you to break even?" or "How predictable are your cash flows?"

[116] In the causal experiment, 194 professional angel investors (30% women) and 106 nonprofessional participants on Amazon Mechanical Turk (47% women) listen to four six-minute Q&A interactions between VCs and founders, mimicking the real-world competition condition. Again, promotion questions yield twice as much funding for entrepreneurs as prevention ones. Moreover, answering a prevention question with a promotion answer helps to diminish the funding gap, with 1.6-1.7 times more dollars allocated to promotion answers to prevention questions compared to prevention answers to prevention questions.

"Women don't look like winners. So they can't fail, while boys in the club can."

Vivek Wadhwa, Distinguished Fellow, Harvard Law School (Burleigh, 2015)

Female-led startups are held to a higher standard for funding. A helpful theoretical framework for considering the role of gender and gender bias in VC-founder relationships is signaling theory,[117] which focuses on communication of beneficial organizational attributes in ambiguous contexts (Alsos & Ljunggren, 2017). Given that entrepreneurship is such a strongly masculine-typed domain (e.g., Ahl, 2006; Aidis & Schillo, 2017), and extant gender bias inherently disadvantages women in entrepreneurial evaluations (e.g., Bigelow et al., 2014), female entrepreneurs have a greater need than their male counterparts to communicate and signal the legitimacy of their venture, as well as their own legitimacy as entrepreneurs, to potential investors (Alsos & Ljunggren, 2017). Such signals can include highlighting previous startup performance and experience; emphasizing personal connections in VC; underscoring masculine traits like ambition; and including men on the founding or management team for legitimacy (Alsos & Ljunggren, 2017). The two signaling strategies female founders appear to favor the most are emphasizing the relevance of their past experience and involving competent, high-status men as board members, especially as board chairs; such compensatory signaling strategies are not observed among male founders (Alsos & Ljunggren, 2017).

Empirical evidence for signaling theory comes from a study of bank financing, which shows that female entrepreneurs' signals are interpreted differently than men's, to women's detriment (Eddleston, Ladge, Mitteness, & Balachandra, 2016). When male founders signal things like quality, commitment, and viability through, for example, a large number of employees or past performance, those signals are rewarded with more bank funding than when the same signals come from female founders (Eddleston et al., 2016).

Viewed through the lens of signaling, we can now examine some of the key academic evidence on gender differences in entrepreneurial evaluation. Based on archival data from a small investment fund in Norway,[118] Alsos and Ljunggren (2017) find that VCs assess both female and male founders relative to stereotypically male characteristics and norms, which leads them to overlook women's signals. Simply put, investors interpret and evaluate women's and men's characteristics and behavior differently (Eagly & Karau, 2002), and women's ventures are held to a higher standard than men's because of stereotypical myths about female entrepreneurs (Alsos & Ljunggren, 2017). As counterstereotypical individuals in the venture space, women tend to have their performance more scrutinized and more harshly evaluated since their behavior as entrepreneurs is inconsistent with general expectations for women (Thébaud, 2015). Thus, women have to provide more evidence of their ability than men in order to be evaluated similarly (Thébaud, 2015). For example, female entrepreneurs face higher documentation requirements than men when fundraising (The Web Alliance of Women's Business Networks, 2015).[119]

"I've never seen any evidence that there's any conscious bias against [women in VC pitches]."

Female life sciences and healthcare investor (Chilazi et al., 2018)

The risky nature of the venture funding process structurally disfavors women. Besides role incongruity, the inherent nature of the venture capital funding process creates gender-based disadvantages for women. Research has shown that circumstances, such as venture funding evaluation, which are ambiguous, uncertain, lacking in objective information, and characterized by fast decision-making, are especially prone to stereotyping and other cognitive shortcuts (Lee & Huang, 2018a). In the context of a venture

[117] While signaling theory represents an important theoretical contribution, it must be noted that Alsos and Ljunggren (2017) develop and study it in the context of a single, small Norwegian VC firm, which is somewhat different from the VC firms we generally study in the U.S.

[118] The dataset consists of business plans and investment prospectuses presented by entrepreneurs; the VC firm's internal analyses and documents presented to the board; informal notes and background materials; and board meeting minutes.

[119] Based on data from 2010-2012, Canadian female founders fundraising from traditional sources are asked for cash flow projections 37% of the time (vs. 23% for men), appraisals of assets 46% of the time (vs. 29%), and personal financial statements 57% of the time (vs. 31%).

ecosystem that is overwhelmingly male both in terms of numbers (demographic representation) and gender typing, the representativeness heuristic (Tversky & Kahneman, 1974)[120] leads to stereotype-driven and biased investor behavior. The informal face-to-face nature of the venture funding process further exacerbates its biases (Kanze et al., 2018).

In the presence of limited objective data such as financial statements or product quality, signals and cues from interpersonal interactions – presentation style, entrepreneurs' personal characteristics, and other similar factors – take on greater significance (Lee & Huang, 2018a). In particular, pattern-matching (or availability bias) where investors rely on their gut instinct to intuitively determine how similar a current situation is to previous situations is central to VCs' decision-making (Sachs, 2018). One of the ways in which pattern-matching comes into play is in attempting to predict an early-stage venture's future success. As investors assess a founder's ability to raise subsequent (future) funding for their venture, if they believe that certain founders will struggle disproportionately to raise their next round, they are likely to consider those founders and investment opportunities to be higher-risk (JMG Consulting & Wyckoff Consulting, 2013; Padnos, 2018). Indeed, counterstereotypical founders, i.e., women and racial minorities, are viewed as riskier, both due to the above forecasting and due to VCs' unfamiliarity with them (Kapor Center, n.d.). Given that venture capital is an inherently risky industry and much of the risk cannot be avoided, VCs are motivated to minimize risk wherever they feel like they can, which is one source of bias against female founders (Padnos, 2018).

Female founders are disadvantaged in their access to critical (male) networks. Academic research has long shown that the venture capital industry is tightly networked with relationships playing a central role in deal sourcing, deal syndication, and decision-making (Brush et al., 2017). Female entrepreneurs therefore face a disadvantage owing to the male-dominated social networks in the venture ecosystem. In a survey of more than 600 entrepreneurs and more than 600 VCs, 100% of female VCs and 67% of male VCs felt that male founders are more likely to have "networks that provide access to advisors and capital" (Padnos, 2018). These networks afford entrepreneurs not only crucial access to funding opportunities, recommendations, and endorsements – investors are more likely to invest in companies they have been introduced to through "warm leads" compared to companies led by individuals not in their social networks – but also informal knowledge about how the industry operates, which in turn further facilitates fundraising and long-term performance (Kapor Center, n.d.). An affiliation with a well-regarded VC investor can even substitute, to some degree, for an entrepreneur's lack of experience (Kapor Center, n.d.).

Female founders whose ventures operate in "feminine" industries may be at a particular disadvantage, given the unfamiliarity of male VCs with these markets. As a matter of fact, female founders in feminine industries have a stronger need to signal their competence and connect it to the masculine norms of the VC industry (Alsos & Ljunggren, 2017).[121] Indeed, many female VCs and entrepreneurs anecdotally cite male investors' unfamiliarity with feminine products and services as a reason for their hesitance to invest in startups that target female consumers (Abouzahr et al., 2018). Further evidence for this comes from an experimental study which finds that markets deemed "female" are less likely to be considered for investment by angel investors than markets deemed "male" – a factor more important than the sex of the entrepreneur in determining funding decisions (Balachandra, Welter, & Greene, 2013).[122] A brand new Crunchbase empirical analysis of more than 13,000 startups over five years, however, indicates that the opposite may actually be true: female-founded startups in gender-neutral sectors like

[120] The representativeness heuristic leads us to evaluate probabilities based on the degree to which one thing is representative of (or resembles) another thing (Tversky & Kahneman, 1974). Thus, investors will perceive a higher probability of A (men) rather than B (women) belonging to group C (venture-funded entrepreneurs) if A is more representative of, or similar to, the stereotype of C than B is (Kanze et al., 2018).

[121] In Alsos and Ljunggren's (2017) study of a Norwegian VC firm, an example of this kind of signaling is a female entrepreneur emphasizing her competence and past experience in the masculine petroleum industry rather than the feminine spa and fitness industry, even though her venture is in the spa and fitness industry. Experience in a feminine industry may be a less valued signal to male investors than experience in a masculine, higher-status industry.

[122] Participants in this experimental study are angel investors who evaluate hypothetical investment opportunities. The study varies entrepreneur gender, market gender, field of interest, and nature of the venture to study the effect of market gender on investment evaluations.

wearables and advertising are 54% less likely to receive VC funding than female-founded startups in explicitly feminine categories that cater to female customers (Greenfield, 2019).

There are some hopeful examples of ways in which the previously exclusive, closed-door VC networks can be bypassed to democratize access to funding and growth opportunities. CircleUp, which started in 2012, is an online marketplace where consumer-product startups can connect directly with accredited investors for funding (Kessler, 2016). SeedInvest and MicroVentures Marketplace are two other examples of online investment marketplaces where female founders fare significantly better than they do in traditional venture capital in getting funded (Kessler, 2016).[123]

Bias against female founders might have more to do with femininity than gender. An important recent field study of 185 pitches at the Elevator Pitch Competition in 2007 and 2008 sheds new light on the question of gender bias in venture capital investing, suggesting that the issue is not gender identification itself – i.e., whether someone is a woman or a man – but rather the constructs of femininity and masculinity (Balachandra et al., 2017; Balachandra, 2018). The authors find evidence of a feminine-based bias that leads investors to punish both female and male entrepreneurs who exhibit feminine-stereotyped characteristics and behaviors like expressiveness and warmth, which are perceived to be associated with lack of leadership, competence, and preparedness (Balachandra, 2018; Balachandra et al., 2017). In this case, the penalty for entrepreneurs exhibiting feminine behaviors is a lower likelihood of being selected as finalists in the pitch competition (Balachandra, 2018).[124]

This study also finds that female entrepreneurs are actually *equally likely* to see investor interest in their startups and that they do not face barriers to *potential* funding at the pitch stage. Similarly, female entrepreneurs applying for angel funding are found to be as likely as men to progress from the screening to the presentation stage in evaluations (Balachandra et al., 2017). These results, which directly conflict those of Brooks et al. (2014), who find that VCs prefer pitches by men, may be due to the different contexts of the studies in terms of timeframe, setting (real world vs. laboratory), subjects (investors vs. laypeople), and pitch duration (5-8 minutes in the Brooks et al. study vs. one minute in the Balachandra et al. study).[125]

In any case, the importance of these findings should not be ignored since they suggest that there may be no sex-based bias in venture capital evaluations, which has been the dominant theory. Besides, the authors do not find evidence of women being punished for masculine behaviors, as role congruity theory would predict (Eagly & Karau, 2002); rather, acting more masculine benefits both women and men as it allows them to avoid the femininity penalty (Balachandra, 2018). This study thus offers a new paradigm for examining gender in the venture ecosystem and opens up a promising avenue of inquiry for further research. Aside from a study by Robb and Watson (2012) finding similarly that women do not "lack the necessary resources to launch successful new ventures because they are discriminated against", it is one of the very first studies offering results of this kind. It may not be time to abandon long-held understandings of how bias operates in venture capital quite yet.

In summary, the academic literature offers broad-based support for investor-driven explanations for the gender gap in venture funding. There is clear, consistent, and convincing evidence of pervasive gender bias, conscious and unconscious, against female entrepreneurs in venture funding. It is also clear that the structural set-up of the venture ecosystem has deleterious consequences for female founders. Gender bias and gender-based discrimination is thus a major factor driving the venture funding gap.

[123] According to CircleUp CEO Ryan Caldbeck, from 2012 to 2016, approximately 160 startups raised $180 million through CircleUp. Of these startups, 35% had female founders or CEOs and 34% of all the growth equity invested on the platform went to those female-led ventures (in other words, female-founded startups raised a proportional share of funding on CircleUp). At SeedInvest and MicroVentures, the self-reported share of female founders and CEOs receiving funding is 20% and 15%, respectively – both significantly higher than the VC industry-wide average of 2.2%, per PitchBook (2019).

[124] The study does not find that masculine behaviors confer an advantage (i.e., the display of masculine-stereotyped behaviors is not positively correlated with venture evaluations), only that feminine behaviors confer a disadvantage.

[125] Balachandra et al. (2017) further suggest that Brooks and colleagues' "experimental context may have created an overreaching dependent variable that then incorrectly suggested how experienced professional investors may develop bias from the pitch."

WHAT WORKS: INCREASING GENDER EQUALITY IN VENTURE FUNDING AND ENTREPRENEURSHIP

Systemic and organizational solutions to de-bias the VC funding process are the most promising way to close the gender gap in venture funding. In addition, research offers some suggestions to female founders for navigating today's biased venture funding landscape, including partnering with male co-founders, emphasizing gains rather than risks in pitches, and highlighting the social impact of their ventures. The evidence is mixed as to whether female VCs fund more female founders than male VCs do; in any case, there are so few female VCs today that relying only on them to fund more female entrepreneurs will not solve the gender funding disparity. Similarly, while female-focused VC funds are a great addition to the venture ecosystem, they are relatively so small in size that their impact on venture funding dynamics overall is limited.

> *"The more women there are making investment decisions, the more women will get funded. It's a natural part of tapping into existing networks."*
>
> Patricia Nakache, General Partner at Trinity Ventures (Marinova, 2018a)

Do female VCs invest in more female founders? One of the most oft-cited prescriptions for closing the gender gap in startup funding is to increase the share of women as VC investors because female VCs are purported to invest disproportionately more in female founders (Marinova, 2018a). While there are several examples of female founder-focused VC funds[126] and anecdotal evidence supporting this logic abounds (e.g., Marikar, 2019), the evidence is decidedly mixed.

The main academic research study examining the relationship between female VCs and female founders is Babson College's Diana Project, which finds that 58% of VC firms with a female partner invest in startups with a female CEO, compared with only 15% of VC firms without a female partner (Brush et al., 2014). The corresponding numbers are 34% and 14%, respectively, for startups with a woman on the management team (Brush et al., 2014). Thus, VC firms with female partners would appear to be between two and three times as likely to invest in startups with senior women as VC firms without female partners, based on this one study. The findings also suggest that larger VC firms are more likely to invest in female-helmed startups (Brush et al., 2014).[127] Gompers and Wang (2017b) similarly find that having a female partner in a VC firm is statistically significantly correlated with investment in startups with female founders. A less representative survey of more than 600 entrepreneurs and more than 600 VCs found that female VCs invested in, on average, twice the number of female co-founded startups compared to male VCs over a three-year period (Padnos, 2018).[128] Female VCs also appear to meet with more female entrepreneurs (Padnos, 2018).[129]

At the same time, Crunchbase's analysis of the self-reported company data in its database suggests that there is "no clear correlation quite yet" between the presence of female VCs and their investments in female founders: all-male VC teams provide, on average, the same number of rounds of funding to female founders as VC teams with female investors on them (Teare & Desmond, 2017). Also, on a macro level, the number of female VCs has increased in the U.S. over the past several years while the share of funding

[126] Examples include Backstage Capital, Able, and Female Founders Fund (Marikar, 2019).
[127] VC firms that invest in startups with women on the executive team have an average of 12 investment professionals and $269 million in AUM, compared with VC firms that do not invest in female-helmed startups that have 9 and $210 million, respectively.
[128] Nearly half of the entrepreneurs and a third of the VCs responding to the survey were female.
[129] Almost 50% of male VCs (vs. 18% of female VCs) met with at most 10 startups every year with a female (co-)founder; 61% of male VCs (vs. 30% of female VCs) invested in no more than two of these opportunities in a three-year period.

going to (all-)female founders has stalled and while the gender funding gap in absolute dollar terms has widened (Kanze et al., 2017). If female VCs did indeed fund female founders at higher rates than men, with more female VCs in the ecosystem, we would expect funding for female founders to increase accordingly.

Somewhat anecdotally, a Bloomberg analysis of the top 17 venture firms in the U.S. shows that firms with and without senior female investment partners back startups (co-)founded by women at approximately the same rate, and none of the top 10 private companies (co-)founded by women in the U.S. raised Series A or B money from female VCs (McBride, 2017).[130] Although based on a small and non-representative sample, the Bloomberg analysis is of particular note since it is based on the largest VC firms, which Brush et al. (2014) find to generally be most likely to invest in female founders.

Lastly, the above Crunchbase data seem to suggest that female-founded VC firms, or VC firms with "an unusually high percentage of female partners", invest in female entrepreneurs at higher rates than other VC firms (Teare & Desmond, 2017). Another study based on Crunchbase data adds further nuance. Raina (2016) finds that female- and male-led startups perform equally well when they are financed by VC firms with female partners. However, when backed by all-male VCs, female-founded startups perform meaningfully worse: there is a 25 percentage-point difference in the successful exits of female- and male-led startups (Raina, 2016).[131] This indicates that the gender of the VC has significant implications for a female-founded startup's prospects (but not a male-founded startup's), as well as the investment team's ability to evaluate and advise the startups they invest in. Indeed, investor gender appears to fully account for the observed 10 percentage-point exit gap between female- and male-led startups (Raina, 2016).[132]

Ultimately, whether female VCs invest disproportionately in female-founded startups is an as-of-yet unsettled empirical question. Some anecdotal accounts suggest that female VCs may be concerned about appearing biased in favor of other women and calling unnecessary attention to their gender (McBride, 2017); indeed, a single female VC surrounded by men may tend to mimic her male peers' behavior in an effort to assimilate (Mirhaydari & Clark, 2018a). Academic research also suggests that token women in high-prestige work groups, such as sole female investing partners in VC firms, may forego opportunities to support highly or moderately qualified women as work group peers (Duguid, 2011).[133] This might be due to fear or anticipation of negative social consequences. In three experimental studies, women are perceived as less competent and are expected to be less influential when there are specific efforts to ensure demographic diversity in the work group (Heilman & Welle, 2006). And in traditional organizational contexts, women exhibiting diversity-valuing behavior are afforded lower performance ratings and lower perceptions of competence than women who do not outwardly promote gender and racial balance in their organizations (Hekman, Johnson, Foo, & Yang, 2016).[134] This could be because of anticipated backlash against organizational minorities who are seen to have attained their position through preferential treatment (Bertrand & Duflo, 2016).

At this point, the best we can say is that more research is needed to settle the question. And regardless, the VC ecosystem should not rely on the very few female VCs currently in decision-making roles to fix the industry's gender funding gap.

[130] Based on data from CB Insights, the top 17 VC firms in the U.S. are categorized as firms with $1+ billion IPOs or acquisitions over the last five years. Senior investment partners are defined as individuals eligible to hold board seats in portfolio companies and eligible to receive carry (a portion of the investment fund's profits), based on company-provided data. The top 10 private companies were ranked by PitchBook based on funds raised.

[131] Successful exits are defined as IPOs or acquisitions.

[132] Approximately 17% of female-led startups and 27% of male-led startups experience a successful exit via acquisition or IPO.

[133] Three separate studies show that female tokens are concerned about a competitive threat when the potential new female is highly qualified (she may be viewed more favorably than the token woman) and about a collective threat when she is moderately qualified (she may perform poorly and thus reinforce negative stereotypes about women overall).

[134] Findings from a field study of 350 executives and senior managers (31% women, 10% people of color, 2% women of color) representing over 20 industries and job functions were confirmed in a laboratory experiment of 307 participants (41% women, 31% people of color).

Female-focused VC funds, while beneficial, are not the answer. In the last two decades, and especially within the past few years, increasingly many female-focused VC funds have been established with the goal of narrowing the gender funding gap. VC firms like Backstage Capital, Female Founders Fund, and BBG Ventures, among others, target female (and/or minority) founders for investment and often provide additional wraparound services like coaching, mentoring, and networking assistance (Marikar, 2019).

While these female-focused funds are invaluable to the entrepreneurs that have raised capital through them, and while they are certainly a beneficial addition to the venture ecosystem, it is important to recognize that by themselves they are not the solution to venture capital's gender equality problem. As of 2018, there are less than 100 VC funds with a stated mandate to invest in female founders, and collectively they are estimated to have no more than one billion dollars to deploy (Weisul, 2018b). The overall U.S. venture capital industry, by comparison, comprises more than 1,400 firms (NVCA & Deloitte, 2019) and invested a total of $130 billion in venture capital in 2018 (Pitchbook, 2019). It is clear that female-focused VC funds and investors remain marginal players in the industry due to their small size – at least for now. And given women's low representation in venture capital, the female-focused investment model will struggle to scale since there simply aren't enough female VCs today to make the volume of investments that would yield system-wide impact on the gender funding gap (Weisul, 2016).

Academic literature points to various survival strategies for female founders. The solution to closing the gender funding gap in VC should decidedly not lie with female founders. The evidence presented here indicates that the effects of individual-level actions pale in comparison to the effects of the industry-wide, organizational, and interpersonal biases working against female founders. Besides, decades of behavioral science research shows that changing organizational structures is a more efficient and cost-effective way to bring about change than attempting to convert individual hearts and minds (Bohnet, 2016).

Nonetheless, the academic literature contains various helpful suggestions for female founders who need to navigate an unlevel playing field today. Given that venture is still so male-dominated, partnering with men and forming mixed-gender founding teams may be particularly beneficial to female founders in terms of enhanced legitimacy, access to more resources, and a stronger social network (Godwin et al., 2006). Female founders can also attenuate the discriminatory effects of gender bias stemming from role incongruity by highlighting the social impact (i.e., social-environmental welfare benefits) of their ventures. Social impact framing increases perceptions of warmth, which in turn reduce gender-based penalties for women in venture evaluation (Lee & Huang, 2018b).[135]

Kanze et al. (2017) find that entrepreneurs can minimize the effects of biased questioning in pitch situations by responding in a promotion orientation regardless of the orientation of the question in order to strengthen their association with the domain of gains. So a question about defending market share should receive a response focusing on growing the overall size of the market, for example (Kanze et al., 2017). Balachandra (2018) recommends that women shift toward a more bold, assertive approach in their pitches since her study documents no backlash against women as a result of behaving in more stereotypically masculine ways. This advice should perhaps be taken with caution, given that the overwhelming majority of studies in this area find that women *do* face backlash when violating feminine norms of behavior. Thébaud (2015) navigates this tightrope by suggesting that female founders overcome negative stereotyping by "better fitting the agentically masculine entrepreneur stereotype" through, for example, a more innovative and ability-signaling business model.

Finally, on a more macro level, experimental research suggests that women's entrepreneurial intentions can be encouraged by nullifying masculine stereotypes about entrepreneurship and linking entrepreneurship and entrepreneurs with gender-neutral attributes (Gupta et al., 2008).

[135] The research consists of a field study component followed by an experimental laboratory study to validate the results. The effect of social impact framing on venture evaluations does not result from perceptions of increased competence and does not depend on the gender of the evaluators.

WHY IS CHANGE SO SLOW?

The previous sections have discussed the sources of gender inequality in venture capital, as well as evidence-based solutions to remedying it. As noted, much of the evidence has been around for quite some time, and the conversations about closing VC's gender gaps are certainly not new. The question that remains to be answered, then, is why is change in VC so slow?

Below, we attempt to answer this critical question with the help of a behavioral science framework, EAST, developed by the UK Behavioural Insights Team in 2012 (Service et al., 2014). The framework suggests that behavior change should be made easy, attractive, social, and timely (EAST) for it to stick. Applying EAST to the venture capital ecosystem helps us analyze where to invest our energies and how to accelerate progress on gender diversity and inclusion in VC.

Changeable in the short term
Somewhat changeable
Hard to change in the short or medium term

Change needs to be…	But in VC, we have…
EASY	**Industry characteristics** that support the status quo (small firm size, centrality of networks, women's underrepresentation, lack of HR and D&I)
	Informality dominating in the absence of structure
	Mostly perceived, *though in some cases relevant*, **pipeline problem**
	Selection effects (homophily in the types of people that VC attracts)
ATTRACTIVE	Lack of desire to prioritize D&I given that the **problems are not universally acknowledged**
	No D&I data transparency
	No industry-wide movement to advance gender equality and inclusion
	Absence of significant LP or regulator pressure in the foreseeable future
SOCIAL	**No social pressure or incentives to change**
	No existing norms or role models around D&I
	Strong current **culture of masculinity and male dominance**
TIMELY	**Absence of any time pressure** to change
	No culture of targets and goals
	Long time horizons in the industry (for hiring, investment etc.)

This analysis reveals that the most promising way to start nudging behavior and system change in venture capital is to make change *easier* by de-biasing and formalizing organizational processes within VC firms, and to make change more *attractive* by sharing D&I data openly, which in turn can facilitate a broader acknowledgement and recognition of the problem as well as solutions that work. This, hopefully, will help to build an industry-wide movement for change and transparency which, in the medium-to-long term, can begin to shift the more fundamental – structural and cultural – barriers to change.

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APPENDIX A. CHECKLIST FOR STRUCTURED INTERVIEWS

Traditional, unstructured interviews where candidates get asked whatever questions interviewers want are a breeding ground for bias because they do not allow for direct and objective comparisons across candidates. Instead, they give interviewers the freedom to base their questions and evaluation on personal opinions and experiences, making them susceptible to such biases as *homophily*, or our tendency to bond with similar others*;* the *halo effect*, in which an initial positive impression colors how we perceive a person overall; *confirmation bias*, which leads us to favor evidence that confirms our existing beliefs and ignore evidence that challenges them; and the *peak-end rule*, where we make judgments based on the most intense and memorable experiences rather than the average or overall experience. Structured interviews minimize these problems because they focus on job qualifications, enable direct comparisons across candidates, and thereby lessen the impact of unconscious biases.

The checklist below is intended for interviews in a hiring context and has been adapted from Bohnet (2016). It can also be modified for use in the entrepreneurial pitch process and in pitch meetings to increase standardization and to ensure fair, unbiased, and objective treatment of all founders and their ventures.

BEFORE THE INTERVIEW:

❑ **Determine the target number of interviews (use your own data!).** There is no magic "correct" number of interviews – this varies from one company to the next. Track your patterns over time and determine how many interviews you need to conduct before candidates' scores start to converge and additional interviews yield no meaningfully new information.

❑ **Determine a list of questions in advance (use your own data!).** Ideally, the questions you ask in interviews are actually predictive of people's performance on the job. Start tracking the questions that are asked in job interviews and their correlation with employees' success on the job.

DURING THE INTERVIEW:

❑ **Interview one-on-one (no group interviews).** As humans, we are prone to *groupthink* whereby we subtly and unconsciously influence each other's decision-making. Multiple interviewers are not able to produce genuinely independent assessments of a candidate; rather, they will influence each other's perceptions. Therefore, interviews should always be conducted one-on-one to yield the best data.

❑ **Ask questions in same order and stick to it.** Following this practice will enable the least biased and most direct comparisons across candidates (see *recency bias* below).

❑ **Score answers to each question separately and score immediately afterwards.** *Recency bias* causes our minds to overweight the most recent information and discount earlier data. By scoring each answer in the moment, your evaluation of an earlier question will not influence your evaluation of the candidate's performance on the current question.

❑ **Be aware of your biases.** While simply being aware of your biases isn't enough to eliminate their effects, remembering that your brain isn't a perfect decision-making machine will allow you to examine and re-examine your impressions and check for overtly biased assessments.

AFTER THE INTERVIEW:

❑ **Compare answers to questions across candidates, one question at a time.** For the most accurate and unbiased comparisons, assess all candidates' responses to a particular question to calibrate your judgments and minimize the impacts of *homophily*, *recency bias*, and the *halo effect*.

❑ **Use pre-assigned weights for each question to calculate a total score.** In case all interview questions are not weighted equally, weights should be pre-assigned to prevent *confirmation bias* whereby we seek evidence that confirms our existing opinions (and to prevent us from re-tooling systems to yield the results we want to see).

❑ **Submit your scores to the lead evaluator.** Each interviewer or evaluator should evaluate a candidate independently to minimize *groupthink*; the lead evaluator (which can be software) should simply collect and compile all scores and share them in aggregate.

❑ **Meet as a group to discuss controversial cases and calibrate.** Any group discussion should occur at the very end of the hiring process to minimize *groupthink* and the influence of any power and status dynamics on decision-making.

APPENDIX B. RECOMMENDED DIVERSITY DATA TO TRACK IN VC FIRMS AND PORTFOLIO COMPANIES

The following is a list of recommended data for VC firms and their portfolio companies to collect and track regarding diversity and inclusion. These data and metrics may not be applicable to all firms and contexts, so the list below should be viewed as a starting point. While examples are given for gender, the same data could be collected and tracked by any category of diversity (e.g., race, LGBTQ status, disability).

HIRING AND DEMOGRAPHIC DATA

- ❑ **Full workforce** by gender, race, level, and function
- ❑ For VC firm: **total workforce of all portfolio companies** by gender, race, level, and function
- ❑ Number and percentage of female and male **job applicants** by role/level and by channel (referrals, networks, own website/LinkedIn/other job sites, campus recruiting etc.)
- ❑ Number and percentage of female vs. male **candidates hired**, broken down by level

PROMOTION, PERFORMANCE EVALUATION, AND DEVELOPMENT DATA

- ❑ Number and percentage of women and men **promoted**, broken down by level
- ❑ **Tenure in previous role before promotion**, broken down by gender and level
- ❑ **Performance scores and evaluations** given to women and men, broken down by level/rank, tenure in the organization, tenure in the current role etc.
- ❑ **Correlation between performance scores and promotions** by gender
- ❑ **Professional development and developmental programs**, e.g., leadership trainings, by gender (both who is invited to participate and eventual attendance)
- ❑ **Work/project assignment** by gender

COMPENSATION DATA

- ❑ **Total compensation** by gender, controlling for level, tenure, education, office/geography etc. (analyze all possible components of pay: salary, equity, performance bonuses, discretionary awards from peers/managers etc.)
- ❑ **Starting pay for new hires** in the organization, controlling for level, tenure, education, office/geography etc.

OTHER DATA

- ❑ Number and percentage of **employees leaving the organization**, broken down by gender, level, and tenure at company at the time of exit
- ❑ **Qualitative data from satisfaction/engagement surveys or exit interviews** (analyze by gender to identify any gaps)

DEAL SOURCING DATA

- ❑ **Meetings taken** by founders' gender
- ❑ **Formal pitches heard** by founders' gender
- ❑ **Investments ultimately made** by founders' gender

APPENDIX C. SUPPLEMENTAL DATA ON WOMEN'S REPRESENTATION IN THE VENTURE ECOSYSTEM

Even though the data related to women's representation across the venture capital ecosystem are very similar, depending on the source, there can be some variation in the specific numbers. This is in large part due to the fact that there is no single data source or database containing authoritative information on the entire U.S. venture capital industry; rather, scholars and authors often use different data sources that have slightly divergent methodologies for data inclusion and categorization. Furthermore, in reporting numbers on demographic representation, data providers (data sources) and authors frequently omit certain data (e.g., by looking at top 100 firms only, or only firms above a certain threshold of fund size).

Several key databases exist for scholars and authors to draw upon in their analysis of demographic representation in the VC industry:

- Traditional VC databases include **PitchBook** (most often used in the popular press) and **Preqin**. VC firms are incentivized to record their transactions in these databases in order to be able to benchmark their investment activity against other VC firms; however, early-stage investments are likely underreported (Aidis & Schillo, 2017).
- **Crunchbase**, established in 2005, contains crowdsourced, self-reported data from VC firms globally and is understood to be the largest VC database. As of June 2018, it contained data on 600,000+ startups, 221,000+ financing rounds, and 44,000+ investors, which is significantly more than other databases including **Venture Economics** (data on 1,114 VC funds), **Burgiss** (775 VC funds), and **VentureXpert** (Raina, 2019). Crunchbase records approximately twice as many early-stage investment deals as traditional databases like PitchBook (Aidis & Schillo, 2017).
- **Thomson Reuters' VentureXpert** is one of the largest investment banking and private equity databases with data on 1.2 million global private companies, including more than 100,000 private equity or VC-backed companies. Several academic research articles have been published based on VentureXpert data and the research methodology used by VentureXpert is approved by the National Venture Capital Association (Aidis & Schillo, 2017).
- **VentureSource** contains detailed information on venture capital investments and is the primary data source for Paul Gompers and colleagues' seminal work on the impact of VCs' demographics on behavior, decision-making, and performance (Aidis & Schillo, 2017; Gompers, Mukharlyamov, & Xuan, 2016).

Tables C1 and C2 on the following page present various data related to women's representation as venture capitalists and women's share of venture capital funding, respectively. These data are based on various data sources (original data providers) and sources (authors and scholars who analyze and present the data). Supplementary notes are included wherever additional detail on the data was provided by the source.

Table C1 shows that the representation of women as venture capitalists, defined most typically as individuals with influence over investment decisions, is approximately 10%, although there is some variation in the numbers. Likewise, Table C2 shows that female founders' share of venture capital funding is approximately 2-7%, although there is slightly more variation in these numbers. Nonetheless, Tables C1 and C2 demonstrate that women are massively underrepresented in venture capital, both as capital providers and as capital recipients.

Table C1. **Women's Representation in VC Decision-Making Roles**

Data Date(s)	% F VC Partners	Notes	Source	Data Source	Source Type
2018	**14%**	Includes Managing GPs, Managing Partners, GPs, Founding Partners, MDs, Senior Professionals, or Investment Professionals	NVCA & Deloitte, 2019	NVCA & Deloitte	Survey
2018	**11%**	Includes Partners, GPs, and MDs with check-writing abilities at funds >$25M; excludes life science & healthcare firms and corporate VCs	All Raise, n.d.	All Raise (via PitchBook & Crunchbase)	Database
2018	**9.0%**	91 of 1,015 decision-makers at 232 U.S. VC firms were women (through March 2018); includes all firms that had raised at least one >$100M fund in 2013-2017	Primack, 2018	PitchBook (Axios analysis)	Database
2017	**8.5%**	Global data; 64 of 752 partners were women at top 100 VC firms globally	Teare & Desmond, 2017	Crunchbase	Database
2017	**8%**	Biggest U.S. VC firms	Abouzahr et al., 2018	Crunchbase	Database
2017	**7.1%**	72 of 1,019 decision-makers at 227 U.S. VC firms were women (through March 2017)	Primack, 2018	PitchBook (Axios analysis)	Database
2016	**7.2%**	Top 100 VC firms globally had 54 female partners out of 755; top 100 VC firms were ranked based on longevity (active since 2010), recent activity (investing in 2014-15), rounds led, and fund size	Rosen, 2017	TechCrunch	Survey
2016	**11%**	Includes Managing General Partners, Managing Partners, GPs, Founding Partners, MDs, Senior Professionals, or Investment Professionals	NVCA & Deloitte, 2016; Gates, 2017	NVCA & Deloitte	Survey
2016	**5.7%**	Axios analysis of PitchBook data	Primack, 2018	PitchBook	Database
2015	**8%**	n = 2,300 firms (global data)	Teare & Desmond, 2016	Crunchbase	Database
1990-2016	**8.50%**	n = 11,555 VCs; among women, 86.3% were White, 10.6% Asian, 2.5% Hispanic, 0.3% African American	Gompers & Wang, 2017a	VentureSource	Database

Table C2. **Female Founders' Share of Venture Capital Funding**

Data Date(s)	% VC Funding to F Founders	Notes	Source	Data Source	Source Type
2018	**2.2%**	$130B total invested in 2018	Hinchliffe, 2019	PitchBook & All Raise	Database
2018	**2.3%**		PitchBook, 2019	PitchBook	Database
2017	**2.2%**	$85B invested in 2017: $1.9B female-only teams; $66.9B all-male teams; 12% mixed-gender teams; 7% unconfirmed gender	Zarya, 2018	PitchBook	Database
2016	**9%**	$71.7B total invested in 2016	Rosen, 2017	PitchBook	Database
2016	**1.90%**	$1.4B total raised by female founders	Zarya, 2018	PitchBook	Database
2016	**2%**		Gates, 2017	NVCA & Deloitte	Survey
2015	**13%**		Rosen, 2017	PitchBook	Database
2015	**7%**	$60B total invested in 2015	Gates, 2017		
2009-2015	**7%**	890 U.S. startups founded in 2009-2015 by 2,005 founders received >$20 million in VC	Meisler et al., 2016		
2011-2013	**3%**	97% of U.S. venture funding from 2011 to 2013 went to companies headed by men	Rosen, 2017		
2004	**5%**		Tinkler et al., 2015		

Figure C1 shows the historical evolution of venture capital funding in the U.S. over the last ten years (in billions of dollars). While the overall amount of venture capital deployed has increased dramatically since 2008, the vast majority of it continues to go to all-male founding teams.

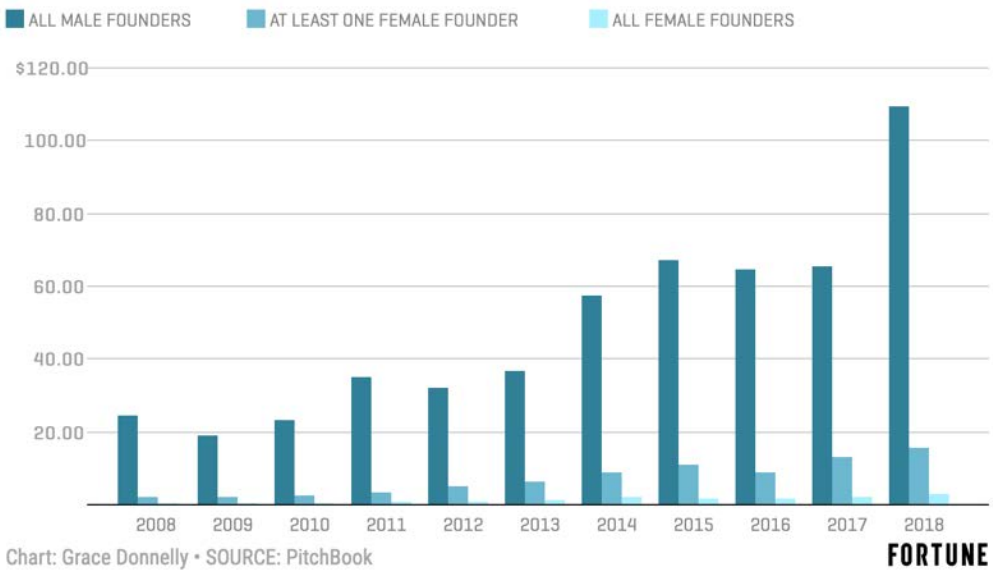

Figure C1. **Total Value of VC Deals by Gender (in Billions of U.S. Dollars).** Reprinted from Fortune (Hinchliffe, 2019).

Figure C2 shows the historical evolution of the proportion of U.S. venture capital funding going to all-female and mixed-gender founding teams since 2008. In percentage terms, the former has barely changed in the last ten years, while the latter has increased slowly but with some volatility from year to year.

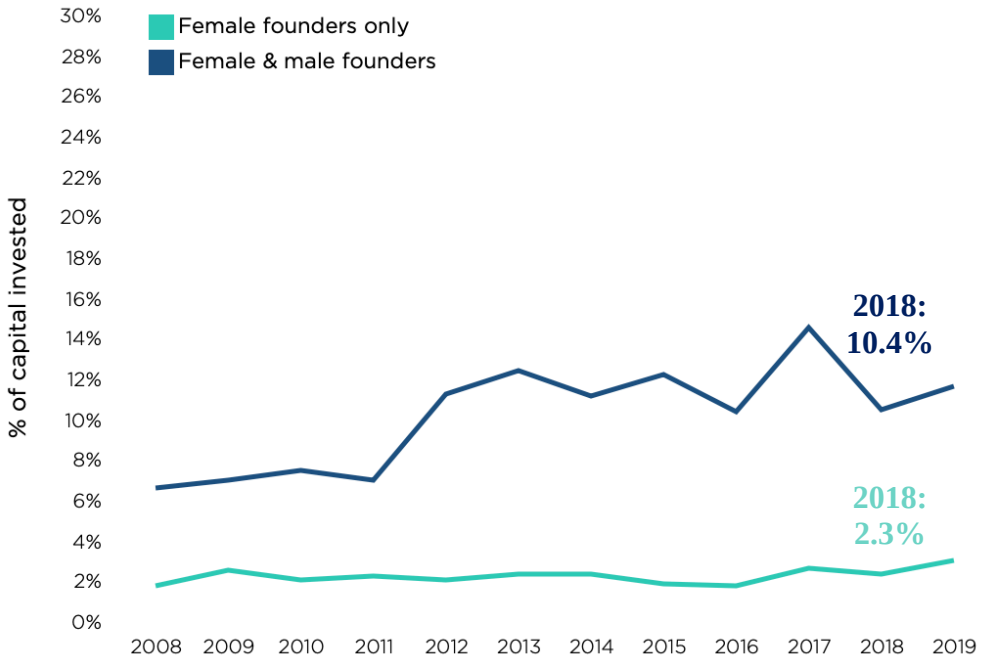

Figure C2. **Female (Co-)Founder Recipients of Venture Capital Investment (Percentages).** Reprinted from PitchBook (PitchBook, 2019).

Figure C3 shows the historical evolution of the proportion of U.S. venture capital deals involving female (co-)founders since 2008. Similar to the trends seen in Figure C2 in relation to dollars, the proportion of VC deals involving all-female founders has increased only very slightly in the last ten years, while the proportion involving mixed-gender founding teams has nearly doubled.

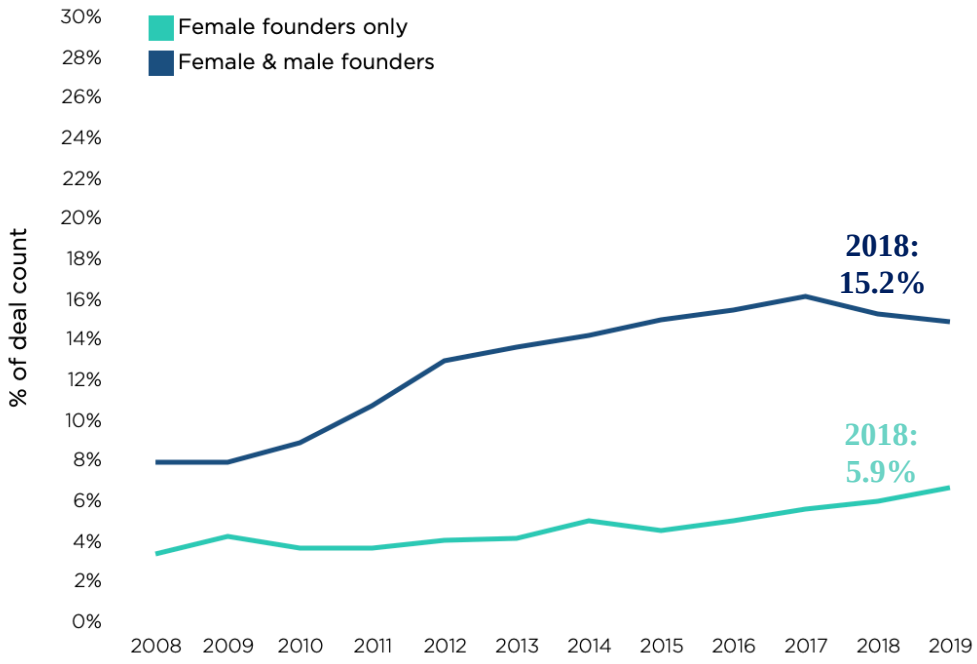

Figure C3. **Female (Co-)Founded VC Deal Count (Percentages).** Reprinted from PitchBook (PitchBook, 2019).

APPENDIX D. DESIRABLE FOUNDER CHARACTERISTICS

The prototype of a successful entrepreneur is a man, and this is reflected in the characteristics that VCs look for in founders. Figure D1 presents a word cloud of 88 characteristics that 21 VCs stated they look for in founders (Chilazi et al., 2018). The characteristics are color-coded based on academic literature: **black** words are gender-neutral, **red** words are feminine-associated and **blue** words are masculine-associated. The larger a word appears in the cloud, the more often it was mentioned by VCs.

Figure D1. **Characteristics Venture Capitalists Look for in Founders (n = 88 words)**

Detailed methodology. In 21 one-on-one interviews with VCs in New England, interviewees were asked to list five words or phrases that describe the characteristics they look for in a founder when considering an investment. The words and short phrases in the resulting responses were tagged and analyzed both by the gender of the VC as well as the gender associated with the word itself, as applicable. In some cases, VCs' verbatim responses were slightly modified (e.g., intellect -> intelligent, resilience -> resilient) for consistency. Each word was analyzed by four separate algorithms – Textio, Applied, TotalJobs, and Katmanfield – to determine its gendered nature. A word is considered gendered if any of the four algorithms flagged it as being gendered.

VCs cited a total 88 characteristics (words); of those, 54 were cited by female VCs and 34 by male VCs. There was no meaningful gender difference between VCs in the number of gendered words cited. There were 22 instances (25%) of gendered words or phrases: 17 unique words, 10 male-coded and 7 female-coded. Out of the 17 unique words flagged as gendered, one had 100% agreement, i.e. all four algorithms flagged it as gendered; 10 had 75% agreement; 2 had 50% agreement; and 4 had 25% agreement (meaning only one algorithm flagged those words as gendered). The average agreement was 62%. There were no instances of algorithms flagging a word as female and male-coded at the same time.