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The wisdom of the crowd in funding. Information heterogeneity and social networks of crowdfunders

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Abstract

Crowdfunding has opened funding of innovative projects to a large crowd. This type of funding might even tap into wisdom of crowds that were disconnected from the funding process before, and in that way lower information asymmetries between funders and entrepreneurs. We distinguish between in-crowd (strong and weak ties) and out-crowd (no ties) funders, in order to test for heterogeneity in the information used by crowdfunders. Based on the analysis of a large scale survey amongst crowdfunders, this paper shows that in-crowd investors rely more on information about the project creator than out-crowd investors. Out-crowd investors do not seem to attach more importance to information about the investment project than in-crowd investors. Moreover, and counter to the hypothesis of herd behaviour, we find that funders who use the commitment of others as a signal to take their own decision, are also the ones that collect significantly more information about the project, its financials and risks.

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Keywords: Crowdfunding, social networks, new ventures, entrepreneurial finance, information asymmetries

Introduction

The funding of innovative start-ups through banks has always been difficult due to lack of track record, collateral and the risk of spillover effects (Engel and Stiebale 2014; Hall 2002; Giudici and Paleari 2000). More generally, small and medium sized firms are more credit constrained than large firms, lacking access to market-based funding due to high fixed costs to issue equity and unwillingness of institutional investors to take small holdings, which leaves them highly dependent on bank credit, informal investors and personal resources for their liquidity needs (Keasey and McGuinness 1990; Berger and Udell 1998; Giudici and Paleari, 2000; Berger and Udell 2002).

In addition, funding of small innovative firms by banks has become more constrained in recent decades due to increased centralization and computerized assessment of creditworthiness (Bhidé 2010). This rise of 'transactional lending' has come about at the cost of judgement (or relationship) lending through local branches with local knowledge (Hayek 1945). In this shift from judgment to transactional lending, 'soft' information, based on relationships and judgment of credit officers (see i.e. Boot, 2000), is traded in for 'hard' information (Berger and Frame 2007; Berger and Udell 2006). This shift to transactional lending is especially constraining the finance of innovative small firms (Brancati 2015).

The rise of crowdfunding may counterbalance this retreat from relationship-based banking. Offering an alternative to bank lending and traditional entrepreneurial finance channels such as venture capital and business angels, crowdfunding caters well to innovative small firms and builds on relationships in its funding process. It expands the traditional 'in-crowd' finance niche of family, friends and fools through the mediation of digital platforms, allowing both in- and out-crowd investors to fund (Bruton et al. 2015). Crowdfunding has lowered the transaction costs for

entrepreneurs to collect small investment amounts from a dispersed and diverse set of investors, and as such has become a new source of funding for start-ups and other bottom-up initiatives in the economy.

In spite of the rapid growth of crowdfunding academic literature on crowdfunding is still scarce and most research is conducted in the United States (Belleflamme et al. 2014; Massolution 2015; Mollick 2014). A question that lacks attention until now is how crowdfunding can overcome information asymmetries as opposed to other types of financing mechanisms. Whereas much of the literature is focused on success factors driving the crowdfunding campaign, such as the role of early contributions, we focus on the information used by crowdfunders (Agrawal et al. 2015; Cholakova and Clarysse 2015; Colombo et al. 2015). Although there are suggestions regarding the information mechanisms that may exist for crowdfunding, little empirical evidence exists about the type of information that funders use to make investment decisions. In particular we want to know the effect of relationships with the project creator and the effect of commitment of others to the project. This study offers the first detailed analysis on the heterogeneity in information used by crowdfunders, and more particular in how this is affected by social networks of the crowdfunders. This offers insights into the application of theories about information asymmetries and herding behaviour in funding, and provides new input to public policy for entrepreneurship and finance. Our main research question is: How is the use of information by crowdfunders affected by social networks? More specifically we focus on two aspects. First: How does information use of crowdfunders vary with the strength of their ties with project founders? Second: How is information use of crowdfunders related to the previous commitments of other crowdfunders in the same project?

The remainder of this article is structured as follows: we first review the relevant literature and introduce the theoretical framework. Then the research design including the quantitative research approach and the data is presented. The subsequent section displays the results that form the basis for discussion and conclusion in the final sections.

Literature review and theoretical framework

Information asymmetries in early-stage finance

The choice between various ways of obtaining capital at the formation of a new company has been shown to have important implications for future performance (Cassar 2004). The growth of start-ups is often constrained by the amount of finance available (Carpenter and Petersen 2002; Engel and Stiebale 2014; Giudici and Paleari 2000). In search for external finance, the relationship between entrepreneur and funder is characterised by agency due to a separation of ownership and management (Jensen and Meckling 1976) which leads to adverse selection, moral hazard and related problems (see Parker 2009).

To overcome these agency problems, scholars suggested signaling (Akerlof 1970; Amit et al. 1990; Gompers 1995; Myers and Majluf 1984; Stiglitz and Weiss 1981) especially in case of obtaining debt. Signaling can take place using for example patents, prototypes or investing in education (Audretsch et al. 2012; Spence 1973). A second solution consists of equity investments that require a close monitoring of management (Gompers and Lerner 2001). 'Thin' early stage capital markets consist of a variety of instruments and actors, ranging from business angels venture capital and private equity to alternative sources of finance (Kortum and Lerner

2000; Manigart and Wright 2011; Mason and Harrison 2008; Nightingale et al. 2009; Müller and Zimmermann 2008).

Recently, crowdfunding as a new form of seed finance in which entrepreneurs and funders directly engage has emerged (Bruton et al. 2015; Harrison 2013). Crowdfunding combines features of a two-sided market platform with underlying networking technologies. Following previous work we distinguish four types of crowdfunding (Ahlers et al. 2015; Belleflamme et al. 2014; Mollick 2014; Nesta 2014): First, purely donation-based crowdfunding exist, involving only intangible returns. Secondly, reward-based crowdfunding (or pre-ordering) consist of pledging an amount of money in exchange for future products. Third, lending-based crowdfunding can be compared to micro-loans, where the backer lends a certain amount of money to the project owner. Finally in an equity-based crowdfunding call, shares of the company behind the call are distributed among the backers, according to the height of their contributions. The emerging crowdfunding markets and platforms build on the principle of syndication and allow for risk spreading (Alexy et al. 2012; Lehmann 2006).

The crowdfunding literature has started to examine the potential role of crowdfunding in early stage finance to overcome information asymmetries and related problems. Results of a recent study on equity crowdfunding show that the decision to invest was positively associated with the backers' interest in rewards, as well as by their trust in the entrepreneur. On the other hand nonfinancial motives such as helping others, supporting ideas or community involvement did not influence this decision (Cholakova and Clarysse 2015). Ahlers et al. (2015) study the effectiveness of various venture quality attributes and the level of uncertainty taken from the offering documents that entrepreneurs use to induce (small) investors to commit financial resources in an equity crowdfunding context. They highlight the importance of the level of

uncertainty to potential investors, such as the amount of equity offered and whether financial projections are provided. Ahlers et al. (2015) and Belleflamme et al. (2014) find that the degree of asymmetric information between founders and funders varies substantially depending on the form of crowdfunding. They argue that in donation-based crowdfunding the degree of asymmetric information is of little importance because other intangible factors increase the backer's utility.

Recently scholars have shown, in the context of theatre projects, that expert judgements (resembling Venture Capital / Private Equity investment decisions) do not differ significantly from 'collective' funding decisions taken by the Kickstarter crowd, although the crowd is willing to fund a slightly broader scope of projects than experts possibly lowering the incidence of 'false negatives' (Mollick and Nanda 2015). This suggests that some form of quality signalling between entrepreneur and crowdfunder occurs. This relates to the general notion of the 'wisdom of the crowd' to overcome information asymmetries (Surowiecki 2005).

Ties that bind, ties that blind: Social networks and information

Does relationship strength lead to different information use of funders? Social networks are important determinants of funding success for entrepreneurs. In relationship banking, banks build up proprietary information about an entrepreneur through multiple interactions with borrowers (Boot 2000). Venture capitalists and angel investors also solve or mitigate information asymmetries through building relationships, and use these for screening and monitoring (Gompers 1995; Alexy et al. 2012). The growth of transactional banking in the past decades, as well as the increased incidence of direct funding in financial markets, have decreased the importance of relationship banking and arguably aggravate information asymmetries problems (Bhidé 2010; Boot 2000). In the absence of collateral and track record, access to funds through

transactional channels for early stage entrepreneurs is lower than with relationship banking (Berger and Udell 2002).

Relationship banking is, however, not restricted to banks (Boot 2000). Crowdfunding may classify as a new form of relationship intermediation, exploiting local knowledge embedded in the social network of the entrepreneur to provide quality signals about the entrepreneur and her project. At the same, the 'quality' of these signals is highly questionable since the crowd might not have expertise on production, marketing and competition, nor do they invest in due diligence in the way banks do. The in-crowd may have different motivations than wanting to contribute to a successful project, like reinforcing the relationship with the project creator. The crowd could represent launching customers, delivering knowledge about the market potential of the offering by signing up as funders. But they could also be free-riding on the – potentially unwise – funding decisions of others, and 'herd' with no additional information use (Welch, 1992).

We might learn from a similar mechanism of online quality indication on the internet, over the last 15 years. Online reputation mechanisms harness the bi-directional communication capabilities of the Internet in order to engineer large-scale word-of-mouth networks, providing an alternative to more established assurance mechanisms, such as branding and formal contracting (Dellarocas 2003). Lin et al (2012) find that the online friendships of borrowers act as signals of credit quality. These relationships increase the likelihood of successful funding, lower interest rates, and decrease default rates. Others show that online reputation systems forms a kind of social network, however these mechanisms have to be robust against attacks in order to be valid signals (Jøsang et al. 2007).

This suggests that the quality indication process with crowdfunding is staged, with an in-crowd to out-crowd sequence, using different types of information to make a funding decision (see also

staging in VC Yao-Wen 2010; Gompers and Lerner 2001). Sociological network theory provides a possible lens to analysis these mechanisms. Granovetter (1973) defines the notion of 'strength' of interpersonal ties based on 'a (probably linear) combination of the amount of time, the emotional intensity, the intimacy and the reciprocal services which characterize the tie'. Social networks, created from ties of different strengths, can inform a financing decision in several ways. First, dense ties develop and enforce common norms of behaviour, using social reward and punishment, making free-rider behaviour in the form of moral hazard less likely (Granovetter, 2005). The (noneconomic) motivation to help others, with whom one has ties, is another reason that relationship strength may affect a funding decision. Besides building of trust and motivation, social networks also support the flow of information. Instead of relying on impersonal sources of information (such as project websites), potential funders may prefer to listen to the opinions of people they know. More specifically, weak ties are expected to transmit more novel information than strong ties because the networks of people we interact with only sporadically are more distant to our own networks and therefore contain more information we have not yet heard from someone else (Granovetter, 1973).

In the crowdfunding context, Colombo et al. (2015) find that 'internal social capital' (i.e. people from within the community) trigger a self-reinforcing mechanism that leads to funding success. This might suggest that early crowdfunders are involved out of sympathy, and followers due to herd behaviour (Banerjee 1992). The in-crowd (close ties to the investor) seems to dominate the first crowdfunding wave for an innovative project. Based on the above literature, we hypothesize that there are differences between the information used by in-crowd (strong and weak ties) vs. out-crowd (no ties) investors.

H1a In-crowd funders rely more on information about the project creator than out-crowd-funders.

H1b Out-crowd funders rely more on information about the nature of the project than in-crowd funders.

Herding behaviour in crowdfunding

Does commitment of others lead to lower information use of funders? The real-time, open and online insight into the commitment of other funders is a specific feature of crowdfunding compared to other financing tools (Bruton et al. 2015). All crowdfunding projects show on their webpage what percentage of the funding goal has been invested up to that moment. Comments left on social media or on the project page by previous funders provide additional insight into the investment decisions of others. This process resembles a sequential decision model, where each individual uses the decisions of previous individuals in order to take her own decision (Banerjee 1992). Referred to as either 'herd behaviour' (Banerjee, 1992) or information cascades (Welch, 1992), this type of decision making is often portrayed as inefficient, because individuals will use the decisions of others instead of their own information to make a decision. The total amount of information used to come to a decision may in this case be constrained as opposed to not knowing the decisions of others (Banerjee 1992). This is the case in particular when the early decision makers whose decisions are being copied, cannot be expected to have more insight than others (Sunstein 2006).

Crowdfunding projects are more likely to be fully funded once they have accumulated a substantial percentage of their funding goal (Agrawal et al. 2013; Agrawal et al. 2011). Colombo et al. (2015) explain this self-reinforcing funding pattern through internal social capital being developed. The indication that the funding decision of others plays a role in the decision-making of subsequent funders, raises concerns of inefficient herding, if funders free-ride on the due diligence efforts of others by becoming followers in the funding process (Agrawal et al. 2013). A

crucial piece of knowledge to address this concern is related to what information both early and late funders use to make their funding decision.

The literature on online feedback mechanisms suggests a more positive role of feedback by others (Dellarocas 2003). If we interpret the financial commitment of others as an online reputation signal of the project owner, crowds may – smartly - be building on insights of the initial backers, who have access to proprietary information about the quality and dedication of the project owner. Use of funding decisions of others as signals is also witnessed between banks and stock markets. James (1987) shows that the announcement of a bank loan has a positive effect on the stock price for the firm in question. Lummer and McConnell (1989) find, more specifically, that renewal of bank loans increases the stock price of the firm in question. This implies that public investors expect banks to know more about the firm than others investors do, and increasingly so, and that this information is used to make their own investment decision.

Although a similar process appears to take place in crowdfunding, we cannot simply equate the quality signal of obtaining a bank loan to the quality signal of commitment of other crowdfunders. We know that banks invest in collection and analysis of lender-specific proprietary information over time (Berger and Udell 1995; Boot 2000). Information collection efforts and abilities of (early) crowdfunders are not as clear. Assuming that early funders are often those with stronger ties with the project creator, we do expect embeddedness of funding decisions in a social network to decrease moral hazard (free-riding) if one's personal network is included among the crowdfunders. Also, the commitment of funders to a project of someone with whom they have ties, makes use of local information in the funding process in a similar way that endogenous peer selection takes place in group lending in microfinance (Ghatak 2000). This suggests there could be some wisdom in following the early funders. At the same time, since

investment amounts of crowdfunders are generally lower in terms of purchasing power parity, we expect in-crowd funders to have more diverse investment motives and lower incentives to look for information than microlenders in developing countries (Allison et al. 2015).

Until today, there is limited evidence that funders who integrate the commitment of others in their funding decision, use less information than funders that do not integrate commitment of others into their funding decision. If so, this would imply a risk that information use by the crowd is more constrained than 'the wisdom of the crowd' suggests, and regulators and platforms should rightly be worried about inefficient herding in the spirit of Banarjee (1992) and Sunstein (2006). The analysis above leads us to develop and test the following hypothesis:

H2 Funders that use the commitment of others in their decision to contribute a crowdfunding project, use less information in their decision-making.

We expect their use of information to be lower in general, including information about the project, person and previous projects and financial planning/risks.

Methodology

Research design

In order to test the hypotheses formulated above, we constructed a quantitative research design and model (see Figure 1). We operationalised the hypothesized relations through a survey instrument (Cohen et al. 2009; Dillman 2000; Hair 2010). An important aspect to be taken into account, when using this methodological approach, is the potential presence of common method bias (i.e. gathering all information for this analysis via a survey). This type of bias generally affects survey data (Podsakoff et al. 2003). To our best knowledge we could not conceptually

identify what the measures of the predictor and criterion variables have in common; however we adopted several measures to reduce potential bias. We started by minimizing item ambiguity which included avoiding vague concepts, complicated syntax and unfamiliar terms. We deliberately used simple, specific and concise questions to measure the constructs. The respondents were also guaranteed anonymity.

Crowdfunding is a mixed group of funding initiatives, ranging from donation (with and without non-financial return), to lending and equity investing. Our main interest in this paper lies in understanding the effect of strength of ties and commitment of others on the information used by crowdfunders. For this purpose, insight into all types of crowdfunding is relevant. There is, however, quite some debate regarding the different motivational and signalling mechanisms in place in donation, reward, debt and equity crowdfunding, and often this is used to focus on one type of crowdfunding or to differentiate between types. Belleflamme et al. (2013) find that only a limited fraction of the initiatives they research are based on donations. Others distinguish between equity and reward-based crowdfunding and find that both driven by financial motives, whether in-kind or financial. Their research draws on the crowd of a Dutch funding platform, Symbid, with roots in equity crowdfunding (Cholakova and Clarysse 2015). Ahlers, et al. (2015) focus entirely on equity finance, reasoning that this is the more relevant form of crowdfunding when studying signalling to small investors. Also, they argue that information asymmetries are less relevant in a donation-based crowdfunding context. On the other hand, Mollick and Nanda (2015) focus their empirical research on funding of theatre projects (often donation and reward-based) in an attempt to develop generalizable insight into crowdfunding.

In our perspective, there is too little knowledge available to exclude any types of crowdfunding for our purpose, up front. Donation-based crowdfunding is often associated with non-financial

motivations and non-profit organisations, whereas reward-based, debt and equity crowdfunding are more commonly associated with for-profit or social entrepreneurs and financial motivation (Cholakova and Clarysse, 2015).

Data

We use data from a large-scale survey conducted in 2013 in The Netherlands among 1278 individuals called the 'National Crowdfunding Research'[1]. Individuals were surveyed regarding their participation in crowdfunding, on topics such as their investments, their motivations and use of information. The research was organised by the Dutch national crowdfunding association and supported by 16 crowdfunding platforms, Erasmus University Rotterdam and Rabobank. The sample was created through snowballing. For our analyses, about 400 responses remain useful. This is mainly because not everyone who filled in the survey had gained experience in crowdfunding. Respondents who did participate in a crowdfunding initiative were distributed over donation, reward-based or financial return (debt and equity) crowdfunding through all types of platforms (mainly, but not only, Dutch platforms).

[1] The questionnaire can be provided by the authors upon request.

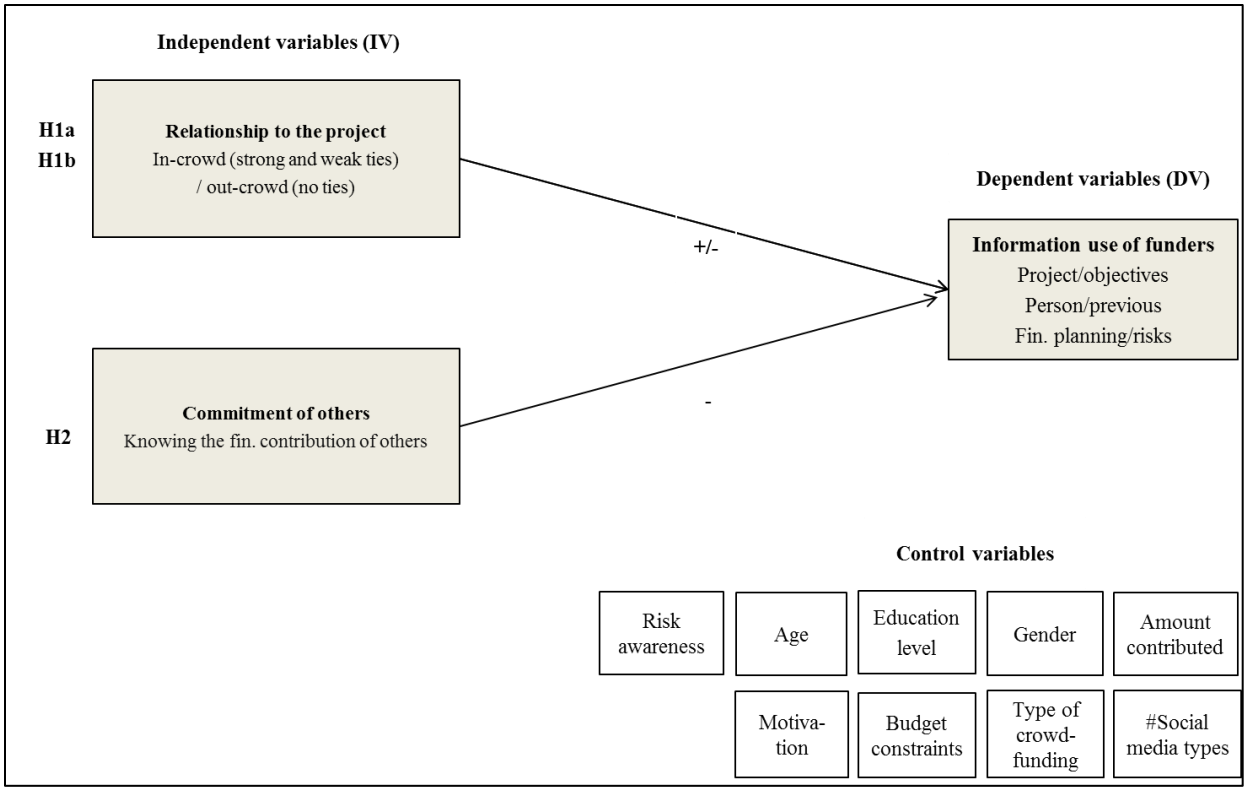

Figure 1: Analytical model

Dependent variable

We create several dependent variables to proxy for use of information, deploying a distinct question in the survey where respondents rated the importance of six different types of information for their decision to crowdfund. These types consist of: (1) information about the project or the company, (2) information about the objectives of the project or the company, (3) information about the person or organization behind the project or the company, (4) information about previous projects of the person or organization behind it, (5) information about the financial planning of the project or the company and (6) information about the risks associated with the project or the company. Using factor analysis we used the answers to these questions to create the following additional 'information use' dependent variables: (a) information project

and objectives = factor 1, (b) information person and information track record = factor 2, information fin and risks = factor 3.

Independent variables

To operationalise our theoretical model and hypotheses, we included two independent variables in our empirical model. First of all, to determine the influence of 'ties' on the information use of funders, we included the relationship to project owner as an independent variable (What was your relationship with the project owner or business owner before making your financial contribution through crowdfunding?). We aggregated the different types of relationships to strong ties, weak ties or no ties. 'Strong ties' included family, friends, initiator of the project or employee. 'Weak ties' consists of people who indicate that they know the person behind the project or are a friend of friend, a business relationship, customer, fan or visitor. If there was no relationship we coded it as 'no ties'. We created one extra answer category based on 'other', namely 'initiator/employee'). We combine the individual answer categories to create new variables measuring relationship strength. In the case that there are multiple relationships indicated, we always selected the strongest to be used (i.e. if someone responded both 'friend' and 'fan', we used 'friend').

Secondly, to analyse the relationship between information use of the funder and the importance of the commitment of others for his investment decision, we include a variable that measures the importance for funders of 'knowing the financial contribution of others'.

Control variables

To account for other effects of the characteristics of the crowdfunders, we include a number of control variables from the survey such as (1) age, (2) gender, (3) education level, (4) social

media use[2], (5) amount funded, (6) type of return (donation- in-kind -financial), (7) budget constraint, (8) motivation (we distinguish between value and instrumental motivation by the importance of 'the security of a promised return' to proxy for instrumental motivation) and (9) risk awareness. To account for budget constraints we included the importance of their 'financial means' as a determinant of the amount funded. We control for instrumental vs. value-based motivation since we expect this to influence information use of the funder. Consistent with cognitive evaluation theory, the intrinsic motivation of lenders to provide capital is undermined when entrepreneurs focus on future extrinsic rewards associated with lending (Allison et al. 2015). We use 'importance of security of getting a promised return' as a proxy for instrumental motivation. Finally, we control for risk awareness (professionalism) of crowdfunders, since we expect more experienced investors to use more information than amateur investors. We use the statement 'I keep in mind the consideration that invest through crowdfunding in a company can be a high risk investment' as a proxy.

Data analysis

The data analysis is conducted in several steps. First of all, the dataset has been thoroughly screened, cases with missing values have been excluded. Second, we undertook recoding of central variables based on our theoretical framework. Third, a factor analysis was executed to determine influential variables and to eliminate redundancy among variables in the survey, in particular to define factor loadings for the various dependent variables describing 'informational

[2] Variable created by counting the number of different social media types someone uses: # social media types indicated (diversity of social media use).

use'. Fourth, exploratory data analysis was conducted, highlighting how crowdfunders with different relationship strengths to the project owner (in-crowd, out-crowd; differently defined) differ with respect to: motivation, objectives, level of investments, personal characteristics, etc., followed by a more structured correlation analysis (see Table A.2). Due to our specific interest in entrepreneurial finance, we excluded all donation-based projects from the dataset and ran the same correlations, again (see Table A.3). Finally, as our dependent variable is of ordinal nature, we conducted ordered logistic regressions to determine the explanatory power of our independent variables, both with and without donation-based crowdfunding.

Results

Descriptive statistics

Table A.1 provides descriptive statistics of our dependent, independent and control variables. The first three rows are our dependent variables measuring information use of funders. The next four rows describe our independent variables (strong, weak and no ties and knowing financial contribution of others). The remainder of the rows describe our control variables. Most variables, also our dependent variables, are in the form of a Likert scale (1-5). The level of ties (strong, weak and no ties) and type of crowdfunding (donation, reward and financial return) enter as dummy variables. Amount invested, gender, education and social media types have different scales. In our full model we have 324 respectively 320 observations that report all variables; when we include only reward- and financial return crowdfunding we have 246 respectively 244 observations. About 16% of the respondents have strong ties, more than half of them have weak ties, and approximately one third of all respondents have no ties with the project creator. The average amount invested lies in the range of € 101 - € 250. There is a slight bias towards male

respondents (63%). The average age of respondents lies in the range of 35 – 44 years old. Respondents are on average highly educated, with a University Bachelor degree, and they use an average of between 3-4 social media types.

The correlation table including all dependent, independent and control variables is included in Table A.2. There are indeed several statistically significant correlations between our dependent variables and the two independent variables, relationship strength and commitment of others. Some control variables are also statistically significantly correlated with at least one of the information variables. Also, we run the correlations again while excluding donation-based crowdfunding from our observations (Table A.3), in order to get a more focused sample. Exclusion of donation-based crowdfunding from our dataset lowers the statistical significance of some of the correlations, but does not change the direction of the correlations.

Determinants of information use of crowdfunders

Strength of ties

Our models (1-9, see Table 1) permit analysing the importance of several types of information used by crowdfunders according to relationship strength between funder and project owner. Firstly, the results show that relationship strength has some significant effects on the importance of different types of information. More specifically, our regression model shows that funders with strong or weak ties attach higher importance to information about the person and her previous projects than funders with no ties. All three groups show significant results. This supports our hypothesis 1a.

We find no evidence that funders without ties to the project owner rely more on information about the project, its objectives, financial planning and risk. We also find no significant

differences in information about financial planning and risks for any type of ties. The out-crowd funders reveal statistically significantly less use of information about the (previous projects of the) person or organization behind the project than in-crowd funders, but not more use of information about the project, financials and risk. We therefore reject hypothesis 1b.

When we run our model again limiting our dataset to reward-based and financial return crowdfunding (excluding donation-based crowdfunding – see Models 10-18 in Table 2), the coefficients of relationship strength and information about the person and previous projects point in the same direction and remain robust. Similar to our full model, there is no significant relationship between strength of ties and information about financial planning and risks. Furthermore, also in this restricted model, there is no evidence that funders with no ties look for more information of any type. Similar to the full model, funders with strong ties place higher importance on information about the project and its objectives, but funders with weak ties no longer place significantly less importance on information about the project and objectives. This means that also when we restrict our observations to only reward-based and financial return crowdfunding – arguably more similar to investing – hypothesis 1a holds and 1b is rejected.

Table 1: Results for all types of crowdfunding

	Information use of strong ties			Information use of weak ties			Information use of no ties		
	(1) infoprojobj	(2) infopersprev	(3) infofinrisk	(4) infoprojobj	(6) infopersprev	(7) infofinrisk	(8) infoprojobj	(8) infopersprev	(9) infofinrisk
strongties	0.514*	0.655**	0.00726						
	(0.283)	(0.268)	(0.272)						
weakties				-0.354*	0.646***	0.114			
				(0.212)	(0.203)	(0.203)			
noties							0.216	-0.973***	-0.128
							(0.223)	(0.215)	(0.211)
keepinmindrisk	0.165*	0.164*	-0.0124	0.158	0.186**	-0.00878	0.166*	0.184**	-0.0100
	(0.0966)	(0.0928)	(0.0929)	(0.0966)	(0.0933)	(0.0929)	(0.0962)	(0.0932)	(0.0928)
fincontribothers	0.149	0.0145	0.340***	0.168	0.0209	0.337***	0.164	0.0187	0.337***
	(0.103)	(0.101)	(0.102)	(0.103)	(0.102)	(0.102)	(0.103)	(0.102)	(0.102)
amount	-0.0205	8.91e-05	0.137***	-0.0157	-0.00647	0.135***	-0.0169	-0.00879	0.135***
	(0.0441)	(0.0429)	(0.0424)	(0.0441)	(0.0427)	(0.0424)	(0.0441)	(0.0426)	(0.0425)
gender	0.288	0.326	-0.0251	0.327	0.342	-0.0323	0.336	0.297	-0.0372
	(0.225)	(0.215)	(0.217)	(0.224)	(0.214)	(0.217)	(0.224)	(0.215)	(0.218)
age	0.374***	0.206**	0.176*	0.371***	0.243**	0.181*	0.372***	0.259***	0.182*
	(0.105)	(0.0963)	(0.0979)	(0.105)	(0.0961)	(0.0978)	(0.105)	(0.0964)	(0.0978)
education	0.0302	-0.0732	-0.0419	0.0206	-0.0673	-0.0391	0.0216	-0.0578	-0.0390
	(0.0653)	(0.0632)	(0.0604)	(0.0647)	(0.0627)	(0.0606)	(0.0647)	(0.0624)	(0.0606)
socialmediatypes	0.00936	0.0242	-0.116	0.0133	0.0168	-0.117	0.0108	0.0249	-0.117
	(0.0730)	(0.0715)	(0.0712)	(0.0731)	(0.0715)	(0.0711)	(0.0730)	(0.0712)	(0.0711)
securityreturn	0.470***	0.448***	0.417***	0.440***	0.436***	0.419***	0.435***	0.472***	0.423***
	(0.110)	(0.102)	(0.102)	(0.108)	(0.101)	(0.101)	(0.108)	(0.102)	(0.102)
financialmeans	0.199**	0.127	0.133	0.197**	0.115	0.132	0.197**	0.114	0.132
	(0.0939)	(0.0908)	(0.0880)	(0.0936)	(0.0912)	(0.0880)	(0.0936)	(0.0915)	(0.0880)
donation	0.204	0.980*	-0.423	0.192	1.058*	-0.415	0.198	1.162**	-0.415
	(0.626)	(0.563)	(0.611)	(0.620)	(0.580)	(0.611)	(0.620)	(0.590)	(0.611)
reward	-0.123	0.123	-1.026*	-0.0947	0.251	-1.024*	-0.0780	0.310	-1.025*
	(0.600)	(0.534)	(0.589)	(0.594)	(0.551)	(0.588)	(0.593)	(0.561)	(0.588)
financialreturn	0.0587	0.530	-0.173	-0.00922	0.692	-0.157	0.0257	0.793	-0.157
	(0.642)	(0.571)	(0.618)	(0.639)	(0.591)	(0.619)	(0.638)	(0.600)	(0.619)
Observations	324	324	320	324	324	320	324	324	320
Pseudo R2	0.0542	0.0392	0.0623	0.0536	0.0427	0.0626	0.0517	0.0515	0.0626
LR Chi2	51.68	47.26	78.25	51.13	51.42	78.56	49.27	62.13	78.61
Prob < Chi2	$1.53e^{-06}$	$8.73e^{-06}$	0	$1.91e^{-06}$	$1.70e^{-06}$	0	$3.97e^{-06}$	$2.18e^{-08}$	0

Standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1

Commitment of others

Moving to our second independent variable, we find a strong and positive relationship between the importance of the commitment of others as a determinant of the funding decision and the dependent variable informational financial planning and risks (see Table 1). There is no significant relationship of importance of commitment of others with information about the person and previous projects and (objectives of) the company. When we focus only on reward-based and debt/equity crowdfunding the commitment of others also drive the information use regarding the project and objectives (see Table 2).

These results leads to a clear rejection of our hypothesis 2 stating that funders who place importance on the commitment of others in order to make their funding decision, use less information. What we find here is actually the opposite: funders who look at commitment of others as a tool to make their funding decision, are also likely to use more information about the project/objectives and about financial planning and risks. So instead being a substitution effect between looking at the decisions of others and using information to make a funding decision, which we expect from the literature, commitment of others is actually used more by funders that also place high importance on information about the project, objectives, financial planning and risk. We find an additional relationship instead of a substitution.

As for our control variables, age and security of a promised return (which we interpret as instrumental motivation) show a statistically significant positive relationship to all information variables. When we focus only on reward and financial crowdfunding, the positive relationship between age and information about financial planning and risk disappears.

On the one hand, we find a strong negative relationship with reward-based crowdfunding and information about financial planning and risk. On the other hand, in donation-based crowdfunding, backers rely more on information about the person and prior projects. Budget

constraint has a positive relationship with information about the projects and its objectives for all types of crowdfunding, when we focus on reward and financial return crowdfunding this positive relationship is extended to all types of information. As expected, the size of the investment (amount) is highly correlated with information about financial planning and risks. Risk awareness is significantly correlated with information about the project and objectives as well as the person; however the information about the project/objectives becomes less relevant when only reward-based and financial crowdfunding are investigated. Interestingly, there is no significant relationship between risk awareness and information about financial planning and risk.

Table 2: Results including only reward-based and financial return crowdfunding

	Information use of strong ties			Information use of weak ties			Information use of no ties		
	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
	infoprojobj	infopersprev	infofinrisk	infoprojobj	infopersprev	infofinrisk	infoprojobj	infopersprev	infofinrisk
strongties	0.653**	0.592*	-0.0363						
	(0.329)	(0.304)	(0.318)						
weakties				-0.154	0.727***	0.0615			
				(0.247)	(0.237)	(0.236)			
noties							0.0181	-1.127***	0.0116
							(0.264)	(0.254)	(0.249)
keepinmindrisk	0.258**	0.160	0.0192	0.266**	0.203*	0.0204	0.273**	0.196*	0.0181
	(0.118)	(0.112)	(0.112)	(0.118)	(0.113)	(0.112)	(0.117)	(0.113)	(0.112)
fincontribothers	0.334***	-0.00189	0.443***	0.346***	-0.00487	0.440***	0.340***	-0.0103	0.443***
	(0.123)	(0.117)	(0.118)	(0.123)	(0.117)	(0.118)	(0.123)	(0.117)	(0.118)
amount	-0.0206	-0.00748	0.161***	-0.0160	-0.0130	0.160***	-0.0167	-0.0193	0.161***
	(0.0531)	(0.0509)	(0.0504)	(0.0532)	(0.0509)	(0.0504)	(0.0533)	(0.0509)	(0.0505)
gender	0.243	0.313	-0.0997	0.299	0.310	-0.106	0.297	0.244	-0.0998
	(0.263)	(0.246)	(0.250)	(0.261)	(0.246)	(0.250)	(0.262)	(0.248)	(0.251)
age	0.509***	0.279**	0.147	0.497***	0.313***	0.149	0.500***	0.345***	0.145
	(0.125)	(0.112)	(0.113)	(0.125)	(0.113)	(0.114)	(0.125)	(0.114)	(0.114)
education	0.0501	-0.0886	-0.0729	0.0483	-0.0615	-0.0717	0.0506	-0.0515	-0.0738
	(0.0749)	(0.0729)	(0.0716)	(0.0742)	(0.0730)	(0.0718)	(0.0743)	(0.0727)	(0.0716)
socialmediatypes	-0.0237	0.0640	-0.106	-0.0199	0.0664	-0.107	-0.0193	0.0750	-0.107
	(0.0869)	(0.0825)	(0.0833)	(0.0869)	(0.0829)	(0.0832)	(0.0868)	(0.0824)	(0.0833)
securityreturn	0.539***	0.320**	0.308**	0.485***	0.333***	0.313**	0.490***	0.419***	0.308**
	(0.134)	(0.125)	(0.125)	(0.132)	(0.124)	(0.125)	(0.134)	(0.126)	(0.127)
financialmeans	0.376***	0.193*	0.224**	0.369***	0.192*	0.224**	0.370***	0.213*	0.223**
	(0.112)	(0.107)	(0.103)	(0.111)	(0.108)	(0.103)	(0.112)	(0.109)	(0.103)
reward	-0.125	0.0899	-1.112*	-0.0528	0.235	-1.115*	-0.0425	0.318	-1.116*
	(0.617)	(0.539)	(0.592)	(0.610)	(0.558)	(0.591)	(0.610)	(0.571)	(0.591)
financialreturn	-0.146	0.514	-0.293	-0.158	0.692	-0.285	-0.132	0.828	-0.294
	(0.666)	(0.578)	(0.622)	(0.660)	(0.600)	(0.623)	(0.659)	(0.612)	(0.623)
Observations	246	246	244	246	246	244	246	246	244
Pseudo R2	0.0890	0.0296	0.0716	0.0840	0.0359	0.0717	0.0834	0.0476	0.0716
LR Chi2	64.22	26.96	68.31	60.58	32.72	68.36	60.20	43.36	68.30
Prob < Chi2	$3.80e^{-09}$	0.00782	$6.63e^{-10}$	$1.77e^{-08}$	0.00107	$6.48e^{-10}$	$2.08e^{-08}$	$1.96e^{-05}$	$6.66e^{-10}$

Standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1

Robustness checks

In order to check the robustness of our findings, we checked for multi-collinearity i.e. the correlation among explanatory/independent variables. Investigating the variance inflation factors (VIFs) reveals no multicollinearity, given the mean VIF of around 2.3 in models including all types of crowdfunding and around 1.8 in models excluding donation-based crowdfunding (see Kutner et al. (2005)). We also divided the relationship dependent variables into in-crowd and out-crowd and calculated the models again. The results remained consistent. As a robustness check for relationship strength, we also included an alternative variable 'importance of knowing the percentage already funded by others', which is a more specific variable that should point in the same direction (but excludes other sources of knowing the financial contribution of others). We also used a competing (but slightly more narrow) variable to measure commitment of others, namely the role of the percentage already picked as a determinant of whether or not to contribute financially. The results become less significant, as to be expected, but the effects are still in the same direction.

Discussion

The research questions guiding our inquiry were 'how does information use of crowdfunders vary with the strength of their ties with project founders?' and 'how is information use of crowdfunders related to the previous commitments of other crowdfunders in the same project?' Overcoming information asymmetries prevalent in the lending relationship between the bank and the entrepreneur (Akerlof 1970; Myers and Majluf 1984; Stiglitz and Weiss 1981), especially for young and innovative firms has traditionally been a role for venture capitalists. They screen, select and monitor potential targets based on management team, market criteria and business models and syndicate with other investors to pool resources and spread the risks (Alexy et al. 2012; Gompers and Lerner 2001; Manigart and Wright 2011). However,

limitations with regard to embeddedness and risk aversion remain. The emergence of crowdfunding, an open, online platform for small investors, seems to offer a complementary financing channel in particular for innovative, young firms. Our research adds to the venture capital, banking and crowdfunding literature with regard to overcoming information asymmetries.

Information heterogeneity and social networks of crowdfunders

We highlight the information use of funders in their decision to join a crowd (syndicate) and invest in new projects (Ahlers et al. 2015; Belleflamme et al. 2014). We show that the type of information used by funders varies with the relationship strength between the project creator and the funders where we distinguish between information about the project and its objectives, about the person and previous projects, and about financial planning and risk).

We explored the influence of social networks on use of information by funders. Less free-rider behaviour is expected when relationships are strong due to lower monitoring (Granovetter, 2005). Recently Colombo et al. (2015) stressed the role of internal social capital (early backers) as signals for funding success. We add to this line of research differentiated view of signals/information required by potential backers, based on their relationship. Whereas funders with strong ties to the project creator rely on information about the objectives of the project as well as transparency and information about previous projects, there is no increased use of information about financials and associated risks. Funders with weak ties on the other hand, rely on information about the previous projects of the project creator. These results are in line with previous research on crowdfunding motivations (Cholakova and Clarysse 2015). Hence, based on the analysis of information use by crowdfunders, we argue that the front-end of the crowdfunding process is comparable to relationship banking rather than transactional banking, despite the short commitment (Bhidé 2010; Boot 2000).

We extend previous work on the 'wisdom of the crowd' in collective funding decision (Mollick and Nanda 2015; Surowiecki 2005) with regard to use of information about the project and the founder. We find that funders with strong or weak ties rely more on information about the person and previous projects than funders with no ties. Contrary to expectations we find no evidence that funders with no relationship rely more on project and financial/risk-related information to make their decision than funders with ties.

Herding behaviour in crowdfunding

Based on the role of social networks in crowdfunding, we explore the influence of the commitment of others in determining the informational needs of crowdfunders as potential feedback mechanisms in these online platforms. Previous research suggest positive effects of peer feedback on the decision to invest or lend (Lin et al. 2012; Jøsang et al. 2007). Although commitment of others may lead to funding success, there is the fear that crowdfunding platforms create 'unwise' herding behaviour and information cascades with limited information use (Agrawal et al. 2013; Banerjee 1992; Welch, 1992; Sunstein 2006). Our results shed light on this discussion. Funders who use commitment of others as a driver of their investment decisions also rely more strongly on the other informational needs (positive relationship). It seems that the commitment of others is an additional source of information for decision making, in particular for those who are already seeking more information. This is particularly the case for financial and risk information. Crowdfunders who take the financial contribution of others into account thus seem to be more careful in their information seeking behaviour - not less careful, as the herding perspective might suggest. This may counter the fear (of i.e. regulators) that herding takes place by those investors that do not inform themselves well and may make uninformed decisions, i.e. just mimic other funders' behaviour.

The financial economics literature on herding may help us further understand our result. There are multiple perspectives on herding behaviour, including rational herding, which is the

type of herding suggested in our dataset (Devenow and Welch, 1996). From a perspective of crowdfunding, we offer two explanations for possible rational herding.

First, there may be rational benefits of using commitment of others as a selection mechanism due to payoff and network externalities (Hirschleifer and Hong Teoh, 2003). This is due to the simple reason that only those projects, that are fully funded, will be carried out in the first place. For strategic investors looking for high return, high levels of commitment of others could simply be a rational preliminary screening mechanism to choose where they will put in their information seeking efforts. The decision-making process could then be as follows: rational crowdfunders 'scan' crowdfunding platforms for projects with relatively high commitment levels. As a second step, for those projects where high levels of commitment exist, they analyse all the information of the project (in particular financial and risk information). These strategic funders take commitment of others into account simply because this saves them the time of analysing information about projects that may be potentially successful if funded, based on the information about the project, but may not be able to collect their funding, in the first place. Their ability to invest in a potentially successful project depends not only on their own information but also on others who provide liquidity, as well. This two-step screening process describes a perfectly rational investment approach where herding, followed by own information seeking efforts, will increase the payoffs of the time that investors spend researching their investments, and can therefore be classified as 'selfish herding' (Hamilton, 1970).

A second possible explanation that existing theory offers is that there is quality information being transmitted through (early) funders' investment decisions. Rational herding is most likely if those that are being followed, can be expected to have superior information - which is why the investment decisions of Warren Buffet, for example, are reported in the newspaper (Hirschleifer and Hong Teoh, 2003). Even though crowdfunders cannot be expected to carry

out due diligence or create strong business relationships the way banks and venture capitalists do (Boot, 2000; Gompers, 1995) their investment may carry a different type of quality signal. For one, early crowdfunders may signal their wish to become consumers of the company they invest in. Indeed, there is an expectations that crowdfunding campaigns will increasingly offer both smaller investments for in-kind rewards (targeted primarily at consumers and in-crowd funders) and financial returns (targeted at strategic investors) (Cholakova and Clarysse, 2015). However, quality signals of early funders may be mixed, especially if 'unwise' early funders with strong ties invest for very different motivations (such as relationship capital), and therefore 'cloud up' the quality signal of other, 'wise' early funders.

From a methodological point of view, the question remains if all funders are actually able to recall how important 'commitment of others' was in their funding decision. It could be that the respondents that find the commitment of others important are the more 'strategic' funders (who also look for more information, in general) are simply more aware of their use of commitment of others in their funding decision. Other funders could be reluctant to report their 'herding' behaviour. More research is needed to find evidence of the information content of decision-making by early / in-crowd funders.

Information heterogeneity in types of crowdfunding

Looking at our control variables, we find that use of information about financial planning and risks for reward-based crowdfunding are significantly lower than use of information for both donation-based and financial return crowdfunding for all types of ties. This finding is counter to expectations of Belleflamme et al. (2014) and Ahlers (2015), who argue that in donation-based crowdfunding the degree of asymmetric information is of little importance because other intangible factors increase the backer's utility. Here we find lower use of information for reward-based crowdfunding, instead; it is not significantly negative for donation crowdfunding. The academic literature on philanthropy may help us explain this result

through its resemblance with donation-based crowdfunding. The charitable contributions literature distinguishes donors who are motivated by the potential accomplishment of their gift (the public goods model), donors who are motivated by how giving makes them feel (the 'warm glow' effect coined by Andreoni (1990)), and donors that are motivated to personally make a difference (the impact model by Duncan, (2004)). Donors of the first and third type can be hypothesized to gather more information about the project in order to predict if this (personal) accomplishment will materialize. For 'warm glow' donors, information about the project could potentially enhance this positive effect. For reward-based crowdfunding on the contrary, it is very clear what the return will be, namely a concrete product. There exists less financial risk associated with the company behind the product – only the risk that the product will not be produced. This default rate is, however, much lower than average defaults in early stage venturing (on Kickstarter, Mollick (2014) shows a 4% rate of product default). It is also possible that reward-based crowdfunders perceive their funding decision more as a buying decision, with lower awareness of possible risks.

Conclusions and implications

Conclusions

Our study offers the first detailed analysis of the heterogeneity in information use by crowdfunders, and more particular in how information use of crowdfunders is affected by social networks. This offers insights into the application of theories about information asymmetries and herding behaviour in funding, and provides new input to public policy for entrepreneurship and finance.

How does information use of crowdfunders vary with the strength of their ties with project founders, and how is information use of crowdfunders related to the previous commitments of other crowdfunders in the same project? First, this paper highlights the heterogeneity in

information use by crowdfunders that are differently connected to the project creator. Funders from the in-crowd relying more on information about the project creator, as expected, but funders from the out-crowd do not rely more on information about the project. Secondly, this article emphasizes the commitment of others as a determinant of the funding decision, and the relation to information used. Our findings suggest that crowdfunders relying on the financial contribution of others to the project, also use more additional information on the project and its financial characteristics. The results relate both to the importance of quality indicators in online reputation systems to generate usable feedback as well as the importance of the track record of individuals behind the crowdfunding campaign. The mechanism is similar to the generation of proprietary knowledge in banks' lending to customers. Our results provide new insights about the role of relationships, information and knowledge in financial innovation to design and manage crowdfunding platforms.

Managerial and policy implications

Our research has important implications for project developers, platform managers and policy makers. Based on the results of our research, platform mangers and project owners can now customize their campaign directly to the group of backers they would like to attract, based on relationships but also on insights from our control variables (age, gender, education, intrinsic motivation or financial means). More importantly, there is the possibility to utilize a tailored and staged in-crowd-out-crowd process of crowdfunding more directly (see Figure 2).

Information use regarding:	**Project & objectives**	**Person & previous projects**	**Financial planning & risks**
Strong ties	High	High	Average
Weak ties	Low (all CF types) Average (rew + fin only)	High	Average
No ties	Average	Low	Average

Figure 2. Information use heterogeneity of crowdfunders with different strength of ties to project creator

A project creator can provide detailed information about the project, its objectives, the person and her previous projects to persons in her close network and switch to more summarized information about the project and objectives for the larger network (weak ties). For potential funders with no ties, the campaign should focus on information about the project, its objectives, financial planning and risks, and leave out detailed personal information about the project creator. The recommendations are practically the same for our first analysis with all crowdfunding types and our second analysis with reward and financial return crowdfunding. The only difference, as indicated in the table, is that funders with weak ties who invest in donation-based crowdfunding projects are less interested in information about the project and objectives than funders who invest in reward-based and financial return crowdfunding. Furthermore, where we indicate 'average' information use, coefficients are small or not significant.

The emergence of numerous crowdfunding platforms raised fears among policy makers that over-optimism among the general amateur investment could lead to herding behaviour and a higher probability to be a victim of fraud. We show that using 'commitment of others' as a determinant for the funding decision is positively related to the use of information, in general, countering some of the fear of regulators that herding takes place in particular by uninformed funders. We realize that this is self-reported and analysis of existing crowdfunding campaigns or (field) experiments are needed make these results more robust. Hence a balance between self-regulation of the market and government regulation to protect consumer interests need to be found.

Limitations and future research

Although this research provides new empirical evidence on decision-making by crowdfunders, there are some limitations to our study, and interesting pathways for further research. Limitations arise firstly from the construction of the sample. As the sampling followed a

snowballing principle, the composition of groups (age, gender, education, experience with crowdfunding) do not necessarily represent the general population of crowdfunders. As the phenomenon of crowdfunding has become more widespread, broader samples could give more insights into the motivations and behaviour of crowdfunders, including barriers to crowdfunding. A weakness of the survey itself is that we cannot compare the use of information by funders with the use of information of those that decided not to fund, since this question was only asked to the funders. This add-on would give more insight into the barriers to crowdfunding from an information perspective (in relationship to commitment of others and strength of ties). Further research that would add more rigour to our findings would be a field experiment and real-time data from platforms where we could observe the relationship between use of information, strength of ties and commitment of others during the funding decision in real life. By looking at the same phenomenon from different research angles we could develop a clearer and more robust picture (Jick 1979) also to eliminate potential common method bias (Podsakoff et al. 2003). Also, more detailed insight into use of information, commitment of others and type of crowdfunding would add insight. Furthermore, since the crowdfunding market is developing so fast, we should continue to study the decision-making process of crowdfunders, as new features are added to campaigns and more funders enter the market (our dataset was collected in 2013). Finally it would be valuable to explore other institutional contexts outside of the Netherlands, with differently developed financial markets (including angel investing and venture capital), levels of entrepreneurship, and regulation of financial markets and crowdfunding more in particular.

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Appendix

Descriptive statistics

Table A.1: number of cases, means, standard deviations

Variable	Obs	Mean	Std. Dev.	Min	Max	Variable description
infoprojobj	383	4.31	0.81	1	5	Likert scale (1-5) average of importance of information about (1) the project or company and (2) objectives of project or company
infopersprev	383	3.72	0.90	1	5	Likert scale (1-5) average of importance of information about (1) the person or organization behind the project or the company and (2) previous projects of the person or organization behind it
infofinrisk	379	3.38	1.02	1	5	Likert scale (1-5) average of importance of information about (1) financial planning of the project or company and (2) risks associated with the project or the company
strongties	420	0.16	0.37	0	1	Dummy: 1 is strong ties (family, friend, initiator/employee)
weakties	420	0.54	0.50	0	1	Dummy: 1 is weak ties (I know the person, friend of friend, business relationship)
noties	420	0.36	0.48	0	1	Dummy: 1 is no ties (There is no relationship)
knowingfincontriboth	377	2.54	1.07	1	5	Likert scale 1-5: How important is knowing the financial contribution by others
keepinmindrisk	345	3.74	1.19	1	5	Likert scale (1-5): I keep in mind the consideration that investing through crowdfunding in an company can be a high risk investment
amount	420	5.27	2.62	1	11	Scale (1-7): less than €10 / €11 - €25 / € 26 - € 50 / € 51 - € 100 / € 101 - € 250 / € 251 - € 500 / More than € 500
gender	1084	1.37	0.48	1	2	Dummy Male = 1; Female = 2
age	1084	3.99	1.21	1	7	Scale (1-7): Under 18 years / 18-24 year / 25-34 years / 35-44 years / 45-54 years / 55-64 years / Over 65 years
education	1058	7.69	1.80	1	10	Scale (1-10): Lower education or primary edn / Lower Vocational Edn / High school or VMBO / HAVO / VWO / MBO / HBO / Univ. Bachelor / Univ.master's or doctoral / Post-doc
socialmediatypes	1203	3.20	1.75	0	7	Number of social media types (Facebook / Twitter / Google+ / YouTube / Pinterest / Hyves)
securityreturn	377	3.64	1.07	1	5	Importance of the security that there is a promised return
myfinancialmeans	413	3.73	1.20	1	5	What role did your financial means play for determining the amount of your financial contribution?
donation	420	0.25	0.43	0	1	Dummy: What type of financial return have you received or will you receive in exchange for your financial contribution? Answer: No reward
reward	420	0.55	0.50	0	1	Dummy: What type of financial return have you received or will you receive in exchange for your financial contribution? Answer: Reward (e. g. a product, service or mention your name)
financialreturn	420	0.16	0.37	0	1	Dummy: What type of financial return have you received or will you receive in exchange for your financial contribution? Answer: A financial return (e. g. in the case of a loan or investment)

Correlations

Table A.2: Correlations for all crowdfunding types

	infoprojobj	infopersprev	infofinrisk	strongties	weakties	noties	Keepinmind risk	Knowing fincontribothamount	gender	age	education	Socialmedia types	Security return	My finmeans	donation	reward	finreturn
infoprojobj	1.00																
infopersprev	0.56***	1.00															
infofinrisk	0.41***	0.56***	1.00														
strongties	0.10*	0.14**	0.01	1.00													
weakties	-0.12**	0.10*	-0.03	-0.23***	1.00												
noties	0.09*	-0.19***	0.01	-0.32***	-0.76***	1.00											
keepinmindrisk	0.17***	0.14**	0.13**	0.06	-0.09	0.04	1.00										
knowingfincontriboth	0.17***	0.14**	0.24***	0.06	-0.00	-0.02	0.20***	1.00									
amount	0.02	0.08	0.22***	0.01	0.01	-0.01	0.19***	0.05	1.00								
gender	0.05	0.08	-0.03	0.08	0.05	-0.10*	-0.07	0.02	-0.12**	1.00							
age	0.09	0.12**	0.19***	0.08	-0.07	0.06	0.05	0.05	0.21***	-0.09***	1.00						
education	0.04	-0.03	0.02	-0.06	-0.04	0.05	0.12**	0.12**	0.07	0.02	-0.14***	1.00					
socialmediatypes	0.06	-0.00	-0.13**	0.09	-0.02	-0.02	-0.09	-0.04	-0.02	-0.01	-0.14***	0.09***	1.00				
securityreturn	0.31***	0.20***	0.27***	-0.06	-0.08	0.12**	0.11**	0.15***	0.09*	-0.04	-0.02	0.10*	-0.03	1.00			
myfinancialmeans	0.21***	0.11**	0.08	0.01	0.01	-0.01	0.07	0.06	0.05	0.11**	-0.10*	0.12**	0.12**	0.09*	1.00		
donation	0.05	0.12**	0.02	0.03	0.01	-0.02	-0.13**	-0.02	-0.18***	0.07	0.03	-0.03	0.06	-0.19***	-0.04	1.00	
reward	-0.12**	-0.17***	-0.20***	0.05	0.06	-0.07	-0.10*	-0.09*	0.05	0.02	-0.11**	-0.03	-0.01	0.10*	-0.01	-0.64***	1.00
financialreturn	0.10*	0.10*	0.23***	-0.08	-0.10**	0.11**	0.28***	0.12**	0.18***	-0.09	0.11**	0.03	-0.03	0.07	0.05	-0.26***	-0.49***	1.00

* p < .10 ** p < .05 *** p < .01

Table A.3: Correlations excluding donation-based crowdfunding

	infoprojobj	infopersprev	infofinrisk	strongties	weakties	noties	Keepinmind risk	Knowfin controth	amount	gender	age	education	Social mediatypes	securityret	finmeans	reward	finreturn
infoprojobj	1.00																
infopersprev	0.56***	1.00															
infofinrisk	0.44***	0.53***	1.00														
strongties	0.08	0.09	-0.06	1.00													
weakties	-0.10*	0.12**	-0.05	-0.24***	1.00												
noties	0.09	-0.17***	0.09	-0.31***	-0.77***	1.00											
keepinmindrisk	0.20***	0.14**	0.16**	0.08	-0.12*	0.05	1.00										
knowingfincontriboth	0.21***	0.14**	0.29***	0.07	-0.02	-0.02	0.18***	1.00									
amount	0.07	0.13**	0.26***	0.04	-0.05	0.02	0.22***	0.04	1.00								
gender	0.03	0.05	-0.05	0.09	0.08	-0.13**	-0.09	0.05	-0.06	1.00							
age	0.10*	0.13**	0.18***	-0.01	-0.07	0.10	0.03	0.02	0.27***	-0.03	1.00						
education	0.09	-0.03	0.02	-0.02	-0.08	0.07	0.11*	0.12*	0.06	0.01	-0.08	1.00					
socialmediatypes	0.05	-0.00	-0.16**	0.11**	-0.03	-0.03	-0.10	-0.02	-0.10**	-0.02	-0.08	0.02	1.00				
securityreturn	0.33***	0.17***	0.25***	-0.12**	-0.13**	0.21***	-0.03	0.11*	0.06	-0.06	-0.03	0.08	-0.06	1.00			
myfinancialmeans	0.30***	0.15**	0.14**	-0.01	-0.01	0.04	0.01	0.04	0.07	0.08	-0.14**	0.11*	0.11*	0.06	1.00		
reward	-0.12**	-0.13**	-0.29***	0.10*	0.10*	-0.12**	-0.28***	-0.16**	-0.10*	0.10	-0.14**	-0.07	0.04	-0.03	-0.06	1.00	
financialreturn	0.13**	0.16**	0.28***	-0.08	-0.12**	0.13**	0.30***	0.14**	0.17***	-0.08	0.15**	0.03	-0.02	0.03	0.05	-0.89***	1.00

* p < .10 ** p < .05 *** p < .01