

This is a proposal for the October Crowdfunding Conference. Our topic falls under the following category/question posed in the call:

DISADVANTAGED ENTREPRENEURS AND CF

- Will there be gender differences in the chances of funding and its impact?

Gender Dynamics in Crowdfunding:

Evidence on Entrepreneurs, Investors, and Deals from Kickstarter

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A growing number of studies have examined women business owners' use of various sources of financing. The research has shown that women launch their firms with significantly smaller amounts of capital than men (ex. Coleman and Robb 2008). Prior research suggests both supply and demand side issues in the acquisition of financial capital. Supply side factors would include the preferences of investors for specific types of industries, firms, or entrepreneurs, while demand side issues include the preferences of the entrepreneur for growth, profits, industry sector, risk, and control.

There is considerably less research on women entrepreneurs' use of equity capital. Although women rely heavily on internal sources of equity, only a small percentage of firms actually use external equity in the form of angel investments or venture capital. Chaganti et al. (1996) found that women tend to use internal rather than external sources of equity for their firms and concluded that reliance on internal equity hampers their ability to grow and to introduce new products and services.

The authors of the Diana Project (Brush et al., 2001) found that between 1953 and 1998, less than five percent of total venture capital funding went to women-owned firms. They concluded that this low level of funding was at least partially caused by the relatively small number of women employed in the venture capital industry. Becker-Blease and Sohl (2007) surveyed angel investor portals and found that only nine percent of the proposals received were from women entrepreneurs. However, women were significantly more likely to apply for funding from angel networks having a higher proportion of women investors. This suggests that women entrepreneurs' willingness to apply for external equity may be suppressed by the relatively small number of angel investors that are women. Brush et al. (2004)

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found that women represented only nine percent of management-track venture capitalists in 2000 and were twice as likely as men to leave the industry before attaining senior level positions.

One consensus arising from several studies examining women entrepreneurs' use of both debt and equity is, whatever the source of capital, women raise a lot less of it. This lack of capital can constrain their ability to grow, as well as increase the risk of financial distress if the firm does not have sufficient liquidity to weather periods of adversity. Amatucci and Sohl (2004) did a series of in-depth interviews with women entrepreneurs who used angel investments. In general, the women indicated their wish to have sought funding sooner and to have raised more money. In a study of Norwegian firms, Alsos et al. (2006) found that women applied for significantly smaller amounts of capital than men. Although they were just as likely to apply for and receive loans, they did not raise enough capital to fund the growth of their firms. Coleman and Robb (2008) found that women raised significantly lower amounts of equity than men at startup and significantly lower amounts of both debt and equity in the years following startup, even controlling for firm size and the level of initial capital.

Taken together, these studies do not appear to suggest that women face outright discrimination in their attempts to secure sources of either debt or equity. They may face more covert forms of discrimination, however, as well as structural barriers, particularly in their attempts to raise external equity. As noted above, the venture capital industry continues to be heavily male-dominated and invests primarily in technology-intensive types of firms that are less likely to be founded by women (Brush et al., 2001; Brush et al., 2004).

These studies also suggest that gender differences in financing strategy are not driven solely by supply side issues. Several studies point out that women are less likely to seek external financing, and, when they do, they raise smaller amounts. These are demand side constraints, which raise the possibility that women have different motivations and goals for their firms than men, or, alternatively, that they are more risk averse and concerned with maintaining control.

We extend this line of research into the crowdfunding space. Crowdfunding is a fundraising effort from an undefined large number of individuals; each invests a relatively small amount, through the internet and social networks. According to Massolution, a research firm specializing in crowdsourcing, Crowdfunding platforms raised \$2.7 billion, and successfully funded more than one million campaigns in 2012 alone. Lending through Crowdfunding has been around for a while with Kiva.org and Prosper.com serving as pioneers in this area. Donations through crowd funding have also grown significantly through sites such as kickstarter.org and indigogo.org. Finally, websites that link angel investors directly to entrepreneurs providing equity investment opportunities include angellist.com and circleup.com.

A new source of financing on the horizon for entrepreneurs is Crowdfunding by non-accredited investors, which was authorized under the 2012 JOBS Act. This will allow firms with current revenues of less than \$1 million to access potential equity investors directly through the Internet. This has important and potentially game changing implications for women entrepreneurs who have often been excluded from the more formal angel and VC networks. In effect, crowdfunding has the potential to “democratize” the private equity market by serving as a means for both women entrepreneurs and women investors to participate more fully. Since the SEC has not yet finalized their rules on this, we have yet to see how women will participate in this kind of equity Crowdfunding, either as investors or by raising funds. However, evidence from other types of Crowdfunding platforms can shed light on the potential involvement of women in the equity Crowdfunding space.

Our research uses data from Kickstarter.com, a leading Crowdfunding platform. Researching the fundraising process through the Crowdfunding platform, Kickstarter offers us a number of advantages: (1) we have three years of data, including the full pitch that was presented to the investors, which non-Crowdfunding entrepreneurs usually keep classified; (2) we can focus on early stage finance, usually the least exposed stage to outsiders; (3) the data enable us to have a very clear definition of success – the entrepreneur sets a goal and must reach it, otherwise the entrepreneur gets zero funding; (4) we have a substantial number of ventures with gender detail on both the entrepreneurs and the investors. For an example of the use of kickstarter data in examining the dynamics of crowdfunding, please see Mollick (2013)

We used custom software to create our dataset, which consists of 16,641 successful projects, 4,304 ongoing projects, 4,128 failed projects, 22,274 entrepreneurs, 1,108,233 investors, and investments that total more than 120 million dollars. Our data covers the period April 2009, which denotes the inception of Kickstarter, through March 2012. After eliminating projects in which the entrepreneurs were organizations rather than individuals or teams of individuals, we use customized software to determine the gender of the entrepreneur(s) based on her or his first name. For more information on this data project, please see Marom and Sade, (2013)

We are able to classify 16,151 projects by gender out of a total of 22,274. Men made up two-thirds of those entrepreneurs (10,974), while women made up one-third (5,508). In addition to the single entrepreneurs described above, there are some projects, which involve teams of two entrepreneurs in which we could identify the gender of both entrepreneurs. Out of 378 partnerships where at least one woman was involved, 68% were partnerships with men. However, only half of the partnerships with at least one man involve a woman as well.

One of the many advantages of our data is that we have the initial fundraising goal by these entrepreneurs. In examining the mean goal by the gender of the entrepreneurs, the data indicate that two-entrepreneur teams seek more funding

than single entrepreneurs, and male teams seek more than female teams. Male entrepreneurs not part of teams seek more than female entrepreneurs, which were not part of teams. The data also indicate that the higher the goal, the less the likelihood of success in reaching that goal. Women, with their lower capital goals, enjoy higher rates of success (69.5% success rate versus 61.4% success rate for men).

Gender of Authors	Mean of Goal	Std. Dev.
2 Females	10,356.6	20,871.2
1 Females	6,890.5	24,467.6
Female - Male	10,011.0	13,376.8
Male - Female	35,935.1	292,168.6
1 Male	12,175.9	290,804.8
2 Males	13,248.9	22,633.2

In addition to the gender of the entrepreneurs, we were also able to determine the gender of the investors for each project, as long as the backers entered their full names. We were able to assign gender to 898,491 investors out of a total of 1,108,186, or 81%. We find that, like entrepreneurs, the majority of investors were also men. About 55% of the investors of the Kickstarter projects we identified were male, compared with 45% that were women. Thus, women made up a larger percentage of investors than entrepreneurs on this crowdfunding platform.⁴

Gender of Investor	Obs.	Percent
Female	397,724	44.3%
Male	500,767	55.7%
Total	898,491	

One interesting finding is that female entrepreneurs are more likely to attract female investors – When we examine the gender of the investors of female and male led projects, we find very different investing patterns. While more than 40% of the funds of female investors were invested in projects by female entrepreneurs, only 22.5% of the male investor funds went to female led projects.

⁴ It would be interesting to get similar numbers for other crowdfunding platforms (maybe Kiva, Prosper, Circle up, Angel list)

Investor	Female Ent.	Male Ent.
Female	40.1%	59.9%
Male	22.5%	77.5%
Total	29.9%	70.1%

Another interesting finding is that serial investors are more likely to be men – focusing only on investors with at least 5 investments – the share of male investors rises to more than 70%, while the share of female investors drops to less than 30%.

To examine the investments patterns of the males and females in Kickstarter, we take a look at the categories of the projects where they invested. Similar to case of entrepreneurs, the male investors were most interested in Comics, Product Design, Games and Technologies, while the female investors dominate the Dance, Food and Theater categories. Harrison and Mason (2007) have studied angel investor inclinations and found that "there are only two technologies in which women express a much higher interest than men: environmental technologies and creative industries."

Category	Gender of Investor	
	Female	Male
Art	54.6%	45.4%
Comics	34.3%	65.7%
Dance	65.4%	34.6%
Design	37.4%	62.6%
Fashion	54.8%	45.2%
Film & Video	48.3%	51.7%
Food	56.0%	44.0%
Games	17.0%	83.0%
Music	46.8%	53.2%
Photography	52.7%	47.3%
Publishing	51.4%	48.6%
Technology	23.6%	76.4%
Theater	56.7%	43.3%

Investors are more likely to fund entrepreneurs from the same gender – When we examine the gender of the entrepreneurs (whether it's one or two) and the share of females among the investors of the projects (disregarding sums of investments). Not only that the share of female investors is higher for the female-led projects than

the male-led or male/female led – there is a clear trend that shows that the more the female is dominant in the projects (i.e. 2 females>1 female, 1 female>male, female-male>male female, 1 male>2 males) – the share of female investors rises. It should be clear that this is not a female characteristic – if we looked at the share of male investors, we would have got the same picture.

Gender of Authors	Mean of Share of Female Investors	Std. Dev.
2 Females	0.632	0.119
1 Females	0.571	0.179
Female - Male	0.528	0.150
Male - Female	0.518	0.166
1 Male	0.440	0.199
2 Males	0.407	0.182

We then compare the share of investment in female-led projects to their share in the population of projects, both for males and for females. The difference for the females' investors is positive, meaning that in almost every category they invested in more female-led projects, while the men chose to invest in male-led projects. The results are consistent with the findings from Harrison and Mason (2007), who found that female angel investors were more likely to invest in businesses owned and managed by women – although the difference was not statistically significant in their sample.

Category	% of Projects with Female Entrepreneurs	% of Female-Led Projects Invested by Male		% of Female-Led Projects Invested by Female	
		Investors	Difference	Investors	Difference
Art	44.7%	34.1%	-10.6%	50.0%	5.3%
Comics	14.4%	12.9%	-1.5%	28.6%	14.2%
Dance	74.0%	75.9%	1.9%	78.7%	4.6%
Design	25.3%	3.5%	-21.8%	19.9%	-5.4%
Fashion	54.4%	57.2%	2.8%	74.7%	20.2%
Film & Video	27.9%	22.6%	-5.3%	34.8%	6.9%
Food	51.6%	40.8%	-10.8%	53.9%	2.3%
Games	8.4%	6.8%	-1.5%	13.5%	5.2%
Music	30.0%	31.5%	1.5%	37.9%	7.9%
Photography	38.9%	37.2%	-1.7%	43.6%	4.7%

Publishing	39.8%	29.6%	-10.2%	49.6%	9.8%
Technology	15.3%	10.7%	-4.6%	19.6%	4.3%
Theater	44.2%	42.8%	-1.4%	46.5%	2.4%
Total	33.4%	22.5%	-10.9%	40.1%	6.7%

These initial patterns of gender differences in crowdfunding, in terms of both participation by entrepreneurs and investors, as well as the amounts of financial capital sought, appear to be similar to the findings of previous research on gender differences in financing. With the richness of these data, we can delve more deeply into how female entrepreneurs differ from men in terms of how they raise funds on crowdfunding platforms, as well as how female investors differ from men how they invest in projects that are crowdfunded on online platforms. Our research should shed light on how to maximize the potential of equity crowdfunding by female entrepreneurs and female investors, so that we see fuller participation of women in this space. While crowdfunding has the potential to “democratize” the private equity market by serving as a means for both women entrepreneurs and women investors to participate more fully, our initial analysis of Kickstarter data suggest that this currently is not the case. We hope to have a more complete analysis by early September.

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