



The dynamics of crowdfunding: An exploratory study☆☆



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ABSTRACT

Crowdfunding allows founders of for-profit, artistic, and cultural ventures to fund their efforts by drawing on relatively small contributions from a relatively large number of individuals using the internet, without standard financial intermediaries. Drawing on a dataset of over 48,500 projects with combined funding over \$237 M, this paper offers a description of the underlying dynamics of success and failure among crowdfunded ventures. It suggests that personal networks and underlying project quality are associated with the success of crowdfunding efforts, and that geography is related to both the type of projects proposed and successful fundraising. Finally, I find that the vast majority of founders seem to fulfill their obligations to funders, but that over 75% deliver products later than expected, with the degree of delay predicted by the level and amount of funding a project receives. These results offer insight into the emerging phenomenon of crowdfunding, and also shed light more generally on the ways that the actions of founders may affect their ability to receive entrepreneurial financing.

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1. Executive summary

Crowdfunding is a novel method for funding a variety of new ventures, allowing individual founders of for-profit, cultural, or social projects to request funding from many individuals, often in return for future products or equity. Crowdfunding projects can range greatly in both goal and magnitude, from small artistic projects to entrepreneurs seeking hundreds of thousands of dollars in seed capital as an alternative to traditional venture capital investment (Schwienbacher and Larralde, 2010). Despite over a billion dollars spent by millions of individual crowdfunding backers, and large-scale action by the US Congress to encourage crowdfunding as a source of capital for new ventures, even basic academic knowledge of the dynamics of crowdfunding is lacking, outside of the still-uncommon analysis of particular crowdfunding efforts (Agrawal et al., 2010; Burtch et al., 2011). For example, scholars know very little about the dynamics of successful crowdfunding, as well as the general distribution and use of crowdfunding mechanisms. We do not know whether crowdfunding efforts reinforce or contradict existing theories about how ventures raise capital and achieve success. There is also uncertainty about the long-term implications of crowdfunding, such as whether existing projects ultimately deliver the products they promise. In short, this important and growing area of entrepreneurial activity and government action is understudied, even as both practice and policy continue to rapidly advance. Following a tradition of exploratory studies about new phenomena in entrepreneurship (Rice, 2002; Roure and Maidique, 1986; Tan et al., 2013; Zahra, 1991), this paper seeks to make a first few steps towards an analytical understanding of crowdfunding, by

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using the universe of US-based projects on Kickstarter, the largest crowdfunding site, and covering over \$237 million in funding pledged to 48,526 projects.

The analyses provide a somewhat clearer picture of the nature of crowdfunding. It suggests that crowdfunding projects mostly succeed by narrow margins, or else fail by large amounts. Crowdfunding success appears to be linked to project quality, in that projects that signal a higher quality level are more likely to be funded, while a large numbers of friends on online social networks are similarly associated with success. Further, there is a strong geographic component to the nature of projects, with founders proposing projects that reflect the underlying cultural products of their geographic area (such as country music in Nashville, Tennessee). The data also suggests that the nature of the population in which founders operate is related to project success. Finally, founders of projects make efforts to fulfill their obligations to funders, though many projects are delayed. Delays are predicted by the size of the project, with overfunded projects being particularly vulnerable to delay, likely due to the increased complexity and expectations associated with large projects. Together, these findings suggest that there is substantial value in further studying the dynamics of crowdfunding, since it sheds light on a variety of subjects of interest to academics and policymakers, with implications for entrepreneurial financing, the role of individual quality and networks in venture success, and the importance of geography in new ventures.

2. Introduction

New ventures require resources to succeed, and one of the most critical of these is financing (Gompers and Lerner, 2004; Gorman and Sahlman, 1989; Kortum and Lerner, 2000). In recent years, crowdfunding has emerged as novel way for entrepreneurial ventures to secure funds without having to seek out venture capital or other traditional sources of venture investment. Indeed, in his 2012 remarks upon signing the JOBS Act to legalize equity crowdfunding, President Obama stated that “for start-ups and small businesses, this bill is a potential game changer.” Despite such enthusiasm from the highest authorities, it is unclear in what ways, exactly; crowdfunding might change the game for new ventures seeking financing. In this paper, I attempt to explore the potential impact of crowdfunding and to shed some light on the ways in which crowdfunding operates compared to other more traditional forms of entrepreneurial finance.

Specifically, I seek to examine a few issues of importance in understanding the rapid rise of crowdfunding and present preliminary analyses of some of the underlying dynamics of the phenomenon. First, I will give an overview of crowdfunding, including a working definition as well as an explanation of the ways in which crowdfunding operates. I will next describe the nature of the crowdfunding data I use for my exploratory analyses and offer basic descriptive results about crowdfunding efforts. After this, the paper will provide a few in-depth analyses of when crowdfunding results in successful product development; the variables linked to success in crowdfunding ventures; and the geographic distribution of crowdfunding efforts. In addition to offering a description of the basic dynamics of crowdfunding, analyzing this novel setting also provides general insight into the ways in which the characteristics of founders and the way they present their ventures can affect entrepreneurial financing outcomes.

2.1. Defining crowdfunding

Crowdfunding draws inspiration from concepts like micro-finance (Morduch, 1999) and crowdsourcing (Poetz and Schreier, 2012), but represents its own unique category of fundraising, facilitated by a growing number of internet sites devoted to the topic. As in any emergent field, the popular and academic conceptions of crowdfunding are in a state of evolutionary flux that makes complete definitions arbitrarily limiting. In one of the few published overviews of the topic, Schwienbacher and Larralde (2010) define crowdfunding as “an open call, essentially through the Internet, for the provision of financial resources either in form of donation or in exchange for some form of reward and/or voting rights in order to support initiatives for specific purposes.” However, even this expansive definition potentially leaves out examples that scholars in various fields have labeled “crowdfunding,” including internet-based peer-to-peer lending (Lin and Viswanathan, 2013) and fundraising drives initiated by fans of a music group (Burkett, 2011), among many other cases.

A broad definition of crowdfunding is therefore elusive, especially as crowdfunding covers so many current (and likely future) uses across many disciplines. Instead, I would argue that, for academics examining new ventures and entrepreneurial finance where crowdfunding is particularly salient, a narrower definition of the term is preferable. In an entrepreneurial context, the following definition provides specificity while allowing room for the continued evolution of the concept: Crowdfunding refers to the efforts by entrepreneurial individuals and groups – cultural, social, and for-profit – to fund their ventures by drawing on relatively small contributions from a relatively large number of individuals using the internet, without standard financial intermediaries.

Two aspects of the Schwienbacher and Larralde (2010) definition are not addressed in this formulation: the goal of the crowdfunding effort and the goal of the investors. Both types of goals are obviously of great importance, but they are also the aspects of crowdfunding that are subject to the most variation. Given the ongoing development of crowdfunding, rather than arbitrarily limiting the goals of founders and funders in a formal definition, I will instead discuss a variety of approaches by which individuals may approach crowdfunding as either founders (as I will refer to all individuals raising crowdfunding for a cultural, social, or for-profit venture) or funders.

2.2. Goals of founders

Unlike many other forms of venture financing, projects engaging in “crowdfunding” have a wide variety of goals. Many crowdfunded projects seek to raise small amounts of capital, often under \$1000, to initiate a particular one-time project (an event, for example). In these cases, capital is often provided by friends and family. Increasingly, however, crowdfunding appears to be a viable source for entrepreneurial seed capital (Schwienbacher and Larralde, 2010), allowing entrepreneurs to raise the initial money required to start their new venture (Evans and Leighton, 1989). For example, of the fifty highest funded projects through 2012 on Kickstarter, the premier crowdfunding site, 45 have turned into ongoing entrepreneurial firms. It is unclear, however, the degree to which crowdfunding will ultimately substitute for other forms of more formal venture funding, especially as the rules around crowdfunding for equity are evolving (see, for example, the JOBS Act, 112th Congress), and early stage investors typically offer much more to new ventures than simply funding — including advice, governance, and prestige (Ferrary and Granovetter, 2009; Gompers and Lerner, 2004; Gorman and Sahlman, 1989; Hsu, 2004). Thus, crowdfunding financing can be used to fund a wide range of traditional and non-traditional founders.

However, funding need not be the only goal of a crowdfunding effort, even in an entrepreneurial context. As an example of other goals, crowdfunding has been used by founders to demonstrate demand for a proposed product, which can lead to funding from more traditional sources. A case of this use of crowdfunding can be found in the Pebble “smart watch,” which was initially rejected for venture capital funding but was able to secure a large amount of VC funding after its Kickstarter campaign (Dingman, 2013). Conversely, a lack of demand makes it easy for founders to “fail quickly” if they see little interest in a project, without the need to invest additional capital or effort.

Crowdfunding has also been used for marketing purposes, creating interest in new projects in the early stages of development. This has been especially important in industries where projects seek to create ecosystems of complimentary products. The crowdfunding success of Pebble and Ouya, a videogame console, led other developers to write applications for these products even before they were released, helping build competitive advantage even before the projects were released to the public. Press attention also potentially follows crowdfunding campaigns, which can be beneficial to founders. Thus, crowdfunding, like other forms of venture finance (Ferrary and Granovetter, 2009), offers a potential set of resources that go beyond capital which can be beneficial to founders.

2.3. Goals of funders

In addition to encompassing a wide range of potential projects, and founding goals, crowdfunding also differs from other methods of start-up funding because the relationship between funders and founders varies by context and the nature of the funding effort (Belleflamme et al., 2012). There are four main contexts in which individuals fund projects, but these contexts often overlap as projects may allow funders to achieve several different goals simultaneously.

Some crowdfunding efforts, such as art or humanitarian projects, follow a patronage model, placing funders in the position of philanthropists, who expect no direct return for their donations. The second model, the lending model, is one in which funds are offered as a loan, with the expectation of some rate of return on capital invested. In the case of microfinanced loans, the lender may be more interested in the social good promoted by the venture than any return generated by the loan, thus including patronage model elements as well.

The third approach, commonly called reward-based crowdfunding, is the most prevalent as of the time of this writing. In this approach, funders receive a reward for backing a project. This can include being credited in a movie, having creative input into a product under development, or being given an opportunity to meet the creators of a project. Alternately, reward-based crowdfunding treats funders as early customers, allowing them access to the products produced by funded projects at an earlier date, better price, or with some other special benefit. The “pre-selling” of products to early customers is a common feature of those crowdfunding projects that more traditionally resemble entrepreneurial ventures, such as projects producing novel software, hardware, or consumer products.

Finally, as broadly legalized in the US by the *Jumpstart Our Business Startups Act*, passed in April 2012, and previously legalized in other countries, crowdfunding efforts may also treat funders as investors, giving them equity stakes or similar consideration in return for their funding. As of mid-2013, equity crowdfunding is generally not permitted in the United States, and still relatively rare worldwide, making up less than 5% of all crowdfunding investment (Massolution, 2013). Equity crowdfunding is subject to high levels of regulation (Heminway and Hoffman, 2010), and the eventual adoption of the approach relative to other forms of crowdfunding is uncertain. Even in the absence of equity crowdfunding, investor model crowdfunding can take other forms, including, for example: shares of future profits or royalties; a portion of returns for a future planned public offering or acquisition; or a share of a real estate investment, among other options.

Even within these contexts, the actual goals of funders are extremely heterogeneous. Individuals may invest in a patronage model project in order to support a cause that is viewed as important, to personally support the project founders, as a political statement, as a joke,¹ or for any one of a number of other reasons. Motivations may be similarly complex for other approaches to crowdfunding as well.

In this paper, projects fit in either the first (patronage) or third (reward-based) contexts of the nature of crowdfunding. To some extent, this limits the applicability of findings to other contexts, especially the emerging equity approach. However, given the wide diversity of approaches to crowdfunding and the complex motivations of funders, even within investment crowdfunding (in whatever form it emerges), there is likely to be substantial heterogeneity. And, ultimately, all forms of crowdfunding are based on

¹ For example, a joking effort to crowdfund a statue of Robocop in Detroit, from the movie of the same name, received over \$67,000 from over 2700 backers and is being installed in the city.

similar principles, in that funders are investing funds in a project, and thus are expecting a successful outcome. Changes in the way that individuals view the funding of not-for-profit ventures suggest that, to some degree, all crowdfunding funders may be thought of as investors, making decisions about which projects to support based on their expectations for success and the underlying appeal of the project (Agrawal et al., 2010). Further, contributions to crowdfunding projects, even in markets where crowdfunding is driven by altruism, appear to be attracted to quality projects (Burtch et al., 2011), suggesting that the dynamics of crowdfunding may be stable across some contexts. In the analyses to follow, I find support for the contention that funders respond to signals about the quality of the project, regardless of their expectations for financial return.

2.4. Literature

Though the crowdfunding model overall has achieved remarkable success, and has emerged as a viable method of funding new ventures, there has been very little published peer-reviewed work to date on the topic. Schwienbacher and Larralde (2010) offered one of the first descriptions of crowdfunding, which included a brief case study of a French music crowdfunding startup, and there have been subsequent attempts to build a theoretical model of when individuals would choose to crowdfund (Belleflamme et al., 2012). However, the few recent studies on the topic, all in working paper form, have tended to focus on the role of backers and investors in crowdfunding. Kuppuswamy and Bayus (2013) examine how backer support on Kickstarter varies depending on project success and timing. Agrawal et al. (2010) used a market of musicians seeking crowdfunding to understand whether crowdfunding relaxes geographic constraints on fundraising that are typical of venture capital firms. Finally, Burtch et al. (2011) examined how timing and exposure affected 100 pitches for new journalism stories. All these working papers offer valuable contributions, but no work to date has provided a large-scale understanding of the empirical dynamics of crowdfunding across a wide variety of projects, and they have focused on backers, not on the project founders themselves.

Specifically, since crowdfunding is novel and potentially disruptive to traditional approaches to funding, there are three research areas that should be of interest to entrepreneurship scholars. First, it is important to understand whether crowdfunding successes and failures are driven by the same underlying dynamic as other forms of entrepreneurial investment — that is, does the crowd fund projects that signal potential quality, or is some less rational selection system at work? Second, since a salient feature of crowdfunding compared to other funding methods is the removal of geographic limitations (Agrawal et al., 2010; Stuart and Sorenson, 2003a), it is important to understand what role, if any, geography continues to play in new ventures in a crowdfunding regime. Finally, it is critical to understand if crowdfunding “works:” do crowdfunded projects actually deliver results? In the next part of this paper, I will attempt to introduce data into the discussion of these three areas.

3. Data and methods

As an exploratory empirical study, the goal of this paper is to develop initial evidence about the nature of crowdfunding and its role in entrepreneurship research. This method is appropriate for an evolving topic in the evolving field of entrepreneurship (Aldrich and Baker, 2000; Busenitz et al., 2003; Cornelius, 2006), as this initial data can serve as a useful base for future theory-building (Eisenhardt, 1989). Thus, rather than formal hypothesis testing, the remainder of the paper will examine the key issues around crowdfunding from the perspective of entrepreneurship: its links to existing theory, the effects of a new form of fundraising, and the success or failure of the process.

As the goal of this paper is to provide the widest possible perspective on crowdfunding, I used data extracted from Kickstarter, the largest and dominant crowdfunding site. Kickstarter uses a reward or patronage model, but it is also the inspiration for the recent legalization of equity crowdfunding, with many of its features written into the JOBS Act (Franzen, 2012). Thus, Kickstarter is likely to serve as a broadly useful model for examining crowdfunding efforts.

I used the universe of projects on Kickstarter from its inception in 2009 to July, 2012. I eliminated extreme values of fundraising goals, because, upon inspection, they represented non-serious efforts to raise funds (225 goals below \$100, and 25 goals above a million dollars²). Since Kickstarter requires its funders to be US residents, with US addresses and credit cards, I eliminated the 3931 foreign Kickstarter projects, which, although they were started by US residents, were likely atypical compared to the 95% of projects inside the United States. The result was 48,526 funding efforts representing \$237 M of pledges, of which 23,719 projects (48.1%) succeeded by raised their goal — the amount of money they sought. Summaries of this data by category can be found in Table 1. Kickstarter, which publishes overview statistics, lists 26,017 successful and 33,098 failed projects as of the end of the data collection period, Kickstarter, at around the same period, reported a lower success rate (44.7%) though this data did not remove foreign projects or those with extreme values. The proportionally missing failed projects may, at least in part, be due to issues extracting data from the Kickstarter site. My analysis proceeds on the assumption that our data on projects is substantially complete, as the nature of any gap cannot be precisely determined. If there are measurement errors, they are likely to be descriptive only — I would expect missing projects, if they did exist, to be randomly selected from the population. Therefore, while coefficients may differ from the full population of Kickstarter projects, the significance of the variables should not be affected.

² All 25 projects with goals above \$1 M failed, none came closer than 3% of their goal, and none were realistic in expectations. Including these small and large projects in the models used in the paper had no effect on model outcomes.

Table 1
Summary statistics.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Variables	All	Funded	Art	Design	Fashion	Film	Music	Publishing	Technology
Funded	0.494 (0.500)		0.526 (0.499)	0.394 (0.489)	0.310 (0.463)	0.452 (0.498)	0.597 (0.491)	0.354 (0.478)	0.356 (0.479)
Goal	9866 (27,481)	5604 (13,090)	6764 (26,270)	17,776 (35,664)	7872 (17,808)	14,279 (35,191)	5519 (11,092)	7386 (11,681)	21,177 (44,825)
Funded %	0.802 (6.500)	1.519 (9.194)	0.792 (2.500)	2.397 (34.25)	0.552 (1.142)	0.611 (0.726)	0.811 (0.771)	0.583 (1.226)	1.097 (2.762)
Backers	66.66 (548.8)	122.2 (776.6)	41.19 (88.59)	253.0 (1,887)	36.43 (177.3)	51.11 (163.3)	51.80 (245.2)	40.81 (115.0)	170.9 (650.0)
Pledge/backr	64.37 (94.11)	80.50 (71.33)	55.96 (62.11)	75.72 (98.62)	57.92 (72.79)	76.77 (117.2)	61.67 (83.93)	49.26 (109.4)	72.86 (94.84)
Updates	3.970 (6.303)	6.584 (7.557)	3.728 (5.778)	5.492 (7.922)	2.735 (4.501)	3.911 (6.541)	3.599 (5.121)	3.559 (6.274)	5.289 (8.321)
Comments	8.756 (219.8)	16.77 (312.6)	2.685 (9.400)	34.04 (239.8)	3.034 (14.61)	3.298 (19.28)	3.718 (14.95)	2.267 (8.037)	25.95 (145.1)
Duration	39.63 (17.45)	37.14 (16.01)	37.09 (17.36)	38.68 (15.01)	37.01 (15.83)	40.69 (18.29)	40.29 (17.33)	39.18 (17.12)	40.28 (16.66)
Observations	48,034	23,717	4355	1573	1210	13,729	12,207	4826	843

3.1. Variables

Key variables of interest in the data include a variety of factors. This data is summarized in [Tables 1 and 2](#):

Project goal: The amount founders seek to raise using crowdfunding. Kickstarter follows an “all or nothing” or threshold model, so funders' pledge money is only collected if the goal is reached. While other crowdfunding efforts do not always follow this model, it is currently the dominant approach to crowdfunding, and parallels the way that other funding efforts for new ventures work. While many factors may influence project goal, there is a strong incentive for individuals to select realistic project goals, since raising too little capital may result in project non-delivery, and high project goals likely make projects less likely to succeed.

Funding level: The percentage of a project's goal that is actually raised by founders. Projects that raise at least their goal are considered successful or funded projects, and they are paid the total pledged to them by the crowdfunding site. Projects can raise more than their goal, these projects are overfunded.

Backers: The number of funders supporting the project.

Pledge/Backer: The individual pledges of backers are not known, but this variable is the amount of money raised divided by the number of backers, or the mean pledge per backers.

Facebook friends of founders (FBF): The role of social networks in funding new ventures has long been noted as important ([Hsu, 2007](#); [Shane and Cable, 2002](#)). Since many accounts in Kickstarter are linked to Facebook, it is possible to determine how many Facebook connections each founder has. Due to data collection limitations, FBF is recorded as of the time of data collection, rather than at the time of project initiation, which suggests that project success may lead to increases in FBF. However, unlike Facebook “likes” for individual projects, which are also recorded, FBF are for the project initiator only, and are less likely to increase greatly as the result of projects, since founders tend to separate the project from their personal pages. FBF provides a potential insight into the size of a founder's social network. Non-zero Facebook friends are available for slightly under half of all observations.

Table 2
Correlations.

	Success	Goal	Funded	Backers	Pledge/backer	FBF	Updates	Comments
Success								
Goal	−0.15*							
Funded	0.11*	−0.02*						
Backers	0.10*	0.20*	0.10*					
Pledge/bkr	0.17*	0.10*	0.03*	0.01*				
Facebook	0.07*	0.00	0.01	0.02*	0.00			
Updates	0.41*	0.02*	0.08*	0.15*	0.09*	0.06*		
Comments	0.04*	0.16*	0.07*	0.57*	0.01	0.00	0.12*	
Duration	−0.14*	0.07*	−0.01	−0.01*	0.03*	−0.04*	0.042*	0.01

* p < .05.

Category: Projects are categorized by Kickstarter into one of a number of categories, including Film, Dance, Art, Design and Technology. Design and Technology projects are treated somewhat differently by Kickstarter, since they usually deliver concrete products as rewards. These projects need to produce a manufacturing plan when starting a Kickstarter project, and a clear delivery date for rewards.

Updates: Founders are encouraged to post information, called Updates, about their projects during and after the fundraising period. Updates represent efforts by founders to reach out to current and potential funders, and to inform interested backers about developments in a project. The timing of these updates is also recorded, and is used in models later in the paper.

Comments: Funders and potential funders can post comments about projects, often expressing enthusiasm or displeasure. The data on comments includes details on the number and timing of these postings.

Duration: The number of days for which a project accepts funding. Although Kickstarter initially allowed projects to raise funds for as many as 90 days, it now limits this time to 60 days, but encourages 30 day funding windows.

4. Results

To provide an understanding of the dynamics of crowdfunding, I next offer both an empirical description of crowdfunding and an analysis of the factors associated with success and failure among crowdfunded projects. I then delve more deeply into the areas of geography and project outcomes.

4.1. Descriptive patterns

Among crowdfunded projects, failures happen by large amounts, successes by small amounts. Projects that fail tend to fail by large margins. The mean amount funded of failed projects is 10.3% of the goal. Only 10% of projects that fail raise 30% of their goal, and only 3% raise 50% of their goal. The average failed project received \$900 in pledges, compared to \$7825 for successful projects. See Fig. 1 (top panel) for a histogram of failures.

Projects that succeed tend to do so by relatively small margins. Twenty five percent of projects that are funded are 3% or less over their goal, and only 50% are about 10% over their goal. Only about 1 project in 9 receives 200% of its goal. Of the 124 projects with goals over \$100 that received over 10 times their goal, 44 were very large projects (raising over \$100,000). With the exception of a single music project, a single comic book, and a lone art project,³ all of these 44 overachievers were in hardware, software, games, or product design. See Fig. 1 (bottom panel) for a histogram of successes.

Part of the reason for these patterns is the ways in which funders react to the actions of other backers, as discussed by Kuppaswamy and Bayus (2013) in their paper on herding and bystander effects among funders. However, given that all projects are not equally attractive; the underlying nature of the projects must also play a role. From that perspective, there might be two reasons why failure happens by large amounts and success by small. The cynical argument is that, since Kickstarter releases funding on an all-or-nothing basis, it may encourage individuals to make up the difference between the amount desired and the amount raised out of their own pocket. To discourage this, Kickstarter makes self-funding difficult, individuals cannot use the same address, credit card, or name for pledges as they did when setting up their project and there is a \$10,000 contribution limit per pledge. The data suggests that these efforts do work to at least some extent, in that the percentage funded of failed projects is larger for smaller projects (mean .147, sd .188 for projects under \$1000) than for relatively larger ones (mean .098, sd .144 for projects over \$1000), a difference which is significant at better than $p = .0001$. Since any money “left on the table” at the end of a failed project is lost, it would be in the interests of founders to try to complete the funding process. We would expect that, if self-funding was the reason that few projects were moderate failures, that cheaper projects would be more easily self-funded, both logistically and financially. Small projects would, therefore, have a lower, not higher, mean percentage funded for failed projects, since relatively larger funding gaps would still be cheap to self-fund. The finding that smaller projects fail by larger margins offers some comfort that self-funding does not confound the results.

An alternative is that the patterns of success are dictated by the nature of projects themselves, where the projects that are of high quality are identifiable to funders. From this perspective, funders act like venture capitalists or other traditional sources of capital, and evaluate the quality of the product, the team, and the likelihood of success (Gorman and Sahlman, 1989; MacMillan, 1986). Since some projects are better than others, they receive funding, and lower-quality projects receive little to no backers. In crowdfunding, quality signals are further magnified through a Matthew Effect (Merton, 1957) that multiplies the impact of project quality. High quality projects attract backers who may promote the project to other potential backers, or external media, thus increasing the draw of the project. Crowdfunding is built around this social concept, which is incorporated into most funding sites (Burtch et al., 2011). If this is the case, then identifiable signals of project quality should predict project success. As I discuss next, this appears to be the case.

³ The art project, *Tropes versus Women in Video Games*, was the subject of a large-scale campaign in support of the founder of the project, who had been harassed as a result of her activism.

4.2. What factors are associated with successful fundraising?

The factors that lead to successful fundraising for entrepreneurial ventures have been of great interest to scholars, usually in the context of venture capital (Baum and Silverman, 2004; Dushnitsky, 2009; Kirsch et al., 2009; MacMillan, 1986; Stuart and Shane, 2002). Since investments are uncertain, investors often need to act on partial information about particular ventures. Particularly important in the selection process, given the often diffuse and unreliable data that surrounds new ventures, are potential signals of quality (Michael, 1974). Researchers have identified several key quality signals that lead to investment in more traditional face-to-face investment settings, including the quality of the preparation demonstrated by aspiring entrepreneurs (Cardon et al., 2009; X. Chen et al., 2009). The presumption is that these signals reveal the underlying quality of projects and ensure that higher-quality projects are more likely to receive funding.

Crowdfunding, of course, is a very different setting for entrepreneurial fundraising, and it is much less clear how individuals demonstrate preparation or draw on strategic networks in a virtual environment. Even more critically, it is not even obvious that quality need be an important determinant in funding. Indeed, critics of crowdfunding have raised concerns that project quality may not be as clear or as influential to funders in crowdfunding settings compared with more traditional investments (Bogost, 2012). If signals of quality are less salient in crowdfunding, it suggests that this form of financing may be inefficient in selecting high potential entrepreneurs, and open to fraud and misuse. However, if crowdfunding responds to known quality signals in the same way as other providers of entrepreneurial capital, it reinforces both the validity of these factors in predicting the performance of entrepreneurial ventures and the ability of crowdfunding to select appropriate ventures to back. Thus the response of crowdfunders to quality signals indicates whether crowdfunding backers assess the prospects of success of projects, or whether their decision-making is solely based on other, more naive investment criteria.

To offer an assessment of the role of quality, I conducted an analysis using logistic regression of the odds of successful funding. I controlled for the log of the goal of the project, project category, fundraising duration, and whether the project was featured by Kickstarter on their home page. The promotion of featured projects by Kickstarter, which is not driven by financial remuneration but rather the preferences of the Kickstarter staff, is likely to help projects succeed. Since Kickstarter projects cover a wide range

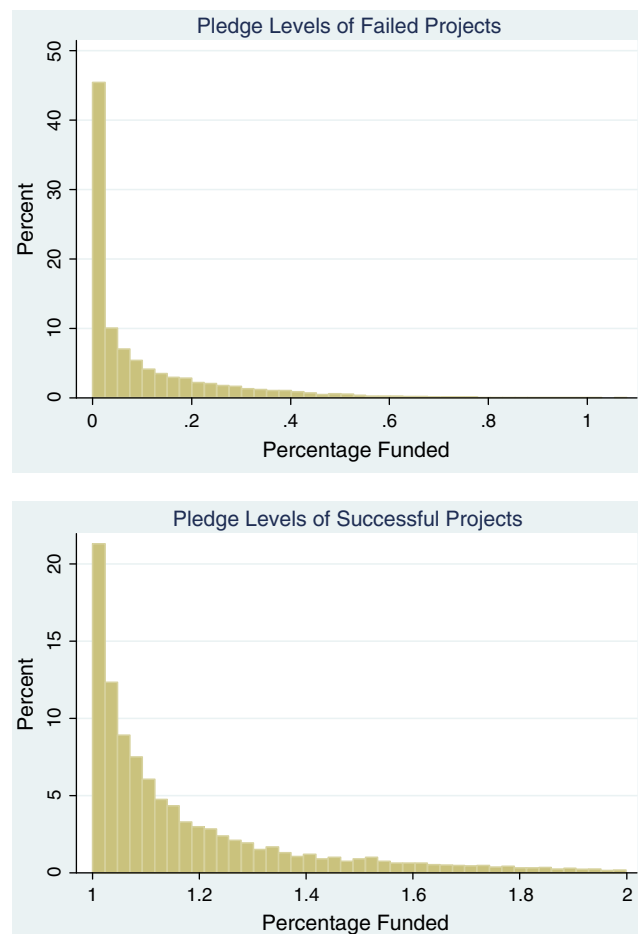


Fig. 1. Histograms of funding levels.

of funding levels, the underlying models for \$100 projects and \$100,000 projects are likely very different. To address this concern, for this analysis I limited the population to only large projects, with goals of \$5000 or higher. Critically, at these funding levels, crowdfunding more properly competes with formal funding through angels or financial institutions, and therefore gives more analytical purchase on the factors that might lead to success for crowdfunded entrepreneurial ventures. To measure quality of project, I followed the lead of X. Chen et al. (2009) in focusing on the role of preparedness as a signal of quality to investors. Preparedness was determined by the degree to which founders took the time and effort to ensure that project pitches conformed to standards for successful pitches. Two of these standards were supplied by Kickstarter itself.

In their preparatory material for project initiators, Kickstarter suggests that the key to demonstrating preparation is to include a video: “Rule #1 for Kickstarter videos: make one! There are few things more important to a quality Kickstarter project than video. Skipping this step will do a serious disservice to your project.”⁴ Given the strength of this admonition, producing a video is a clear signal of at least minimum preparation, so I used whether a pitch had a video as one indicator of a higher-quality project. A second recommendation from Kickstarter is to provide updates to projects soon after launching them. For a second indicator of quality, I measured whether projects provided updates within three days of launch. As few projects achieve success quickly after launch, update speed should indicate a prepared founder, rather than as an outcome of successful fundraising. Since both of these steps are recommended by Kickstarter, they serve as useful measures of basic project quality. In the sample, 86% of projects had videos while 17% provided rapid updates.

As an additional measure of quality, I looked at spelling errors in project pitches. Previous work on online auctions had speculated that spelling errors may decrease auction value (Cabral, 2012). Using the Oxford English Dictionary's list of the top 100 most common misspellings (Staff, 2013), I identified pitches that featured misspelled words. Given the prevalence of spell-checking software, and the lack of basic proofreading that errors imply, spelling mistakes should indicate reduced preparedness and quality. A dummy variable was used to indicate the 449 projects (2% of projects in the sample) that had spelling errors, almost all of which had a single error.

Independent of signals of quality, the second factor that theory suggests should influence crowdfunding success is network size. Researchers have found that social network of individuals seeking funding influences the success of entrepreneurial financing efforts, as it provides connections to funders as well as endorsements of project quality (Shane and Cable, 2002; Sørensen and Fassiotta, 2011; Stam and Elfring, 2008). Further, in crowdfunding, the social network of founders is the initial source of significant funding for many projects, the equivalent of “friends and family” money (Agrawal et al., 2010). Thus, social network size should play a role in determining the success of projects.

To measure network size, I used the log of the number of Facebook friends of founders. This operationalization of network is not identical to the strategic networks sometimes used in studies of network influence on entrepreneurs (Shane and Cable, 2002; Stuart and Sorenson, 2008; Stuart et al., 1999), in that they consist of individuals, rather than organizations. However, other research examines individual social networks, which are presumed to provide similar benefits to entrepreneurs in terms of endorsements and access to resources (Ferrary and Granovetter, 2009; Stuart and Sorenson, 2005).

The results can be found in Table 3. As can be seen in Model 1, increasing goal size is negatively associated with success. Being featured is strongly associated with success. Surprisingly, duration decreases the chances of success, possibly because longer durations are a sign of lack of confidence.

Models 2 and 5 suggest that social network size predict success, though they use a restricted sample, since not all founders had linked Facebook accounts. For the sake of interpretation of this results, consider an average project holding all other variables at their mean, and considering only projects that have linked Facebook accounts with non-zero numbers of friends (about 1/3 of all projects) in order to include all covariates. To take an average project in the Film category, a founder with 10 Facebook friends would have a 9% chance of succeeding, one with 100 friends would have a 20% chance of success, and one with 1000 friends would have a 40% chance of success.

Since the choice of whether or not to have a Facebook account linked to a crowdfunding effort could be due to endogenous factors, Model 6 includes an alternative measure of the importance of social networks. I used individuals with no accounts as a base case, and compared it to accounts where individuals had a number of friends in the bottom quartile, 25–50 percentile, 50–75 percentile, or top quartile. This result shows that having no Facebook account is better than having few online connections, suggesting that, while individuals may strategize about whether or not to link accounts to Facebook, large networks are associated with successful fundraising.

Similarly, Models 3, 4, 5, and 6 demonstrate that signals of quality also predict success. Signals such as videos and frequent updates are associated with greater success, and spelling errors reduce the chance of success. Success is therefore linked to the quality of products, and not just to the social networks of founders. These effects are quite large. In Model 6, for the mean project holding everything else constant but the variable in question, the chance of success for projects with spelling errors is 13% less than those without; not including a video decreases chances by 26%; and a lack of an early update reduces the chance of success by just over 13%.

In a setting where amateurs are making decisions about which projects to finance, and taking into account the social networks that would tend to be sources of both funding and endorsements, the effect of these signals of quality and preparedness is unexpectedly large. As X. Chen et al. (2009) suggest in their studies of business plans, more traditional funders also pay attention to signs of preparedness and quality. Thus, though many signaling strategies exist among new ventures (Higgins et al., 2011; Sørensen et al., 2002; Zimmerman and Zeitz, 2002), demonstrating preparedness seems to be linked to signaling quality across

⁴ From “Kickstarter School” on the Kickstarter site, July 11, 2011. The advice to create a video and provide updates has been offered consistently by Kickstarter since at least the launch of the full site in 2010.

Table 3

Predictors of project success for projects 5 k and over.

	(1)	(2)	(3)	(4)	(5)	(6)
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Log(goal)	0.23*** (0.012)	0.22*** (0.017)	0.19*** (0.010)	0.23*** (0.012)	0.18*** (0.015)	0.19*** (0.010)
Duration	0.99*** (0.001)	0.99*** (0.001)	0.99*** (0.001)	0.99*** (0.001)	0.99*** (0.002)	0.99*** (0.001)
Featured	20.47*** (2.403)	22.13*** (4.548)	17.90*** (2.146)	20.45*** (2.400)	19.77*** (4.134)	17.14*** (2.058)
Video			4.30*** (0.245)		4.27*** (0.389)	4.26*** (0.244)
Quick update			2.73*** (0.109)		2.69*** (0.161)	2.70*** (0.110)
Spelling error				0.36*** (0.041)	0.33*** (0.060)	0.38*** (0.046)
Log(FBF)		2.83*** (0.154)			2.77*** (0.156)	
FBF lower 25%						0.52*** (0.031)
FBF 25%–50%						1.01 (0.052)
FBF 50%–75%						1.46*** (0.072)
FBF top 25%						1.64*** (0.081)
Category controls	Yes	Yes	Yes	Yes	Yes	Yes
Constant	291.59*** (61.200)	19.34*** (6.658)	124.12*** (27.563)	296.63*** (62.311)	9.04*** (3.286)	127.01*** (28.519)
Observations	22,651	9603	22,651	22,651	9603	22,651
chi2	3021.57	1621.44	4578.38	3059.98	2269.24	4935.20
p	0.00	0.00	0.00	0.00	0.00	0.00
Pseudo R ²	0.10	0.13	0.15	0.10	0.18	0.16

Exponentiated form.

*** p < 0.01, ** p < 0.05, * p < 0.1.

many forms of venture financing. Just as importantly, the fact that crowdfunders respond to quality signals to a large degree suggests that financial backing is linked, at least in part, on a rational assessment of the chance of a project succeeding.

4.3. How are projects influenced by geography?

The success of traditionally-funded entrepreneurial ventures is often highly constrained by geography (H. Chen et al., 2009; Kenney and Burg, 1999; Owen-Smith and Powell, 2004; Shane and Cable, 2002; Stuart and Sorenson, 2003b, 2008). Spillovers among successful startups, the need of investors to monitor their investments, and industrial clustering, all lead to this constrained geography (Feldman, 2001; Kenney and Burg, 1999; Owen-Smith and Powell, 2004). However, researchers have noted that crowdfunding has the potential to mitigate many of the distance effects found in traditional fundraising efforts (Agrawal et al., 2010). In a study of crowdfunding backers, Agrawal et al. (2010) examined crowdfunding in the recording industry, and find some evidence that crowdfunding relaxes geographic constraints among funders. Less clear is the effect of geography on project founders, who, can, in theory, start companies from any location.

In order to examine the role of geography in crowdfunding, I used two STATA programs, Nearstat (Jeanty, 2010) and Geocode (Ozmeck and Miles, 2011) to generate geographic information on the locations of individual founders based on their location description. I mapped individual projects to the closest micro or macro statistical areas, except that, where individuals were mapped to a micro statistical area, and were living within 20 miles of a larger metropolitan statistical area, I assigned them to the greater metropolitan area instead.

Two descriptive findings of interest are immediately apparent. First, the distribution of Kickstarter projects is uneven, as is successful fund raising, as can be seen in Fig. 2. Second, the project mix of founders echoes the cultural products of the cities in which they are based. As can be seen in Fig. 2, for example, Nashville has an outsized number of projects for its population, the majority of which are music-based. Los Angeles is dominated by film, while San Francisco has many more technology, games and design products.

Secondly, geographic concentration of new venture activity is still apparent in crowdfunding, as crowdfunding projects are not evenly distributed across the country. To test the variations in concentration, I used the locational Gini coefficient (Krugman, 1992) to examine concentration of proposed projects to the 2010 census population figures per MSA. The coefficient takes values greater than zero if the distribution of funded seed projects is more skewed than the overall population, with 1 indicating

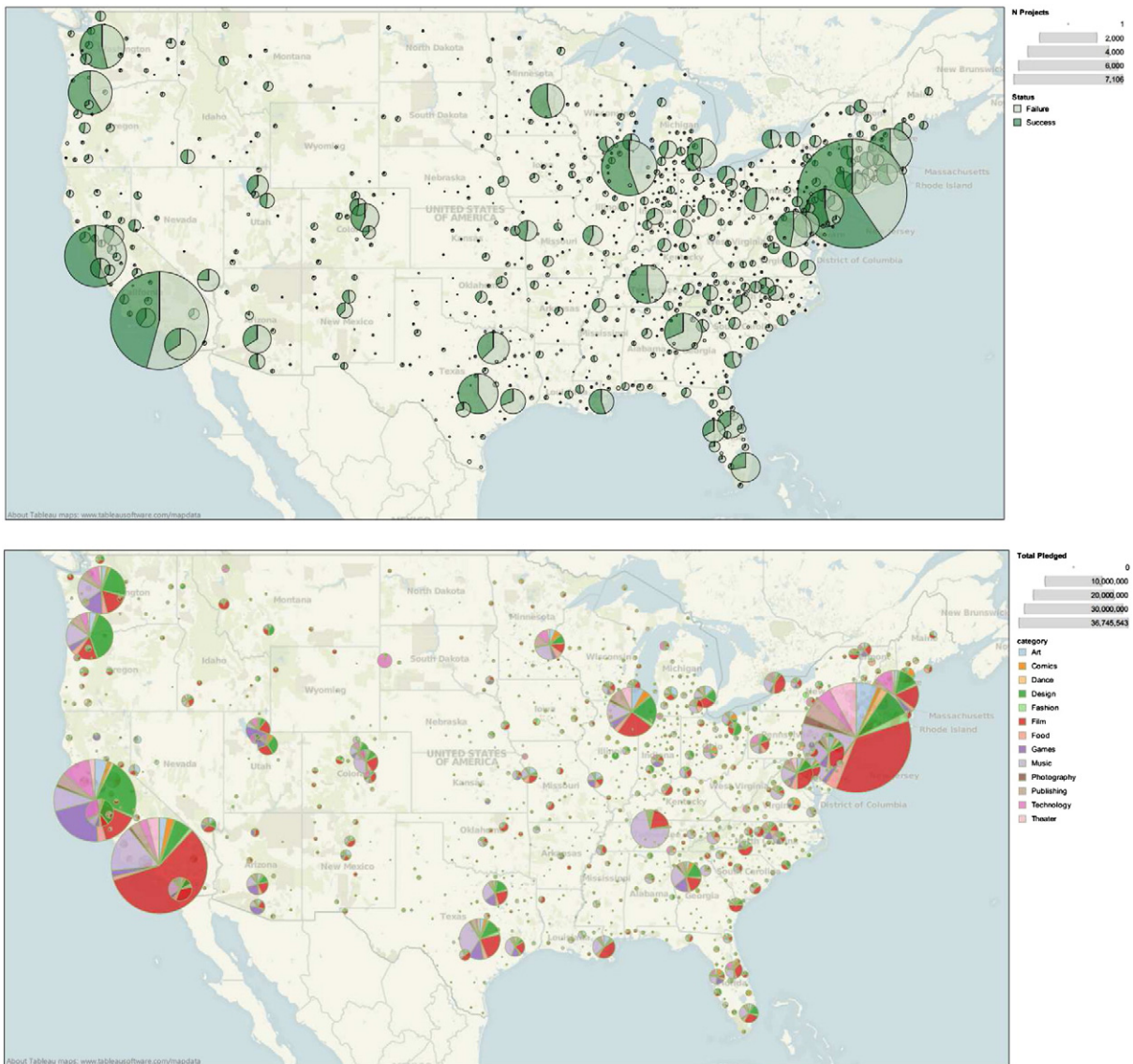


Fig. 2. Geographic distribution of projects by success and by category.

complete concentration⁵ (Kim et al., 2002). Overall concentration was .54, but each individual category had higher levels of concentration, ranging from .58 in music to .81 in technology. This implies that individual categories are more concentrated than the overall population of crowdfunding projects, and that each category has its own particular pattern of concentration, lending weight to the qualitative patterns identified above.

Beyond these descriptive patterns, economic geographers argue that the underlying success of creative endeavors is dependent on the characteristics of the location of the founders (Knudsen et al., 2007; Saxenian, 1996). A variety of geographic effects on funding have been identified, including, most notably, proximity to funders, which is strongly linked to received venture capital funding (Agrawal et al., 2010; H. Chen et al., 2009; Stuart and Sorenson, 2003a). This is the effect studied by Agrawal et al. (2010), who find attenuation of the links between proximity and funding in crowdfunding.

Another geographic effect theorized by researchers, especially Florida (2002, 2004, 2012), is that the underlying talent of an area's population can affect the relative creative productivity of a geographic area. To test this effect, I examined the effect of the proportion of creative individuals⁶ in a founder's city on the success of a crowdfunding effort. As can be seen in Table 4, a proportionally greater creative population was associated with a greater chance of success for founders, controlling for the size of

⁵ Some sources divide the locational Gini in half, so that the maximum is .5.

⁶ The proportion of individuals placed in the occupational category "Arts, Design, Entertainment, Sports, and Media Occupations" to all employed individuals in a city.

the city, the network of the founder, and the number of other Kickstarter founders in that city. These effects persist even when considering only small MSAs of population 500,000 or below, when considering only the Eastern or Western halves of the US, or when including Facebook social network connections. These effects require future study, but they suggest that geography may play an important role in the success of crowdfunding efforts.

4.4. When do projects deliver?

Among the unanswered questions about the crowdfunding model is whether successful crowdfunding leads to the successful development of goods and services, and, potentially, viable ongoing ventures. The nature of crowdfunding also differs from other forms of fundraising for new ventures, in ways that potentially complicate the outcomes of crowdfunded projects. In crowdfunding, the money is raised up front, and, in the case of reward-based crowdfunding, without any clear legal obligation from the project initiator to deliver their promised rewards.

For the dishonest, this creates an opportunity for fraud. But, even for those who intend to deliver on their obligations, it requires significant foreknowledge about the budget and schedule required to create the promised goods or service, in order to raise the proper amount of money. The process of entrepreneurship often involves altering plans as new knowledge is acquired (Delmar and Shane, 2003; Kirsch et al., 2009; Shah and Tripsas, 2007), but crowdfunded ventures do not have this ability, since they have to deliver projects promised before any of this new learning takes place, using budgets that were established very early in the venture process. This suggests that crowdfunded projects are at risk of delays, or even failure, as initial resource endowments may prove inadequate.

Additionally, even well-funded projects may have trouble delivering. First, more complex projects typically result in greater delays due to interdependencies (Brown and Eisenhardt, 1995). Secondly, projects that are unexpectedly successful may suffer from problems due to increased success and expectations, especially relative to initial planning for more modest funding outcomes (Cooper, 1994). This could be compounded if the additional money is used to increase the complexity and scope of the expected projects (Rothwell et al., 1974; Ulrich, 1995).

To analyze the outcomes of crowdfunding efforts, I used the 471 successful Kickstarter projects in the categories of Design and Technology that had promised delivery dates for rewards to funders before July, 2012. Using two separate RAs for coding, each project was examined to see when, and if, it had delivered the promised products by July, 2012. In the event of disagreement among the coders, the author made the final determination of the project status. Out of the 471 projects, 381 had clearly identifiable outcomes. A total of 316 projects promised to deliver products and an additional 65 offered giveaways (such as “making-of” documentaries, project t-shirts, or other results that were not finished products).

In this sample, the first concern about delivery – fraud – was very rare. As of the time of the analysis, 3 projects had issued refunds, and 11 had apparently stopped responding to backers. The direct failure rate, therefore, was 14 out of 381 products, or 3.6%. Further, the projects that were not responding totaled just \$21,324 in pledges, compared to nearly \$4.5 million for the

Table 4
The effects of geography on success.

	(1)	(2)	(3)	(4)	(5)	(6)
Variables	All	<1 M	<500 k	East	West	Facebook
Log(goal)	0.38*** (0.008)	0.38*** (0.012)	0.37*** (0.014)	0.37*** (0.010)	0.40*** (0.011)	0.35*** (0.011)
Duration	0.99*** (0.001)	0.99*** (0.001)	0.99*** (0.001)	0.99*** (0.001)	0.99*** (0.001)	0.99*** (0.001)
Distance	0.82*** (0.035)	1.14** (0.060)	1.06 (0.061)	0.79*** (0.056)	0.87*** (0.047)	0.83*** (0.054)
Artists	1.22*** (0.024)	1.35*** (0.039)	1.39*** (0.042)	1.40*** (0.049)	1.58*** (0.052)	1.26*** (0.039)
Log(pop)	1.07*** (0.023)	1.03 (0.043)	1.07 (0.059)	1.03 (0.031)	1.15*** (0.038)	1.02 (0.034)
Peers	1.00*** (0.000)	1.00*** (0.000)	1.00*** (0.000)	1.00*** (0.000)	1.00*** (0.000)	1.00* (0.000)
FB friends						2.48*** (0.093)
Category controls	Yes	Yes	Yes	Yes	Yes	Yes
Constant	19.21*** (2.763)	17.66*** (4.454)	14.79*** (4.611)	19.42*** (3.772)	7.51*** (1.699)	2.83*** (0.666)
Observations	47,976	18,085	12,653	25,737	22,239	19,812
chi2	6062.51	2291.10	1651.43	3561.09	2703.25	3065.56
p	0.00	0.00	0.00	0.00	0.00	0.00
Pseudo R ²	0.09	0.09	0.10	0.10	0.09	0.11

SE in parentheses.

Exponentiated form.

*** p < 0.01, ** p < 0.05, * p < 0.1.

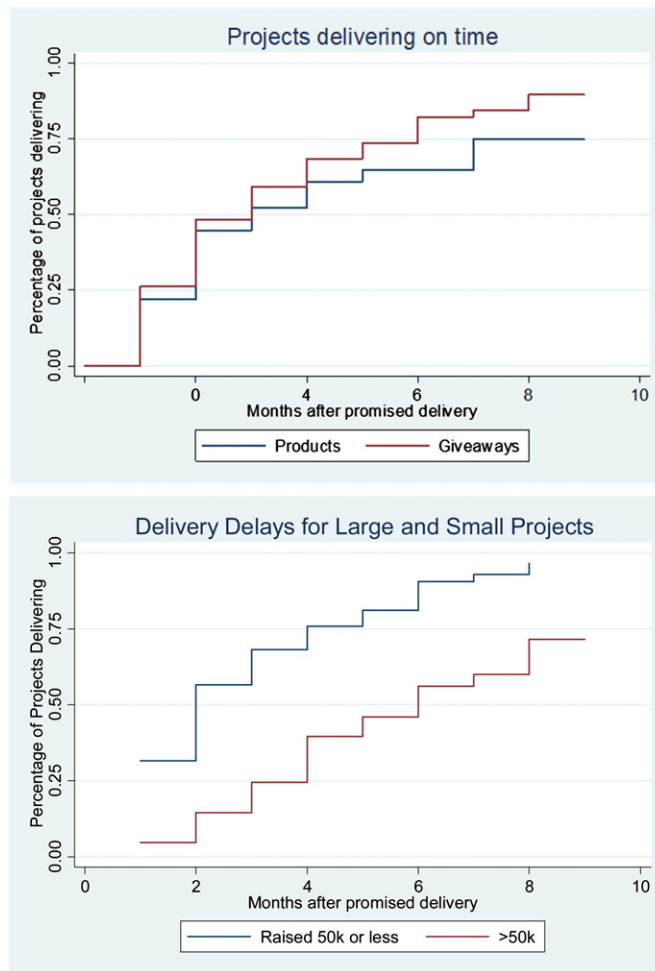


Fig. 3. Kaplan–Meier failure curve for project delivery.

remaining projects. Even though Kickstarter has no enforcement mechanism to prevent con artists from using the system to raise funds for fake projects, it is clear that with a direct failure rate well below 5%, founders appear to make attempts to deliver their products.

The concerns about the ability of projects to deliver, however, are supported. The majority of products were delayed, some substantially, and may, ultimately, never be delivered. Of the 247 projects that delivered goods, the mean delay was 1.28 months ($sd = 1.56$). Of the 126 projects that were delayed, the mean delay to date was 2.4 months ($sd = 1.97$). Only 24.9% of projects delivered on time, and 33% had yet to deliver.

As a robustness check, I performed the same coding procedure for additional projects in categories not including Design and Technology, categories including Film, Food, and Theater. Since these categories were not required to list delivery dates, and did not always deliver final products, only 764 potential projects could be coded, of which 200 were selected randomly for analysis. Still, the delivery statistics align very closely with the study of projects in Technology and Design. Again, 23.4% of projects delivered on time, and, of those that delivered, they did so with a delay of 2.7 months, very close to the Technology and Design statistics of 24.9% of projects delivering on time, and a delivery delay of 2.4 months. Fraud was also rare in the group, with only 2.3% of projects showing indications of potential fraud.

Though delays are common, the basic descriptive data does not make it clear as to whether delivery delays were attributable to small projects that had failed to estimate their goals properly, or else larger projects that had taken on complex tasks, and thus had more complicated coordination and planning issues (Brown and Eisenhardt, 1995; Rothwell et al., 1974). To determine the rate at which delays occur, and potential causes of delayed products, I used a Cox proportional hazard model to predict the degree of delay for Technology and Design projects (the great diversity of projects outside these categories makes hazard models problematic). Fig. 3 shows the Kaplan–Meier curve showing cumulative delay for both products and giveaways. As might be expected, products are at greater risk of delay than simpler giveaways.

In the Cox model (see Table 5), I find strong evidence that project size and the increased expectations around highly popular projects are related to delays. As can also be seen in Fig. 3, larger projects suffer much longer delays than smaller projects. Further,

even controlling for project size, the degree to which projects are overfunded also predicts delays. Projects that are funded at 10× their goal are half as likely to deliver at a given time, compared to projects funded at their goal. Few other factors affect project delivery time. I found no effect from the type of project (graphic design versus technology, for example) or the number of backers.

An important question is whether these delays are purposeful trade-offs by project initiators, who might seek to raise money by overpromising and accepting too much capital, knowing they are not to be held accountable for delays. While it is not possible to completely eliminate this concern, interviews by *CNNMoney* with the top 50 most-funded Kickstarter projects in 2012 (Cowley et al., 2012) found no evidence that this was the case. Instead, project delays were attributed to a range of problems associated with unexpected success: manufacturing problems, the complexity of shipping, changes in scale, changes in scope, and unanticipated certification issues were all listed as primary causes of delays. While this does not rule out intentional strategies that caused these delays, it does suggest that complexity and unexpected events are potentially a stronger explanation of project performance.

In general, the outcome data supports a positive view of founders raising funding through crowdfunding. Very few projects appeared to give up on delivering their promised products. However, it was also apparent that many projects suffered delays, sometimes long delays. Larger projects, and projects that most exceeded their goals, were at the greatest risk for these delays. Since many projects were still delayed at the time of analysis, the final proportion of projects that deliver is unclear. While there is little, if any, outright fraud, there are clearly many founders who struggle to meet the deadlines they set for themselves.

5. Discussion and conclusion

Crowdfunding represents a novel way for founders to raise capital for a wide variety of projects. Given its rapid rise, the dynamics of crowdfunding have been largely unstudied. This paper offers some exploratory insights into how crowdfunding works. Projects generally succeed by small margins, or fail by large ones. Social capital and preparedness are associated with an increased chance of project success, suggesting that quality signals play a role in project outcomes. Geography also appears to be linked to the nature and success rates of projects. Finally, the vast majority of founders attempt to deliver products promised to funders, but relatively few do so in a timely manner, a problem exacerbated in large or overfunded projects.

While these results are intriguing, they represent only a first foray into the phenomena of crowdfunding, and they have a number of limitations. First, this paper only addresses reward-based and patron-based crowdfunding, rather than equity or other forms of investment model crowdfunding. Scholars have argued that the motivations of backers who act as patrons and customers are similar to those of investors (Agrawal et al., 2010), but there are likely to be differences in how these crowdfunding markets operate. The future regulation of equity crowdfunding, the design decisions made by crowdfunding sites, and other developments are also likely to further evolve crowdfunding in ways that may change the dynamics between investors and backers. Additionally, crowdfunding may be a phenomenon of short-lived importance. Currently, many industry observers believe that crowdfunding will grow in importance for new ventures, especially with the legalization of equity crowdfunding in the US (Esposito, 2012; Karabell, 2013). However, even if crowdfunding continues to make up a small proportion of new venture

Table 5
Cox model for delivery of promised product.

	(1)	(2)	(3)
Variables	Model 1	Model 2	Model 3
Log(goal)	0.68*** (0.069)	0.49*** (0.059)	0.48*** (0.067)
Log(percent funded)		0.45*** (0.074)	0.44*** (0.083)
Total backers			1.00 (0.000)
Category: graphic design	0.87 (0.277)	1.17 (0.366)	1.18 (0.367)
Category: hardware	1.05 (0.325)	1.44 (0.457)	1.45 (0.465)
Category: software	0.82 (0.441)	0.66 (0.357)	0.66 (0.357)
Category: product design	0.81 (0.186)	1.04 (0.246)	1.04 (0.248)
Category: technology	0.89 (0.278)	1.30 (0.417)	1.30 (0.418)
Observations	314	314	314
chi2	20.30	47.78	47.83
p	0.00	0.00	0.00

SE in parentheses.

*** p < 0.01, ** p < 0.05, * p < 0.1.

funding, the results of this exploratory study suggest that a number of findings should be of interest to entrepreneurship scholars.

First, the relevance of signals of quality and the effect size of these signals suggest that funders engage in some assessment of the potential of founders seeking crowdfunding. That quality signals are so salient, even among the disparate groups of amateurs who act as funders, suggests that it may be fruitful for scholars examining more traditional forms of entrepreneurial finance to examine the decision-making process in crowdfunding to gain insight into the new venture signaling process (Busenitz et al., 2005; Higgins et al., 2011). Further, examinations of the extent that the criteria for selection diverge between crowdfunding and other approaches to entrepreneurial finance can offer insight how the funding environment affects the diversity of projects and ideas developed by entrepreneurs (Tolbert et al., 2011). The nature of how entrepreneurs signal quality, legitimacy, and preparedness is much less defined in the virtual setting of crowdfunding than in traditional new venture settings, and future scholarship into this process may add to existing theory in this important area.

Second, crowdfunding potentially changes the nature of geography and association in new ventures. At least in part, crowdfunding reduces the importance of traditional geographic constraints, even as it potentially imposes new ones. Further, online social networks and communities increase in relevance in crowdfunding. The innovative ability of online communities has been of increasing interest to scholars (Baldwin et al., 2006; David and Shapiro, 2008; Von Hippel, 2005), and crowdfunding represents a concrete way in which online communities can influence the creation of new ventures. Crowdfunding also suggests a path by which user innovators, who are often the sources of radical innovations, might transition to entrepreneurship (Franke and Shah, 2003; Shah and Tripsas, 2007). Future research can shed light on how communities coordinate, fund, and interact with crowdfunding efforts to generate new products and services.

Third, crowdfunding creates a useful window for the study of nascent entrepreneurial ventures, as both failed and successful projects are represented. Left-censoring is a frequent problem in entrepreneurial research, and efforts to solve the problem have involved large-scale population studies (Davidsson, 2006; Reynolds, 2006). Crowdfunding provides an empirical setting where a wide range of nascent ventures are more easily compared, and thus can serve as a fruitful way of testing and extending existing theory.

Finally, for entrepreneurs who seek crowdfunding, there are some clear lessons. First, project quality is important, and entrepreneurs should look for ways to signal preparedness. Social network ties have also been found to be important in crowdfunding, both in this study and in others (Agrawal et al., 2010). Second, appropriate goals are those that allow a founder to deliver a product on time; achieving significantly more funding than requested is rare. Most importantly, careful planning is required both to set these goals and to prepare for a crowdfunding success, which will entail a need to rapidly execute a promised venture.

For crowdfunding intermediaries and policy makers, there are also clear implications. While the rate of fraud in crowdfunding is currently very low despite a lack of significant outside vetting of projects, that may not hold true in all forms of crowdfunding. The interplay between a number of features of Kickstarter – including threshold funding, active participation by large communities, frequent interaction between founders and potential funders, and the ability of founders to broadcast signals of quality through rich descriptions and biographic information – likely plays a key role in reducing fraud. Removing some of these elements may reduce the ability of communities to identify quality projects and increase the chance of fraud. Additionally, intermediaries and policy makers should consider ways to help founders create realistic plans and goals, in order to ensure that crowdfunding maintains its low rate of fraud and high rate of growth.

Crowdfunding represents a potentially disruptive change in the way that new ventures are funded. Additional research is required to catch up with practice and policy, both of which are embracing crowdfunding. This paper represents initial evidence about what promises to be an important and fruitful phenomenon in the study of new ventures.

References

- Agrawal, A., Catalini, C., Goldfarb, A., 2010. The geography of crowdfunding. SSRN Electronic Journal.
- Aldrich, H., Baker, T., 2000. Blinded by the cites? Has there been progress in entrepreneurship research. In: Sexton, D.L., Smilor, R. (Eds.), *Entrepreneurship*. Kaplan Publishing.
- Baldwin, C., Hienert, C., Von Hippel, E., 2006. How user innovations become commercial products: a theoretical investigation and case study. *Research Policy* 35, 1291–1313.
- Baum, J., Silverman, B., 2004. Picking winners or building them? Alliance, intellectual, and human capital as selection criteria in venture financing and performance of biotechnology startups. *Journal of Business Venturing* 19, 411–436.
- Belleflamme, P., Lambert, T., Schwienbacher, A., 2012. Crowdfunding: Tapping the Right Crowd. SSRN eLibrary.
- Bogost, I., 2012. Kickstarter: Crowdfunding Platform or Reality Show? Fast Company.
- Brown, S., Eisenhardt, K., 1995. Product development: past research, present findings, and future directions. *The Academy of Management Review* 20, 343–378.
- Burkett, E., 2011. Crowdfunding exemption—online investment crowdfunding and US securities regulation. *A. Transactions: Tennessee Journal of Business Law* 63.
- Burtch, G., Ghose, A., Wattal, S., 2011. An empirical examination of the antecedents and consequences of investment patterns in crowd-funded markets. SSRN Electronic Journal.
- Busenitz, L., West, G., Shepherd, D., Nelson, T., Chandler, G., Zacharakis, A., 2003. Entrepreneurship research in emergence: past trends and future directions. *Journal of Management* 29.
- Busenitz, L., Fiet, J., Moesel, D., 2005. Signaling in venture capitalist—new venture team funding decisions: does it indicate long-term venture outcomes? *Entrepreneurship Theory and Practice* 29, 1–12.
- Cabral, L., 2012. Reputation on the Internet. In: Peitz, M., Waldfoege, J. (Eds.), *The Oxford Handbook of the Digital Economy*. Oxford University Press.
- Cardon, M., Sudek, R., Mitteness, C., 2009. The impact of perceived entrepreneurial passion on angel investing. *Frontiers of Entrepreneurship Research* 29.
- Chen, H., Gompers, P., Kovner, A., Lerner, J., 2009. Buy Local? The Geography of Successful and Unsuccessful Venture Capital Expansion.
- Chen, X., Yao, X., Kotha, S., 2009. Entrepreneurial passion and preparedness in business plan presentations. *Academy of Management Journal* 52, 199–214.

- Congress, 112th, 2012. Jumpstart Our Business Startups Act.
- Cooper, R., 1994. Determinants of timeliness in product development. *Journal of Product Innovation Management* 11, 381–396.
- Cornelius, B., 2006. Entrepreneurial studies: the dynamic research front of a developing social science. *Entrepreneurship Theory and Practice* 375–397.
- Cowley, S., Goldman, D., Pepitone, J., Segall, L., Smith, O., 2012. Kickstarter's Top 50 Projects: When They Shipped. CNNMoney.
- David, P.A., Shapiro, J.S., 2008. Community-based production of open-source software: what do we know about the developers who participate? *Information Economics and Policy* 20, 364–398.
- Davidsson, P., 2006. *Nascent entrepreneurship: Empirical Studies and Developments*. Now Publishers Inc., Boston.
- Delmar, F., Shane, S., 2003. Does business planning facilitate the development of new ventures? *Strategic Management Journal* 24, 1165–1185.
- Dingman, S., 2013. Canadian's smartwatch startup matches record \$15-million in VC funding. *The Globe and Mail*.
- Dushnitsky, G., 2009. Entrepreneurial optimism in the market for technological inventions. *Organization Science* 21, 150–167.
- Eisenhardt, K., 1989. Building theories from case study research. *Academy of Management Review* 14, 532–550.
- Esposito, C., 2012. *Crowdfunding Industry Report*.
- Evans, D., Leighton, L., 1989. Some empirical aspects of entrepreneurship. *The American Economic Review* 79.
- Feldman, M., 2001. The entrepreneurial event revisited: firm formation in a regional context. *Industrial and Corporate Change* 10, 861.
- Ferrary, M., Granovetter, M., 2009. The role of venture capital firms in Silicon Valley's complex innovation network. *Economy and Society*.
- Florida, R., 2002. The economic geography of talent. *Annals of the Association of American Geographers* 92.
- Florida, R., 2004. *Cities and the Creative Class*. Routledge.
- Florida, R., 2012. *The Rise of the Creative Class: Revisited*. Basic Books.
- Franke, N., Shah, S., 2003. How communities support innovative activities: an exploration of assistance and sharing among end-users. *Research Policy* 32, 157–178.
- Franzen, C., 2012. Senate passes amended crowdfunding bill, emulating kickstarter model. *Talking Points Memo*.
- Gompers, P., Lerner, J., 2004. *The Venture Capital Cycle*. MIT Press.
- Gorman, M., Sahlman, W.A., 1989. What do venture capitalists do? *Journal of Business Venturing* 4, 231–248.
- Heminway, J., Hoffman, S., 2010. Proceed at your peril: crowdfunding and the securities act of 1933. *Tennessee Law Review* 78, 879–972.
- Higgins, M.J., Stephan, P.E., Thursby, J.G., 2011. Conveying quality and value in emerging industries: star scientists and the role of signals in biotechnology. *Research Policy* 40, 605–617.
- Hsu, D., 2004. What do entrepreneurs pay for venture capital affiliation? *Journal of Finance* 59, 1805–1844.
- Hsu, D., 2007. Experienced entrepreneurial founders, organizational capital, and venture capital funding. *Research Policy* 36.
- Jeanty, P., 2010. NEARSTAT: stata module to calculate distance-based variables and export distance matrix to text file. *Boston College Working Papers in Economics*.
- Karabell, Z., 2013. The kickstarter economy: how technology turns us all into bankers. *Atlantic Monthly*.
- Kenney, M., Burg, U. Von, 1999. Technology, entrepreneurship and path dependence: industrial clustering in Silicon Valley and Route 128. *Industrial and Corporate Change* 8 (1), 67–103.
- Kim, Y., Barkley, D., Henry, M., 2002. Industry characteristics linked to establishment concentrations in nonmetropolitan areas. *Journal of Regional Science* 40 (2), 234–259.
- Kirsch, D., Goldfarb, B., Gera, A., 2009. Form or substance: the role of business plans in venture capital decision making. *Strategic Management Journal* 30, 487–515.
- Knudsen, B., Florida, R., Gates, G., Stolarick, K., 2007. Urban Density, Creativity, and Innovation (May).
- Kortum, S., Lerner, J., 2000. Assessing the contribution of venture capital to innovation. *RAND Journal of Economics* 31, 674.
- Krugman, P., 1992. *Geography and Trade*. MIT Press, Cambridge, MA.
- Kuppusswamy, V., Bayus, B.L., 2013. Crowdfunding creative ideas: the dynamics of project backers in kickstarter. *SSRN Electronic Journal*.
- Lin, M., Viswanathan, S., 2013. Home Bias in Online Investments: An Empirical Study of an Online Crowd Funding Market (papers.ssrn.com).
- MacMillan, I., 1986. Criteria used by venture capitalists to evaluate new venture proposals. *Journal of Business Venturing* 1, 119–128.
- Massolution, 2013. *2013 Crowdfunding Report*.
- Merton, R., 1957. Priorities in scientific discovery: a chapter in the sociology of science. *American Sociological Review* 22, 635.
- Michael, S., 1974. Job market signalling. *Quarterly Journal of Economics* 87, 355.
- Morduch, J., 1999. The microfinance promise. *Journal of Economic Literature* 37, 1569.
- Owen-Smith, J., Powell, W., 2004. Knowledge networks as channels and conduits: the effects of spillovers in the Boston Biotechnology Community. *Organization Science* 15, 5.
- Ozmeck, A., Miles, D., 2011. Stata utilities for geocoding and generating travel time and travel distance information. *The Stata Journal* 11 (1), 106–119.
- Poetz, M., Schreier, M., 2012. The value of crowdsourcing: can users really compete with professionals in generating new product ideas? *Journal of Product Innovation Management* 29.
- Reynolds, P., 2006. New firm creation in the United States: A PSED I overview. *Foundations and Trends in Entrepreneurship* 3, 1.
- Rice, M., 2002. Co-production of business assistance in business incubators: an exploratory study. *Journal of Business Venturing* 17, 163.
- Rothwell, R., Freeman, C., Horlsey, A., Jervis, V.T.P., Robertson, A.B., Townsend, J., 1974. SAPPHO updated – project SAPPHO phase II. *Research Policy* 3, 258–291.
- Roure, J., Maidique, M., 1986. Linking prefunding factors and high-technology venture success: an exploratory study. *Journal of Business Venturing* 1, 295.
- Saxenian, A., 1996. *Regional Advantage: Culture and Competition in Silicon Valley and Route 128*. Harvard University Press.
- Schwiebacher, A., Larralde, B., 2010. Crowdfunding of small entrepreneurial ventures. *SSRN Electronic Journal*.
- Shah, S., Tripsas, M., 2007. The accidental entrepreneur: the emergent and collective process of user entrepreneurship. *Strategic Entrepreneurship Journal* 1, 123–140.
- Shane, S., Cable, D., 2002. Network ties, reputation, and the financing of new ventures. *Management Science* 48, 364.
- Sørensen, J., Fassiotta, M., 2011. Organizations as founts of entrepreneurship. *Organization Science* 22, 1322–1331.
- Sørensen, J., Burton, M., Beckman, C., 2002. Coming from good stock: career histories and new venture formation. *Social Structure and Organization Revisited*. Elsevier Science, pp. 229–262.
- Staff, 2013. Common misspellings [WWW Document]. Oxford English Corpus. (URL <http://oxforddictionaries.com/words/common-misspellings>).
- Stam, W., Elfring, T., 2008. Entrepreneurial orientation and new venture performance: the moderating role of intra- and extraindustry social capital. *Academy of Management Journal* 51, 97–111.
- Stuart, T., Shane, S., 2002. Organizational endowments and the performance of university start-ups. *Management Science* 48, 154.
- Stuart, T., Sorenson, O., 2003a. Liquidity events and the geographic distribution of entrepreneurial activity. *Administrative Science Quarterly* 48, 175.
- Stuart, T., Sorenson, O., 2003b. The geography of opportunity: spatial heterogeneity in founding rates and the performance of biotechnology firms. *Research Policy* 32 (2), 229–253.
- Stuart, T., Sorenson, O., 2005. Social networks and entrepreneurship. In: Alvarez, S., Agarwal, R., Sorenson, O. (Eds.), *Handbook of Entrepreneurship Research*. Springer.
- Stuart, T., Sorenson, O., 2008. Strategic networks and entrepreneurial ventures. *Strategic Entrepreneurship Journal* 1, 211.
- Stuart, T., Hoang, H., Hybels, R., 1999. Interorganizational endorsements and the performance of entrepreneurial ventures. *Administrative Science Quarterly* 44, 315.
- Tan, J., Shao, Y., Li, W., 2013. To be different, or to be the same? An exploratory study of isomorphism in the cluster. *Journal of Business Venturing* 28, 83.
- Tolbert, P., David, R., Sine, W., 2011. Studying choice and change: the intersection of institutional theory and entrepreneurship research. *Organization Science* 22, 1332.

Ulrich, K., 1995. The role of product architecture in the manufacturing firm. *Research Policy* 24, 419–440.

Von Hippel, E., 2005. *Democratizing Innovation*. The MIT Press.

Zahra, S., 1991. Predictors and financial outcomes of corporate entrepreneurship: an exploratory study. *Journal of Business Venturing* 6, 259.

Zimmerman, M., Zeitz, G., 2002. Beyond survival: achieving new venture growth by building legitimacy. *Academy of Management Review* 27, 414.