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Success Drivers of Online Equity Crowdfunding Campaigns

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Abstract

While equity crowdfunding provides ventures with an opportunity to collect funding from a large base of investors, many campaigns tend to remain unsuccessful. We draw from two fields of financing adjacent to equity crowdfunding, venture capital (VC) and angel investing, as well as rewards-based crowdfunding, to develop an understanding of the drivers of investment decisions in equity crowdfunding. Using data from a leading equity crowdfunding platform in Northern Europe, we explore factors that drive the number of investors and amount of funding attracted by equity crowdfunding campaigns. The results suggest that the investment decision criteria traditionally used by VCs or business angels are not of prime importance for success in equity crowdfunding. Instead, success is related to pre-selected crowdfunding campaign characteristics and the utilization of private and public networks. The findings are relevant for the decision making of entrepreneurs and crowdfunding platforms, as both parties benefit from campaign success.

Keywords

Equity crowdfunding, online platforms, entrepreneurial finance, new ventures, start-ups, success drivers

1. Introduction

In recent years, *crowdfunding* has emerged as a new relevant financing mechanism alongside more traditional means of financing new ventures [43]. Crowdfunding refers to the act of drawing funds from large groups of people^a. The crowdfunding market has been growing fast in recent years. In 2014, USD 16.2 billion was raised through crowdfunding globally, representing an increase of 167% from 2013 [37]. Crowdfunding is part of a broader phenomenon, *crowdsourcing*, in which an organization outsources an activity – such as idea generation, decision-making support, and/or resource collection – to a large group of people [9].

^a Belleflamme et al. [5] provide the following definition: “Crowdfunding involves an open call, mostly through the Internet, for the provision of financial resources either in the form of donation or in exchange for the future product or some form of reward to support initiatives for specific purposes” (p. 588).

Crowdfunding is an umbrella term which covers several different forms. *Donation-based crowdfunding* is used to collect charitable funding in support of causes and projects. In *rewards-based crowdfunding*, funders receive non-monetary rewards in exchange for their contribution. *Debt-based crowdfunding* offers a credit contract, whereas *equity-based crowdfunding* offers an equity stake in the target company. [2, 6, 10, 32, 39, 42.] Our focus is on equity-based crowdfunding.

Compared to other forms of crowdfunding, equity crowdfunding is a relatively new phenomenon. Regulations around equity-based crowdfunding differ by country. In the U.S., most unaccredited investors have thus far not been able to invest in equity crowdfunding. However, in October 2015, the Securities Exchange Commission approved Title III of the Jump-start Our Business Startups (JOBS) Act, which entails the legalization of equity-based crowdfunding for unaccredited investors. Consequently, large amounts of previously inaccessible capital are expected to soon become available to early-stage companies in the U.S. [4.] Outside the U.S., equity crowdfunding platforms for unaccredited investors have been established in several countries over the past decade [50]. In Europe, the total amount raised through equity crowdfunding grew from 23 million euros in 2012 to 194 million euros in 2014 [50].

While campaign success is important for entrepreneurs and platforms, many campaigns fail. Of the campaigns conducted on the equity crowdfunding platform Invesdor, 30% were successful in the sampled time frame. Success rates at several other crowdfunding platforms have been at similar levels [13, 39, 51]. In order to better understand the dynamics of crowdfunding and to improve campaign success rates, knowledge of the factors contributing to success in crowdfunding is required. However, little is still known about how contributors in crowdfunding assess targets [38].

Currently, research about campaign success drivers and investors' investment criteria in equity crowdfunding remains very limited. To the best of our knowledge, empirical research on the success drivers of equity crowdfunding for mostly unaccredited investors is limited to the work of Ahlers et al. [3]. They examine the Australian equity crowdfunding platform ASSOBS to assess the impact of selected start-up features, such as the board, risk factors, and planned exit strategies, on campaign success. In addition, Agrawal et al. [1] analyze data from the Netherlands-based platform Sellaband, which previously allowed for equity-like crowdfunding in the form of revenue sharing. (See also [32].) Kim and Viswanathan [31] study the role of early investors in the success of crowdfunding campaigns in which investors receive a monetary benefit from the success of targets they have funded. Cholakova and Clarysse [10] study the

motivations that determine individuals' decisions to invest in equity crowdfunding or to contribute through rewards-based crowdfunding. Bernstein et al. [7] conduct an experiment on the importance of the availability of different types of information to accredited early-stage investors.

Due to its limited amount and scope, the contribution of existing research towards explaining variation in the success of equity crowdfunding campaigns remains small. We address this gap with the following research question: *What are the key success drivers of online equity crowdfunding campaigns?*

We address this question by drawing on research from two forms of funding adjacent to equity crowdfunding. In the funding lifecycle, companies in different growth phases typically gain access to capital from different sources [43, 53]. At the very beginning of its existence, a startup typically uses its founders' money, followed by funds from friends and family. As these resources are usually scarce, the startup soon needs to turn to outside investors. [44.] In the initial concept and seed phases, companies can use donation- and rewards-based crowdfunding [43, 53]. Later, during the expansion phase, more mainstream forms of financing become topical [53]. Many entrepreneurs turn to business angels. Startups can also seek funding from venture capital (VC) companies, who tend to enter at a later stage, conduct more systematic due diligence, and invest larger amounts than business angels. [44, 48.] Finally, companies with sufficient track record may seek funding from institutional investors [53]. In addition, companies can use debt to finance their early operations and growth.

However, there exists a funding gap between donation- and rewards-based crowdfunding and mainstream forms of financing. Investors in mainstream forms tend to be risk averse, which may leave the funding needs of innovative early-stage companies unattended. [53.] Equity-based crowdfunding is, together with debt-based crowdfunding, beginning to bridge that gap, as illustrated in Figure 1 [43, 53].

Insert Figure 1 Here

While it shares some similarities with some other forms, crowdfunding “represents a unique category of fundraising, with different vehicles, processes, and goals.” [53, p. 17]. Furthermore, the goals of contributors in equity crowdfunding differ from those in other forms of crowdfunding. While equity investors' primary reason for participation is to reap financial benefits, contributors to rewards-based campaigns are also driven by other motives, such as the wish to be part of a community and to help others [10]. As funders' goals differ, the drivers and criteria of their funding decisions can

also be expected to differ. Consequently, campaign success factors in equity crowdfunding can be expected to differ from those of rewards-based campaigns. Equity crowdfunding therefore merits research specific to it.

Due to a lack of theory on equity crowdfunding, we build on research from the two forms of funding closest to equity crowdfunding in the funding lifecycle: business angels and venture capital, on the one hand, and non-equity based crowdfunding, on the other hand. As they all address growing companies' funding needs, equity crowdfunding, angel investing, and venture capital investing are often assessed together and compared to each other [e.g., 14, 28, 52]. Investors in the three forms of financing share similarities with each other [14]. Similarities between equity crowdfunding and angel investing include similar motivations for investing, the absence of active financial intermediaries, and the investing individual's own decision making power [52]. The boundary between equity crowdfunders and business angels is sometimes vague, and the two groups of investors may compete for the same investments [28]. On the other hand, equity crowdfunding can be addressed in the context of rewards-, donation-, and debt-based crowdfunding, with which it also shares similarities [e.g., 6, 39].

We develop four hypotheses. The first one hypothesizes that the investment criteria traditionally used by venture capital and angel investors can be used to predict the success of equity crowdfunding campaigns. The other three draw on research on non-equity based crowdfunding to hypothesize that different campaign and company characteristics can be used as predictors of success.

The results are relevant to entrepreneurs, investors, and crowdfunding platforms alike, as understanding campaign success factors is in the interest of each group. In countries where equity crowdfunding for unaccredited investors is beginning to emerge, industry actors can benefit from experiences of those in countries where the field has already been operational for several years.

The rest of the paper is organized as follows. In section 2, we present a review of literature on the success drivers of early-stage company financing. Our hypotheses are described in section 3. Section 4 discusses the market and company context of our sample. Section 5 describes the variables. Section 6 presents and discusses the results. Section 7 concludes the paper, and discusses limitations, as well as future research opportunities.

2. Literature review

Due to a lack of literature on the success drivers of equity crowdfunding campaigns, this paper draws on research on the forms of funding adjacent to equity crowdfunding on the funding lifecycle (Figure 1). On the one hand, we address other forms of crowdfunding, mainly rewards-based, that are relevant for earlier-stage companies. On the other hand, we leverage research on VC and angel funding, which typically become relevant later on the lifecycle.

Equity crowdfunding is a distinct form of funding with characteristics that clearly distinguish it from other forms. However, some of its features are similar to those of rewards-based crowdfunding, whereas others resemble those of business angel and venture capital investing. A selection of such features is presented in Table 1. Similarities between equity crowdfunding and its neighboring forms of funding have been highlighted in gray. This partial overlap of features supports the use of literature from neighboring forms of funding when researching equity crowdfunding.

Insert Table 1 Here

The approach of leveraging neighboring fields is similar to that used by Dorff [15]. Due to a lack of suitable studies about equity crowdfunding, he analyzes data on angel investing and, stating that angel investing is “the closest analogue to equity crowdfunding” (p. 493), draws conclusions for equity crowdfunding. Furthermore, Manchanda and Muralidharan [36] compare equity crowdfunding and venture capital investing, concluding that while venture capitalists may face some direct competition from equity crowdfunding, the two forms possess distinct characteristics that may make them complementary to each other.

2.1. Success drivers of crowdfunding campaigns

The first perspective from which we approach the possible success drivers of equity crowdfunding campaigns is through success drivers identified for different forms of crowdfunding. Existing literature on the success drivers of crowdfunding campaigns can be split into three main categories: campaign characteristics, networks, and understandability of the company’s concept and offering. In the following, we present literature on each of these categories.

2.1.1. Campaign characteristics

Most studies aiming to predict the outcome of rewards-based crowdfunding campaigns address specific campaign characteristics [e.g., 13, 32]. We focus on four key characteristics: the funding target, the minimum investment, campaign

duration, and the provision of financials. All these characteristics can be pre-determined by the entrepreneur and the crowdfunding platform prior to the campaign.

2.1.1.1. Funding target

Crowdfunding campaigns typically portray a target range for the sought amount of funding. Crowdfunding platforms can operate under one of two basic models. In the “all-or-nothing” model, the entrepreneur sets a goal for minimum target funding and receives the invested money only if the goal is achieved. In the “keep-it-all” model, the entrepreneur keeps any funds collected. [13.] Especially in the “all-or-nothing” model, the lower threshold of the target range is critical, as any campaign falling short of it fails. The entrepreneur must hence find a balance between seeking sufficient funds and aiming to ensure that the minimum threshold is reached.

Findings about the relevance of target funding for success differ by the form of crowdfunding. Ahlers et al. [3] find no significant relationship between target funding and the number of investors in equity crowdfunding. Hakenes and Schlegel [26] reason that high funding targets may provide security to funders in equity- and debt-based crowdfunding, as their investments will only go through if sufficiently many other people also view the campaign sufficiently positively to invest in it. As to rewards-based crowdfunding, the results of Cumming et al. [13], Mollick [39], and Zheng et al. [56] indicate that higher funding goals are negatively associated with success. These differing results for different forms of crowdfunding find some support in Belleflamme et al. [6], who show that smaller targets are preferable in rewards-based campaigns and larger targets in equity crowdfunding.

2.1.1.2. Minimum investment

Crowdfunding campaigns typically require every investment to be larger than a pre-defined minimum investment amount. Some studies mention the role of the minimum investment in crowdfunding [e.g., 3, 40]. However, none of them appear to address its potential link with campaign success. Although Ahlers et al. [3] do not specifically investigate the impact of minimum investment on the success of equity crowdfunding campaigns, their data demonstrate no statistically significant relationship between the minimum investment and the total amount of funds collected.

2.1.1.3. Campaign duration

The duration of crowdfunding campaigns is typically determined in advance. Cumming et al. [13] and Mollick [39] find that campaign duration is negatively related to success in rewards-based crowdfunding. Mollick [39] proposes that longer

campaign duration may be perceived by investors as an indication of a lack of confidence. The interviews of entrepreneurs and platform providers across different forms of crowdfunding conducted by Härkönen [27] support these findings. He presents a view that longer durations may be disadvantageous, because contributions tend to accrue at the start and towards the end of a campaign, leaving a relatively quiet period in the middle. He also notes that longer durations make it possible for investors to take more time to consider and even to forget about campaigns.

Contradictory results have been presented as well. Zheng et al. [56] find that campaign duration is positively related to success in rewards-based campaigns in China, whereas they find no significant relationship for the US. Burtch et al. [8] find that longer campaign durations are associated with higher project visibility and thereby better performance in donation-based crowdfunding.

2.1.1.4. Provision of financials

Some campaigns portrayed on crowdfunding platforms include financial information, such as historical or forecast revenue and profit figures. Existing literature indicates that the mere provision of financials – without taking a stance on the quality of the financials – is a positive indicator of campaign success in equity- and rewards-based crowdfunding. Ahlers et al. [3] find that equity crowdfunding campaigns that do not offer financial forecasts, nor a disclaimer explaining the reason for a lack thereof, collect significantly less funding. Mollick [39] finds that offering no financials decreases the amount raised in rewards-based crowdfunding.

2.1.2. Networks

A growing base of crowdfunding literature agrees on the importance of networks in collecting funding. Agrawal et al. [1] emphasize the importance of contributions from personal connections in financing early-stage companies through models such as equity-based crowdfunding. They suggest that social networks facilitate the identification and assessment of investment opportunities. Similarly, Lin et al. [34] find that borrowers in debt-based crowdfunding who have many online friends are more likely to succeed in raising funds. According to Kuppuswamy and Bayus [32], the majority of funds collected in rewards-based crowdfunding originate from companies' existing networks, which include the entrepreneur's personal social networks and social media followers. Accordingly, we address networks in two categories: private networks and social media networks.

2.1.2.1. Early funding from private networks

A large part of the early funding raised in crowdfunding campaigns typically comes from private networks. For example, in the case of the equity crowdfunding platform Invesdor, the first few weeks of a campaign are conducted in a hidden phase, during which only private network members are invited to invest.

Much literature supports the suggestion that funding contributions made early on in a campaign strongly predict campaign success. Agrawal et al. [1] suggest that a higher accumulation of past investments increases the tendency of new investors to provide funding in revenue-sharing crowdfunding campaigns. Kim and Viswanathan [31] find that early investments have a strong impact on later investments in profit-sharing crowdfunding. In particular, they show that less experienced investors are strongly influenced by the investment decisions of experts. Lee and Lee [33] present evidence of investor herding in debt-based crowdfunding. Colombo et al. [12] show that the success of rewards-based crowdfunding campaigns is closely related to the number and total amount of early contributions. They reason that early support offers an indication of quality and likely campaign success, and that a large number of early backers offers more opportunities for the word about a campaign to spread. Etter et al. [17] find that the amount of money pledged early on in rewards-based crowdfunding predicts campaign success with a high accuracy. Similarly, Greenberg et al. [25] show that knowledge about the number of backers in rewards-based crowdfunding strongly increases the predictability of success. Wash [51] finds that contributors become more active once a charity crowdfunding campaign becomes successfully funded.

2.1.2.2. Social media networks

Some research points towards a positive relationship between online networks and campaign success. Etter et al. [17] find that the number of social media posts about rewards-based crowdfunding campaigns predicts their success. Mollick [39] shows that being featured on the Kickstarter website has a strong positive relationship with success. He also finds, similarly to Zheng et al. [56], that the size of an entrepreneur's social media network is a significant predictor of campaign success in rewards-based crowdfunding.

However, not all literature agrees on the importance of social media presence. Belleflamme et al. [5] find no relationship between the use of social media networks and the amount of funding collected in different forms of crowdfunding. Cumming et al. [13] find no difference in the number of social media website links between successful and unsuccessful

rewards-based crowdfunding campaigns. Colombo et al. [12] observe that the number of social media connections of the entrepreneur is not significantly related to campaign success, although it is linked to the amount of early contributions in rewards-based crowdfunding.

2.1.3. Understandability

There exist some early indications suggesting that the understandability of a company's concept or product offering may be relevant for campaign success. In interviewing actors across different forms of crowdfunding, Härkönen [27] encounters the view that part of the success of crowdfunding campaigns may be attributed to consumer investors' ability to easily understand the products offered by the target companies. On a related note, Belleflamme et al. [5] find that companies that offer products are more successful in attracting funding through different forms of crowdfunding than companies that offer services. They reason that funders may prefer tangible outcomes, as they convey a stronger perception of certainty about quality than do intangible services.

2.2. Attracting traditional early-stage company financing

Abundant literature exists on the investment criteria of VCs and business angels. While the criteria differ from one investor to another, several common patterns have been identified [47, 48]. Most literature agrees that the entrepreneur and the full management team are the most important decision criteria for angel and VC investors alike. In addition, Mollick [38] suggests that VCs and contributors in rewards-based crowdfunding assess target potential in similar ways. Relevant signals for both groups are, according to him, a proven history of success demonstrated by the entrepreneur, third-party endorsements, and preparedness. Similar findings are yielded by a crowdfunding survey conducted by the Finnish Ministry of Finance. When asked about investment decision making in crowdfunding, organizations associated with the equity-, debt-, rewards-, and donation-based crowdfunding markets gave responses that were similar to the requirements placed for traditional investments [30].

2.2.1. Key decision criteria for VC's

Generally, investment criteria related to the team are considered to be the most important ones for VCs [47]. A survey by MacMillan et al. [35] concludes that the key decisive factors for venture capitalists are the entrepreneur's personal characteristics and experience. Criterion groups other than the team relate to the product, the market, the company, and

financial potential. VCs look for products that offer competitive advantage, proprietary protection, innovativeness, proven acceptance, and a sufficiently advanced status. Market-related criteria refer to market size and growth. Financial criteria relate to expected return and liquidation opportunities. The life cycle stage of the target company is also relevant for VCs, with too early a stage considered a potential reason to reject an investment. [35, 47.]

2.2.2. Key decision criteria for angels

The investment criteria of business angels are to a large extent similar to those of VCs. Angels and VCs alike emphasize the importance of the entrepreneur, management team, market, and product. However, angels may put relatively more emphasis on the entrepreneur and VCs on the market and product [48].

Prowse [41] states that knowledge of and trust in the entrepreneur is the primary selection criterion for angel investors. Similarly, Sudek [48] finds that the most important criteria are related to the team: the passion, commitment, and trustworthiness of the lead entrepreneur, as well as the quality of the management team. Other angel criteria include the soundness of the business plan, revenue potential, market growth potential, valuation, and planned exit path [41, 48].

Another indication of the investment criteria used by angel investors is provided by the decision frameworks used by business angel networks. The European Business Angel Network (EBAN) highlights, in its investment guidelines, the following requirements for a company to qualify for investment: evidence of demand, evidence of the product being in development, an identifiable exit path, and a sufficient return on investment [16]. EBAN encourages business angels to compare qualified candidates along the dimensions of the product, market, team, financial projections, and the quality of the business plan [45].

3. Research hypotheses

With the current lack of research on equity crowdfunding, we base our hypotheses on research of the two forms of financing adjacent to equity crowdfunding on the funding lifecycle: other forms of crowdfunding and traditional early-stage company financing. Overall, we hypothesize that the fund raising success of equity crowdfunding campaigns is driven by similar factors as success in the adjacent financing mechanisms.

Equity crowdfunding shares several similarities with, and can be seen as a predecessor, complement, or even substitute to, venture capital and business angel investing [14, 28, 52, 53]. Therefore, the first hypothesis draws from literature on them.

H1: Investment criteria traditionally used by VC and angel investors are relevant in predicting equity crowdfunding campaign success.

Equity crowdfunding also shares similarities with other forms of crowdfunding, which often precede it on the funding lifecycle [6, 39, 53]. The second group of hypotheses draws from literature on the success drivers of different forms of crowdfunding, mostly rewards-based. Research assessing the success of rewards-based crowdfunding campaigns most often addresses specific campaign characteristics [e.g., 13, 39, 40]. The second hypothesis draws from this research.

H2: Pre-selected campaign characteristics predict the success of equity crowdfunding campaigns.

The third hypothesis is based on the growing base of crowdfunding research that agrees on the importance of networks for campaign success [e.g., 1, 17, 32].

H3: The availability and use of networks is relevant for equity crowdfunding campaign success.

Previous research has given some early indications about the possible relevance of the understandability of a company's offering to campaign success [5, 27]. The fourth hypothesis aims to assess this.

H4: Equity crowdfunding campaigns providing more understandable offerings are more successful.

4. Data sample

We use data provided by Invesdor Oy, one of the leading equity-based crowdfunding platforms in Northern Europe. We next present the market context of our study and the Invesdor platform.

4.1. Crowdfunding market context

In Europe, the equity-based crowdfunding market is growing fast, with an average yearly growth rate of 116% during 2012-2014. The market is becoming increasingly international, and several European platforms already operate across country borders. [50.] The Nordic crowdfunding market covers five Northern European countries: Finland, Sweden, Norway, Denmark, and Iceland. While the size of the Nordic equity crowdfunding market remained at a modest 3.7

million euros in 2014, the market is growing fast, exhibiting an average yearly growth rate of 1400% between 2012 and 2014 [50].

While there are no substantial regulatory constraints regarding rewards-based crowdfunding in Europe, equity-based crowdfunding is subject to legislation stemming from a time before the emergence of online crowdfunding. Of the Nordic countries, Finland is the only one that has taken a formal stance on equity crowdfunding. It has classified equity crowdfunding platforms as financial service providers, who need to obtain licences allowing them to operate as investment firms. [22, 50.]

4.2. Invesdor

The Invesdor platform began operations in 2012. In 2014, it held a 46% share of the Nordic equity crowdfunding market [29, 50]. Invesdor operates under the “all-or-nothing” model. The majority of people who have invested via Invesdor are one-time investors. In our sample, 86% of investors have invested in only one target company. Invesdor’s investor base can thus be seen as representing the “crowds” rather than a smaller group of recurring investors.

Companies in a variety of development stages and from a variety of industries can seek funding through Invesdor. The platform sets no restrictions on the location of investors. Its most international campaign obtained investments from 27 different countries [29]. Across all campaigns, the countries from which the largest amount of investments has been paid in are Finland, the United Kingdom, and Germany. Other countries include, for example, Australia, Canada, and the U.S. In April 2015, Invesdor became the first crowdfunding platform to have been granted an EU license to operate across all countries belonging to the European Economic Area (EEA). It enables companies from across Europe to seek funding via Invesdor. Indeed, Invesdor is currently actively seeking to recruit target companies from, e.g., the UK. [11, 29.]

4.3. Data sample description

Our sample consists of the full set of sixty campaigns conducted through the Invesdor platform between May 2012 and September 2014. We treat the data as cross-sectional. The sample includes 1742 investments, of which 76% were made into successful campaigns. The remaining 24% of the investments were returned to investors because the respective

campaigns did not reach the minimum target. Of the sampled companies, 50% are in the software industry, 27% in fashion and lifestyle, and 10% in the restaurant business.

We choose to focus on this Finland- and Invesdor-based sample for four main reasons. First, unlike in many other countries, equity crowdfunding for unaccredited investors started several years ago in Finland, making it possible to make statistically significant inferences. In the U.S., for example, data on unaccredited investors is not yet available due to legislative restrictions. Second, the Finnish economy is a typical small open Western economy, with Finland being part of the EU and the EEA, and with the share of internet users at similar levels as in many other Western countries, such as the United Kingdom or the United States [54]. Hence, findings from a Finnish sample can provide indications and predictions about how equity crowdfunding for unaccredited investors can be expected to behave in other Western economies, such as the U.S. Third, Invesdor makes an appealing research target because of its international orientation and because of its strong market position. Using data from Invesdor provides good opportunities for follow-up research because of its plans for European expansion and regulatory approval to do so. Fourth, in light of potential future research, Finnish data provides research opportunities that involve the use of personal data that can be obtained, anonymously, from different government organizations. Such data is often not available for use in many other Western countries, such as the U.S., due to stricter privacy laws.

4.4. Investment process at Invesdor

Figure 2 depicts a high-level illustration of the main investment process steps at Invesdor. The numbered boxes indicate the percent of companies that have passed from one phase to another during the sampled timeframe. The majority (80%) of companies that have applied have not fulfilled the set of criteria required to collect equity crowdfunding. Campaigns typically have two phases, hidden and public. The hidden phase provides an opportunity for the start-up to collect investments from its own network and from Invesdor's partners and some lead investors on an invitation-only basis. After a hidden phase of typically a few weeks, the campaign generally turns public, hence becoming visible on Invesdor's website and open for any interested party to invest. While this is the general pattern, a third of the campaigns was conducted with no hidden phase, whereas 10% of the campaigns remained solely hidden. Anyone registered to the

platform can see the dates of investments collected as well as investor pseudonyms. Thirty percent of all campaigns reached their minimum funding target, while the remainder was unsuccessful.

Insert Figure 2 Here

5. Model variables and their operationalizations

5.1. Success measures (dependent variables)

The main goal of equity crowdfunding campaigns is typically to raise funding. However, companies that run equity crowdfunding campaigns often have also other goals, including market testing, relationship building, collecting feedback, as well as promotion and marketing. [6, 9, 23, 24, 55.] Therefore, the most successful crowdfunding campaigns can be seen to be those that attract both a sufficient amount of funds and a large number of individual investors. Consequently, we measure campaign success with the number of investors as well as the amount raised.

Number of investors: We look at the total number of investor interest attracted by a campaign regardless of whether or not the campaign was ultimately successful, because this provides a more apt measure of actual investor interest than merely looking at the number of investors in successful campaigns. Ultimately, whether or not a campaign is successful is determined by the level of the funding target set by the entrepreneur, which may be somewhat arbitrary. Hence, in campaigns that reached their minimum target, the number of investors represents the number of investors who proceeded to transfer the funds to the target company. In campaigns that did not reach their minimum target, the number of investors represents the number of people who expressed their willingness to invest in the target company on the platform during the campaign, even though the transaction did not go through in the end.

Amount raised: Similarly, for successful campaigns, the amount raised represents the amount of funds transferred to the target company. For unsuccessful campaigns, the amount raised represents the total amount the investors wanted to invest.

5.2. Success drivers (independent variables)

The selection of variables to explain equity crowdfunding campaign success is mostly based on previous research from adjacent fields of financing as well as the very limited body of research about success factors in equity- or equity-like crowdfunding. In addition, in accordance with the exploratory stage of equity crowdfunding research, we have discussed

the set of possible success drivers with industry practitioners in order to ensure that any possibly relevant factors specific solely to equity crowdfunding have not been omitted. In particular, the selection of the minimum investment and understandability variables has been supported by these discussions, as literature on them is particularly limited.

5.2.1. Variables stemming from traditional investment criteria

As described in the literature review, the drivers of VCs' investment decisions do not differ drastically from those of angel investors. Thus, we use angel investment criteria to build the variables stemming from traditional early-stage financing. In particular, we leverage the criteria used by the Finnish Business Angel Network (FiBAN) for two key reasons. First, it is consistent with our sample being Finland-based. Second, FiBAN provides an attractive point of reference as it is one of Europe's largest and most active business angel networks. Finland is also an active business angel country, with the second highest business angel investment rate in Europe [18].

The investment assessment criteria used by FiBAN [19], and variables we use to assess success drivers in obtaining traditional early-stage financing, relate to the team, markets, concept, scalability, and terms. In addition, we add the company's stage as a separate criterion [45, 47]. These six variables are in line with the angel and VC investment criteria identified in the literature review.

To operationalize the six variables, we assign every campaign a separate rating, on a scale from one to five, for each of the six attributes. The ratings have been provided by an experienced former business leader and developer with over three decades of experience in managerial and advisory positions. Later, he moved to professionally rating, vetting, and coaching start-ups. In creating the ratings, he familiarized himself thoroughly with all information provided in the crowdfunding campaign. The ratings are based on several dimensions of each attribute, which are briefly described below.

Team: Industry expertise, track record, educational background, experience, balance between team members' skill sets, as well as perceived motivation, drive, passion, commitment, and honesty.

Markets: Attainable market that determines the company's growth potential.

Concept: How well the product fits the target market, relevance of the end customer's problem, how well the company addresses the problem compared to other alternatives, and value of the solution to the customer.

Scalability: How easy it is to scale up the solution to the entire target market.

Terms: Valuation, number of shares targeted, whether the targeted funding amount is sufficient to lift the company to the next level.

Stage: Progress of the company on its development path, remaining gap to the target state, status of the product, status of market validation, and existence of paying customers.

In some models, we combine the six ratings into one variable, called *Average rating*, which is the average of the six ratings given to each company.

5.2.2. Variables stemming from crowdfunding theory

The variables stemming from crowdfunding theory fall into three categories: campaign characteristics, networks, and understandability. Campaign characteristics include four variables in line with the ones identified in the literature review. To measure the *funding target*, we use the lower end of the funding target range (in euros) that the entrepreneur aims to raise. The lower end of the target range is the most important feature of the funding target range, because campaigns that do not reach this threshold are unsuccessful, and it therefore ultimately defines the success of any campaign. It also determines how popular the campaign looks, as the percent of the minimum target raised is visible on the campaign website at any moment of the public phase.

The *minimum investment* is the smallest amount of money (in euros) an individual can invest to become a shareholder. The operationalization of this construct is unambiguous.

Campaign duration is measured as the number of days between the first and last day of a campaign. It includes both the hidden and the public phase.

Provision of financials represents whether financials have been made available in the campaign materials. It is measured with an indicator variable which obtains a value of 1 if campaign information includes figures for revenue and/or EBITDA (Earnings before Interest, Taxes, Depreciation, and Amortization). Otherwise, it obtains a value of 0. We use revenue and EBITDA specifically, because they are the two standard income statement items currently provided in the campaign template of the platform. They are also relatively simple measures of size and profitability, respectively. It is worth noting that, in line with the findings from the literature review, this variable is solely concerned with whether or not financials are provided, regardless of the quality of the financials. However, we also present results separately for the quality of financials, as measured by sales growth, EBITDA margin, and valuation multiples.

The second group, consisting of two variables, relates to networks.

Early funding raised from private networks refers to the financing a company obtains early in its campaign from private networks. We measure it by calculating what percentage of its minimum funding target the campaign raised during its hidden phase. Funds collected during the hidden phase provide a good measure of the early funding from private networks, because only the private networks of the target company and the crowdfunding platform are invited to invest in the hidden phase.

We measure a company's use of *social media networks* with an indicator variable that looks at the Facebook activity of the company. It obtains a value of *1* if the company has made a post of the crowdfunding campaign on its Facebook page and also provided a link to it, thereby encouraging its fans and followers to invest. If the company has not made a post, or if the company does not have a Facebook site (as of November 2014), the indicator variable is assigned the value *0*. Of possible social media channels, we chose Facebook for variable operationalization because it is the most widely used social network [46] and because, in our sample, it is the channel in which the highest number of the target companies is present.

5.2.3. Understandability

The understandability of a company's concept or offering is a rather complex feature to measure. In our sample, investors are typically individuals to whom the offerings of consumer-oriented companies may be easier to understand than those of companies whose products are intended for businesses. Hence, we use a simple indicator variable that is assigned the value *1* for companies whose products are mainly targeted to consumers and the value *0* for business-to-business (B2B) oriented companies.

6. Results and discussion

6.1. Descriptive statistics

Summary statistics of the dataset are presented in Table 2.

Insert Table 2 Here

Correlations between all variables are presented in Table 3. In accordance with the regression models presented in Section 6.2, logarithmic transformations for the following variables have been used: number of investors, amount raised, funding target, minimum investment, and campaign duration.

Insert Table 3 Here

The pairwise correlation coefficients between each of the independent variables and the dependent variable are relatively high. While pairwise correlations among independent variables are mostly non-significant, some higher correlations exist especially among variables stemming from traditional investment criteria. However, variance inflation factors (VIF) indicate no issues with multicollinearity, with 1.9 being the highest individual VIF in any model^b. The correlation between the minimum investment and understandability is significant and negative. Consumer-oriented companies may indeed wish to attract investments especially from their consumer customers, who may be willing to make smaller investments than more experienced or professional investors. Similarly, there is a significant positive correlation between B2C and social media networks. B2C companies may be more active on Facebook than companies targeting other businesses. The correlation between the early funding from private networks and social media networks is significant and positive. Entrepreneurs may well prefer advertising campaigns that have shown early signs of success, rather than campaigns that they perceive to have a higher probability of failing.

Splitting the campaigns into successful and unsuccessful ones along the dimensions of different variables reveals a few interesting observations. Of campaigns that started with a hidden phase, 33% were successful, whereas 24% of campaigns that only had a public phase were successful. More strikingly, of the campaigns that raised 30% or more of the funding target during the hidden phase, 77% were eventually successful, as opposed to 17% of campaigns that did not meet the 30% threshold or that did not have a hidden phase at all. Of campaigns that portrayed financials, 33% were

^b In the regression analysis, the variables stemming from traditional investment criteria are only included in one separate model (Model 1). To ensure that multicollinearity does not affect the results of the model, we conducted several runs, each time excluding a different set of variables from the model. The significance of remaining variables and the explanatory power were not significantly affected by the exclusions.

successful, compared to 20% of campaigns without financials. Nearly half (47%) of B2C companies reached their minimum target, whereas only 13% of B2B companies' campaigns were successful. Similarly, 58% of campaigns that made use of social media networks were successful, whereas only 11% of other campaigns were successful.

On average, 70% of the funding target was collected in the campaigns. The median value is lower, at 14%, as several campaigns collected only a small fraction of the target, whereas a few campaigns reached several hundred percent of the funding target. In cases pertaining to the latter, the difference between the lower and higher end of the funding target range was large, allowing the lower end of the funding target to be exceeded by such a large factor.

6.2. Regression models

We use multiple linear regression to build models that predict the number of investors and the amount raised. We use logarithmic transformations of the dependent variables and three independent scale variables (funding target, minimum investment, and campaign duration), because relative changes are more relevant than absolute changes in these cases. The transformations also reduce the variables' skewness and improve the fit of the models.

We build five different models, which all include a partly different set of independent variables. No individual model includes all variables due to restrictions imposed by the sample size. Model 1 addresses hypothesis *H1* about investment criteria traditionally used by investors, and hence it includes each of the ratings based on business angel criteria. Models 2 through 5 address hypotheses *H2* through *H4* with different combinations of variables. Model 2 includes the scale variables but no indicator variables. In order to control for the possible effect of traditional investment criteria, it also includes the average rating. Model 3 includes the variables related to hypotheses *H2* and *H3*, while Model 4 includes the variables related to hypotheses *H2* and *H4*. Model 5 incorporates all scale and indicator variables relevant for hypotheses *H2* through *H4*. We conduct relevant diagnostic tests for all models to ensure that there are no problems with multicollinearity, heteroskedasticity, or error term non-normality. The regression results are presented in Table 4 and Table 5.

Insert Table 4 Here

Insert Table 5 Here

In Table 4, where the explained variable is the number of investors, the explanatory power of the models is high, with the exception of Model 1. The coefficients and the significance of each variable remain relatively stable across models. In Table 5, where the explained variable is the amount raised, the explanatory power of the models is lower but still significant, again with the exception of Model 1.

6.3. Traditional investment criteria

Somewhat surprisingly, none of the investment criteria traditionally relevant for VC or angel investors turn out significant in predicting success in our sample, as shown in Model 1. Model 2 includes these criteria as one variable, the average of the six ratings, which is also not significant.

In addition, we looked at the quality of the financials (sales growth forecast, EBITDA margin, and valuation multiples) of the 45 companies that had provided them in their pitch. To our surprise, none of these displayed a significant relationship with campaign success in regression analyses.

Hypothesis *H1* is thus not supported: we do not find evidence that investment criteria traditionally used by VC and angel investors would be relevant in predicting equity crowdfunding campaign success. A possible explanation for this result is the difference in the level of expertise of unaccredited equity crowdfunding investors and VC or angel investors. The less professional “crowds” may not have the training, experience, or will to assess target companies along the dimensions of traditionally used investment criteria.

Although not significant in our results, traditional investment criteria may be relevant for success on equity crowdfunding platforms that target different types of investors. These may include platforms limited to accredited investors, such as AngelList, and platforms that invest in every featured deal also themselves, such as OurCrowd, which operates under a hybrid VC/accredited crowdfunding model.

6.4. Success drivers in crowdfunding

6.4.1. Campaign characteristics

Funding target

The funding target is positively, albeit not strongly, associated with the number of investors. It is not significantly related to the amount raised. Equity investors may be somewhat more interested in campaigns that have higher targets, because

larger amounts of funds collected enable companies to take more substantial measures towards growth and increase in value. Larger target sums may also provide prospective investors confidence to invest, as the campaign will only be successful if sufficiently many investors choose to support it with a sufficient amount of money.

This result is not fully in line with the results of Mollick [39] and Zheng et al. [56], which indicate that higher goals are *negatively* associated with success in rewards-based crowdfunding. However, it is logical that investors in rewards-based crowdfunding may be less concerned about the total target sum than are equity investors, as their interest lies in obtaining a reward rather than a stake in the company.

Minimum investment

The minimum investment has a strong negative relationship with the number of investors and with the amount raised. Large minimum investments may increase many investors' threshold for making an investment decision. Investors may be discouraged both because of the higher requirement for liquid funds available and because of the relatively high risk of losing money.

Campaign duration

Campaign duration is negatively associated with the number of investors. Shorter campaigns may convey a message of decisiveness and ability to deliver. Shorter durations may also encourage prospective investors to act fast, rather than postpone decision making. Duration is not significantly related to the amount raised.

Provision of financials

The availability of financials in the pitch is positively, albeit not very strongly, associated with the number of investors. However, it is not significantly related to the amount raised. Reporting some income statement data and forecasts may be considered a sign of credibility and capability. Conversely, the absence of financials may be considered dubious or unprofessional by investors.

Comparing this finding with the earlier result that the quality of financials is not related to campaign success, it appears that while it may be useful to provide some financials in the campaign, the attractiveness of these financials may not be as relevant in attracting investors.

The results thus support hypothesis *H2*: we find evidence that pre-selected campaign characteristics predict equity crowdfunding campaign success.

6.4.2. Networks

Early funding from private networks

The portion of the minimum target raised during the hidden phase is strongly positively associated with the number of investors and with the amount raised. A large base of investments already gathered may convey credibility and give prospective investors confidence in the campaign. Even if most investors do not have the resources or skills to perform a thorough due diligence, they may be inclined to assume that some other investors have done so. Furthermore, campaigns are only successful, and funds eventually distributed, if 100% of the minimum target is reached. Hence, to save time and effort, investors may be keener to invest in targets whose success appears more likely.

Social media networks

Our results suggest that the ability of a company to leverage social media networks is a strong predictor of success both in terms of the number of investors and the amount raised. Evidently, posting the campaign on social media may have a direct effect on investments, as fans may follow the link and proceed to invest. However, it is also possible that entrepreneurs associated with inherently more promising campaigns are more inclined to display their campaign on social media.

Interestingly, only 40% of the companies in our sample posted their campaign on their Facebook site, although 87% have Facebook pages. By choosing not to post the campaign on Facebook, a start-up may wish to avoid potential reputation damage from an unsuccessful campaign or from conveying a “start-up image” to existing customers.

According to the results on variables related to networks, hypothesis *H3* is supported: we find evidence that the availability and use of networks is relevant for equity crowdfunding campaign success.

6.4.3. Understandability of the product

The results show a positive relationship between the business-to-consumer (B2C) orientation of a start-up and campaign success. Equity crowdfunding campaigns may thus be more successful for companies that offer consumer products than for B2B companies. Consumers may be more comfortable investing in products that they know or understand. B2C companies may also have a broader base of existing customers and followers, and thus a larger pool of potential crowdfunding investors.

Hypothesis *H4* is thus supported: equity crowdfunding campaigns of companies providing more understandable offerings are more successful. However, this result can only be deemed directional due to the limited way of measuring understandability in this study.

Results from a survey conducted by the equity crowdfunding platform Venture Bonsai [49] provide some support to our results. In the survey, the most commonly stated reason to invest in a specific target is an *interesting product or service* (61% of respondents). Convincing *leadership*, typically a key criterion among professional investors, stays far behind (22%).

7. Conclusions

This paper is one of the first to identify and assess the success factors of equity crowdfunding campaigns targeted mostly to unaccredited investors, or the “crowds”. We have provided suggestive evidence that the investment decision criteria of unaccredited equity crowdfunding investors are more similar to those of providers of other types of crowdfunding than to those of more traditional providers of early-stage financing. We find that the criteria typically used by angel or VC investors are not relevant for equity crowdfunding investors, whose investment decisions depend rather on easily observable features of crowdfunding campaigns, network utilization, and understandability of the target’s products.

Campaign success is associated with several campaign characteristics, the most important of which include early funding collected from private networks, social media networks, and the size of the minimum allowed investment. In addition, success drivers related to the number of investors include the funding target, campaign duration, the provision of financial information in the pitch, and a B2C orientation of the company’s offering. Conversely, a thorough assessment of the company in terms of team, markets, concept, scalability, stage, and deal terms do not seem to predict success in equity crowdfunding.

Our overall conclusion is in line with a speculation made by Frydrych et al. [20, 21]. They note that emotional and social criteria may be more important to equity crowdfunders than financials. The observation leading them to this speculation is that the contracts prevalent in equity crowdfunding are typically not very attractive from the perspective of financial investors, with long-term durations and without dividends or voting rights.

7.1. Practical implications

The findings have important implications for the decision making of account managers at equity crowdfunding platforms as well as entrepreneurs at start-ups. Companies seeking to conduct a successful campaign benefit from maintaining an awareness of the finding that campaign success is strongly related to how the campaign is run. The extent of leveraging networks and specific pre-determined campaign characteristics can make the difference between failing and succeeding. Many important determinants of success are such that entrepreneurs and platforms can often influence themselves relatively effortlessly.

The results indicate that taking the following suggestions into consideration may improve the success of equity crowdfunding campaigns:

- ✓ Ensure a critical mass of investments from networks in the hidden phase. Only begin a campaign once sufficient financing from private networks can be secured.
- ✓ Market the campaign and make it visible on social media. Do not underestimate the importance of the existing customer base as potential investors.
- ✓ Allow for small investments, unless a large investor base adds an undue amount of complexity.

7.2. Limitations

Our results are based on an investigation of equity crowdfunding for unaccredited investors. We would be cautious in generalizing the results to other early-stage financing mechanisms. Although the results support several, but not all, previous findings about rewards- and donation-based crowdfunding, many important differences exist, as the motivations of equity crowdfunders and rewards-based crowdfunders differ [10]. Similarly, the results may not apply to equity crowdfunding targeted for accredited investors. Geographically, our results can be expected to be generalizable to open Western economies with regulatory environments similar to that of the EU. Although Finland-focused, investors in our sample represent a variety countries, mostly Western economies.

As always when using regression analysis, it should be noted that, methodologically, correlation does not imply causation. However, in the setting of our research, the explanatory variables precede chronologically the explained

variables. Therefore, we assume that, if any, the direction of causality is from the explanatory variables to the explained variables.

We have sought to minimize the risk of omitted variable bias by including variables from two separate streams of research adjacent to equity crowdfunding. It is possible that some drivers of success in any case remain unobserved. However, most investors make their decisions based on the same limited campaign information that we have used. After a review of literature from adjacent fields, an assessment of the campaigns from the investor's perspective, and discussions with crowdfunding platform representatives about their experiences of successful campaigns, we conclude that the probability of crucial variables having been omitted is low.

As the ratings used as explanatory variables are based on the assessment of an expert, they are inevitably somewhat subjective. However, the person selected to provide the ratings is highly experienced, and was equipped with clear variable definitions and rating criteria that remained consistent across the whole sample. Evidently, the ratings provided solely based on campaign information differ somewhat from the way VCs and angel evaluate companies, because our ratings were developed without face-to-face interaction with the target companies. However, the ratings are based on the same information that is available to the majority of the investors in each campaign, as most of them do not have live interactions with the target companies, either.

7.3. Future research

This paper is one of the first to address success drivers in the emerging field of equity crowdfunding for mostly unaccredited investors. Our results indicate that this new form of financing requires research of its own, as its dynamics differ from those of traditional financing mechanisms and from other forms of crowdfunding.

Due to the nascent nature of the field, there are several directions for future research. It would be interesting to replicate our analysis for other equity crowdfunding platforms. Especially as some time passes, larger sample sizes will become available to provide more conclusive evidence. Furthermore, while we have sought to develop an exhaustive set of campaign success factors, some variables – perhaps specific to equity crowdfunding alone – may still remain to be discovered.

It would also be interesting to better understand the background and origin of investments by looking into who the investors are and how they find and select their campaigns of interest. We therefore wish to conduct a survey of investors in order to map their motivations, decision making criteria, general investor profiles, and demographics, among others. Results from such a survey can be expected to provide support (or lack thereof) for our results, as well as more granularity. Unaccredited investors in equity crowdfunding may consist of several distinct subgroups, each of which tend to invest in different types of targets with different criteria.

As the amount of funding gathered early on in a campaign has shown to be important for success, it would be interesting to investigate the dynamic accrual of investments in equity crowdfunding campaigns. Questions to address include, among others, those about investors' behavioral herding patterns and determining optimal durations, phases, and activities for each campaign.

Finally, as valuation is an important yet often difficult dimension of funding start-ups with equity, we would find it interesting to look into the possibility of using auctions in determining the valuation of start-ups in equity crowdfunding campaigns.

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References

- [1] Agrawal, A. K., Catalini, C., & Goldfarb, A. (2013). Crowdfunding: Social Frictions in the Flat World? Accessed April 25, 2015, available at https://www.funginstitute.berkeley.edu/sites/default/files/Crowdfunding_Social_Frictions_in_the_Flat_World_2013_10_05.pdf.
- [2] Agrawal, A. K., Catalini, C., & Goldfarb, A. (2013). *Some simple economics of crowdfunding*. NBER Working Paper No. 19133. Cambridge, MA: National Bureau of Economic Research.
- [3] Ahlers, G. K., Cumming, D., Günther, C., & Schweizer, D. (2015). Signaling in equity crowdfunding. *Entrepreneurship Theory and Practice*, 39(4), 955–980.

- [4] Barnett, C. (2015). SEC Approves Title III of JOBS Act, Equity Crowdfunding with Non-Accredited. *Forbes*. October 30. Accessed December 8, 2015, available at <http://www.forbes.com/sites/chancebarnett/2015/10/30/sec-approves-title-iii-of-jobs-act-equity-crowdfunding-with-non-accredited/>.
- [5] Belleflamme, P., Lambert, T., & Schwienbacher, A. (2013). Individual crowdfunding practices. *Venture Capital*, 15(4), 313–333.
- [6] Belleflamme, P., Lambert, T., & Schwienbacher, A. (2014). Crowdfunding: Tapping the right crowd. *Journal of Business Venturing*, 29, 585–609.
- [7] Bernstein, S., Korteweg, A., & Laws, K. (2014). Attracting early stage investors: Evidence from a randomized field experiment, accessed May 5, 2015, available at <http://ssrn.com/abstract=2432044>.
- [8] Burtch, G., Ghose, A., & Wattal, S. (2013). An empirical examination of the antecedents and consequences of contribution patterns in crowd-funded markets. *Information Systems Research*, 24(3), 499–519.
- [9] Chiu, C.-M., Liang, T.-P., & Turban, E. (2014). What can crowdsourcing do for decision support? *Decision Support Systems*, 65, 40–49.
- [10] Cholakova, M., & Clarysse, B. (2015). Does the possibility to make equity investments in crowdfunding projects crowd out rewards-based investments? *Entrepreneurship Theory and Practice*, 39(1), 145–172.
- [11] Clawson, T. (2015). Helsinki crowdfunder secures Europe-wide trading licence. *Forbes*. April 22. Accessed April 23, 2015, available at <http://www.forbes.com/sites/trevorclawson/2015/04/22/helsinki-crowdfunder-secures-europe-wide-trading-licence/>.
- [12] Colombo, M. G., Franzoni, C., & Rossi-Lamastra, C. (2015). Internal social capital and the attraction of early contributions in crowdfunding. *Entrepreneurship Theory and Practice*, 39(1), 75–100.
- [13] Cumming, D. J., Leboeuf, G., & Schwienbacher, A. (2014). Crowdfunding models: Keep-it-all vs. all-or-nothing, accessed April 24, 2015, available at <http://ssrn.com/abstract=2447567>.
- [14] De Buysere, K., Gajda, O., Kleverlaan, R., & Marom, D. (2012). A Framework for European Crowdfunding, accessed December 8, 2015, available at http://www.europecrowdfunding.org/files/2013/06/Framework_EU_Crowdfunding.pdf.
- [15] Dorff, M. B. (2014). The siren call of equity crowdfunding. *Journal of Corporation Law*, 39(3), 493–524.
- [16] EBAN (2014). *Investment principles & guidelines*. European Business Angel Network. Accessed 28 April 2015, available at <http://www.eban.org/knowledge-center/>.
- [17] Etter, V., Grossglauser, M., & Thiran, P. (2013). *Launch hard or go home! Predicting the success of Kickstarter campaigns*. Presented at COSN'13: Conference on Online Social Networks (2013), Northeastern University, Boston, MA. Accessed March 19, 2015, available at <http://vincent.etter.io/publications/etter2013cosn.pdf>.
- [18] European Commission (2015). Business angels and access to finance. Accessed May 2, 2015, available at http://ec.europa.eu/growth/tools-databases/smaf/business-angels/index_en.htm.
- [19] FiBAN (2012). *Best practices for business angels*. Finnish Business Angels Network. Accessed March 19, 2015, available at <http://www.eban.org/wp-content/uploads/2013/08/FiBANs-Best-Practices-for-BA-2012.pdf>.
- [20] Frydrych, D., Bock, A. J., & Kinder, T. (2014). *Entrepreneurial legitimacy in rewards-based crowdfunding*. In Proceedings in Finance and Risk Series'13. ACRN Oxford Publishing House.
- [21] Frydrych, D., Bock, A. J., Kinder, T., & Koeck, B. (2014). Exploring entrepreneurial legitimacy in rewards-based crowdfunding. *Venture Capital: An International Journal of Entrepreneurial Finance*, 16, 247–269.
- [22] Gajda, O. (2014). *Review of Crowdfunding Regulation. Interpretations of existing regulation concerning crowdfunding in Europe, North America and Israel, 2014*. European Crowdfunding Network.

- [23] Gerber, E., & Hui, J. (2013). Crowdfunding: Motivations and deterrents for participation. *ACM Transactions on Computing-Human Interaction*, 20(6), article 34.
- [24] Gerber, E., Hui, J., & Kuo, P.-Y. (2012). *Crowdfunding: Why people are motivated to participate*. Technical Report 12-02. Northwestern University, Segal Design Institute.
- [25] Greenberg, M. D., Hariharan, K., Gerber, E., & Pardo, B. (2013). *Crowdfunding support tools: Predicting success & failure*. CHI '13 Extended Abstracts on Human Factors in Computing Systems, 1815–1820. Accessed March 19, 2015, available at <http://dl.acm.org/citation.cfm?id=2468682>.
- [26] Hakenes, H., & Schlegel, F. (2014). Exploiting the financial wisdom of the crowd: Crowdfunding as a tool to aggregate vague information, accessed April 25, 2015, available at <http://ssrn.com/abstract=2475025>.
- [27] Härkönen, J. (2014). *Crowdfunding and its utilization for startup finance in Finland: Factors of a successful campaign*. Master's thesis, Lappeenranta University of Technology, School of Business, Lappeenranta, Finland.
- [28] Hornuf, L., & Schwienbacher, A. (2014). *Crowdinvesting: Angel investing for the masses?* Handbook of Research on Venture Capital: Volume 3. Business Angels, forthcoming, accessed December 8, 2015, available at <http://ssrn.com/abstract=2401515>.
- [29] Invesdor (2015). *Invesdor first in Europe to receive an EU licence to boost cross-border crowdfunding in SME sector*. Press release, April 22. Accessed April 22, 2015, available at <https://www.invesdor.com/finland/en/media/news/327>.
- [30] Kallio, A., & Vento, V. (2014). *Report on crowdfunding survey*. Helsinki: Ministry of Finance. Accessed March 19, 2015, available at http://www.ministryoffinance.fi/vm/en/04_publications_and_documents/01_publications/07_financial_market/20140313Report/Raport_on_Crowdfunding_Survey.pdf.
- [31] Kim, K., & Viswanathan, S. (2014). *The experts in the crowd: The role of reputable investors in a crowdfunding market*. Presented at TPRC 41: The 41st Research Conference on Communication, Information and Internet Policy, George Mason University School of Law, Arlington, VA. Accessed May 7, 2015, available at <http://ssrn.com/abstract=2258243>.
- [32] Kuppuswamy, V., & Bayus, B. (2014). Crowdfunding creative ideas: The dynamics of project backers in Kickstarter, accessed April 25, 2015, available at <http://ssrn.com/abstract=2234765>.
- [33] Lee, E., & Lee, B. (2012). Herding behavior in online P2P lending: An empirical investigation. *Electronic Commerce Research and Applications*, 11, 495–503.
- [34] Lin, M., Prabhala, N. R., & Viswanathan, S. (2013). Judging borrowers by the company they keep: Friendship networks and information asymmetry in online peer-to-peer lending. *Management Science*, 59(1), 17–35.
- [35] MacMillan, I. C., Siegel, R., & Narasimha, P. N. S. (1985). Criteria used by venture capitalists to evaluate new venture proposals. *Journal of Business Venturing*, 1, 119–128.
- [36] Manchanda, K., & Muralidharan, P. (2014). Crowdfunding: A new paradigm in startup financing. *Global Conference on Business & Finance proceedings*, 9(1), 369–374.
- [37] Massolution (2015). 2015CF: The crowdfunding industry report, accessed May 7, 2015, available at <http://www.crowdsourcing.org/editorial/global-crowdfunding-market-to-reach-344b-in-2015-predicts-massolutions-2015cf-industry-report/45376>.
- [38] Mollick, E. (2013). *Swept away by the crowd? Crowdfunding, venture capital, and the selection of entrepreneurs*. Presented at the Winter Strategy Conference, University of Utah / Brigham Young University, Park City, UT. Accessed April 27, 2015, available at http://www.business.utah.edu/sites/default/files/media/mollick_swept_away_byu_utah3-5.pdf.

- [39] Mollick, E. (2014). The dynamics of crowdfunding: An exploratory study. *Journal of Business Venturing*, 29, 1–16.
- [40] Ordanini, A., Miceli, L., Pizzetti, M., Parasuraman, A. (2011). Crowd-funding: Transforming customers into investors through innovative service platforms. *Journal of Service Management*, 22(4), 443–470.
- [41] Prowse, S. (1998). Angel investors and the market for angel investments. *Journal of Banking and Finance*, 22, 785–792.
- [42] Puro, L., Teich, J., Wallenius, H., & Wallenius, J. (2011). Bidding strategies for real-life small loan auctions. *Decision Support Systems*, 51, 31–41.
- [43] Rossi, M. (2014). The new ways to raise capital: An exploratory study of crowdfunding. *International Journal of Financial Research*, 5(2), 8–18.
- [44] Schwienbacher, A. (2007). A theoretical analysis of optimal financing strategies for different types of capital-constrained entrepreneurs. *Journal of Business Venturing*, 22, 753–781.
- [45] Sophia Business Angels (2011). A guide to help evaluate early stage investments, accessed April 28, 2015, available at <http://www.eban.org/wp-content/uploads/2014/09/11.-SBA-Guide-to-Help-Evaluate-Early-Stage-Investments.pdf>.
- [46] Statista (2015). *Leading social networks worldwide as of August 2015*. Accessed 20 September 2015, available at <http://www.statista.com/statistics/272014/global-social-networks-ranked-by-number-of-users/>.
- [47] Stretzki, J.-G., & Schulte, R. (2013). Which venture capital selection criteria distinguish high-flyer investments? *Venture Capital*, 15(1), 29–52.
- [48] Sudek, R. (2006). Angel investment criteria. *Journal of Small Business Strategy*, 17(2), 89–103.
- [49] Venture Bonsai (2013). *Suuren suomalaisen joukkorahoitustutkimuksen tulokset 2013* [Results of the large Finnish crowdfunding survey 2013]. Helsinki: Venture Bonsai. Accessed March 19, 2015, available at <http://www.joukkorahoit.us/category/joukkorahoitustutkimus/>.
- [50] Wardrop, R., Zhang, B., Rau, R., & Gray, M. (2015). *Moving mainstream: The European alternative finance benchmarking report*. London: Wardour. Accessed March 19, 2015, available at <http://www.jbs.cam.ac.uk/index.php?id=6481#.VQhFw47LfsY>.
- [51] Wash, R. (2013). *The value of completing crowdfunding projects*. Presented at ICWSM-13: The 7th International AAAI Conference on Weblogs and Social Media, MIT Media Lab and Microsoft, Cambridge, MA. Accessed March 19, 2015, available at <http://www.rickwash.com/papers/donors-choose-icwsm.pdf>.
- [52] Wilson, K. E., & Testoni, M. (2014). Improving the Role of Equity Crowdfunding in Europe's Capital Markets, accessed December 8, 2015, available at <http://ssrn.com/abstract=2502280> or <http://dx.doi.org/10.2139/ssrn.2502280>.
- [53] World Bank (2013). *Crowdfunding's Potential for the Developing World*. infoDev, Finance and Private Sector Development Department. Washington, DC: World Bank.
- [54] World Bank (2015). *World Development Indicators*. Accessed 20 September 2015, available at <http://databank.worldbank.org/data/reports.aspx?source=2&country=&series=IT.NET.USER.P2>.
- [55] Zadeh, A., & Sharda, R. (2014). Modeling brand post popularity dynamics in online social networks. *Decision Support Systems*, 65, 59–68.
- [56] Zheng, H., Li, D., Wu, J., & Xu, Y. (2014). The role of multidimensional social capital in crowdfunding: A comparative study in China and US. *Information & Management*, 51, 488–496.

Tables

Table 1: Key features of equity crowdfunding and neighboring forms of funding. Modified from [52]

Features	Rewards-based crowdfunding	Equity crowdfunding	Business angels	Venture capital
Typical funder background	Various, many have no investment experience	Various, many have no investment experience	Former entrepreneurs	Finance, consulting, industry
Source of funds	Investing own money	Investing own money	Investing own money	Investing other people's money
Funding instruments	Non-financial, e.g. products	Shares	Shares	Shares
Deal flow	Through web platform	Through web platform	Through social and/or angel networks	Through social networks and proactive outreach
Due diligence	Very limited; may be conducted by individual, if at all	Conducted by individual, if at all	Conducted by individual based on their own experience	Conducted by staff in VC firm with potential assistance from outside firms
Geographic proximity of funders	Investments made online: funders often distant from venture	Investments made online: funders often distant from venture	Most investments local	Invest nationally (or internationally with local partners)
Post-funding role of funders	Most remain passive	Most remain passive	Active (hands-on)	Active (strategic)
Return on investment	Financial return not relevant	Financial return important (but not the only reason for investing)	Financial return important (but not the only reason for investing)	Financial return critical

Table 2: Summary statistics of campaigns (n=60)

Variable	Unit or clarification	Min	Max	Mean	Median	Standard deviation
Number of investors		0	421	29	7	63
Amount raised	Euros	0	658,950	52,645	13,380	107,297
Team rating	1-5, 5 best	1.00	5.00	3.10	3.00	0.90
Markets rating	1-5, 5 best	1.00	4.00	2.15	2.00	0.82
Concept rating	1-5, 5 best	1.00	4.00	2.62	3.00	0.80
Scalability rating	1-5, 5 best	1.00	4.00	2.43	2.50	0.81
Terms rating	1-5, 5 best	1.00	3.00	2.05	2.00	0.70
Stage rating	1-5, 5 best	1.00	4.00	2.53	3.00	0.81
Average rating	1-5, 5 best	1.33	3.50	2.48	2.50	0.56
Funding target	Euros	20,000	579,600	88,400	50,000	94,540
Minimum investment	Euros	13	7,500	554	250	1,076
Campaign duration	Days	1	232	88	92	46
Provision of financials	Yes (1), no (0)	0.00	1.00	0.75	1.00	0.44
Early funding from private networks	E.g. 1 means 100%	0.00	3.88	0.31	0.01	0.69
Social media networks	Post (1), no post (0)	0.00	1.00	0.40	0.00	0.49
Understandability	B2C (1), B2B (0)	0.00	1.00	0.50	0.50	0.50

Table 3: Correlations between all variables

Variable	Number of investors	Amount raised	Team rating	Markets rating	Concept rating	Scalability rating	Terms rating	Stage rating	Average rating	Funding target	Minimum investment	Campaign duration	Provision of financials	Early funding	Social media networks
Amount raised	0.77*														
Team rating	0.07	0.07													
Markets rating	0.00	0.03	0.33*												
Concept rating	0.05	-0.03	0.41*	0.37*											
Scalability rating	0.04	0.01	0.45*	0.59*	0.47*										
Terms rating	-0.11	-0.08	0.37*	0.55*	0.55*	0.53*									
Stage rating	0.09	-0.03	0.39*	0.03	0.37*	0.18	0.10								
Average rating	0.04	0.00	0.72*	0.68*	0.75*	0.77*	0.72*	0.51*							
Funding target	0.26*	0.22	-0.12	0.12	0.32*	-0.10	-0.09	0.08	0.05						
Minimum investment	-0.37*	-0.30*	0.17	-0.02	0.11	0.09	0.15	0.26*	0.18	-0.23					
Campaign duration	-0.12	-0.11	-0.20	-0.10	-0.13	-0.22	-0.25	-0.13	-0.25	0.20	-0.21				
Provision of financials	0.16	0.09	0.45*	0.01	0.25	0.17	0.15	0.24	0.31*	-0.21	0.17	-0.17			
Early funding	0.49*	0.41*	0.22	0.16	0.01	0.34*	0.05	0.12	0.22	0.07	0.03	-0.06	0.16		
Social media networks	0.50*	0.42*	0.44*	-0.03	0.18	0.19	0.14	0.26*	0.29*	0.05	0.02	-0.10	0.16	0.26*	
Understandability	0.58*	0.39*	0.00	-0.23	-0.10	-0.04	-0.22	0.21	-0.09	0.06	-0.26*	0.02	-0.04	0.13	0.41*

* p < 0.05

Table 4: Predictors of the natural logarithm of the number of investors^c

Variables	Model 1	Model 2	Model 3	Model 4	Model 5
Constant	1.998 ** (0.886)	2.458 (2.266)	1.330 (2.002)	-1.118 (2.158)	0.068 (1.776)
Team rating	0.096 (0.259)				
Markets rating	0.059 (0.308)				
Concept rating	0.175 (0.312)				
Scalability rating	0.113 (0.323)				
Terms rating	-0.489 (0.373)				
Stage rating	0.071 (0.270)				
Average rating		-0.167 (0.274)			
Funding target		0.312 * (0.181)	0.303 * (0.159)	0.432 ** (0.169)	0.330 ** (0.139)
Minimum investment		-0.415 *** (0.119)	-0.440 *** (0.103)	-0.288 ** (0.114)	-0.334 *** (0.093)
Campaign duration		-0.278 ** (0.136)	-0.199 * (0.116)	-0.242 * (0.124)	-0.203 * (0.101)
Provision of financials			0.386 (0.302)	0.785 ** (0.316)	0.476 * (0.265)
Early funding from private networks		1.003 *** (0.213)	0.747 *** (0.189)		0.711 *** (0.166)
Social media networks			1.041 *** (0.264)		0.605 ** (0.253)
Understandability				1.435 *** (0.273)	1.031 *** (0.247)
R ²	0.041	0.448	0.589	0.520	0.692
Adjusted R ²	-0.067	0.397	0.542	0.475	0.650

Standard error in parentheses.

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

^c Because the number of investors obtains the value of zero in a few instances, we add one unit to each of its values prior to the logarithmic transformation.

Table 5: Predictors of the natural logarithm of the amount raised^d

Variables	Model 1	Model 2	Model 3	Model 4	Model 5
Constant	8.978 *** (1.899)	9.083 * (5.329)	7.234 (5.085)	3.494 (5.618)	5.935 (5.102)
Team rating	0.417 (0.556)				
Markets rating	0.311 (0.660)				
Concept rating	-0.005 (0.670)				
Scalability rating	-0.007 (0.692)				
Terms rating	-0.683 (0.799)				
Stage rating	-0.248 (0.578)				
Average rating		-0.560 (0.645)			
Funding target		0.619 (0.426)	0.547 (0.405)	0.784 * (0.440)	0.574 (0.400)
Minimum investment		-0.697 ** (0.280)	-0.748 *** (0.261)	-0.539 * (0.295)	-0.640 ** (0.268)
Campaign duration		-0.562 * (0.319)	-0.403 (0.295)	-0.491 (0.322)	-0.407 (0.291)
Provision of financials			0.339 (0.767)	1.072 (0.823)	0.431 (0.760)
Early funding from private networks		1.837 *** (0.501)	1.362 *** (0.481)		1.325 *** (0.476)
Social media networks			1.927 *** (0.670)		1.477 ** (0.728)
Understandability				1.963 *** (0.711)	1.061 (0.711)
R ²	0.025	0.324	0.413	0.280	0.437
Adjusted R ²	-0.085	0.262	0.347	0.213	0.362

Standard error in parentheses.

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

^d Because the amount raised obtains the value of zero in a few instances, we add one unit to each of its values prior to the logarithmic transformation.

Figures

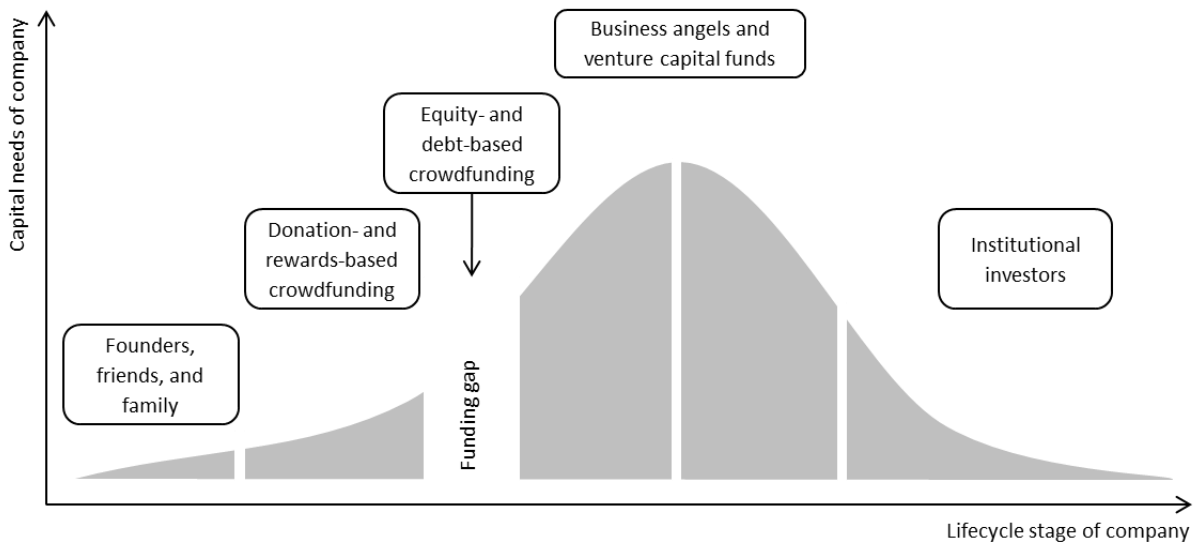


Figure 1: Typical funding providers across a company's lifecycle. Modified from Rossi and the World Bank [43, 53]

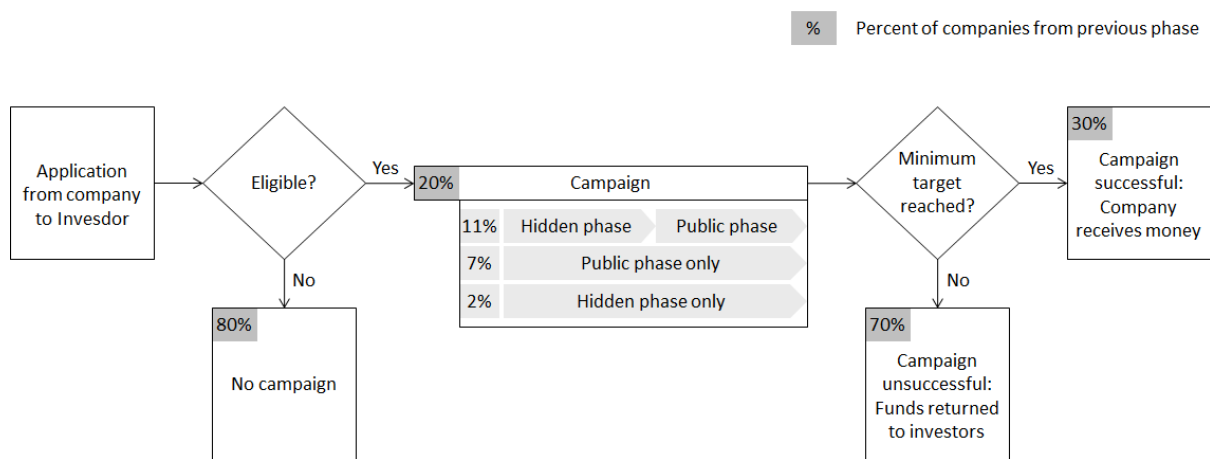


Figure 2: High-level crowdfunding process at Investor