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Abstract

Entrepreneurship is a central path to job creation, economic growth, and prosperity. In the earliest stages of start-up business creation, the matching of entrepreneurial ventures to investors is critically important. The entrepreneur's business proposition and previous experience are regarded as the main criteria for investment decisions. Our research, however, documents other critical criteria that investors use to make these decisions: the gender and physical attractiveness of the entrepreneurs themselves. Across a field setting (three entrepreneurial pitch competitions in the United States) and two experiments, we identify a profound and consistent gender gap in entrepreneur persuasiveness. Investors prefer pitches presented by male entrepreneurs compared with pitches made by female entrepreneurs, even when the content of the pitch is the same. This effect is moderated by male physical attractiveness: attractive males were particularly persuasive, whereas physical attractiveness did not matter among female entrepreneurs.

Keywords

physical appearance, persuasion

Disciplines

Advertising and Promotion Management | Business Administration, Management, and Operations | Marketing

Investors prefer entrepreneurial ventures pitched by attractive men

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Entrepreneurship is a central path to job creation, economic growth, and prosperity. In the earliest stages of start-up business creation, the matching of entrepreneurial ventures to investors is critically important. The entrepreneur's business proposition and previous experience are regarded as the main criteria for investment decisions. Our research, however, documents other critical criteria that investors use to make these decisions: the gender and physical attractiveness of the entrepreneurs themselves. Across a field setting (three entrepreneurial pitch competitions in the United States) and two experiments, we identify a profound and consistent gender gap in entrepreneur persuasiveness. Investors prefer pitches presented by male entrepreneurs compared with pitches made by female entrepreneurs, even when the content of the pitch is the same. This effect is moderated by male physical attractiveness: attractive males were particularly persuasive, whereas physical attractiveness did not matter among female entrepreneurs.

physical appearance | persuasion

Entrepreneurship, the creation and construction of new-to-the-world ventures by individuals and small teams, is a critical activity in modern economies (1). Although new ventures of all types have a role in the economy, the formation of high-potential, innovation-driven ventures is widely regarded as a central path to job creation (1), economic growth, and prosperity (2–4). For example, entrepreneurial start-up ventures contribute almost 20% of new job creation annually in the United States.

In the earliest stages of start-up business creation, the matching of entrepreneurial ventures to investors is important because new businesses need funding to survive, and high-potential ventures need capital to grow and succeed (5, 6). The fundamentals of the entrepreneur's business proposition and the previous experiences of the entrepreneurs themselves are regarded as the main criteria for investment decisions (7, 8). Our research, however, documents other criteria that investors use to make these decisions: the gender and physical attractiveness of the entrepreneurs themselves.

Around the world, there are more male entrepreneurs than female entrepreneurs, with total entrepreneurial activity led by men in the vast majority of countries (9). In the United States, men engage in entrepreneurial activity at almost twice the rate of women (10). Among high-growth-potential ventures, only 11% of US firms with venture-capital backing, past and present, have been founded or led by women (11), and women-led ventures have received only 7% of all venture funds (12).

The gender imbalance in entrepreneurship has been attributed to a persistent incongruence between personality attributes ascribed to women and personality attributes ascribed to entrepreneurs (13, 14). This perceived lack of fit makes women less likely to pursue and to be selected for male gender-typed roles such as that of entrepreneur (15, 16). Compared with men, women in male gender-typed positions 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 (17–27).

Although the gender imbalance is undesirable and challenging for female entrepreneurs, it remains unclear whether the gender imbalance is due to irrational investor behavior. If male entrepreneurs are inherently more talented or more likely to be at an advantage throughout their ventures or throughout their careers, then the gender gap in entrepreneurship may result from rational statistical discrimination by investors. In the same way that participants in the classic Keynesian beauty contest game were asked to choose the most popular (rather than the most beautiful) contestant, investors may rationally seek to invest in male-led ventures that other investors and future customers are most likely to prefer.

Across the broad landscape of entrepreneurial ventures, it is unclear whether men outperform women. Some prior work has found that, compared with men, women are likely to have fewer employees, lower growth projections, and lower levels of internationalization (9). On the other hand, recent work using 15 y of panel data from the Standard & Poor's Financial Services' 1,500 firms suggests that female managers improve overall firm performance by bringing informational and social diversity benefits to the management team, enriching the behaviors exhibited by managers throughout the firm, and motivating lower-status women in the firm (28).

Answering the question about gender and entrepreneurial performance has been limited by two main challenges (29, 30). First, male- and female-led ventures tend to focus on different types of market opportunities with differing levels of underlying growth potential. Male entrepreneurs tend to pursue ventures across a broad spectrum of industries, whereas female entrepreneurs have predominantly pursued ventures that focus on the female consumer, such as fashion, cosmetics, and cooking. Notable examples of female-founded, female-focused companies include Mary Kay Inc., Estee Lauder Companies, Chanel S.A.,

Significance

We identify a profound and consistent gender gap in entrepreneurship, a central path to job creation, economic growth, and prosperity. Across a field setting (three entrepreneurial pitch competitions in the United States) and two controlled experiments, we find that investors prefer entrepreneurial pitches presented by male entrepreneurs compared with pitches presented by female entrepreneurs, even when the content of the pitch is the same. This effect is moderated by male physical attractiveness: attractive males are particularly persuasive, whereas physical attractiveness does not matter among female entrepreneurs. These findings fundamentally advance the science related to gender, physical attractiveness, psychological persuasion, bias, role expectations, and entrepreneurship.

Author contributions: A.W.B., L.H., S.W.K., and F.E.M. designed research; A.W.B., L.H., and S.W.K. performed research; A.W.B. and L.H. analyzed data; and A.W.B., L.H., S.W.K., and F.E.M. wrote the paper.

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Martha Stewart Living Omnimedia, and, most recently, Spanx Inc. and Tory Burch. Second, available sample sizes are small because there are far more male entrepreneurs than female entrepreneurs. Therefore, it has been difficult for researchers to make gender comparisons with matched samples. As a result, research has not disentangled the impact of entrepreneur gender from the impact of business type on entrepreneurial success. In the present research, we focus on how entrepreneur gender influences investment decisions, controlling for business type.

The modes of communication entrepreneurs use to convey their ideas to investors today fall into two broad categories: nonverbal and verbal presentations. Nonverbal presentations include executive summaries, pitch decks (i.e., a short series of explanatory slides), and written business plans that may be sent to potential investors. Verbal presentations, on the other hand, vary according to audience size, level of formality, and mode of communication (e.g., over the phone, face to face). One format, used by the majority of venture capital firms and entrepreneurship competitions, has emerged as an industry standard: a 5-min verbal pitch in which the entrepreneur narrates a series of slides, providing an overview of the business plan to potential investors.

Pitches are characterized by high levels of uncertainty, as investors must evaluate the business opportunity and the entrepreneurs themselves based on limited information. Therefore, the entrepreneur's ability to persuade during his or her pitch is particularly salient in shaping evaluator preferences and investment outcomes.

Prior research suggests that several factors influence whether investors are persuaded, including characteristics of the entrepreneur, characteristics of the management team, the "interpersonal chemistry" between the entrepreneurs and the investors, and the investors' "gut instincts" (31, 32). We consider very basic characteristics of the entrepreneur that have been neglected by previous research: gender and physical attractiveness. Prior studies show that women pay more attention to their appearance than do men and physical appearance influences more outcomes for women than for men (33–39). However, across field, laboratory, and Web-based settings, we document a profound and persistent preference for entrepreneurial ventures pitched by men, particularly attractive men. These findings fundamentally advance the science related to gender, physical attractiveness, psychological persuasion, role expectations, and entrepreneurship.

Results

Study 1: Entrepreneurial Pitch Success in the Field. In study 1, we explore the relationships between entrepreneur gender, physical attractiveness, and investor funding decisions using real entrepreneurial pitches in a field setting. We examined the pitches presented at three entrepreneurial pitch competitions in the United States over the course of 3 y. In each competition, entrepreneurs made pitches to a panel of angel investor judges, providing an overview of their business plan. The angel investors judged the pitches and awarded funding prizes to the most promising ventures. The prize winners were awarded start-up capital as an infusion of cash to help develop their business ideas. In study 1, we analyzed video recordings of the entrepreneurs' pitches to test the relationship between entrepreneur gender, physical attractiveness, and pitch success.

There was a significant main effect of entrepreneur gender on pitch success (odds ratio of 1.57, $P < 0.01$). Male entrepreneurs were 60% more likely to achieve pitch competition success than were female entrepreneurs. There was a significant interaction between gender and attractiveness on the likelihood of pitch success ($P < 0.05$). Among the male entrepreneurs, there was wide and significant variation across levels of attractiveness on pitch success ($P < 0.01$). Among women, variation in pitch

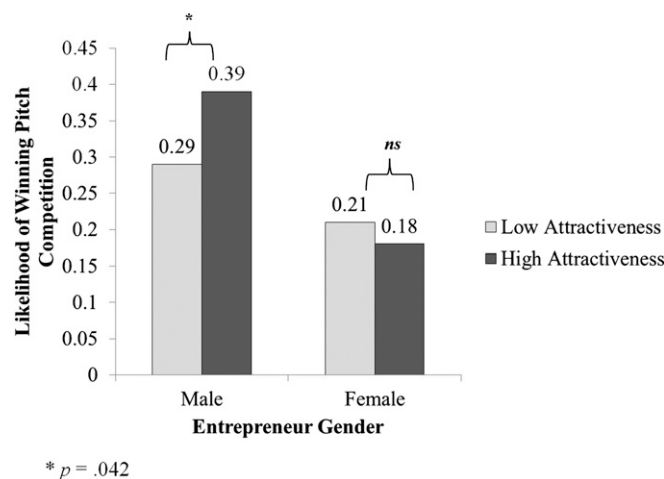


Fig. 1. The effect of entrepreneur gender and physical attractiveness on pitch success rate in a field setting ($n = 90$). ns, not significant.

success across levels of attractiveness was not significant ($P = 0.18$). We depict this pattern of results in Fig. 1.

We also estimated a multiple logistic regression model of pitch success (Table 1). The main effects model (model 1), which included only gender as a predictor variable, explained 24% of the variance in pitch success. The full model, which included gender and interaction terms (model 2), explained 42% of the variance in pitch success ($\Delta R^2 = 0.18$). (These effects remained the same when coders' gender and race were included as control variables.) The odds ratio for gender by attractiveness was 1.36 ($P < 0.001$), suggesting that gender was a stronger predictor of pitch success when attractiveness was included in the model. Specifically, attractiveness led to a 36% increase in pitch success, and the overall difference in pitch success was attributable both to gender and to differences among attractive and unattractive males (40). This pattern of results remained the same when we included business sector (digital media, cleantech, education, legal services, or technology innovation), entrepreneurship competition (out of the three included in our dataset), pitch timing (morning or afternoon), pitch duration (in seconds), and entrepreneur age and years of experience in our regression analysis.

Study 2: The Effect of Entrepreneur Gender on Pitch Success. In study 2, we isolated the effect of gender on entrepreneurial persuasiveness in a controlled Web-based experiment. Our design provided three important points of experimental control over study 1. First, we held the content of the entrepreneurial pitches constant across experimental conditions. Second, we controlled for the possibility that distinctive gender-based presentation styles (e.g., body posture and body size) influenced persuasiveness and outcomes (41). Third, participants were personally incentivized to make optimal investment decisions.

We recruited adult participants to watch two entrepreneurial pitch videos[†] ($n = 521$). The videos featured real start-up ventures whose pitches had been developed for a university-based business plan competition. Participants were paid based on the success of the venture they chose. We determined the success

[†]Video pitches are very common. Web sites such as Kickstarter (www.kickstarter.com) and IndieGoGo (www.indiegogo.com) enable all investor types to donate based on video pitches. Organizations like AngelList (<https://angel.co>) and Gust (www.gust.com) have created online platforms that enable accredited investors to make equity investments into new businesses that upload video pitches onto their Web platforms. In early 2013, legislative action by the US federal government—the Jumpstart Our Business Startups Act—lifted constraints on unaccredited investors, which is likely to encourage even more equity investment into early-stage entrepreneurial firms based on video pitches.

Table 1. Logistic regression predicting pitch competition success

Variables	Model 1	Model 2
Dependent variable: pitch success rate		
Step 1: main effects		
Gender	1.57**	0.11
Attractiveness	0.10	0.05
Step 2: interaction term		
Gender × attractiveness		1.36**

Reported coefficients are odds ratios. * $P < 0.05$, ** $P < 0.01$.

of each venture by asking a separate panel of twelve expert investors to predict each venture’s likelihood of success (1 = very unlikely to succeed, 7 = very likely to succeed). In this way, participants were personally incentivized to make an optimal investment choice.

The pitch videos showed images related to the ventures, but they did not show the entrepreneurs themselves. Participants heard the entrepreneur’s voice-over narration while they watched each video. This video pitch format allowed us to dub in a male voice and a female voice (randomly assigned), holding the narration script constant. After watching the videos, participants chose which company to fund.

To determine the influence of entrepreneur gender on investment choice, we conducted a multiple logistic regression using investment choice as the outcome variable and narrator gender and video presentation order as predictor variables. There was a significant effect of entrepreneur gender on investment choice. Although the female and male voices presented identical pitches, 68.33% of participants (356 of 521) chose to fund the ventures pitched by a male voice and only 31.67% of participants (165 of 521) chose to fund the ventures pitched by a female voice ($\beta = 0.372$, $SE = 0.040$, $P < 0.0001$). There was a primacy effect such that 57.97% of participants (302 of 521) chose to fund the video pitch they watched first ($\beta = 0.177$, $SE = 0.039$, $P < 0.0001$). The gender effect remained the same whether or not the presentation order was included in the regression. There were no effects of participant age ($P = 0.29$) or participant gender ($P = 0.86$) on investment decisions.

Study 3: Entrepreneur Attractiveness and Pitch Success. In study 3, we tested the effects of physical attractiveness directly. We used the same design as in study 2 with two important differences. First, for parsimony in experimental design and sufficient experimental power, participants watched only one pitch video. This meant that instead of using investment choice as the main dependent variable, participants rated how likely they were to invest in the venture on a scale measure (1 = very unlikely to invest, 7 = very likely to invest). Second, in addition to narrator gender, we also manipulated the physical attractiveness of the entrepreneur by presenting a gender-matched high- or low-attractiveness photo along with the video. [Although our photo stimuli had been validated in previous work (42), we also pretested the photos in a nonoverlapping sample of 207 participants, in which the high-attractiveness photos were rated as significantly more attractive than the low-attractiveness photos ($P < 0.03$).]

As in studies 1 and 2, we found a strong main effect of entrepreneur gender on persuasiveness. Participants reported that they were significantly more likely to invest when the pitch was narrated by a male voice [mean (M) = 4.90, $SD = 1.34$] than when the same pitch was narrated by a female voice [$M = 4.25$, $SD = 1.47$, $F(1,192) = 20.48$, $P = 0.001$]. Participants also reported on 1–7 scales that the male-narrated pitches were more “persuasive” [$M_{\text{male}} = 5.04$ vs. $M_{\text{female}} = 4.45$, $F(1,192) = 10.19$, $P = 0.002$], “fact based” [$M_{\text{male}} = 5.51$ vs. $M_{\text{female}} = 4.81$, $F(1,192) = 17.11$, $P < 0.001$], and “logical” [$M_{\text{male}} = 5.87$ vs.

$M_{\text{female}} = 5.32$, $F(1,192) = 14.77$, $P < 0.001$] than were the same pitches narrated by a female voice.

There was an interaction effect between entrepreneur gender and physical attractiveness on ratings of investment likelihood [$F(1,192) = 4.81$, $P = 0.029$]. This interaction was driven by reactions to the male entrepreneurs. Participants reported being significantly more likely to invest after watching the high-attractiveness male’s pitch ($M = 5.21$, $SD = 1.13$) than after the low-attractiveness male’s pitch [$M = 4.59$, $SD = 1.48$, $t(92) = 2.29$, $P = 0.024$]. The measure of investment likelihood after watching the high-attractiveness female entrepreneur ($M = 4.14$, $SD = 1.49$) and low-attractiveness female entrepreneur ($M = 4.35$, $SD = 1.47$) did not differ significantly ($P = 0.48$), and the main effect of physical attractiveness on ratings of investment likelihood was not significant ($P = 0.34$). We depict this pattern of results in Fig. 2.

Discussion

The results of the three studies document a profound and consistent gender gap in entrepreneur persuasiveness. Both professional investors and nonprofessional evaluators preferred pitches presented by male entrepreneurs compared with pitches made by female entrepreneurs, even when the content of the pitch was the same. Our results also suggest that persuasiveness is moderated by male physical attractiveness: attractive males were particularly persuasive, whereas physical attractiveness did not matter among female entrepreneurs.

Our findings are qualified by some limitations that offer fruitful directions for future research. First, in studies 2 and 3, we focused on one industry type (veterinary technology) to control for industry-specific variation in investment preferences. However, Heilman’s lack-of-fit model (15) suggests that women may be more persuasive when they pitch female gender-typed ventures, suggesting possible boundary conditions for our results. Second, our results document gender discrimination in entrepreneurship, but this discrimination does not necessarily represent irrational marketplace behavior. If discrimination arises along the entire growth path of female-led ventures, then early stage investors may rationally seek to avoid such investments. Third, we found that male-narrated pitches were rated as more persuasive, logical, and fact-based than were the same pitches narrated by a female voice. However, we did not ask investors to explain their decision process (i.e., how they judged the perceived value of an entrepreneur and his or her venture). It

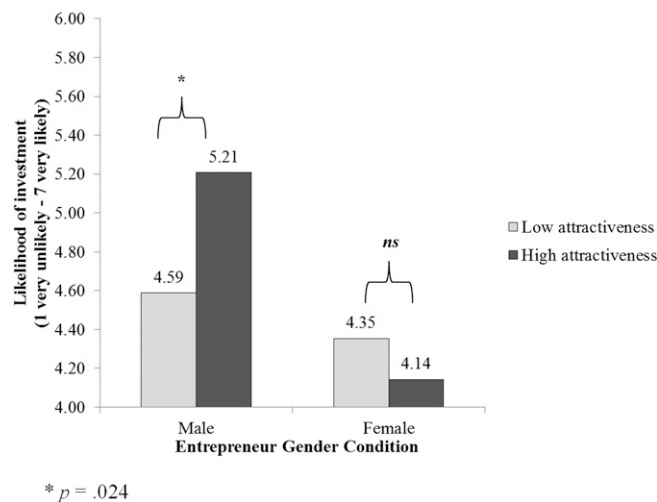


Fig. 2. The effect of entrepreneur gender and physical attractiveness on ratings of investment likelihood in an experimental setting ($n = 520$). ns, not significant.

would be interesting to investigate the naïve theories underlying investors' conscious and subconscious search criteria.

To the extent that female entrepreneurs are disadvantaged in entrepreneurial pitching simply by virtue of their gender, then women may remain underrepresented in the entrepreneurial economy. Moreover, the power of male attractiveness to persuade evaluators to select one pitch over another suggests that entrepreneurial opportunities may also be unevenly distributed even within the male population.

Materials and Methods

Study 1. We randomly selected 90 pitches from three entrepreneurial pitch competitions for our sample, holding the proportion of successful and unsuccessful pitches constant across each of the 3 pitch competitions (10 successful pitches and 20 unsuccessful pitches from each competition). The pitches were between 5 and 8 min in duration and were judged by a live panel of angel investors. We defined a successful pitch as one that was awarded a funding prize in one of the competitions. The prize winners were awarded start-up capital as an infusion of cash to help develop their business ideas. The competitions were quite competitive: entrepreneurs had a 3% chance of winning a funding prize. Of the 90 pitches in our randomly drawn sample, 70 were given by male entrepreneurs (77.78%) and 20 were given by female entrepreneurs (22.22%) across a range of business sectors, including digital media, cleantech, education, legal services, and technology innovation. After the pitch competitions, we recruited a separate panel of 60 angel investors to code the pitch videos across several measures, including physical attractiveness: "How physically attractive was the entrepreneur?" (1 = very unattractive, 7 = very attractive). The investors were blind to the actual competition outcomes and had more than 16 y of investment experience on average ($M_{\text{experience}} = 16.13$ y, $SD = 6.78$ y).

Study 2. We recruited a nationally representative sample of 521 Americans (46.64% female) over Amazon's Mechanical Turk (www.mturk.com) to participate in a study. Participants watched two pitch videos, which featured real start-up ventures whose pitches had been developed for a university-based business plan competition. We chose two companies from the same business sector (veterinary technology) to control for industry-specific variation in investment preferences. Here we call them "venture A" and "venture B." We recruited a separate panel of 12 expert investors to rate the probability of success of the two ventures on a scale measure of success likelihood (1 = extremely unlikely to be successful, 7 = extremely likely to be successful). The expert investors had more than 8 y of venture capital experience on average ($M_{\text{experience}} = 8.50$ y, $SD = 3.10$ y). On average, the panel of investors rated venture A's likelihood of success as 4.40 out of 7 ($SD = 0.97$) and venture B's likelihood of success as 3.75 out of 7 ($SD = 0.92$). Study

participants earned US\$1 for each rating point. Therefore, if they chose venture A, they earned US\$4.40, and if they chose venture B, they earned US\$3.75. Of the 521 participants, 298 participants (57.20%) chose to fund venture A, and 223 participants (42.80%) chose to fund venture B, and we present our results pooled across video stimuli.

The pitch videos showed images and diagrams related to ventures A and B, but they did not show the entrepreneurs themselves. Participants heard the entrepreneur's voice-over narration while they watched each video. This video pitch format allowed us to dub in a male voice and a female voice, holding the narration script constant. Every participant watched both pitch videos, one narrated by a male voice and the other narrated by a female voice. We randomly assigned entrepreneur gender and video presentation order in a 2 (entrepreneur gender: venture A male/venture B female vs. venture A female/venture B male) \times 2 (presentation order: venture A first vs. venture B first) between-subjects experimental design. After watching the videos, participants chose which company to fund, venture A or B, and were paid based on their investment choice.

Study 3. We recruited 194 participants (57.73% female) to a behavioral laboratory to participate in a study in exchange for US\$5. We used the same design as in study 2 with two important differences. First, for parsimony in experimental design and sufficient experimental power, participants watched only one pitch video. This meant that instead of using investment choice as the main dependent variable, participants rated how likely they were to invest in the venture on a scale measure (1 = very unlikely to invest, 7 = very likely to invest). We also asked participants to report the extent to which they thought "the pitch was persuasive," "the pitch was fact-based," and "the pitch was logical" on 1–7 scales. Second, in addition to narrator gender, we also manipulated the physical attractiveness of the entrepreneur by presenting a gender-matched high- or low-attractiveness photo along with the video. Although our photo stimuli had been validated in previous work (42), we also pretested the photos in a nonoverlapping sample of 207 participants, in which the high-attractiveness photos were rated as significantly more attractive than the low-attractiveness photos ($P < 0.03$). This produced a 2 (entrepreneur gender: male vs. female) \times 2 (entrepreneur physical attractiveness: high vs. low) between-subjects experimental design.

The University of Pennsylvania Internal Review Board approved these experiments. Informed consent was obtained from all participants. All data are available from the corresponding author.

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