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Gender Difference in Equity Crowdfunding: An Exploratory Analysis

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Gender difference in equity crowdfunding: an exploratory analysis

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Abstract

Purpose – Title II of the Jumpstart Our Business Startups Act aims to make it easier for new ventures to raise funds from accredited investors via equity crowdfunding. The purpose of this paper is to understand whether Title II equity crowdfunding represents an opportunity for women-owned companies (those that have one or more female owners/founders) to raise capital at rates similar to companies owned by men.

Design/methodology/approach – The authors conduct an exploratory analysis using a data set containing 6,234 Title II equity crowdfunded offerings aggregated across 17 crowdfunding platforms between September 2013 and December 2015.

Findings – The authors find that women-owned companies constitute only 15.2 per cent of the ventures seeking funding in this data set; however, gender had no effect on the likelihood of successful fundraising under Title II.

Originality/value – This study is the first to examine the roll of gender on the success of equity crowdfunding campaigns the USA. It provides empirical evidence that crowdfunding has had limited impact on democratizing access to capital for woman-owned startups and small businesses. The data reveal that woman-owned companies are underrepresented in Title II equity crowdfunding to an even greater extent than they are underrepresented in angel and venture capital (VC) investments. The results of this study also highlight the importance of examining the role of gender in equity crowdfunding across different countries.

Keywords Womens entrepreneurship, Equity crowdfunding

Paper type Research paper

Introduction

A number of studies have shown that female business owners have difficulty gaining access to external capital (Brush *et al.*, 2001; Lee and Denslow, 2004; Lins and Lutz, 2016). In 2017, women-owned companies accounted for only 26.9 per cent of entrepreneurs seeking angel investments (Sohl, 2017). In addition, only 15 per cent of women-led companies were successful in raising capital, as compared with 22 per cent for men-led companies (Stengel, 2015). While the number of female angel investors has increased dramatically over the past few years, they still represent only about 20-26 per cent of all angel investors (Stengel, 2015; Sohl, 2017).

The emerging area of crowdfunding presents the possibility of democratizing early-stage investment in startup companies. Mollick (2014) noted that the term "crowdfunding" has been applied in so many ways that "a broad definition of crowdfunding is therefore elusive, especially as crowdfunding covers so many current (and likely future) uses across many disciplines." In this study, we specifically focus on equity crowdfunding in the USA. The

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Securities and Exchange Commission (SEC) defines equity crowdfunding as the process of raising funding via the internet in exchange for securities (SEC, 2015). The Securities Act of 1933 and the Securities Exchange Act of 1934 (Securities and Exchange Acts) forbade public solicitation by new ventures without a prior registration of the offered securities and the provision of detailed audited financial statements (Foley and Paul, 2015). In response to the financial crisis of 2007-2008, the Jumpstart Our Business Startups Act (JOBS Act) was passed in 2012. The JOBS Act was designed to ease access to capital for new entrepreneurial ventures by relaxing the existing regulatory filing requirements for several types of new venture fundraising. Title II of the JOBS Act specifically exempts the requirement for detailed regulatory filings as long as the companies raising money limit the fundraising to accredited investors, and other requirements are met. Accredited investors include individuals with income in excess of $200,000 per year for the previous 2 years or net worth (excluding the primary residence) over $1m.

The Title II provisions of the JOBS Act became effective in September, 2013. Title II offerings conducted through online platforms generated more than $1.27bn in capital commitments through December 31, 2015, based on the data we reviewed. This is a rapidly growing area of practice, yet there is very little published research on Title II crowdfunding (Vogel and Moll, 2014). The goal of our study is to understand whether Title II crowdfunding represents an opportunity for women-owned companies (those that have one or more female owners/founders) to raise capital at rates similar to companies owned by men.

While there is a growing body of research on the role of gender in entrepreneurship (Bruni, Gherardi and Poggio, 2004; Greene *et al.*, 2001; Marom *et al.*, 2016; Robb and Watson, 2012), to the best of our knowledge, this is the first study to examine gender effects in equity crowdfunding in the USA. Equity crowdfunding is distinct from other forms of online fundraising, e.g. peer-to-peer lending (Mamonov and Malaga, 2017); therefore, it is important to examine the role of gender in this context. We specifically focus on two topics:

(1) whether there is a difference in the representation among male and female entrepreneurs seeking funding under Title II; and

(2) whether gender affects the success rate in Title II fundraising campaigns.

To address these questions, we explore a data set containing 6,234 Title II crowdfunded offerings aggregated across 17 crowdfunding platforms between September 2013 and December 2015.

A number of studies have examined the role of gender in equity crowdfunding in countries other than the USA (Mohammadi and Shafi, 2017; Vismara *et al.*, 2017). However, research related to US equity crowdfunding is important for a number of reasons. First, the USA is still the largest source of venture capital and angel investing in the world (OECD, 2017). Second, Lerner *et al.* (2015) have shown that the type of companies that apply for angel investments vary across countries. In addition, their results indicate that the role business angels play is also different across countries. Therefore, the results of previous research conducted on equity crowdfunding in countries outside of the USA cannot be generalized.

Our analysis reveals that women-owned businesses are underrepresented on Title II equity crowdfunding platforms (15.2 per cent). However, in most industries, women-owned businesses were as successful, if not more so, in receiving funding commitments as businesses owned by men. The two industries where women-owned businesses were less successful than their male-owned counterparts in terms of receiving funding commitments were real estate and online and mobile gaming. These results contribute to the body of research on the roles of bias (discrimination) versus socialization effects that may be responsible for the underrepresentation of women in entrepreneurial ventures. Our results provide no evidence of bias against women-owned ventures in equity crowdfunding in the USA and suggest that self-selection may be responsible for the observed underrepresentation.

The remainder of the paper is structured as follows. First, we present a brief introduction to the issue of funding for female entrepreneurs and examine the existing research in that area. Next, we provide an overview of crowdfunding in general and research related to this study. We then examine the literature in the area of equity crowdfunding as it relates to female entrepreneurs. Next, we address the methodology of our study and we present insights from the analysis. We conclude with the discussion of our contributions to the body of knowledge in the area of equity crowdfunding and female entrepreneurship.

Theoretical background

Female entrepreneurship and finance

According to the US Census Bureau, in 2014, there were 7.8 million privately held companies owned by women. These companies generated an estimated $1tn in sales and employed approximately 7.8 million people (USA Census Bureau, 2014). While women-owned companies play an important part in the economy, many still are met with challenges in a number of areas. First, according to the US Census Bureau, women-owned companies tend to be smaller than companies owned by men. In fact, only 11.7 per cent of women-owned companies had salaried employees (USA Census Bureau, 2014). Second, although there are of course many exceptions, women-owned companies seem to be more prevalent in certain sectors. Health and social assistance, educational services and retail and wholesale trade are the most predominant (USA Census Bureau, 2014). Third, previous studies have shown that women-owned companies are more likely to fail and have lower profits (Robb, 2002; Watson, 2002). Fourth, women-owned companies represent a small fraction of companies in high-growth technology areas (Morris, 2006). Recent statistics show that the software, health care and biotech industries account for about 60 per cent of all angel funding (Sohl, 2017).

Focusing on the theoretical explanations of the reasons behind female underrepresentation in entrepreneurship, there are two parallel streams of research that examine either external or internal potential causes (Fischer *et al.*, 1993). The external view examines various bias-based reasons why female-led ventures are less likely to succeed. A number of studies in this stream have shown that female business owners have difficulty gaining access to external capital (Brush *et al.*, 2001; Lee and Denslow, 2004; Lins and Lutz, 2016). This problem holds true for both debt and equity financing. Coleman and Robb (2009) have shown that women entrepreneurs and small business owners may face discrimination from external funding sources. According to Brush *et al.* (2001), between 1953 and 1998, less than 5 per cent of all venture capital funding went to women-owned businesses. A more recent study (Balachandra *et al.*, in press) shows that this seeming bias may be quite complex. In the study they found that potential investors are not in fact biased against women, but are biased against entrepreneurs who "display of feminine-stereotyped behaviors."

The internally focused view on relative underrepresentation of women-led entrepreneurial ventures examines socialization related factors that affect female attitudes toward risk, particularly as it is related to entrepreneurship. Treichel and Scott (2006) found that while women business owners were significantly less likely to apply for a bank loan, they were no more likely to be turned down for those loans than businesses owned by men. In addition, women-owned companies typically applied for smaller loans. For instance, a study done in the UK has shown that female entrepreneurs attract as many investors as males, but raise less money on equity crowdfunding platforms (Vismara, 2016a). A more recent study found that women are significantly less likely to ask for financing than men (Kwapisz and Hechavarría, 2018).

Morris (2006) found that some women entrepreneurs choose to follow a more modest growth strategy for their businesses. Coleman and Robb (2009) showed "that women used dramatically lower amounts of total capital, debt, and equity to start their firms than men" (p. 12). Constantinidis *et al.* (2006) have shown that some women entrepreneurs may be more risk adverse than men and less willing to give up control. This stream of research is not without counterintuitive empirical evidence. A recent study of female entrepreneurs found that marriage, children and the size of the family were positively correlated with female entrepreneurship (Adachi and Hisada, 2017).

The context of our study provides a unique opportunity to examine the relative effects of external *vis-à-vis* internal factors that affect female participation in equity crowdfunding. Whereas lower female participation in equity crowdfunding would be consistent with the internal explanation (self-selection) for the underrepresentation of women entrepreneurs, lower likelihood of successful funding may reflect an external selection bias among the investors. In the next section, we review crowdfunding related research to explain the key differences between equity and other forms of crowdfunding.

Crowdfunding

The core function of crowdfunding is to solve the need for capital among new business ventures and existing small businesses. Crowdfunding as a term covers a very broad range of practices that allow entrepreneurs and small businesses to raise capital. Four distinct types of crowdfunding projects are generally recognized, based on what the investors or donors receive in return for the funds that they provide to the entrepreneurs: *donation-based*, *loan-based*, *rewards-based* and *equity- or securities-based* (Mamonov and Malaga, 2017). To understand where equity crowdfunding fits into the overall crowdfunding industry, we briefly describe each type below.

Donation-based crowdfunding provides a platform for those in need (individuals or charities) to solicit and receive donations from individuals. Donors receive no rewards or equity. Donations are purely altruistic in nature.

Peer-to-peer (P2P) or marketplace lending exemplifies *loan-based* crowdfunding. The P2P lending space encompasses both small business lending and loans to individuals. Companies such as Funding Circle allow individuals to invest in loans to small businesses. These loans are sometimes secured by the collateral in the business and a personal guarantee from the business owner.

Kickstarter exemplifies *rewards-based* crowdfunding. Entrepreneurs and artists can post their projects on Kickstarter and solicit funding. The rewards available to potential backers vary by project type but typically take the form of a gift or acknowledgement. The backers of an independent film may be acknowledged in the credits. The backers of a new electronics device or idea may be rewarded by getting a discount and an early delivery of the planned new product. Some rewards-based crowdfunding projects may also include royalty-based crowdfunding of artistic ventures.

Equity-based crowdfunding is a relatively new form of crowdfunding in the USA. This form of crowdfunding allows startups and small companies to solicit equity investments without the need for complex regulatory filings. Investors receive equity in the company, along with the possible rewards (and risks) such investments entail.

Given the relatively recent emergence and rapid evolution of equity crowdfunding as a phenomenon, the body of research remains relatively limited (Brown and Davies, 2015).

Much of the research on equity crowdfunding has been done outside of the USA. Australia, for example, was a pioneer in equity crowdfunding. The Australian Small Scale Offering Board was established in 2005 as the first platform of its kind brokering fundraising by small businesses (Sandlund, 2012). The UK legalized equity crowdfunding in 2011 which led to the emergence of several equity crowdfunding platforms (Ahlers *et al.*, 2015).

Equity crowdfunding and female entrepreneurship

The passage of the JOBS Act has opened a new avenue for entrepreneurial fundraising and preliminary research has shown that at least 17 Title II equity crowdfunding platforms emerged following the passage of Title II and over $1.2bn has been raised by entrepreneurial ventures on these platforms (Mamonov *et al.*, 2017). Because of the number of competitors in this space, the platforms have significantly simplified the process of posting campaigns, thus lowering the barriers in the way of entrepreneurs in connecting with potential investors on the respective platforms. With the lower barriers to investment solicitation, we expect that female-owned ventures would be represented at higher frequency compared to traditional offline venture fundraising. However, as previously noted, prior research has found that female entrepreneurs tend to be conservative in their business goals (Morris, 2006) and in seeking external financing (Kwapisz and Hechavarría, 2018) and reluctant to share control of their companies (Caliendo *et al.*, 2009). Therefore, it is also possible that female entrepreneurs will self-select not to seek funding under Title II. There are also potential concerns regarding the ability of female entrepreneurs to be successful in fundraising in equity crowdfunding campaigns.

A number of studies have posited that investors look at human and social capital when deciding whether to invest in a company (Ahlers *et al.*, 2015; Carter *et al.*, 2003). Human capital includes things like education level, work experience (particularly in the venture's industry and previous startup experience) and management background. Human capital has been found to correlate with venture success over numerous studies (Unger *et al.*, 2011). Piva and Rossi-Lamastra (2017) found that the human capital signals of business education and entrepreneurial experience are positively correlated with funding success on the equity crowdfunding platform SiamoSoci.

Social capital considers an entrepreneur's network of friends, relatives and business acquaintances. These networks provide entrepreneurs with valuable information, customers, suppliers and potential partners. A study of an equity crowdfunding platform in Finland found that the size of the entrepreneurs' social networks had a positive effect on the likelihood of successful fundraising (Lukkarinen *et al.*, 2016). A different study explored success factors on Crowdcube, an equity crowdfunding platform based in the UK and found that social connections, along with other factors, are positively associated with successful campaigns (Vismara, 2016a). More recent UK-based research confirmed the importance of strong social networks in developing successful equity crowdfunding campaigns (Brown *et al.*, in press). Research in the area of information cascades has shown that the ability to attract early backers (particularly those with a public profile) are important in attracting additional investors and overall campaign success (Vismara, 2016b).

Some research in the area of equity crowdfunding has examined the concept of homophily. Homophily refers to the idea that people tend to associate with those that share similar characteristics, such as gender (Ruef *et al.*, 2003). Vismara *et al.* (2017) found that, on the UK crowdfunding platform, Seedrs, women are more likely to succeed in attracting equity financing. In addition, the female investors are almost two times more likely to invest in female entrepreneurs than in male entrepreneurs. However, the case for homophily in equity crowdfunding is not clear. A study in Sweden found that female investors actually favor male-led ventures over female-led ventures (Mohammadi and Shafi, 2017).

Data, methodology and results

The data set for this study was obtained from Crowdnetic Corporation (Crowdnetic), a technology and data company that aggregates and normalizes private-company data from 17 leading US crowdfunding platforms targeting the opportunities created by Title II of the JOBS Act. The data set contains information about 6,234 Title II offerings from these intermediaries, from inception through December 31, 2015.

An exploratory analysis of these Title II offerings was conducted to examine overall capital commitments by gender, distribution of commitments by industry and gender and success of offerings by industry and gender.

More than $233m in capital commitments was recorded in the last quarter of 2013 (Title II became effective in September 2013). The total capital commitments increased from $473m in 2014 to more than $570m in 2015. Even more impressively, the average amount of capital commitments increased dramatically from $181,486 per successful issuer in 2014 to $493.659 per successful issuer in 2015.

Overall, women-owned businesses represent only 15.2 per cent of all offerings. This is far below the percentage (26.7 per cent) of women entrepreneurs that seek angel investments (Sohl, 2017). There was also a gender difference when comparing companies that received funding. In total, 27.8 per cent of women-owned businesses received some level of capital commitments, as compared to 33.2 per cent for companies owned by men. For those offerings that received capital commitments, women-owned businesses received only 13 per cent of the minimum target, as compared to 31 per cent for non-women-owned companies. In addition, women-owned companies sought lower funding targets on average: $2.59m vs $4.49m for non-women owned companies. This is in line with previous studies that show women-owned companies request less money from institutional investors (Coleman and Robb, 2009). Figure 1 summarizes the percentage of companies that are women-owned and women-led in the data set.

In the next step of our exploratory analysis, we examined the distribution of Title II offerings by industry and gender. In total, 292 industries (covering eight sectors) are

	2013	2014	2015
Women-owned	17%	16%	9%
Women-led	18%	18%	14%

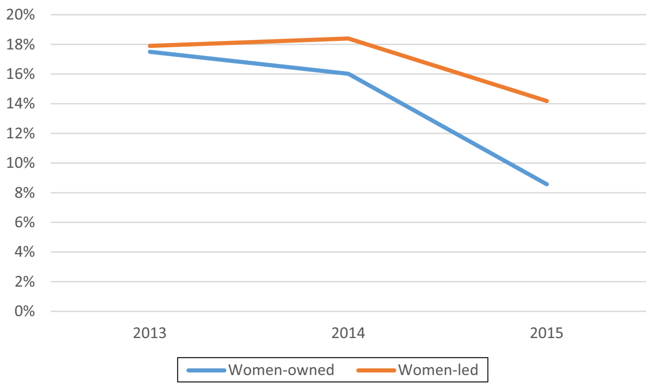

Figure 1. Women-owned and women-led companies that sought Title II funding

represented among the Title II offerings in our data set, spanning the range from accounting services to aerospace. Table I summarizes the number of offerings, gender distribution among those offerings, and the contribution to the total for the top ten industries.

Next, we examined the industry distribution of successful offerings. For the purposes of this study, a successful offering is not a percent-of-target test but is defined as one that has at least some level of capital commitments. The real estate industry holds by far the lion's share of successful offerings. Table II summarizes the distribution of successful offerings for the top ten industries by the total number of successful offerings and average success rates overall and for women-owned companies.

Discussion and contributions

The main goal of this study was to explore how women-owned businesses are using equity crowdfunding under Title II in the USA. The exploratory analysis of 6,234 offerings that were posted across 17 crowdfunding platforms in the period between September 2013 and December 2015 revealed that women-owned businesses are under-represented in Title II offerings (15.2 per cent), as compared with their participation in angel investments (29.2 per cent during 2015; Sohl, 2015).

Table I. Top ten industries by number and share of Title II offerings

Industry name	No. of offerings	% of total	No. of women-owned	% women-owned
Real estate	453	7.3	39	8.6
Social media	312	5.0	40	12.8
App software	175	2.8	28	16
Digital media/new media	119	1.9	20	16.8
Education K-12	111	1.8	29	26.1
Specialty retail, Other	104	1.7	28	26.9
Online and mobile gaming	98	1.6	10	10.2
Entertainment, Other	93	1.5	12	12.9
Professional services, Other	86	1.4	11	12.8
Business software and services	83	1.3	13	15.6
Social commerce	83	1.3	14	16.8
Total	1,717		244	14.2

Table II. Top ten industries by average success of Title II offerings

Industry name	No. of offerings	No. of successful offerings	Overall success rate (%)	No. successful women-owned offerings	Success rate women-owned (%)
Real estate	453	274	60.5	13	33.3
Social media	312	54	17.3	7	17.5
App software	175	46	26.3	10	35.7
Digital media/new media	119	33	27.7	7	35.0
Education K-12	111	17	15.3	4	13.8
Specialty retail, Other	104	36	34.6	10	35.7
Online and mobile gaming	98	29	29.6	1	10.0
Entertainment, Other	93	40	43.0	5	41.6
Professional services, Other	86	31	36.0	4	36.4
Business software and services	83	33	39.8	6	46.1
Social commerce	83	25	30.1	4	28.6
Total	1717	618	35.9	71	29.1

The study also revealed that online offerings in real estate development and real estate investments are more successful than those in other industries, based on the data from leading online Title II platforms. These two real estate industries represented 7.3 per cent of all offerings and had a 60.5 per cent overall success rate. The high success rate for real estate offerings may be caused by a number of factors – see (Mamonov *et al.*, 2017) for a complete discussion. However, this study has shown that women-owned companies are significantly under-represented (only 8.6 per cent) in the real estate sector. In addition, women-owned companies have a lower success rate in the real estate industry (33.3 per cent).

A deeper analysis of the real estate offerings in the data set reveals that of the successful offerings 46 per cent came from one platform – Patch of Land (POL). However, only one women-owned real estate offering (2.6 per cent) appeared on POL in the data set. According to Mamonov *et al.* (2017), POL has streamlined the due diligence process for real estate investment offerings. POL provides immediate funds to the real estate projects on its platform and then allows investors to participate in those projects. This provides investors with a level of assurance and certainty that might not exist with other platforms or other types of investments.

Women-owned companies are also under-represented in the next three most popular industries: social media; app software; and digital media/new media. The average success rate for women-owned companies in these three industries, though, is above average. This pattern demonstrates the potential benefits of Title II crowdfunding for women entrepreneurs.

One possible explanation for our findings is that women tend to be significantly underrepresented in the more popular industries for equity crowdfunding (e.g. real estate and technology). A recent report revealed that women make up only 9.3 per cent of the construction workforce (Barry, 2017). In the technology sector, women make up only 26 per cent of professional computing jobs in the USA (NCWIT.org, 2017). In technology startups, only 15.8 per cent had a least one women founder (Teare, 2017). This under representation means that women cannot build up human capital, such as work and management experiences, in those industries. In addition, their social capital may not contain many members from those industries.

Another possible explanation for our findings lies in the theory of gender homophily. The tendency for investors to back those with a similar background (such as gender) has already been noted in some equity crowdfunding studies (Vismara *et al.*, 2017). However, the data set explored in this study only contained data about the offerings (demand side), not about the investors. It would be useful in future research to explore the supply side of equity crowdfunding.

Theoretical contributions

This study makes a number of contributions to theory and practice. Our exploratory analysis of a dataset covering 17 leading securities-based crowdfunding platforms in the USA complements equity crowdfunding research that has been done outside the USA (Mohammadi and Shafi, 2017; Vismara, 2016a), and it provides empirical evidence that crowdfunding has had limited impact on democratizing access to capital for woman-owned startups and small businesses. Our data reveal that woman-owned companies are underrepresented in Title II equity crowdfunding to an even greater extent than they are underrepresented in angel and VC investments. Based upon the data set studied, the percentage of Title II offerings involving women-owned companies (15.2 per cent) is about half the comparable percentage (26.9 per cent) in the angel investing space. These results suggest that removing structural barriers that may have prevented female entrepreneurs from having access to venture capital in the past (Brush *et al.*, 2017) may not be sufficient in addressing the underrepresentation of women in entrepreneurship.

The results of our study also highlight the importance of examining the role of gender in equity crowdfunding across different countries. The adoption of equity crowdfunding is necessarily affected by the institutional and socio-cultural context (Dushnitsky *et al.*, 2016). In contrast to observations from platforms outside of the USA (Mohammadi and Shafi, 2017), our findings offer no evidence of investor bias on Title II platforms. Women-led ventures are at least as successful in raising funding as men-led ventures across most industries, with a few exceptions.

Our study also has implications for the ongoing debate concerning the internal versus external explanation of underrepresentation of women-entrepreneurs (Brush *et al.*, 2017). Our results are consistent with the internal (self-selection) explanation of female entrepreneur underrepresentation. While our data do not yield insights on the causes why female entrepreneurs engage in Title II equity crowdfunding at much lower rates than their male counterparts, prior research suggests that the reluctance to give up control of their ventures may be in part responsible for the observed results (Morris, 2006).

The practical implication emergent from our work suggest that Title II represents a clear opportunity for entrepreneurs to raise funding. Companies included in our dataset have raised over $1.2bn using Title II equity crowdfunding platforms. Provided that there is no apparent gender-based investor bias, there may be an opportunity to increase the participation of women entrepreneurs in Title II crowdfunding campaigns through greater awareness and education (Ahl and Nelson, 2015).

Limitations and opportunities for future research. No research is without limitations. In this study, we have explored a dataset of over 6200 Title II offerings from 17 leading online platforms. Those offerings cover all 50 states and 292 industries. However, there are also a significant number of offline Title II offerings that were not examined as part of this data set. These would present a good opportunity for further research and analysis, including a possible comparison of women-owned companies' participation and success in online vs offline raises.

There are a number of other potential directions for future research. There may be a number of possible reasons to explain the lower participation rate for women-owned companies in certain Title II offerings. As discussed above, this is a complicated issue with intersecting societal, social, cultural, economic, demographic and other factors at play. These issues would provide a good opportunity for additional research and analysis.

This study only looked at aggregated demand-side data from equity crowdfunding platforms in the USA. To determine whether human or social capital factors are relevant further research into the backgrounds of the founders of the companies seeking funding is required. Unfortunately, the aggregated nature of the data set used herein does not allow for this type of analysis.

We could find no research on how and why entrepreneurs choose to raise funds via Title II crowdfunding versus other sources. This area is ripe for further research and might help provide insight into why the participation rate for women-owned companies in Title II crowdfunding is so low (only 15.2 per cent). Finally, this study only looked at the demand-side of equity crowdfunding. Recent research called for more investigation of the supply-side of venture funding for women entrepreneurs (Brush *et al.*, 2018) and we concur.

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