Crowdfunding Success as a Quality Signal to Venture Capital

Full Paper

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Abstract

This study examines how venture capitals (VCs) value crowd-based decisions compared to expert decisions from the perspective of signaling theory. We collect data on both crowd-funded startups and matching angel-funded startups. We track sequential financing rounds and analyze whether VCs show different valuations of the two types of startups. Our results show no statistically significant difference in VC preference between crowd-funded startups and angel-funded startups. In terms of initial funding amount, we show that startups raising large amounts on a crowdfunding platform are more likely to attract the attention of VCs than startups obtaining similar amount of funding from angel investors. We also find that the effect of crowdfunding is stronger for startups located in startup cluster areas. Finally, our results support the view that securing funding from the crowd increases the chances of obtaining follow-on VC funding for the non-hardware startups.

Keywords

Crowdfunding, crowd-based decision making, signaling theory, startups, angel, venture capital.

Introduction

The rapid advancement of information technology over the last few decades allowed a large number of people to participate in collective decision making. Traditionally, decision making has been performed by well-trained individuals and experienced small groups, called “experts.” Organizations seek experts in certain domains, expecting them to handle critical information. A strand in the literature supports the view that experts are highly precise in certain contexts (Schwenk et al. 1980). However, individual experts tend to be anchored to certain beliefs, overconfident about their predictions, and biased emotionally (Shepherd et al. 2003; Zacharakis et al. 2001). Given these drawbacks, an alternative approach is to rely on “crowds” to take decisions. The rationale behind this approach is to remove the probability of bias embedded in individual decision making. Crowd-based decision making is growing in a wide range of fields, including the research and development of new products (Afuah et al. 2012), and recently, this phenomenon lead to the funding of a large number of startups. Crowdfunding, as an alternative funding source for early startups, is designed to collect modest amounts from a large number of backers (Mollick et al. 2015). Since its founding, in 2009\textsuperscript{1}, Kickstarter, the world-leading crowdfunding platform, has raised more than 2 billion USD, spread on over 100,000 projects, from over 10 million backers. Traditionally, angel investors, a group of expert individual investors, have been heavily involved in early-stage deals (Ibrahim 2008). Crowdfunding plays an increasingly prominent role for startups in their early stage of development. Now, early-stage startups can choose their funding source between “crowds” and “experts,” depending on the relative funding availability and preference. This is a key element for the future development of a project, as the choice of the funding sources in its early-stage may affect the

\textsuperscript{1}https://www.kickstarter.com/help/stats (updated: 20 Feb 2016).
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The academic research provides support to this view. Angel financing is a “stepping stone” to obtaining VC financing (Hellmann et al. 2013). Companies initially funded by angel investors have a 70% higher likelihood of obtaining follow-on VC financing (Kerr et al. 2014). Crowdfunding may also lead a project to receiving VC investments, since the success of a crowdfunding campaign is likely to be a proxy for its commercial potential: successful projects in crowdfunding are shown to be positively related with ex-post performance (Kim and Viswanathan 2013). Mollick et al. (2014) suggest that crowdfunding generates additional benefits, even after the end of a campaign, such as direct access to customers, media, employees, and, most importantly, to venture capitalists (VCs, hereafter). Despite the large number of studies focusing on the role of either angel investing or crowdfunding, to the best of our knowledge, no study has analyzed yet how the choice between these two competing funding sources may impact the likelihood of follow-on VC investments.

This paper examines how VCs evaluate crowd-based decision making, such as crowdfunding, compared to expert decision making, such as angel investing, from a signaling theory perspective. Startups in their early stage need large investments. Their ability to send quality signals to potential investors is key for their future development. Since there is a considerable information asymmetry between startups and potential investors, VCs are keen to receiving quality signals from promising startups. The main research question in our paper is whether VCs consider quality signals from crowdfunding and angel investing in different ways.

We collect data on both crowd-funded startup projects and matching angel-funded startups, in their early stage of development. We also track sequential financing rounds, analyzing whether VCs look at crowd-funded startups and angel-funded startups in a different way. Our results show that there is no statistically significant differences in the way VCs address new startups by their initial funding sources. We also find that projects raising large amounts on a crowdfunding platform are more likely to attract the attention of VCs, compared to startups obtaining similar amounts from angel investors. The positive effect of crowdfunding is stronger for startups located in startup cluster cities, such as San Francisco. Finally, our results support the view that a successful crowdfunding campaign is not a good predictor of follow-on VC funding for hardware startups.

Considering the signals coming from “crowd” and “expert” decision making, we show that different types of early funding shape the future financing option of startups (Leimeister et al. 2009). Our results support the role of successful crowdfunding campaigns as a quality signal to VCs. While its impact on the likelihood of follow-on VC investments is weak on average, in certain conditions crowdfunding can generate a powerful quality signal.

The rest of the paper is organized as follows. In the next section, we outline the theoretical background associated with crowd and expert decision making. Based on this theoretical background, we develop a number of hypotheses. After that, we describe our methodology and data. Finally, we presents our main findings and provides our concluding remarks.

Theoretical Background

Experts vs. Crowds in Decision Making

Experts play an important role in decision making. They can predict the success of a project and influence the general opinion. For example, VC investments send an important signal to other market players. Therefore, being associated with reputable VCs is fundamental for startups (Baum et al. 2004). However, experts are highly accurate and influential in some contexts, but their judgment can also be biased, at times (Schwenk et al. 1980). With the development of information technology, a new approach is emerged, potentially able to overcome the limitations of individual expert decisions: it is usually referred to as the “Wisdom of crowds”, and consists in collecting opinions from groups of people and aggregating them to reach a consensus (Surowiecki 2005). The rationale behind it is that the statistical aggregation of judgments tends to be more accurate than individual judgments, reducing potential error (Simmons et al. 2011). However, the wisdom of the crowds can also produce biased decision, when the crowd is composed by very similar individuals.
Traditionally, the financing of startups in their early stage of development has been dominated by small
groups of experts, such as VCs and angel investors. They select startups to fund based on their expertise,
spending a great effort to find and evaluate signals of startup quality (Zider 1998). However, they are
exposed to a high risk of failure. Crowdfunding offers an alternative to traditional financing, providing a
democratic way of raising funds from loosely linked individuals, in the context of an open community of
investors. But, it should be noted that crowd-based decision making in crowdfunding is different from the
ordinary “wisdom of the crowds” (Mollick et al. 2015): the decision to fund a project is still individual, not
organized at the group level. At some point, furthermore, the platforms may feel the need to establish an
expert authority, supervising the decisions of the crowd (Kim et al. 2013; Ryu et al. 2016).

Quality Signaling in the VC Market

Information asymmetries often arise between those who hold quality information and those who could
potentially make better decisions if they were informed (Connelly et al. 2011). Signaling theories study the
costs related to information acquisition, resolving information asymmetries in a wide range of economic
and social phenomena (Spence 1973). As suggested by the classic signaling literature (Choi 1998; Ravid
1999), access to the other forms of capital, such as angel funding, is an important signal of startup quality
to VCs (Stuart et al. 1999).

In signaling theory, quality refers to the underlying, unobservable ability of the signaler to satisfy the
demand of a signal receiver (Connelly et al. 2011). For startups, sending quality signals to potential
investors is fundamental. Founder ownership can be an important signal of quality, given that the founder
is likely to have more information than anyone else about the startup quality (Busenitz et al. 2005). Some
signals of quality may be more readily observable than others: signals may be “strong” or “weak” (Gulati et
al. 2003). Another strand in the literature distinguishes signal strength from its visibility (Ramaswami et
al. 2010).

Several characteristics of signals affect their likelihood to reach potential receivers (Connelly et al. 2011).
First, signal fit refers to the extent to which the signal provides a measure of the unobservable quality. The
reliability of a signal is another important dimension for the receiver, and it can be assessed combining
the usefulness of a signal and its credibility. To the receiver, the usefulness of the signal depends on its
correspondence with the quality they seek for, while the credibility of the signal refers to the ability of
signalers to be perceived as honest. Finally, receiver attention refers to how actively receivers address the
environment for a particular signal: the signaling process gives poor results if the receiver is not observing
the signal, or does not know what to look for.

In the study, we regard the successful fundraising from both crowdfunding and angel investment as
strong quality signals. Startups, as dedicated signalers, try to send those signals to potential receivers,
VCs. Moreover, VCs are definitely aggressive receivers with the highest attention who seek for
opportunities to invest their fund in promising startups among numerous alternatives. The focus of the
study is, in the assumption, whether a signal from one is stronger than the one from the other or not. That
is, we attempt to examine how VCs differently hail to an expert-based signal vs. a crowd-based signal. We
further investigate what characteristics of startups or environment surrounding them increases strength
and visibility of the signals, thus induce the change in VCs’ responding to those signals.

Hypothesis Development

Crowdfunding vs. Angels

For VCs, the most important factor when deciding to invest in a startup is their potential financial returns.
Angel investors are known to have similar preferences, and both VCs and angels rely on a similar set of
startup characteristics, such as its founding team, when they take investment decisions (Hsu 2007). Thus,
receiving a round of angel funding is likely to serve as a credible quality signal to obtain later VC funding.
In contrast, crowdfunding investors do not only pursue financial returns, as traditional investors do. They
generally back a crowdfunding campaign for various reasons (Gerber et al. 2012). In addition,
crowdfunding investors might rely on a different set of information when they take investment decisions,
as, in general, they are not sophisticated investors. In crowdfunding, the information related to certain
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This suggests that VCs may consider differently a signal form angel investors, as it may fit better what they are also looking for. This logic suggests Hypothesis 1.

Hypothesis 1: Getting funding from crowdfunding (as compared to angel investing) is less associated with the likelihood of follow-on VC investments.

The Effect of the Initial Fundraising Amount

In the case of very large and successful crowdfunding campaigns, success may serve as an activating signal, indicating the excellence of that company over others (Hasan 1997). In addition, signal frequency increases with the size of funding, as very successful campaigns receive more attention in the media. In contrast, the amount of funding received by angel investing may not generate a stronger signal, as the amounts in angel investing mostly depend on the characteristics of the market a startup belongs to. The above arguments motivate Hypothesis 2.

Hypothesis 2: The effect of getting funding from crowdfunding (as compared to angel investing) is stronger for startups with larger funding.

The Effect of Location

VCs are more likely to be on the board of nearby companies (Chen et al. 2010), since geographic distances potentially increase costs, such as search costs, and communication costs (Lerner 1995). Investors seem to feel more comfortable investing their money in a business they can observe (Cumming et al. 2010). At the same time, however, the large number of signalers in startup cluster regions causes a redundancy of signals. In this context, crowdfunding success may increase the visibility of a signal, as a large number of backers are involved. Crowdfunding projects seem to be geographically tied to their backers (Agrawal et al. 2011), suggesting a strong “word of mouth” effect in these clusters. Thus, VCs may receive more frequent quality signals from crowd-funded startups. This leads to Hypothesis 3.

Hypothesis 3: The effect of getting funding from crowdfunding (as compared to angel investing) is stronger for startups from startup cluster cities.

The Effect of Project Type

Crowdfunding provides a new opportunity for industry sectors traditionally struggling for funding, such as hardware development, where both risks and capital requirements are very high (Dern 2015). Hardware companies need to build products and master the logistics of supply and distribution chains. While there has been a considerable increment in the funding for hardware startups over the last few years2 due to decreased developing costs and times to launch a product (i.e., 3D printers), VCs generally have avoided hardware startups, which accounted for less than 1% of total VC investment each year, from 1992 to 2011 (Wakabayash 2014). Even after successful crowdfunding campaigns, hardware startups may struggle with getting follow-on VC funding. As signaling theory suggests, signaling gives poor results when the receiver is not actively looking for a signal, or does not know what to look for. These findings support the argument in Hypothesis 4.

Hypothesis 4: The effect of getting funding from crowdfunding (as compared to angel investing) is weaker for hardware startups.

2 By Techcrunch, since 2010, VC investment in hardware startups is growing more than 30 times. (http://techcrunch.com/2015/09/12/who-invests-in-hardware-startups/)
Methodology

**Empirical Setting and Sample**

We collect data on all successful projects in the technology field that received funding on Kickstarter, over the period from 2011 to 2013. We also create a benchmark sample of startups that received their first round of funding from angel groups, over the same period. Then, we track whether the startups received follow-on VC investment, until November 2015. Our final sample consists of n=822 startups.

We identify successful crowd-funded projects using the Kickstarter website, and we exclude those projects with goals lower than 50,000 USD and run outside US. Then, we complement our data using additional sources, such as company homepages, LinkedIn, and Crunchbase, a comprehensive public database affiliated with the blog Techcrunch.com. We exclude all projects with no company information, as those projects may belong to other organizations or individuals, rather than corporations. We end up with a sample of 201 crowd-funded startups, over a 3-year period. We create a benchmark sample of startups that received their first round of funding from angel groups. We identified all startup projects available from Crunchbase. As before, we complemented our data with company homepages and LinkedIn. After we exclude the projects outside the US and without company information, we end up with a sample of 621 angel-funded startups. Finally, we track follow-on funding outcomes for all startups, until the end of November 2015. We mainly use Crunchbase for the data on investment events, and complement the dataset using social media and company websites for missing or incomplete startup information.

**Dependent Variable**

Our hypotheses focus on the follow-on VC investment. Specifically, we focus on whether a startup receives the first round of formal VC investment after successfully closing the crowdfunding project or securing the funding from angels investors.

**Independent Variables of Interests**

Our key variable of interest is *crowdfunding success*, which is a variable equal to 1 if the startup successfully raised the goal amount of its crowdfunding project, and equal to 0 if the startup received its funding from angel investors. We end up with a sample of 822 startups, 202 backed by crowdfunding and 621 angel-backed startups.

To test the three interaction effects we described above, we develop and operationalize three types of variables. First, we use the natural log value of the crowd-funded and angel-funded amount for measuring the effect of the initial funding amount. Second, for examining the effect of location, we divide our samples by whether a startup is located in the top-three cities in the number of startups from our sample (i.e., New York, San Francisco, Los Angeles, indicator=1), or not (indicator=0). Finally, we include a variable equal to 1 if a startup is related to hardware product, and equal to 0 if not.

**Control Variables**

We include a set of control variables that are expected to affect VC funding decisions. We include a number of founder characteristics, such as startup experience, number of founding members, presence of female founders, and education level of the primary founder. We also control for several startup characteristics, such as the tenure of the startups, the industry they belong to, and we also include regional dummies. The measure of all variables is presented in Table 1.
Variable | Measure
--- | ---
DV: Follow-on VC Investment (VCI) | Equal to 1 if the startup received the first round of formal VC investment after crowdfunding or angel investment, and 0 otherwise
Crowdfunding Success (CFS) | Equal to 1 if the startups successfully raised their goal amount in crowdfunding, and 0 otherwise
Initial Funding Amount (IFA) | The natural log value of the initial funding amount from crowdfunding and angel investors, respectively
Startup Cluster City (SCCITY) | Equal to 1 if the focal startup is in major VC cities (i.e., NY, SF, LA), and 0 otherwise
Hardware Startups (HW) | Equal to 1 if the focal startup is hardware-oriented, and 0 otherwise
Startup Experience of Founder (EXPFNDR) | Equal to 1 if any of the founders founded a startup prior to the startup under analysis, and 0 otherwise
Number of Founders (NUMFNDR) | Number of initial founding members of the startup under analysis
Female Founder (FEMFNDR) | Equal to 1 if at least one female founder belongs to the startup under analysis, and 0 otherwise
Founder Education Level (EDUFNDR) | Equal to 1 if any of the primary founders hold higher degrees (e.g. MS, Ph.D.), and 0 otherwise
Startup Age (AGE) | Startup tenure at first funding round, both from crowdfunding and angel investors
Year Dummy | The year in which the startup under analysis received the initial funding
Industry Dummy | Music, Gaming, and Media; Social Media, Location, and Mobile Apps; Payment and Commerce; Web Business; Underlying Technology, and Other
Location Dummy | The geographic region (state) of the startup under analysis

Table 1. The Measure of Variables.

Results

Table 2 presents the descriptive statistics of all variables, comparing the startups with successful crowdfunding campaigns to the other startups with funding from angel investors. The results show no significant differences in some variables, but indicate several differences in the other aspects. For example, the angel-funded startups tend to locate in startup cluster areas, have more experience and founding members, and receive larger amount of initial funding in comparison to the crowd-funded startups while there is no differences in participation of female founders and education level of team members. While there are notable differences between two sample groups (i.e. crowd-funded vs. angel-funded), even though we collected whole samples from the periods, we added those variables in our analysis for controlling the effects of other factors on the dependent variable, follow-on VC investment.
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In Table 2, we report the descriptive statistics of the variables.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Crowd-funded (n=201)</th>
<th>Angel-Funded (n=621)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Std. Dev.</td>
</tr>
<tr>
<td>IFA</td>
<td>11.912</td>
<td>.874</td>
</tr>
<tr>
<td>SCCITY</td>
<td>.248</td>
<td>.433</td>
</tr>
<tr>
<td>HW</td>
<td>.731</td>
<td>.444</td>
</tr>
<tr>
<td>EXPFNDR</td>
<td>.298</td>
<td>.458</td>
</tr>
<tr>
<td>NUMFNDR</td>
<td>1.592</td>
<td>1.188</td>
</tr>
<tr>
<td>FEMFNDR</td>
<td>.129</td>
<td>.336</td>
</tr>
<tr>
<td>EDUFNDR</td>
<td>.363</td>
<td>.482</td>
</tr>
<tr>
<td>AGE</td>
<td>4.537</td>
<td>2.947</td>
</tr>
</tbody>
</table>

Table 2. Descriptive Statistics of Variables.

In Table 3, we report the results of our regression analysis. Columns 1 to 5 report the coefficients of OLS regressions, where the dependent variable is follow-on VC investment. The main variable of interest is an indicator that takes value of 1 for startups that launched a crowdfunding campaign and successfully reached their funding goal. The results in Column 1 suggest that crowd-funded startups do not show a statistically significant different chance of getting subsequent VC funding. Hypothesis 1 is not supported.

Columns 2 to 5 present the results of our tests for Hypothesis 2 to 4. Hypothesis 2 posits that, as a startup gets larger funding, the effect of accessing crowdfunding becomes more significant. Our results provide strong evidence in favor of hypothesis 2. When a crowdfunding campaign is very successful, the startup has a high chance of getting follow-on VC funding. The results also illustrate the different effects of successful crowdfunding campaigns across company locations and types. We find that the effect of crowdfunding on follow-on VC funding is stronger for startups in startup cluster areas. Our interpretation is that as these areas have a significant number of VCs, some of them are more active in seeking extra signals from startups, and may consider crowdfunding success as a valuable signal. On the contrary, even though startups from financially disadvantaged areas might run successful crowdfunding campaigns, on average they fail to receive follow-on VC funding, probably due to the lack of VCs actively seeking signals from crowdfunding. In sum, hypothesis 3 is accepted. Finally, Hypothesis 4 argues that the effect of crowdfunding on follow-on VC investment is weaker for hardware startups. Our results support this prediction. A typical VC tends to pay less attention in, thus invest less in hardware startups, and this remains true even in the case of hardware startups with a successful crowdfunding campaign.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Dependent Variable : VCI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
</tr>
<tr>
<td>CFS</td>
<td>-0.080 (0.062)</td>
</tr>
<tr>
<td>CFS * IFA</td>
<td>0.118*** (0.039)</td>
</tr>
<tr>
<td>CFS * SCCITY</td>
<td>0.179** (0.089)</td>
</tr>
<tr>
<td>CFS * HW</td>
<td>0.047*** (0.014)</td>
</tr>
<tr>
<td>IFA</td>
<td>0.047*** (0.014)</td>
</tr>
</tbody>
</table>
Crowdfunding Success as a Quality Signal

Table 2. Results of Regression Analysis.

<table>
<thead>
<tr>
<th></th>
<th>SCCITY</th>
<th>HW</th>
<th>EXPFNDR</th>
<th>NUMFNDR</th>
<th>FEMFNDR</th>
<th>EDUFNDR</th>
<th>AGE</th>
<th>Constant</th>
<th>Controls (Year, Industry, Location)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.001</td>
<td>0.015</td>
<td>0.081**</td>
<td>0.031*</td>
<td>-0.016</td>
<td>0.110***</td>
<td>-0.042***</td>
<td>-0.108</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>(0.049)</td>
<td>(0.062)</td>
<td>(0.037)</td>
<td>(0.016)</td>
<td>(0.052)</td>
<td>(0.036)</td>
<td>(0.006)</td>
<td>(0.217)</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>-0.002</td>
<td>0.004</td>
<td>0.080**</td>
<td>0.026*</td>
<td>-0.010</td>
<td>0.108***</td>
<td>-0.023***</td>
<td>0.093</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>(0.048)</td>
<td>(0.061)</td>
<td>(0.036)</td>
<td>(0.016)</td>
<td>(0.052)</td>
<td>(0.036)</td>
<td>(0.006)</td>
<td>(0.230)</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>-0.042</td>
<td>0.019</td>
<td>0.078**</td>
<td>0.032**</td>
<td>-0.011</td>
<td>0.113***</td>
<td>-0.024***</td>
<td>-0.059</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>(0.055)</td>
<td>(0.060)</td>
<td>(0.036)</td>
<td>(0.016)</td>
<td>(0.052)</td>
<td>(0.036)</td>
<td>(0.006)</td>
<td>(0.218)</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>-0.006</td>
<td>0.141</td>
<td>0.080**</td>
<td>0.030*</td>
<td>-0.018</td>
<td>0.112***</td>
<td>-0.023***</td>
<td>-0.091</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>(0.049)</td>
<td>(0.102)</td>
<td>(0.037)</td>
<td>(0.016)</td>
<td>(0.052)</td>
<td>(0.036)</td>
<td>(0.006)</td>
<td>(0.218)</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>-0.054</td>
<td>0.149</td>
<td>0.074**</td>
<td>0.026*</td>
<td>-0.007</td>
<td>0.111***</td>
<td>-0.023***</td>
<td>0.175</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>(0.054)</td>
<td>(0.103)</td>
<td>(0.036)</td>
<td>(0.016)</td>
<td>(0.052)</td>
<td>(0.036)</td>
<td>(0.006)</td>
<td>(0.231)</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Notes: This table reports the results of OLS regressions. *, ** and *** refer to significance at 10%, 5% and 1%, respectively.

Discussion and Conclusion

Our study examines whether VCs look at crowd-funded startups and angel-backed startups in a different way. We find no statistically significant difference in the effects of angel investing and crowdfunding. Our results provide evidence for the potential role of a successful crowdfunding campaign as a “stepping stone” to follow-on VC investments. Building on the signaling literature, we also investigate whether the impact of successful crowdfunding campaigns varies depending on the power of the signal and on the characteristics of the signaler. Our findings show that, when the signal is strong, such as getting a very large amount from a crowdfunding campaign, the positive signal compensates the effect of crowdfunding on follow-on VC investment. We also find that the effect of crowdfunding success is stronger for startups from startup cluster cities, and for non-hardware startups. Crowdfunding may be a key alternative for startups that have been traditionally neglected by VCs, such as hardware startups outside startup clusters. Our finding suggest, however, crowdfunding success itself does not guarantee subsequent VC investments. Crowdfunding seems to be perceived as another channel for VCs to find startups that fit their preferences, but it does not seem to change such preferences.

This paper contributes to advancing our understanding of crowd-based and expert-based signaling effects, in the context of early stage financing. Our research gives a theoretical contribution to the literature on crowd-based decision making and signaling effects, in early financing stages. We investigate how different types of early financing, such as crowds-based and angel-based investments, shape a quality signal to VCs, affecting the likelihood of future investments. Furthermore, to the best of our knowledge, this paper is the first empirical study showing how a successful crowdfunding campaign may determine a startup follow-on fundraising performance. Our main results show that VCs may leverage the signal of a successful crowdfunding campaign to reduce their risks in decision making, especially when they are faced with large information asymmetries. Crowdfunding is the result of a non-expert decision making process. However, for startups, a successful campaign could generate significant opportunities to access additional funding resources, even though follow-on VC investments may still be difficult in certain industries and locations, traditionally neglected by VCs. Finally, our study provides evidence in favor of
the role of equity-based crowdfunding in the startup ecosystem. As the results from reward-based crowdfunding campaigns show, VCs may be still focusing too much on equity-based crowdfunding, considering them more credible sources of quality signals. However, reward-based crowdfunding still helps reducing information asymmetries, thus leading to more transparency in the startup ecosystem.

REFERENCES


