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Success Factors in Title II Equity Crowdfunding in the United States

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ABSTRACT

Title II of the JOBS Act has expanded the opportunities for entrepreneurial ventures to raise funds from accredited investors via online equity crowdfunding platforms in the United States. Over $1.4 billion in capital has been committed by the accredited investors in Title II platforms since 2013, yet little is known about how venture characteristics influence the success of raising funds from investors via online equity crowdfunding platforms. Further, it is not known whether online equity crowdfunding is supplementing or replacing traditional venture funding sources. To address these gaps in our knowledge, we draw on research in traditional offline risk capital investments and we evaluate the effects of market, execution and agency risks on equity crowdfunding success by examining 337 ventures that engaged in equity crowdfunding under Title II. We find evidence consistent with investors in online equity crowdfunding platforms giving consideration to all three types of risks. We also find that investors in equity crowdfunding platforms are particularly responsive to the venture ability to attract traditional venture capital funding prior to engaging in equity crowdfunding. These results suggest that online equity crowdfunding platforms are supplementing rather than replacing traditional venture funding sources.

KEYWORDS

Equity crowdfunding; risk capital framework; market risk; execution risk; agency risk; computer mediation risk

Introduction

New business ventures typically require funding to develop from ideas into successful businesses. Business angel (BA) investors play an important role in this process. Estimates suggest that over 300,000 angel investors committed $24.6 billion in capital to new entrepreneurial ventures in the United States in 2015 (Ortmans 2016). Prior to 2013, the process of raising funding from angel investors typically required the entrepreneurs to meet with potential angel investors in person because of legal restrictions on public solicitation by new ventures (Foley and Paul 2015). Recent regulatory changes have significantly expanded public fundraising opportunities for entrepreneurial ventures to include internet-based equity crowdfunding platforms (SEC 2015) and estimates suggest that investors committed over $1.4 billion to new ventures via online equity crowdfunding platforms (Crowdnetic 2016). Yet,

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relatively little is known about the factors that affect the success of fundraising via online equity crowdfunding platforms or whether online equity crowdfunding is replacing or complementing traditional venture funding sources. These are the gaps in research that we begin to address in the present study.

The Jumpstart Our Business Startups Act (JOBS Act) became law in 2012. The new legislation was passed in part as a response to the financial crisis of 2007–2008 and it directed the Securities and Exchange Commission (SEC) to relax the rules on public solicitation for new ventures to make it easier for entrepreneurs to raise funds (SEC 2015). The JOBS Act contains several provisions, including Title II which became effective in September 2013. Title II of the JOBS Act removed the public solicitation restriction and the requirement for securities registration for new ventures seeking to raise funds from accredited investors. Accredited investors are individuals with annual income exceeding $200,000 or having assets in excess of $1 million excluding the primary residence (SEC 2013). The passage of the JOBS Act spurred the evolution of many Title II equity-based crowdfunding platforms which connect entrepreneurial ventures with potential investors. A theoretical analysis of equity-based crowdfunding suggested that information asymmetry problems are amplified in internet-mediated contexts and this may lead to adverse selection and moral hazard risks undermining the viability of online equity crowdfunding platforms (Agrawal, Catalini, and Goldfarb 2013). However, very little is known about how entrepreneurs, investors, and platforms may be able to mitigate the risks or about the types of ventures that can be successful in fundraising capital via equity crowdfunding from accredited investors under Title II.

We draw on research in traditional offline entrepreneurial finance that recognizes that three distinct types of potential risks affect investment decisions in early stage ventures: market, execution, and agency risks (Carpentier and Suret 2015). Market risks are external to the venture and they reflect the uncertainty facing a new product or service in the market. Among other concerns, market risks include market size, growth trends, and existing competition. Execution risks are internal to the entrepreneurial venture. This category of risks emphasizes the importance of the entrepreneurial team in executing a business strategy and proving the viability of the business model. Agency risk highlights the potential misalignment between investor and entrepreneur interests which in conjunction with information asymmetry can undermine the investor ability to capture financial rewards from their investments. We extend the risk framework to acknowledge additional challenges that emerge in computer-mediated communication typically dominated by text, which makes it challenging to transmit non-verbal information (Picard 2003). We examine the effects of specific market, execution, agency, and computer-mediation factors using data from 337 projects that sought to raise funding on Crowdfunder, a leading Title II equity crowdfunding platform in the United States. We find that all four factors can affect the success of fundraising by entrepreneurial ventures, but investors in equity crowdfunding platforms appear to focus specifically on external validation by traditional professional venture capital (VC) investors. The remainder of the manuscript is structured as follows. First, we review the emergent research on equity crowdfunding. Then we draw on the entrepreneurial finance literature to develop the theoretical framework in our study. Next, we describe the data and the methodology in our study and we present the empirical results. We conclude with the discussion of emergent insights as well as our contributions to theory and practice and opportunities for future research.

Crowdfunding overview

Crowdfunding generally refers to "a financing method in which money is raised through soliciting relatively small individual investments or contributions from a large number of people" (SEC 2016). Crowdfunding covers a broad range of existing and emergent phenomena. Four general types of crowdfunding are commonly recognized (Cumming and Johan 2013b). Donation-based crowdfunding allows individual donors to engage in philanthropic endeavors. For example, the GoFundMe.org platform facilitates donations to a variety of individual and organizational causes. Reward-based crowdfunding, exemplified by KickStarter, enables project backers to commit funds to a wide variety of entrepreneurial and artistic projects (Mollick 2014). The project backers are incentivized by different types of rewards, but receive no equity in the projects. For example, backers may receive tickets to attend an artistic performance funded though the commitments or they may receive a discount on a gadget that the entrepreneurs plan to develop. Reward-based crowdfunding also encompasses royalty-based models. For example, BandBackers.com allows music fans to fund their favorite bands in exchange for a royalty from future music sales. Loan-based crowdfunding is the third type of crowd-supported financing that is available to both businesses and individuals. FundingCircle is an example of a company that enables businesses to borrow from individual lenders through an online lending marketplace. LendingClub operates a very successful peer-to-peer lending marketplace for unsecured loans made to individuals.

Equity-based crowdfunding is the fourth type of crowdfunding and it captures crowdfunding that involves issuance of any type of securities (equity, convertible preferred equity, etc.) that give the holders an ownership stake in the company in exchange for capital. Equity-based crowdfunding has a very different profile from other types of crowdfunding in terms of motivations of capital providers as well as associated risks and rewards. For example, whereas donation-based capital contributions are typically driven by philanthropic motives (Belleflamme, Lambert, and Schwienbacher 2013), equity-based capital commitments are motivated by profit seeking (Belleflamme, Omrani, and Peitz 2015). Although loan-based and equity-based crowdfunding share the profit motive, they differ in terms of the risk/reward profile. Lending to businesses or individuals via crowdfunding platforms is typically done for a fixed, relatively short period, typically 6–36 months, with an interest rate that is specified at the time of loan origination (Emekter et al. 2015). Equity-based investments in early stage ventures carry much more uncertainty compared to loan-based crowdfunding. Equity holders in early stage ventures typically have a much more uncertain liquidity horizon and much higher risk of losing their investment. Research on outcomes in informal capital investments suggests that at least 47% of investments lead to losses and 34% of investments in early stage ventures result in complete loss of invested capital (Mason and Harrison 2002). Studies also show that it typically takes 5–7 years for early investors to achieve liquidity (Sudek 2006). Table 1 summarizes the key differences in crowdfunding capital provider motivations as well risk-reward profile associated with different types of crowdfunding.

In part because equity crowdfunding is a relatively recent phenomenon in the United States, much of the published research on equity crowdfunding has been done in other countries. Australia was a pioneer in equity crowdfunding because the Australian financial legislation did not explicitly prohibit it. The Australian Small-Scale Offering Board (ASSOB) was established in 2005 as the first platform of its kind brokering fundraising by small

Table 1. Crowdfunding types, capital provider motives, risks and rewards.

Crowdfunding type and examples of platforms	Capital provider motives	Risks	Rewards
Donation-based GoFundMe Kiva	Philanthropy	Limited, because the donors do not expect the return of funds	Socio-emotional rewards from helping others
Reward	Utilitarian, e.g. interest in a product/service being developed	Most projects deliver the promised rewards, but the delivery is often delayed (Mollick 2014)	Product, service or performance
Kickstarter IndieGogo	Hedonic, e.g. interest in an artistic project being developed		
Loan	Financial – earning interest on the principal	6–36 month term	Interest payment, typically in the 6–12% range
LendingClub FundingCircle		Relatively low risk of loss of principal	
Equity	Financial – earning a premium on the investment through a liquidity event.	5–7 year term.	50%+ annual return on the invested capital for successful ventures.
Crowdfunder Seedrs		Relatively high risk of loss of investment.	

businesses (Sandlund 2012). A study of factors that are correlated with successful crowdfunding in the ASSOB showed that the number of board members and the size of the equity offering (negative coefficient) were significantly correlated with the amount of funding received (Ahlers et al. 2015). Switzerland is another market that has proven to be a fertile ground for equity crowdfunding (Salomon 2015). A study focusing on the dynamics of fundraising followed 492 projects on a crowdfunding platform in Switzerland showed that the first days after a project announcement to the public serve as a good indicator of the project's chances of success. Successful projects gather support quickly, and the early support translates into successful fundraising campaigns (Beier and Wagner 2016). The United Kingdom legalized equity crowdfunding in 2011, which led to the emergence of several equity crowdfunding platforms (Harrison 2013). An analysis of 541 equity crowdfunded projects on Crowdcube (UK) showed that prior awards, professional investor backing, previous crowdfunding experience, grants, patents, and an advisory board are all positively correlated with crowdfunding success (Ralcheva and Roosenboom 2016). A study of an equity crowdfunding platform focusing specifically on angel investors in the United States revealed that syndicate investments, in which a well-known angel investor or a venture capitalist take the leading role in conducting the due diligence on potential investment opportunities, dominate the Angel.co platform investment activity (Agrawal, Catalini, and Goldfarb 2016).

Information asymmetry has been the dominant theoretical perspective guiding the research in equity crowdfunding (Ahlers et al. 2015; Belleflamme, Lambert, and Schwienbacher 2014). The studies applying the information asymmetry lens tend to frame the research questions from the perspective of how can the entrepreneurs who seek funding signal the quality of their venture to potential investors. While information asymmetry certainly presents a significant problem in the fundraising contexts, prior research has largely overlooked

the fact that different types of ventures have inherently different risk/reward profiles independent of what entrepreneurs may be able to signal to potential investors. Title II equity crowdfunding is only open to accredited investors and angel investors have adopted the new investment opportunities available to them under Title II (Agrawal, Catalini, and Goldfarb 2016). In the next section, we draw on extant research on traditional offline angel investors and we develop our research framework that focuses on different types of risks that can arise in equity investments as well as recognizes the additional challenges that exist in the context of online equity crowdfunding platforms.

Research framework and hypotheses

Market risk

Prior research on risk capital has shown that investors in early stage ventures typically consider three general types of risk when making an investment decision: market risk, execution risk and agency risk (Carpentier and Suret 2015). Market risk reflects the inherent uncertainty about the market success of early stage ventures. Market risk is largely due to factors that are beyond management control. For example, overall market size, growth trend, clients, unforeseen competition, etc. Market risk has been shown to be the top reason for the rejection of investment opportunities by professional angel investor groups (Carpentier and Suret 2015; Maxwell, Jeffrey, and Lévesque 2011). The stage of the proposed venture is frequently cited as the key reason for an investment rejection (Paul, Whittam, and Wyper 2007). Ventures in the idea/concept stage carry the greatest risk because ideas entail uncertainty about both the founders' ability to develop the idea into a product/service and its market potential. The progression of a venture from an idea/concept to a prototype removes some uncertainty about the venture's ability to actually develop the product, however the market risk, i.e. whether the product/service will be commercially successful, remains. As ventures continue to develop their products, the next challenge is to "show traction" in the market, i.e. to demonstrate sales potential to consumers for business-to-consumer (B2C) ventures or to show success in signing corporate clients for business-to-business (B2B) ventures (Feld and Mendelson 2016). As the ventures progress from a concept to a prototype to an actual business that has clients and revenues, market risk is reduced. Successful consumer product launches and signings of marquee corporate clients are commonly interpreted by risk capital investors as market validation (Maxwell, Jeffrey, and Lévesque 2011). Online platform-mediated equity crowdfunding exposes the investors to a range of potential market risks. We expect that the accredited investors participating in online equity crowdfunding platforms will seek to reduce the market risk by focusing on later stage ventures and more specifically, they will focus on external market validation of the product/service ventures that are seeking funding.

H1a: Ventures that have completed product/service development are more likely to raise funding in equity crowdfunding campaigns than early stage ventures (ideas, concepts and prototypes).

H1b: Ventures that have large corporate clients are more likely to raise funding in equity crowdfunding campaigns than ventures lacking such clients.

Research on venture funding has also highlighted that potential investors are looking for disruptive innovations as an important criterion for venture funding (Metrick and Yasuda 2010). Incremental innovations are perceived to be at a disadvantage when entering

established markets because incumbents typically react very aggressively to the introduction of incremental innovations by upstarts and possess greater resources to market their own products (Kuester, Homburg, and Robertson 1999). Consequently, startups offering incremental innovations are unlikely to succeed in head-to-head competition with incumbents. Disruptive innovations that can offer a substantive competitive advantage to new entrepreneurial ventures have greater chances of success and they are more likely to attract funding (Christensen, Johnson, and Rigby 2002). Patents often serve as the strongest evidence of significant practical innovation (Dutta and Folta 2016; Häussler, Harhoff, and Müller 2012). Patents also provide protection for startups from potential imitation by others and thus they can offer a source of sustainable competitive advantage (Hsu and Ziedonis 2008).

H2a: Ventures that have filed for patents are more likely to raise funding in equity crowdfunding campaigns than ventures that have not filed for patents.

H2b: Ventures that hold patents are more likely to raise funding in equity crowdfunding campaigns than ventures that do not have patents.

Execution risk

Execution risk captures the factors related to the difficulty of execution or implementation of a product or service as well as challenges that may arise with the execution of the business strategy and business model (Feeney, Haines, and Riding 1999; Sudek 2006). Entrepreneurial ventures require a diverse portfolio of management skills to succeed: product development, sourcing, manufacturing, marketing, and financial management among them (Lazear 2004). Single entrepreneurs are unlikely to possess the full complement of required skills. Prior research has shown that venture capitalists prefer entrepreneurial teams over single entrepreneurs (Hsu 2007). Angel investors are also known to look for entrepreneurs with prior industry experience in the target market as well as prior entrepreneurial experience (Maxwell, Jeffrey, and Lévesque 2011). Previous entrepreneurial experience is important for potential investors because early stage investors are typically dependent on the new venture either being sold or progressing to a public stock offering to achieve liquidity and realize the financial rewards of their investment. Entrepreneurs with prior experience of successful exits are aware of the structural investor requirements and the exit motivation among the investors. Research has also shown that venture capitalists prefer balanced teams that are comprised of both young entrepreneurs with new ideas and more seasoned executives who can guide successful execution of the entrepreneurial vision (Hsu 2007).

H3a: Single entrepreneurs are less likely to successfully raise funding in equity crowdfunding campaigns than entrepreneurial teams comprised of 2 or more members.

H3b: Serial entrepreneurs are more likely to successfully raise funding in equity crowdfunding campaigns.

H3c: Entrepreneurs with prior experience in the target industry are more likely to raise funding in equity crowdfunding campaigns.

H3d: Larger teams are more likely to successfully raise funding in equity crowdfunding campaigns.

Agency risks

Agency risk arises from information asymmetry between the entrepreneurs and the potential investors. Entrepreneurs know more about the business prospects of their venture and the

potential challenges than the investors. This can lead to opportunism which is more common among younger, smaller firms (Noe and Rebello 1996). Angel investors typically mitigate the agency risk by close involvement in the entrepreneurial ventures in which they invest (Paul, Whittam, and Wyper 2007), but online platform-mediated investment in geographically distant ventures makes active angel investor engagement in the entrepreneurial ventures very challenging (Morrissette 2007). In such circumstances, potential investors would be looking for another professional angel investor or a venture capital firm to take the lead role in providing close monitoring of the early stage ventures. Research on an angel-oriented equity crowdfunding platform Angel.co has shown that syndicate-based investments in which a well-known angel investor or a venture capitalist takes the lead role, dominate successful fundraising (Agrawal, Catalini, and Goldfarb 2016). Consequently, we expect that companies that attracted funding from an experienced angel investor or a venture capitalist would be more likely to receive capital commitments from other accredited investors on equity crowdfunding platforms.

H4a: Ventures that have already attracted funding from established angel investors would be more likely to successfully raise funding in equity crowdfunding campaigns.

H4b: Ventures that have already attracted funding from professional venture capital firms would be more likely to successfully raise funding in equity crowdfunding campaigns.

Computer mediation challenges

Prior research on the venture screening process by angel investors and venture capitalists has commonly highlighted the importance of the entrepreneur characteristics in the investment decisions (Chen, Yao, and Kotha 2009). For example, prior research has noted the importance of entrepreneurial passion and determination as well as trustworthiness in successful venture fundraising (Murnieks et al. 2016). Lack of passion and determination undermines investor confidence that entrepreneurs can persevere through many challenges likely to be faced by entrepreneurial ventures. Entrepreneur trustworthiness is also critical for the investor to feel confident that the entrepreneur can be trusted with investor funds (Maxwell, Jeffrey, and Lévesque 2011). Computer-mediated equity crowdfunding platforms typically rely on text-based narratives to provide the information about the ventures seeking funding to potential investors. However, text-based information makes the transmission of non-verbal cues challenging (Bos et al. 2002; Garrison, Anderson, and Archer 1999). Therefore, equity crowdfunding platforms pose a significant challenge in allowing the entrepreneurs to communicate with potential investors. One way that entrepreneurs can overcome this challenge is using videos to pitch their business to potential investors. Videos allow the entrepreneurs not only to communicate factual information, but also to express their level of passion and commitment to the venture success. The use of videos has been highlighted as an important tool available to entrepreneurs in reward-based crowdfunding (Mollick 2014). We expect that successful entrepreneurs in equity crowdfunding platforms will make use of videos in communication with potential investors as well.

H5a: Ventures that use video in their project descriptions will be more likely to successfully raise funding in equity crowdfunding campaigns.

H5b: Ventures that use video featuring the founders in their project descriptions will be more likely to successfully raise funding in equity crowdfunding campaigns.

Data and methodology

We collected the data for our study from Crowdfunder, a Los Angeles based Title II equity crowdfunding platform. Crowdfunder was established in 2011 with the anticipation of the JOBS Act passage and it has grown to become among the most active equity crowdfunding platforms in the United States (Crowdfunder 2016). We scraped the data about the individual projects directly from the Crowdfunder web site. Two graduate assistants were provided with a coding schema and engaged in coding the project descriptions. The coders met and resolved the disagreements to generate the final data-set. The interrater reliability was 0.94 which is acceptable (James, Demaree, and Wolf 1984). Table 2 summarizes the list of variables, coding schema and the descriptive statistics for the data that we collected on 337 ventures posted on Crowdfunder September 2013 through December 2016.

To evaluate the effects of market, execution and agency risks as well as the use of video in communications with potential investors we evaluated a series of logistic regression models with *success* as the dependent variable. *Success* is defined as a venture having attracted the full minimum issue amount in an online equity crowdfunding campaign.

Results

Factors influencing equity crowdfunding success

In our first model, we examined the effects of the market risk related factors on the likelihood of raising the full amount of funding. The results revealed that only market traction evident in the B2B ventures seeking funding having signed corporate clients had a significant positive effect on the likelihood of success ($B = 1.193$, $p < 0.001$). 15.2% of the B2B companies that had marquee corporate clients were successful in their equity crowdfunding campaign vs. only 4.4% success rate for B2B companies that did not have marquee corporate clients. The company stage (idea, beta, or finished product) and patents had no effects. The results are summarized in Model I column in Table 3.

In the next step, we examined the effects of execution risk related factors on the likelihood of a successful equity crowdfunding campaign. We found no statistically significant effects for single-entrepreneur led ventures, industry or previous entrepreneurial experience, or entrepreneurial team composition on the likelihood of success. The results are summarized in Model II column in Table 3.

Focusing on the agency risk related factors, we found that only the involvement of professional venture capitalists was positively associated with the equity crowdfunding success ($B = 2.3$, $p < 0.001$). Projects with VC involvement were 39% likely to succeed as compared with 4.2% that had no VC involvement. We found no support for the professional angel investor involvement. The results are shown in Model III column in Table 3.

The evaluation of computer mediation related factors revealed that while the presence of a video in the funding solicitation was positively associated with equity crowdfunding success ($B = 1.01$, $p < 0.05$). Having a video increased the likelihood of success from 3.4% to 11.2%. The presence of the entrepreneur in the video had no effect. The results are summarized in Model IV column in Table 3.

Finally, we examined the effects of the combination of all variables reflecting market, execution, agency and computer mediation related factors on the success of crowdfunding. The results revealed that when all variables a reconsidered, only the involvement of professional

Table 2. Variables, coding schema, and descriptive statistics.

Variable name	Coding schema	Descriptive statistics
Venture_stage	Idea – venture is at the idea/concept stage Beta – a beta or a prototype has been developed Product – the product or service has been developed and it is offered to potential clients	Ideas – 12.2% Beta / Prototype – 25.2% Product – 62.6%
Corporate_clients	For B2B ventures 1 - the company has large corporate clients 0 – otherwise B2C companies were coded as 0	37.1% of the companies were B2B and had signed large corporate clients
Patents_pending	1 – the company has pending patent applications 0 – none	7.1% of the ventures had pending patent applications
Patents_issued	1 – the company has received patents 0 – none	14.5% of the ventures held patents
Single_entrepreneur	1 – single entrepreneur 0 – otherwise	43.3% of the ventures are led by a single entrepreneur
Industry_experience	Founder(s) have experience in the target industry 1 – yes 0 – no	81.3% of the entrepreneurial teams had experience in the target industry
Serial_entrepreneur	At least one of the founders has prior entrepreneurial experience 1 – yes 0 – no	9.5% of entrepreneurial teams included serial entrepreneurs
Team_size	Number of founders	Min = 1 Max = 26 Mean = 5.22 St. dev. = 7.7
Angel_investors	1 – the company has received funding from a professional angel investor 0 – none	15.4% received funding from a professional angel investor
VC_investment	1 – the company has received funding from a venture capital firm 0 – none	12.2% received funding from a venture capital firm
Video	1 – venture description contains a video 0 – none	63.8% of the campaigns included a video
Entrepreneur_video	1 – founder(s) appears in the video 0 – the founder(s) is not in the video	30.6% of the campaigns included a video of the entrepreneur
B2B	1 – B2B ventures 0 – otherwise	5.8% of the companies were B2B
Industry_sector	Commerce & industry Consumer goods Energy Financial Healthcare Materials Services Technology	Commerce & industry – 5.3% Consumer goods – 12.2% Energy – 2.4% Financial – 11.9% Healthcare – 3.9% Materials – 1.5% Services – 30.6% Technology – 32.3%
Pre-issue market cap	Company value prior to receiving funding, in $	Average: $16.3 million Min: $0 Max: $500 million Mode: $5 million
Minimum issue amount	The minimum amount of funding sought by the venture, in $	Mean: $2.07 million Max: $40 million Min: $40,000 Mode: $500,000

(*Continued*)

Table 2. (*Continued*).

Variable name	Coding schema	Descriptive statistics
Success	The campaign met or exceeded the minimum issue amount	8.9% of the campaigns reached or exceeded their minimum issue amount
Partial_success	The campaign met at least 50% of the minimum issue amount	23.1% of the campaigns reached at least 50% of their minimum issue amount

Table 3. Factors affecting equity crowdfunding success.

	Model I - Market risk	Model II - Execution risk	Model III - Agency risk	Model IV - Computer mediation	Model V - All factors	Model VI
Company stage						
Idea	–0.157				–0.113	–0.102
Beta	–0.182				–0.192	–0.201
Product	–0.183				–0.196	–0.188
Corporate clients	1.193***				0.435	0.223
Patents pending	1.021				0.021	0.025
Patents issued	–0.627				0.033	0.124
Single entrepreneur		–0.119			0.180	0.152
Entrepreneur industry experience		1.127			0.521	0.632
Serial entrepreneur		–0.608			0.098	0.113
Team size		0.010			0.915	0.877
Angel investors			0.047		0.198	0.244
VC investors			2.3***		2.2***	1.6**
Video				1.01*	0.544	0.498
Entrepreneur in video				0.603	0.366	0.457
Issue minimum	–0.022	0.012	0.014	0.017	0.003	–0.002
B2B	–0.012	0.007	0.011	0.008	0.010	–0.003
Pre-issue market cap						–0.432
–2 log likelihood	183.5		166.8	191.7	158.3	44.7
Nagelkerke R^2	0.12		0.22	0.07	0.27	0.19

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.

venture capital investors has a significant positive effect on the equity crowdfunding success ($B = 2.2$, $p < 0.001$). The results are summarized in Model V column in Table 3.

5.2. Robustness checks

Endogeneity due to simultaneous causality, which is a common concern in panel data analysis, is not a significant concern in our results because the independent variables in our data-set are known at the initiation of an equity crowdfunding campaign, while the outcome is only known at the conclusion of the campaign. Hence, the outcome cannot affect the predictors.

Interpretation of analytical insights based on panel data necessitates an evaluation of model robustness. Logistic regression parameter estimation is known to be sensitive to outliers in the data. Although the majority of our predictors are binary variables, we reevaluated the parameter estimates in our models using the robust logistic regression technique developed by Bianco and Yohai (1996), Bianco and Martínez (2009). The analysis produced values which were similar to the original estimates in our results, indicating no significant outlier effects in our model parameter estimates.

To further evaluate the robustness of our results, we followed the recommendations of Angrist and Pischke (2008) and we replicated the analysis with a related, but different dependent variable. Crowdfunder, the equity crowdfunding platform that serves as the context for our study, supports partial fundraising. Crowdfunder will release the funds committed by investors to the entrepreneurs even if a particular campaign does not reach its target. Prior research has suggested that equity crowdfunding campaigns that reach at least 50% of their goal are likely to be successful (Vismara 2015). To evaluate the robustness of our results, we replicated the analysis and examined the effects of market, execution, agency risks, and computer mediation challenges on the venture ability to secure at least half of the required funding.

The assessment of factors related to market risk revealed that the company stage, corporate clients ($B = 0.868$, $p < 0.001$), pending patent applications ($B = 0.094$, $p < 0.05$) and issued patents ($B = 0.033$, $p < 0.05$) were all positively correlated with the venture ability to secure at least half of the funding goal. 33.6% of the B2B companies that had signed corporate clients reached at least 50% of the funding goal, whereas only 15.8% of the B2B companies that did not mention marque clients reached that target. 25% of the companies that had secured patents were successful in raising at least 50% of the target amount, whereas only 18.5% of the companies without patents reached at least 50% of the target. The results are shown in Model I column in Table 4.

Focusing on execution related risks, we find that ventures led by experienced entrepreneurs are more likely to secure funding ($B = 0.829$, $p < 0.01$). 40.6% of the ventures led by serial entrepreneurs were successful in raising at least 50% of the target capital, compared to 21.1% partial success rate for ventures without serial entrepreneurs among the founders. The results are shown in Model II column in Table 4.

Table 4. Factors affecting equity crowdfunding success.

	Model I - Market risk	Model II - Execution risk	Model III - Agency risk	Model IV - Computer mediation	Model V - All factors	Model VI
Company stage						
idea	−1.824*					−0.882
beta						
product	1.89*					0.772
Corporate clients	0.868***				0.544	0.323
Patents pending	0.094*				0.070	0.068
Patents issued	0.033***				0.073	0.015
Single entrepreneur		−0.134			−0.015	−0.013
Entrepreneur industry experience		1.021			0.096	0.103
Serial entrepreneur		0.829*			0.084	0.072
Team size		0.053			0.039	0.013
Angel investors			0.98***		0.87*	0.540
VC investors			1.477***		1.35***	1.3*
Video				0.734*	0.433	0.677
Entrepreneur in video				0.054	0.039	0.062
B2B	0.053	0.003	−0.004	−0.007	0.002	0.003
Issue minimum	−0.030	−0.027	−0.035	−0.041	−0.015	−0.007
Pre issue market cap						−0.043
−2 log likelihood	338.5	346.9	326.4	353.4	317.3	82
Nagelkerke R^2	0.11	0.08	0.16	0.05	0.2	0.18

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.

Table 5. Hypotheses and empirical evidence.

Hypotheses	Empirical results
Market risks	
H1a: Later stage ventures (+)	Partially supported
H1b: Corporate clients (+)	Partially supported
H2a: Pending patent applications (+)	Partially supported
H1b: Patents issued (+)	Partially supported
Execution risks	
H3a: Single entrepreneur (-)	Not supported
H3b: Industry experience (+)	Not supported
H3c: Serial entrepreneur (+)	Partially supported
H3d: Team size (+)	Not supported
Agency risks	
H4a: Professional angel investors (+)	Partially supported
H4b: VC backing (+)	Supported
Computer mediation	
H5a: Use of video (+)	Partially supported
H5b: Entrepreneur in video (+)	Not supported

In terms of agency risk-related factors, we find that both professional angel investor backing ($B = 0.98$, $p < 0.001$) and venture capital backing ($B = 1.477$, $p < 0.001$) are positively associated with partial fundraising success. 51.9% of ventures that secured professional angel investor backing prior to the equity crowdfunding campaign were success in raising at least 50% of the target amount versus 17.4% partial success rate for ventures without professional angel investor backing. 61% of the ventures that secure VC investor backing were success in raising at least 50% of the target amount versus 17% partial success rate for ventures without VC investor backing. The results are shown in Model III in Table 4.

The assessment of the use of video in investment solicitation, we find that it is positively associated with the partial funding success ($B = 0.734$, $p < 0.05$). 27.4% of the ventures that posted a video were successful in raising at least 50% of the target funding, whereas only 13.8% of the ventures without a video reached at least 50% of the target amount. The examination of the combination of market, execution, agency and computer mediation factors reveals that only professional angel investor participation ($B = 0.87$, $p < 0.05$) and venture capital backing ($B = 1.35$, $p < 0.001$) show statistically significant effects in the full model (Model V in Table 4). The results affirm the robustness of insights from the primary analysis.

Table 5 summarizes the results in terms of the associated hypotheses.

Discussion

In this study, we drew on research in traditional risk capital finance which emphasizes that investors in entrepreneurial ventures face three different types of risk: market, execution and agency risks, and we examined factors that can affect successful equity-based capital fundraising by entrepreneurial ventures in equity crowdfunding platforms in the United States. We expanded the framework to reflect specific challenges that can arise in computer-mediated communication contexts. We evaluated the proposed framework in the context of a leading Title II equity crowdfunding platform in the United States. We analyzed venture-level data from 337 entrepreneurial investment solicitations by focusing on the specific market, execution, and agency risks as well as the use of video to overcome computer-mediated communication challenges. We find that when we consider each type of risk separately,

market traction and professional investor involvement are predictive of successful equity crowdfunding from accredited investors under Title II. We also find that entrepreneur use of video to communicate the information about their venture to potential investors is also positively correlated with successful fundraising. However, when we consider all factors simultaneously, only professional venture capital involvement in a venture remains as a statistically significant factor associated with the venture's ability to raise the full amount of the required funding in online equity crowdfunding.

Our evaluation of the results robustness through the examination of the venture ability to raise at least half of the funding goal reveals that several other venture characteristics, e.g. the stage of the venture (idea/prototype/completed product), entrepreneurial team composition (single entrepreneur, prior entrepreneurial experience) may affect partial equity crowdfunding success when we consider market, execution and agency risks separately. Ventures in the idea stage and ventures comprised of a single entrepreneur are less likely to be successful in attracting at least half of the requested capital, whereas serial entrepreneurs are more likely to attract at least half of the requested capital. However, only professional angel investor and/or venture capital involvement are significant when the market, execution, agency, and computer mediation factors are considered simultaneously.

The results of our study suggest that potential investors in equity crowdfunding platforms rely on a simple rule (a heuristic) in making their investment decisions. The key factor is whether a venture is already backed by professional VC investors prior to the engagement in an online equity crowdfunding campaign. The heuristic likely reflects investor perceptions that ventures that successfully raised funding from professional investors offline prior to engaging with the equity crowdfunding platforms had already successfully navigated the traditional VC due diligence process and they will benefit from close engagement of professional investors in the execution of the business strategy. In essence, investors on Crowdfunder appear to be freeriding on the efforts of traditional professional investors in venture quality assessment and stewardship.

Theoretical contributions

Our study makes a number of contributions to theory. First, we answer the recent call for integration of interdisciplinary theories in crowdfunding research (McKenny et al. 2017). We draw on research in traditional offline entrepreneurial finance and we develop a novel theoretical lens for examining venture success in equity crowdfunding. Much of the published research on equity crowdfunding has focused on information asymmetry (Ahlers et al. 2015; Belleflamme, Lambert, and Schwienbacher 2014), i.e. the entrepreneur knowing more than potential investors about the prospects of the venture, as the key challenge in equity crowdfunding. The focus on potential information asymmetries largely ignored the fact that entrepreneurial ventures vary greatly in objective market, execution, and agency risks (Carpentier and Suret 2015). By focusing on the individual risks, we show that all three types of risk may play a role in online equity crowdfunding. We also expand the framework to acknowledge the unique challenge that arises in computer-mediated communications. Assessment of individual entrepreneur quality plays a key role in investment decisions (Clark 2008). Entrepreneurial passion cannot be easily captured in textual narratives and therefore it becomes essential for the entrepreneurs to use rich media (video) to engage with potential investors and communicate the individual level of experience, passion, and commitment.

We find that the use of video communication is associated with successful fundraising on Crowdfunder.

Our second contribution to theory is the provision of empirical evidence from a Title II equity crowdfunding platform in the United States. Except for the study conducted by Agrawal, Catalini, and Goldfarb (2016), all other published work on equity crowdfunding has been done outside of the United States. Prior theoretical work has noted that internet mediation amplifies information asymmetry challenges between entrepreneurs and potential investors and it questioned the potential viability of equity crowdfunding as a whole (Agrawal, Catalini, and Goldfarb 2013). Our results demonstrate that online equity crowdfunding can be successful from the entrepreneur perspective. 337 ventures in our data-set have raised $183 million on Crowdfunder. 78 of 337 ventures raised at least 50% of the target capital and 30 ventures raised the full amount of target capital. These rates of success compare favorably to the reports focusing on the traditional offline fundraising by entrepreneurs (Van Osnabrugge 2000; Wiltbank et al. 2009).

Our third theoretical contribution stems from the empirical insights that emerged from our study. While we identified an extended list of potential factors that may affect the investors' decision to commit capital to a particular venture via equity crowdfunding platforms, we find that professional investor involvement prior to the online equity crowdfunding campaign is the only factor that is predictive of a venture achieving the full funding target when we consider all factors simultaneously. In other words, while the accredited investors may consider different types of risks in the evaluation of potential equity crowdfunding investment opportunities, they appear to primarily rely on a single factor in making their investment decisions. This factor is whether the venture seeking funding had already secured funding from traditional professional VCs offline prior to starting the online equity crowdfunding campaign. Backing from professional VCs implies that the venture had successfully navigated the due diligence process and further, the venture will benefit from professional support and monitoring in the execution of the business strategy (Colombo and Grilli 2010; Hochberg, Ljungqvist, and Lu 2007). This finding echoes the results from offline (Payne and Macarty 2002) and online (Agrawal, Catalini, and Goldfarb 2016) contexts which demonstrated that investors often engage in deal syndication to lower the due diligence costs. However, there is an open concern that, in contrast to traditional deal syndication among angel and VC investors which expands the pool of expertise in the due diligence process and improves its quality (Gregson, Mann, and Harrison 2013; Sorenson and Stuart 2001), the investors in the online equity crowdfunding platforms are simply freeriding on others investors' due diligence without adding value in the venture screening process. Investor herding has been noted as another potential concern in online equity crowdfunding (Agrawal, Catalini, and Goldfarb 2013) and our results suggest that investor herding may be occurring in Title II crowdfunding platforms.

Implications for practice

Our study also has a number of implications for practice. Our results suggest that online equity crowdfunding may not be suitable as the only source of venture funding for early stage ventures, but it can be used to amplify entrepreneurial venture fundraising success from traditional VCs and potentially obtain additional funding on more favorable terms. The insights relevant for the individual entrepreneurs also have implications for the operators of equity crowdfunding platforms.

The passage of the JOBS Act led to the creation of at least 17 different Title II equity crowdfunding platforms in the United States (Mamonov, Malaga, and Rosenblum 2017). Our results suggest that the success of equity crowdfunding platforms will likely depend on the platforms' ability to match the right investors with the right kind of ventures. Our analysis of the Crowdfunder platform suggests that the investors on this platform are looking for clear evidence of market traction and validation from traditional offline professional investors. This strategy, while rational, may prove to be suboptimal in aggregate because in essence the investors on the crowdfunding platform are dependent on the decisions made by other investors. Early stage venture statistics suggest that at about half of VC investments lead to losses (Mason and Harrison 2002). It is not clear whether the investors participating in online equity crowdfunding are aware of the associated investment risks.

Limitations and opportunities for further research

Lastly, we should note that no research is without limitations. While we examined venture-level success factors in one of the largest equity crowdfunding platforms in the United States, our analysis is limited to a single platform and the generalizability of the findings would need to be assessed across other platforms.

Our study suggests a number of topics for further research. First, while we found that an investment from an established venture capital firm in a venture seeking to raise funding on Crowdfunder was correlated with the ability of the venture to attract the full target amount, only 16 of 41 VC-backed ventures were successful in raising the full amount in our data-set. Prior research has shown that factors such as the size of the VC firm, the firm's reputation, whether the investment is aligned with the VC firm's expertise and geographical proximity of the VCs to the investment target can affect venture performance and investor outcomes after the investment is made (Cumming and Dai 2011; Cumming and Johan 2013; Guenther, Johan, and Schweizer 2017). It would be important to examine these factors in future research to understand the possible reasons why an investment from an established VC firm does not always translate into equity crowdfunding success.

The narratives that entrepreneurs use to communicate the investment opportunities to potential investors in equity crowdfunding platforms would also merit further examination. Prior studies have noted that addressing changing environmental conditions may be an effective appeal strategy for cleantech crowdfunding projects (Cumming, Leboeuf, and Schwienbacher 2017). It would be important to explore how different external factors as well as the narrative quality may influence the success of equity crowdfunding campaigns.

A parallel opportunity for further research concerns investor outcomes. While the initial results from the Crowdfunder platform demonstrate that entrepreneurs can be successful in raising capital through equity crowdfunding, it remains to be seen whether investors can earn the returns that would justify the investment risks. The longer term success of equity crowdfunding platforms will be dependent on the platforms ability to broker transactions that benefit both entrepreneurs and investors. As the investments mature, it would be critical to examine the financial returns earned by the investors and the importance of investment diversification in the equity crowdfunding platforms.

Another question that merits further examination is whether the investors in equity crowdfunding platforms are truly freeriding on the due diligence and monitoring efforts of

traditional VC investors for the venture that engage in the equity crowdfunding platforms after they receive an investment from a traditional VC. Traditional VCs typically rely on complex legal contracts in structuring their investments. VC contracts commonly specify blocking votes on the company boards, dilution provisions, conversion terms, and liquidation preferences (Cumming and Johan 2008; Kaplan and Strömberg 2003). It would be of interest to examine whether the investors in the equity crowdfunding platforms receive any of these benefits or, alternatively, what mechanisms are available to the investors in equity crowdfunding platforms to achieve the alignment of interests between the investors and the entrepreneurs.

Lastly, the results of our study reveal that the success factors in equity crowdfunding can differ substantially across countries. While we found that accredited investors in the United States participating in equity crowdfunding platforms appear to consider market, execution, and agency risks when choosing which companies to invest in through equity crowdfunding platforms, prior research done in Finland, suggested that Finish investors pay little attention to market or execution factors (Lukkarinen et al. 2016). The study done in Finland concluded that the success of equity crowdfunding in Finland was primarily dependent on the entrepreneurs' ability to mobilize their existing contacts to participate in equity crowdfunding platforms. A study by Ahlers et al. (2015) that examined success factors in equity crowdfunding in Australia discovered that the size of the equity offering and the lack of financial forecasts were both negatively associated with the likelihood of a successful fundraising on the Australian Small Scale Offerings Board. Ahlers et al. (2015) found no evidence to support the role of the company advisory board quality, the number of employees, the executive team education or patents in influencing the success of fundraising on ASSOB. The differing results across different countries point to a need to better understand how the specific country-level factors influence the development of equity crowdfunding practices in different countries.

Conclusion

By drawing on the research on traditional risk capital we developed a novel theoretical lens for understanding venture success in internet-based equity crowdfunding. The framework identifies market, execution, agency risks and computer-mediation as the four general types of challenges that can affect fundraising in equity crowdfunding platforms. The empirical evaluation of the proposed framework supports the importance of the individual risk types and it also suggests that investors are likely relying on a limited set of criteria in evaluating potential investment opportunities in equity crowdfunding. The key factor that is correlated with successful fundraising is successful procurement of funds from professional venture capitalists prior to the online equity crowdfunding campaign. The results imply that investors in online equity crowdfunding platforms are dependent on and are freeriding on the due diligence and venture development efforts carried out by traditional offline professional venture capital firms. Therefore, online Title II equity crowdfunding is complementary rather than a replacement for the traditional venture capital funding sources.

Disclosure statement

No potential conflict of interest was reported by the authors.

References

Agrawal, Ajay, Christian Catalini, and Avi Goldfarb. 2013. *Some Simple Economics of Crowdfunding*. Cambridge, MA: National Bureau of Economic Research.

Agrawal, Ajay, Christian Catalini, and Avi Goldfarb. 2016. "Are Syndicates the Killer App of Equity Crowdfunding?" *California Management Review* 58 (2): 111–124.

Ahlers, Gerrit K. C., Douglas Cumming, Christina Günther, and Denis Schweizer. 2015. "Signaling in Equity Crowdfunding." *Entrepreneurship Theory and Practice* 39 (4): 955–980.

Angrist, Joshua D., and Jörn-Steffen Pischke. 2008. *Mostly Harmless Econometrics: An Empiricist's Companion*. Princeton, NJ: Princeton University Press.

Beier, Michael, and Kerstin Wagner. 2016. "User Behavior in Crowdfunding Platforms–Exploratory Evidence from Switzerland." In *2016 49th Hawaii International Conference on System Sciences (HICSS)*, 3584–3593. IEEE.

Belleflamme, Paul, Thomas Lambert, and Armin Schwienbacher. 2013. "Individual Crowdfunding Practices." *Venture Capital* 15 (4): 313–333.

Belleflamme, Paul, Thomas Lambert, and Armin Schwienbacher. 2014. "Crowdfunding: Tapping the Right Crowd." *Journal of Business Venturing* 29 (5): 585–609. Elsevier.

Belleflamme, Paul, Nessrine Omrani, and Martin Peitz. 2015. "The Economics of Crowdfunding Platforms." *Information Economics and Policy* 33: 11–28. Elsevier.

Bianco, Ana M., and Elena Martínez. 2009. "Robust Testing in the Logistic Regression Model." *Computational Statistics & Data Analysis* 53 (12): 4095–4105. Elsevier.

Bianco, Ana M., and Victor J. Yohai. 1996. "Robust Estimation in the Logistic Regression Model." In *Robust Statistics, Data Analysis, and Computer Intensive Methods*, edited by H. Rieder, 17–34. New York: Springer.

Bos, Nathan, Judy Olson, Darren Gergle, Gary Olson, and Zach Wright. 2002. "Effects of Four Computer-mediated Communications Channels on Trust Development." In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*, 135–140. ACM.

Carpentier, Cécile, and Jean Marc Suret. 2015. "Angel Group Members' Decision Process and Rejection Criteria: A Longitudinal Analysis." *Journal of Business Venturing* 30 (6): 808–821. Elsevier Inc.

Chen, Xiao-Ping, Xin Yao, and Suresh Kotha. 2009. "Entrepreneur Passion and Preparedness in Business Plan Presentations: A Persuasion Analysis of Venture Capitalists' Funding Decisions." *Academy of Management Journal* 52 (1): 199–214. Academy of Management.

Christensen, Clayton M., Mark W. Johnson, and Darrell K. Rigby. 2002. "Foundations for Growth: How to Identify and Build Disruptive New Businesses." *MIT Sloan Management Review* 43 (3): 22. Massachusetts Institute of Technology, Cambridge, MA.

Clark, Colin. 2008. "The Impact of Entrepreneurs' Oral 'Pitch' Presentation Skills on Business Angels' Initial Screening Investment Decisions." *Venture Capital: An International Journal of Entrepreneurial Finance* 10 (3): 257–279.

Colombo, Massimo G., and Luca Grilli. 2010. "On Growth Drivers of High-Tech Start-Ups: Exploring the Role of Founders' Human Capital and Venture Capital." *Journal of Business Venturing* 25 (6): 610–626. Elsevier.

Crowdfunder. 2016. "Venture Capital: Crowdsourced." https://blog.crowdfunder.com/about-crowdfunder/.

Crowdnetic. 2016. *Crowdnetic's Quarterly Private Companies Publicly Raising Data Analysis*.

Cumming, Douglas, and Na Dai. 2011. "Fund Size, Limited Attention and Valuation of Venture Capital Backed Firms." *Journal of Empirical Finance* 18 (1): 2–15. Elsevier B.V.

Cumming, Douglas, and Sofia Johan. 2013b. "Demand-Driven Securities Regulation: Evidence from Crowdfunding." *Venture Capital: An International Journal of Entrepreneurial Finance* 15: 361–379. Taylor & Francis.

Cumming, Douglas, and Sofia Atiqah Johan. 2008. "Preplanned Exit Strategies in Venture Capital." *European Economic Review* 52 (7): 1209–1241.

Cumming, Douglas, Gael Leboeuf, and Armin Schwienbacher. 2017. "Crowdfunding Cleantech." *Energy Economics* 65: 292–303. Elsevier B.V.

Dutta, Supradeep, and Timothy B. Folta. 2016. "A Comparison of the Effect of Angels and Venture Capitalists on Innovation and Value Creation." *Journal of Business Venturing* 31 (1): 39–54. Elsevier Inc.

Emekter, Riza, Yanbin Tu, Benjamas Jirasakuldech, and Min Lu. 2015. "Evaluating Credit Risk and Loan Performance in Online Peer-to-Peer (P2P) Lending." *Applied Economics* 47 (1): 54–70. Routledge.

Feeney, Lisa, George H. Haines, and Allan L. Riding. 1999. "Private Investors' Investment Criteria: Insights from Qualitative Data." *Venture Capital: An International Journal of Entrepreneurial Finance* 1 (2): 121–145.

Feld, Brad, and Jason Mendelson. 2016. *Venture Deals: Be Smarter than Your Lawyer and Venture Capitalist*. Hoboken, NJ: John Wiley & Sons.

Foley, Andrew J., and Weiss Paul. 2015. "SEC Adopts Final Rules for Crowdfunding." *Harvard Law School Forum on Corporate Governance and Financial Regulation*. https://corpgov.law.harvard.edu/2015/11/16/sec-adopts-final-rules-for-crowdfunding/.

Garrison, D. Randy, Terry Anderson, and Walter Archer. 1999. "Critical Inquiry in a Text-Based Environment: Computer Conferencing in Higher Education." *The Internet and Higher Education* 2 (2–3): 87–105. Elsevier.

Gregson, Geoff, Sacha Mann, and Richard Harrison. 2013. "Business Angel Syndication and the Evolution of Risk Capital in a Small Market Economy: Evidence from Scotland." *Managerial and Decision Economics* 34 (2): 95–107. Wiley Online Library.

Guenther, Christina, Sofia Johan, and Denis Schweizer. 2017. "Is the Crowd Sensitive to Distance?—How Investment Decisions Differ by Investor Type." *Small Business Economics*: 1–17. Springer.

Harrison, Richard. 2013. "Crowdfunding and the Revitalisation of the Early Stage Risk Capital Market: Catalyst or Chimera?" *Venture Capital: An International Journal of Entrepreneurial Finance* 15: 283–287. Taylor & Francis.

Häussler, Carolin, Dietmar Harhoff, and Elisabeth Müller. 2012. "To Be Financed or Not…-the Role of Patents for Venture Capital-Financing." *SSRN*, No. 1393725.

Hochberg, Yael V., Alexander Ljungqvist, and Yang Lu. 2007. "Whom You Know Matters: Venture Capital Networks and Investment Performance." *The Journal of Finance* 62 (1): 251–301. Wiley Online Library.

Hsu, David H. 2007. "Experienced Entrepreneurial Founders, Organizational Capital, and Venture Capital Funding." *Research Policy* 36 (5): 722–741. Elsevier.

Hsu, David H., and Rosemarie H. Ziedonis. 2008. "Patents as Quality Signals for Entrepreneurial Ventures." In *Academy of Management Proceedings*, 1–6. Academy of Management.

James, Lawrence R., Robert G. Demaree, and Gerrit Wolf. 1984. "Estimating within-Group Interrater Reliability with and without Response Bias." *Journal of Applied Psychology* 69 (1): 85. American Psychological Association.

Kaplan, Steven N., and Per Strömberg. 2003. "Financial Contracting Theory Meets the Real World: An Empirical Analysis of Venture Capital Contracts." *The Review of Economic Studies* 70 (2): 281–315. Oxford University Press.

Kuester, Sabine, Christian Homburg, and Thomas S. Robertson. 1999. "Retaliatory Behavior to New Product Entry." *The Journal of Marketing*: 90–106. JSTOR.

Lazear, Edward P. 2004. "Balanced Skills and Entrepreneurship." *The American Economic Review* 94 (2): 208–211. JSTOR.

Lukkarinen, Anna, Jeffrey E. Teich, Hannele Wallenius, and Jyrki Wallenius. 2016. "Success Drivers of Online Equity Crowdfunding Campaigns." *Decision Support Systems* 87: 26–38. Elsevier B.V.

Mamonov, Stanislav, Ross Malaga, and Janet Rosenblum. 2017. "An Exploratory Analysis of Title II Equity Crowdfunding Success." *Venture Capital*, March: 1–18. Routledge

Mason, Colin M., and Richard T. Harrison. 2002. "Is It worth It? The Rates of Return from Informal Venture Capital Investments." *Journal of Business Venturing* 17 (3): 211–236. Elsevier.

Maxwell, Andrew L., Scott A. Jeffrey, and Moren Lévesque. 2011. "Business Angel Early Stage Decision Making." *Journal of Business Venturing* 26 (2): 212–225. Elsevier Inc.

McKenny, Aaron F., Thomas H. Allison, David J. Ketchen, Jeremy C. Short, and R. Duane Ireland. 2017. "How Should Crowdfunding Research Evolve? A Survey of the Entrepreneurship Theory and Practice Editorial Board." *Entrepreneurship: Theory and Practice* 41 (2): 291–304.

Metrick, Andrew, and Ayako Yasuda. 2010. *Venture Capital and the Finance of Innovation*. Hoboken: Wiley.

Mollick, Ethan. 2014. "The Dynamics of Crowdfunding: An Exploratory Study." *Journal of Business Venturing* 29 (1): 1–16.
Morrissette, Stephen G. 2007. "A Profile of Angel Investors." *The Journal of Private Equity* 10 (3): 52–66. Institutional Investor Journals.
Murnieks, Charles Y., Melissa S. Cardon, T. Richard Sudek, Daniel White, and Wade T. Brooks. 2016. "Drawn to the Fire: The Role of Passion, Tenacity and Inspirational Leadership in Angel Investing." *Journal of Business Venturing* 31 (4): 468–484. Elsevier Inc.
Noe, Thomas H., and Michael J. Rebello. 1996. "Asymmetric Information, Managerial Opportunism, Financing, and Payout Policies." *The Journal of Finance* 51 (2): 637–660. Wiley Online Library.
Ortmans, Jonathan. 2016. "The Rise of Angel Investing." *Fouffman Foundation -Policy Dialog on Entrepreneurship*.
Paul, Stuart, Geoff Whittam, and Janette Wyper. 2007. "Towards a Model of the Business Angel Investment Process." *Venture Capital* 9 (2): 107–125.
Payne, William H., and Matthew J. Macarty. 2002. "The Anatomy of an Angel Investing Network: Tech Coast Angels." *Venture Capital: An International Journal of Entrepreneurial Finance* 4 (4): 331–336. Taylor & Francis.
Picard, Rosalind W. 2003. "Affective Computing: Challenges." *International Journal of Human-computer Studies* 59 (1): 55–64. Elsevier.
Ralcheva, Aleksandrina, and Peter Roosenboom. 2016. "On the Road to Success in Equity Crowdfunding." *Available at SSRN 2727742*. https://ssrn.com/abstract=2727742.
Salomon, Victoriya. 2015. "Emergent Models of Financial Intermediation for Innovative Companies: From Venture Capital to Crowdinvesting Platforms in Switzerland." *Venture Capital* 18 (1): 21–41.
Sandlund, Jonathan. 2012. "Exploring ASSOB: A $130 Million Crowdfunding Model That Works." *The Crowd Cafe*. http://www.thecrowdcafe.com/exploring-assob-a-crowdfunding-model-that-works/.
SEC. 2013. "Investor Bulletin: Accredited Investors." *SEC's Office of Investor Education and Advocacy*. https://www.investor.gov/news-alerts/investor-bulletins/investor-bulletin-accredited-investors.
SEC. 2015. "Jumpstart Our Business Startups (JOBS) Act." *SEC Web Site*. https://www.sec.gov/spotlight/jobs-act.shtml.
SEC. 2016. "Investor Bulletin: Crowdfunding for Investors." *Investor Alerts and Bulletins*. https://www.sec.gov/oiea/investor-alerts-bulletins/ib_crowdfunding-.html.
Sorenson, Olav, and Toby E. Stuart. 2001. "Syndication Networks and the Spatial Distribution of Venture Capital Investments 1." *American Journal of Sociology* 106 (6): 1546–1588. The University of Chicago Press.
Sudek, Richard. 2006. "Angel Investment Criteria." *Journal of Small Business Strategy* 17 (2): 89. Small Business Institute.
Van Osnabrugge, Mark. 2000. "A Comparison of Business Angel and Venture Capitalist Investment Procedures: An Agency Theory-based Analysis." *Venture Capital* 2 (2): 91–109.
Vismara, Silvio. 2015. "Information Cascades among Investors in Equity Crowdfunding." *Working Paper* January: 49.
Wiltbank, Robert, Stuart Read, Nicholas Dew, and Saras D. Sarasvathy. 2009. "Prediction and Control under Uncertainty: Outcomes in Angel Investing." *Journal of Business Venturing* 24 (2): 116–133. Elsevier Inc.