
The product, the mind and the heart of crowdfunding: the effect of signals on technology projects

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Abstract: Signalling theory is useful for describing behaviour when two individuals or organisations have access to different information. The current research intends to explain how technology entrepreneurs can successfully utilise this theory to secure crowdfunding. Specifically, we predict that the innovativeness of a project, the skills, abilities, honesty and kindness of individual workers, can positively affect crowdfunding achievement. We also hypothesise and test that positive emotional characteristics in the workplace can strengthen the relationship between products usefulness and funding success. Data was collected from Kickstarter platform to test our theory. Our analyses show that specific individual skill (entrepreneurs' industry experience) negatively influences their funding success, but entrepreneur's personal characteristics (previous funding experience and frequent updates) are positively related to crowdfunding achievement. In addition, the level of education positively influences the relationship between innovation and funding success. Social factors dominate crowdfunding more than economic soundness. Crowdfunding can be used to fund innovative and traditional projects.

Keywords: crowdfunding; kickstarter; economic soundness; individual employee skills; information asymmetry; financing.

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1 Introduction

The entrepreneurship process involves the identification, evaluation and exploitation of attractive business opportunities by enterprising individuals (Shane and Venkataraman, 2000). Early-stage capital has been considered important for entrepreneurs to realise their opportunity, which is difficult to obtain (Cosh et al., 2009). Hence, the acquisition of startup capital is a fundamental step in the entrepreneurship process. In the past, entrepreneurs have primarily relied on banks, angels and venture capitalists to finance their venturing.

Recently crowdfunding (CF) has been increasingly used by entrepreneurs to attract more potential investors for supporting their projects. As pointed out by Lehner (2012) “CF draws its roots from crowdsourcing, which comprises using the crowd to obtain ideas, feedback and solutions in order to develop corporate activities” (p.8). Based on the report of Massolution (2013), \$2.7 billion dollars has been raised through CF in 2012 and it has increased to \$5.1 billion in 2013. Moreover, CF has been allowed to issue stock in US since 2012. Research investigating CF is sparse due to the relative infancy of the field, for example the leading CF platform Kickstarter was established in 2009. Previous research (Agrawal et al., 2011; Kuppuswamy and Bayus, 2013; Mollick, 2014) has shown that CF has been used to raise capital for a multitude of projects such as art, design, fashion, film, music and publishing.

Information asymmetry is one of the problems that entrepreneurs have to face when seeking financing (Shane and Cable, 2002). To mitigate the information asymmetry problems, signalling theory suggests that entrepreneurs send signals to investors about the quality and value of their opportunities and later their ventures through private equity ownership (Bruton et al., 2009; Jain et al., 2008), founder ownership (Busenitz et al., 2005), top management team characteristics (Cohen and Dean, 2005; Higgins and Gulati, 2006; Zimmerman, 2008), corporate governance features (Sanders and Boivie, 2004), and alliances and associations with other companies (Balboa and Martí, 2007; Gulati and Higgins, 2003).

However, such signals are not available for crowdfunding project founders (Mollick, 2014). Consequently, more investigation into CF is warranted due to the lack of academic research on the topic and the uniqueness of crowdfunding platform. Specifically, it is important to make inquiries on how founders manage the information asymmetry dynamic so that successful funding targets for their projects can be achieved. Connelly et al. (2011) claim that the intent signals have not been fully investigated and the typology of signals should be examined for a more comprehensive understanding of CF. Indeed, prior research has demonstrated that crowdfunding platform invites more signals of social causes (Moss et al., 2015). For example, Allison et al. (2015) found projects with language signalling financial goals fare worse than those sending signals emphasising on project social benefits. Our research classifies crowdfunding project signals into three types, mind, heart and product, and we study how each type influences, and how they interact to affect crowdfunding outcomes. This study attempts to answer the following research questions. What are the characteristics of technology projects that can lead to successful crowdfunding? Does the presence of certain characteristics reduce the amount of information asymmetry between founders and funders by signalling? Which characteristics and/or signals are associated with successful achievement of funding targets?

We intend to make a few contributions. First, we answer the call by Connelly et al. (2011) to propose three types of signals, product by innovativeness, mind through education and industry experience, and heart via entrepreneurial caring such as previous funding to others through crowdfunding platform. We hypothesise and test how each type of signals may impact the financing outcomes. Second, we expand the entrepreneurial financing research to crowdfunding, a unique setting (Chen et al., 2009). We find some traditional signals that reflect the quality of entrepreneurs negate the chance of successful crowdfunding. Basically, entrepreneurial financing principles may not apply to crowdfunding. Third, we contribute to the innovation literature by introducing a new way to measure product radicalness. Previous research has relied primarily people’s

perceptions to judge the radicalness of products (e.g., Marvel and Lumpkin, 2007), but we use archival data to operationalise radicalness.

In the following session, we provide an overview of CF. Following the overview, the remaining paper will proceed with the literature review section followed by theory and hypothesis development section, a review of the methodology, and conclude with a results and discussion section.

2 Crowdfunding overview

Valanciene and Jegeleviciute (2013, p.41) define CF as “a method to establish the connection between entrepreneurs, who aim to raise capital, and novel investors, who form an emerging source of capital and are willing to invest small amounts, through internet-based intermediaries”. The internet-based intermediaries refer to the CF platforms such as Kickstarter, Crowdfunder and other organisations that provide the environment for raising CF. On the CF platforms, there are mainly “founders” and ‘funders’. “Founders’ refer to individuals who seek funding for their projects, while ‘funders’ refer to individuals who provide financing for the projects (Mollick, 2014). Most internet-based CF platforms operate on an all or nothing model in such a way that founders can get access to the funds only if the founders raised money that is equal to or more than their funding targets. Thus, it is critical to understand what determines the achievement of successful funding targets and of practical importance to entrepreneurs.

The unique characteristics of CF make it different with traditional financing options. First, CF has more potential investors than traditional funding. Usually, entrepreneurs are lack of information about the potential investors. However, entrepreneurs could do research about the potential investors in traditional financing. On the other hand, funders do not know about founders either. Therefore, funders feel uncertain about the information that founders provide. This double unknown creates information asymmetry between founders and funders (Moss et al., 2015). Second, founders could reward funders in different forms, which is more than the traditional financing. In traditional financing, paying interest and principle is the main form. CF could be lending based, equity based, donation based, and reward based (Cholakova and Clarysse, 2015; Schwienbacher and Larralde, 2010). Both extrinsic and intrinsic intentions motivate funders to pay attention to products and social intention (Allison et al., 2015).

Third, internet communication between founders and funders create information asymmetry between them. Hence information asymmetry arises. On one hand, “the entrepreneur might be even more reluctant to disclose information to this type of investors, due to their number and lack of professionalism. Idea stealing may further be particularly strong here, since the entrepreneur needs to disclose sensible information to a wider audience than under traditional forms of fundraising” (Schwienbacher and Larralde, 2010, p.10). On the other hand, the funders make decisions about supporting or not, based on information uncertainty. Unfortunately, inside information about the integrity and characters of the entrepreneurs and their opportunities are not available (Moss et al., 2015). Crowdfunders can only access the information on the website, most of the time, the project founders’ narratives (Allison et al., 2015). In addition, while traditional financing may seek regulations and law enforcement to help protect the investors’ interest, crowdfunding does not have such mechanism to do so. This requires the founders to find ways to reduce such asymmetry. Thus, crowdfunding may present

bi-lateral asymmetry problem while entrepreneurs seeking traditional financing have access to information about financiers and can conduct research about them. Therefore, a bundle of *uncertainty* is present. Fourth, CF funders may only rely on emotion and passion when making decision about supporting (Chen et al., 2009). However, traditional funders may have more solid information which can help them make decisions. Here below is the summary of the differences between traditional financing and crowdfunding. We also list the information implication in Table 1.

Table 1 Summary of traditional financing and crowdfunding

	<i>Traditional financing</i>		<i>Crowdfunding</i>	
	<i>Characteristics</i>	<i>Information</i>	<i>Characteristics</i>	<i>Information</i>
Number of investors	Small	Detailed	Large	Unknown
Return/reward	Financial	Whole plan	Equity/product/none	Product/social
Communication	Personal	Real	Website (platform)	Uncertain
Funding criteria	5 Cs (character et al.)	Rational	Web presentation	Passion

2.1 Entrepreneurial financing information asymmetry and signalling theory

As previously mentioned, entrepreneurs tend to prevent their ideas from being stolen so that they hide certain information as they introduce their project to the public. Funders on the other hand would need all possible information to avoid moral hazard. These issues are characteristic of the agency problem which consists of two parties (principals and agents), the managing of information asymmetry as well as moral hazard and adverse selection (Eisenhardt, 1989; Fama, 1980; Fama and Jensen, 1983; Jensen and Meckling, 1976; Ross, 1973). While, CF possesses some of these similarities, it lacks some aspects with regards to financing.

There are mainly signallers and receivers in signalling theory (Connelly et al., 2011). Signallers refer to individuals who send out signals that are not available for outsiders. Receivers are individuals who receive information and return feedback to signallers. In the case of CF, the founders are the signallers while funders are the receivers. Connelly et al. (2011) described signal observability as the extent that outsiders are able to notice the signal, among those different elements for characterising signal.

2.2 Crowdfunding research

Previous research in CF has mainly investigated different motivations behind CF, the influence of information on CF, and the factors that increase CF success. In terms of studies investigating the reasons for engaging in CF Agrawal et al. (2011) cited the shortage of capital and the evolution of Web 2.0 technologies, which has made it easier to develop the platforms that enable project founders and funders interactions. Belleflamme et al. (2011) cited the financing of the project, the public attention that arises around the project and the feedback about the product or service being offered. Furthermore, Gerber et al. (2012) identified the motivations of individuals who post (founders) and fund (funders) projects. The founders' motivations included fundraising, establishing relationships, receiving legitimacy, replicating successful experiences, and increasing

awareness about their work through social media. Giudici et al. (2012) found that CF has mainly a social as well as emotional value and that individuals decide to fund projects depends on the proposed amount of money, the emotional content of the project, and the returns created.

With regards to the role of information, Burtch et al. (2013) identified that information on prior contribution behaviour can influence the behaviour of funders. Additionally, Kuppuswamy and Bayus (2013) found that the more people back a project the less likely others will continue to back it due to the fact that they assume others will put money instead. However, the same authors' state that herding behaviour may not be present for reward based crowdfunding. Therefore, Ley and Weaven (2011) claimed that funders need more comprehensive information about the project for conducting adequate due diligence in the decision-making process. Subsequently, Schwienbacher and Larralde (2010) discovered that CF can provide valuable signals on the market potential of a product founders wish to launch, which they characterise as active CF in that founders offer funders the ability to become active in the initiative along with offering rewards.

Our research focuses on the last stream of research, that is, we identify factors leading to successful funding. Based on signalling theory, we classify signals into three categories, the signals of product quality, the signals of mind (human capitals of the entrepreneurs) and the signals of heart (caring characteristics). We examine how the three types of signals may influence the likelihood of obtaining financing.

3 Theoretical development

3.1 Types of signals

Unlike traditional equity investors whose primary concern is long term financial returns, crowdfunding funders often hold three unique roles: investor, consumer and donor (Mollick, 2014). First, funders may function like investors. In such a role, their key goal is to make sure the venturing will give the investors positive abnormal returns (Janney and Folta, 2003). To such funders, they look for signals indicating high quality opportunities and outstanding management team (Zimmerman, 2008). Therefore, entrepreneurs with higher education and substantial industry experience may indicate high quality of entrepreneurial opportunity to funders and the likelihood of obtaining financial resources can be enhanced (Spence, 2002). Second, the funders often receive the to-be-produced product/service, either a book, or a CD or a cooler in return for their donation. This way, the funders act more like consumers of a newly developed product/service (Ordanini et al., 2011). They may be the innovators and early adopters based on the production diffusion curve who are willing to take risks to try unproven product. Hence, the radicalness of the product or service may be signals for high quality. Entrepreneurs who want to secure financing should send signals to funders by emphasising the quality of their products. Third, investors in crowdfunding may also serve the function of 'social participation' (Ordanini et al., 2011, p.455). Such funders behave like philanthropic donors that simply want to provide financial support to the entrepreneurs so that they can realise their dreams. To obtain the financial support, entrepreneurs should focus on the social deed of their projects by showing they care.

3.2 *Signals of product quality*

In the context of this study the information asymmetry dynamic is magnified with regards to technology entrepreneurs and reward-based CF. In terms of the latter the information asymmetry challenge has been clearly identified in the previous sections of the paper (Schwienbacher and Larralde, 2010). With regards to technology entrepreneurs the information asymmetry dynamic is also magnified because of the project innovativeness. Previous studies have shown that radical innovations are characterised with a higher degree of uncertainty and information asymmetry (Goktan and Miles, 2011; Herrmann et al., 2007). While there are various categorisations of innovation in previous research, this paper will distinguish innovation in terms of incremental and radical innovation (Henderson and Clark, 1990; Goktan and Miles, 2011).

Incremental innovation consists of implementing minimal changes to an existing product by exploiting the potential of the established design. In contrast, radical innovation consists of developing knowledge based on a different set of engineering and scientific principles that open up whole new markets and potential applications (Henderson and Clark, 1990; Koberg et al., 2003; Un, 2010). Furthermore, radical innovations have been characterised as being embedded in a higher level of uncertainty, which increases the amount of information needed to implement them (e.g., Goktan and Miles, 2011). As such, CF projects based on radical innovations will require a greater amount of signals in order to manage the information asymmetry dynamic as opposed to projects based on incremental innovations.

Hypothesis 1a: Ceteris paribus, the more radical the project the less likely the project will achieve its funding target.

However, according to the product diffusion model, when new products are introduced, some consumers, named innovators, often take the risk to be the first group to try out the unproven products (Midgley, 1977; Mahajan and Muller, 1998). Such consumers are very important to the founders in that they are risk takers and willing to give the new products a chance (Mahajan and Muller, 1998), and better they help promote the products through persistent communication (Rogers, 1995). Innovators can also help businesses by providing early positive cash flow to cover new product development expenses and marketing cost (Goldsmith and Flynn, 1993). As stated above, crowd funders serve the role as innovator consumers who often focus on the uniqueness of a product rather than potential risks. To such a group, radicalness becomes a positive signal and crowdfunding project founders are such a group (e.g., Lambert and Schwienbacher, 2010). Thus, we propose a competing hypothesis:

Hypothesis 1b: Ceteris paribus, the more innovative the project the more likely the project will achieve its funding target.

3.3 *Signals of mind (human capital)*

In order to manage the information asymmetry dynamic, high technology CF founders must send out signals to potential funders in order to achieve successful funding targets when using CF. For founders, general human capital characteristics of education and previous industry experience (Becker, 1975) will signal to funders that the project is legitimate. For example, Spence's (1973) study showed how achievement of higher

education was a costly signal to prospective employers that could help differentiate between those job seekers with a college degree and those without. Furthermore, this demonstrated that those applicants who had attained a degree were able to withstand the rigor associated with higher education, thus the applicants who attained a degree were seen as having a higher quality than those who had not attained a degree. Additionally, past industry experience may be a signal of knowledge of important information regarding the project's industry, customers, and suppliers (Certo, 2003). Consequently, the founder human capital characteristics will signal legitimacy and higher quality to funders thus reducing the information asymmetry dynamic. Crowd funders in investors' role are like traditional equity investors and they tend to make rational decisions (Denis, 2004). They therefore may view human capital as positive signals and we hence propose that there should be positively related to the relationship between founder human capital characteristics and successful funding achievement. Accordingly,

Hypothesis 2: Ceteris paribus, founder employee skill set is positively related to successful funding achievement.

Hypothesis 2a: Founders that provide information on their educational background will be more likely to achieve their funding target.

Hypothesis 2b: Founders that provide information on their previous industry expertise will be more likely to achieve their funding target.

3.4 Signals of heart (caring characteristics)

Compared with traditional funding, crowdfunding decision depends on founders' passion and social motivations because crowd funders also play a role of philanthropic donors. Crowdfunding is designed as a platform for those who are underrepresented in traditional financing. Social motives are crucial in the funders' investment decision. Research has shown that disadvantaged groups tend to be more successful. For instance, Lambert and Schwienbacher (2010) found that non-profit projects are more likely to achieve successful financing. Greenberg and Mollick (2014) found that women outperform men in crowdfunding because women backers are more likely to lend their support to female led projects. Mollick (2014) found that personal networks increase the likelihood of CF success.

Baron and Markman (2003) argued that financing decision depends on the founders' social skills. We believe previous funding of CF projects by the founder signals a willingness to support other creators and causes, which aligns with the social motivations of funders (Gerber et al., 2012). And project updates by the founder on the status of the project provide information to potential funders and are associated with signal frequency which may make them more effective. Therefore, the project characteristics will provide greater signal observability, strength and frequency as well as indicate a higher quality and reputation to funders thus reducing the information asymmetry dynamic. In addition, both previous funding of CF and project updates may signal to funders that the founders care about them. In the crowdfunding setting, those signals mean the founders use their social skill to engage interaction with the funders to create social presence (Walther, 2011). As such, these signals should be positively related to the relationship between project characteristics and successful funding achievement. Accordingly,

Hypothesis 3: Ceteris paribus, caring characteristics are positively related to successful funding achievement.

Hypothesis 3a: Previous funding by founder of other crowdfunding projects will be positively related to successful funding.

Hypothesis 3b: Those projects which provide updates on the status of the project will be positively related to successful funding.

3.5 *The interaction effect of signals*

Hypothesis 1 predicts product innovativeness may either improve or decrease the chance for founders to secure financing. The possible enhancement or alleviation of opportunities for funding depends on the founders because the success of a venture is the function of the enterprising individuals and opportunity (Shane and Venkataraman, 2000). We argue that a radical new product is more likely to be funded if their founders also possess the needed human capital to exploit the opportunities. In the investor's eyes, a highly educated person with substantial industry experience may have better control over radical innovation because such individuals command strong legitimacy (Janney and Folta, 2003). The combination of a good product and a strong willed entrepreneur sends a much stronger signal to the investors. We also make the prediction that crowdfunding entrepreneurs who show their caring through frequent updates and previous funding of other projects send a strong signal that may help reduce information asymmetry, thus increasing the probability of the projects getting the needed financing. Accordingly,

Hypothesis 4: Ceteris paribus, individual skill and abilities and positive emotional state moderate the relationship between product radicalness and funding success

In summary, more radical products are more likely to successfully achieve its funding goal due to the greater appeal of the product to innovators and early adopters. Such products may also signal more information asymmetry hence reducing the chance for successful funding. In addition, founder human capital, such as educational background and prior industry experience sends signals of the mind to investors that the founders have the human capital required to complete the project, hence increasing the possibility for investors to invest in the project. Further, previous funding of CF projects by founder and frequent updates represent signals to funders that help reduce the information asymmetry dynamic and are positively related to successful funding achievement. Lastly, human capital and caring characteristics moderate the relationship between product radicalness and successful funding. These relationships are illustrated in Figure 1.

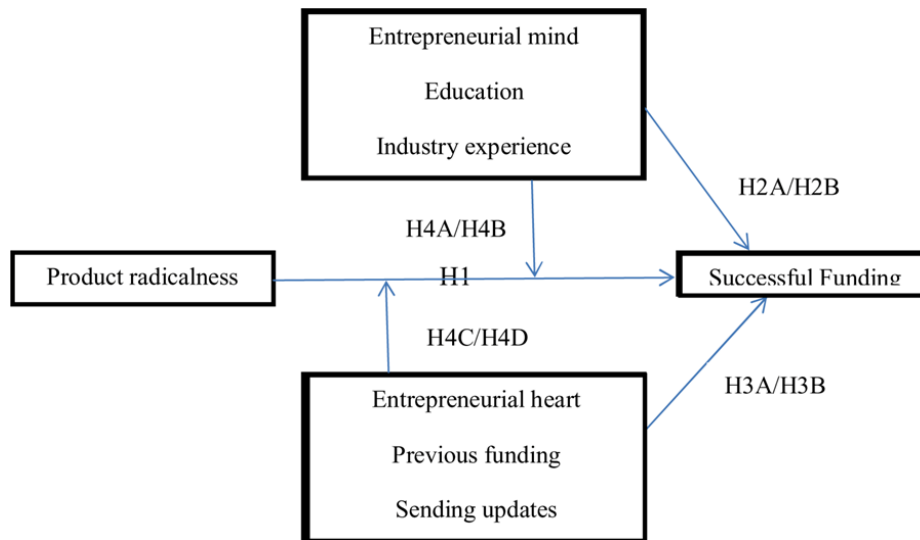
4 Methodology

4.1 Data collection

In order to evaluate the hypotheses developed in this paper, we follow previous studies (Kuppuswamy and Bayus, 2013; Mollick, 2014) and utilise the crowdfunding platform Kickstarter.com to collect our sample. The dataset used in this study was collected from the website of Kickstarter.com, which includes all technology projects in the

technology domain. The time window for the data is from 2 May, 2009 to 5 September, 2012. A content analysis was performed by analysing each individual project web link to identify the variables examined in this study.

Figure 1 Theoretical model (see online version for colours)



Totally there were 614 projects in the technology domain on Kickstarter website. In order to make sure that our sample is consistent with the setting of hypotheses testing, we followed two criteria in the sampling process, based on the results of our analysis. First, our analysis revealed some projects were outside of the allowable countries of origin permitted by Kickstarter.com. Second, our analysis also shows that some projects are improperly classified as a tangible technology project. These projects were removed from the total and we proceeded to randomly select every fifth project to reach our final sample size consisting of 150 technology projects to be included in our analysis.

5 Variables

5.1 Dependent variable

The dependent variable for this study is *project funding goal achievement*. Kickstarter uses 'all or nothing' approach, which means that the money is raised successfully or not depends on if the money raised reaches the target set by the founder. While some CF platforms may not follow this approach, it is the most popular approach used in the CF industry. The variable was categorised '0' if the funding goal is not met and '1' if the goal is met or surpassed.

5.2 Independent variables

Technology radicalness measures how a product is deviant from previous products (Henderson and Clark, 1990). A similar product shows incremental improvement while

unfamiliar products are often radical and innovative. Since Kickstarter does not categorise the radicalness of a product/service; we performed a content analysis of each individual technology project in order to identify Keywords: used to describe the project by the founder (Examples include: 3D printer; mobile application; Arduino technology; Robot; CNC). We then perform an internet search using Amazon.com to identify the number of related products using the keywords used in the project descriptions. For example; a Kickstarter project that describes its product as a 'Wi-Fi music system' is searched in Amazon.com using this description; which results in 8496 products available on the market. This was performed for each individual project in our sample. This results in a varying degree of radicalness with those projects with many similar products available being considered less radical to projects without similar products being considered more radical. We did similar calculation of radicalness by using Walmart.com; and both measures of radicalness are highly correlated ($r = 0.61$; $p < 0.000$). Using Walmart radicalness calculation instead of Amazon yielded substantially similar results.

We also included the founder human capital characteristics previously described in earlier sections of this paper. Founder human capital characteristics include *educational background and industry experience*. A content analysis of the technology project web link was performed in order to identify each of the variables. *Educational background* was categorised by a '0' if no educational background was provided in the project profile and '1' if a description of the founder's educational background was provided in the project profile. Although education level could have significant effect on entrepreneur success (Unger et al., 2011), we expect that the education-related signal would influence the success of crowdfunding in online platform more generally than the effect of different levels of education. *Industry experience* was categorised by a '0' if no industry experience was provided in the project profile and '1' if a description of the founder's industry experience was provided in the project profile.

Caring characteristics include *previous funding and updates*. A content analysis of the technology project web link was performed in order to identify each of the variables. *Previous funding* by the founder was measured categorically by a '0' if the founder had not provided funding or 'backed' other CF projects and '1' if the founder had previously funded or 'backed' other CF projects. *Project updates* were measured continuously by the number of updates provided by the founder in the updates section of the project profile.

5.3 Control variables

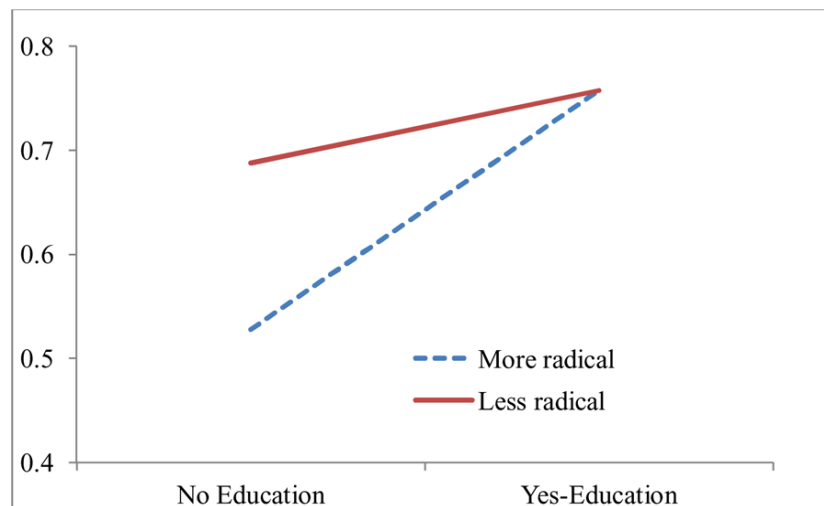
We follow previous studies (Kuppuswamy and Bayus, 2013; Mollick, 2014) and control for *duration*, *goal*, *rewards*, and *external website link*. The *duration* of a project on Kickstarter.com can last from one to 60 days and was measured by the number of days the project was eligible for funding. The *goal* is the amount of funds the project founder is attempting to raise and was measured by the dollar amount the project founder was seeking. The *rewards* are the different types of compensation that are received by the funders. They vary in terms of the funding levels that are available to funders and were measured by the number of different levels available for funding. The *external website link* was whether or not the project profile included a link to an external website that was dedicated to the project outside of the Kickstarter.com site. It was important to control for these variables in order to determine the relationships outlined in the hypotheses.

6 Results

Logistic regression is used to analyse the data. As noted by King (2008) “logistic regression allows categorically and continuously scaled variables to predict any categorically scaled criterion” (p.358). Consequently, the data was analysed using binomial logistic regression and the statistical analyses were performed using STATA. The descriptive statistics and correlations are displayed in Table 2. Of the total sample used in the analysis ($n = 150$) there were 102 cases of successful funding achievement and 48 cases that did not reach their funding target resulting in a 68% success rate.

Table 3 shows the logistic regression results. Model 1 contains the control variables. Model 2 includes both the control and independent variables. Model 3 consists of all the variables along with the interaction effects. We predicted that project radicalness can be either positively or negatively positively related to crowdfunding success. However, we did not find the relationship to be significant. Hypothesis 1 did not receive confirmation. With regards to the founder human capital characteristics, education was not significant. In contrast, industry experience was significant ($p < 0.001$); however, the relationship was negative, which contradicts our prediction. Hence, Hypothesis 2 was not confirmed. In terms of the caring characteristics both previous funding ($p < 0.02$) and updates ($p < 0.02$) were significant. Therefore, Hypothesis 3 received strong support. Finally, only education moderates the relationship between product radicalness and funding success. Thus, Hypothesis 4 was partially supported. Figure 2 visually presents the result for Hypothesis 4a.

Figure 2 Interaction of radicalness of product and education (see online version for colours)



Post hoc analyses were conducted. We first undertook a chi-square test to verify our findings for the main effect. Table 4 shows that industry experience decreases the probability of getting the needed funding from 79% to 63%. The results also support Hypothesis 3 that previous funding of another project enhances the probability of successful financing from 51% to 84%. And frequent updates boost the likelihood of being financed from 49% to 95% where we coded few updates 0 as less than the mean and 1 as above the mean.

Table 2 Descriptive statistics and correlation

Variable	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12
1 Project funding goal achievement	0.68	0.468	1											
2 Backers	433.21	1081.368	0.247***	1										
3 Duration	35.71	11.873	0.162*	0.086	1									
4 Goal (\$)	24102.91	48724.654	-0.161*	0.198*	0.108	1								
5 Pledged (\$)	31406.76	53088.759	0.346**	0.710**	0.202*	0.249**	1							
6 Rewards	8.73	3.460	0.223**	0.216**	0.107	0.149	0.373**	1						
7 External website link	0.92	0.272	0.114	0.072	0.016	0.072	0.117	0.041	1					
8 Technology radicalness	4.23	6.130	-0.056	-0.006	-0.129	-0.061	-0.112	-0.066	0.075	1				
9 Educational background	0.44	0.498	0.147	0.010	0.118	0.071	0.167*	0.191*	-0.085	-0.075	1			
10 Industry experience	0.71	0.454	-0.150	0.067	0.012	0.182*	0.137	0.099	0.193*	0.004	0.057	1		
11 Previous funding	0.53	0.501	0.352**	0.027	0.208*	0.040	0.061	0.126	-0.132	0.033	0.114	-0.040	1	
12 Project updates	13.67	12.560	0.527**	0.251**	0.227**	-0.016	0.445**	0.356**	0.079	-0.070	0.266**	0.093	0.287**	1

N = 50.

*Correlation is significant at the 0.05 level (two-tailed test).

** Correlation is significant at the 0.01 level (two-tailed test).

Table 3 Logistic regression on crowdfunding success

	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
	B	Sig.	B	Sig.	B	Sig.	B	Sig.	B	Sig.	B	Sig.
Backers	0.005	0.030**	0.003	0.298	0.004	0.294	0.003	0.290	0.003	0.287	0.003	0.294
Duration	0.037	0.024**	0.010	0.678	0.015	0.501	0.009	0.710	0.012	0.635	0.012	0.611
Goal	2.129	0.236	1.326	0.252	1.262	0.253	1.315	0.263	1.320	0.255	1.326	0.246
Rewards	0.126	0.188	-0.041	0.668	-0.033	0.744	-0.040	0.672	-0.038	0.687	-0.040	0.679
External website link	1.830	0.181	1.773	0.055*	1.865	0.037**	1.740	0.069*	1.773	0.067*	1.907	0.061*
Technology radicalness			0.109	0.677	0.520	0.115	0.171	0.561	-0.001	0.997	-0.025	0.905
Educational background			0.153	0.727	1.000	0.068*	0.147	0.739	0.196	0.659	0.224	0.621
Industry experience			-1.890	0.001***	-2.073	0.001***	-1.831	0.008***	-1.875	0.001***	-1.872	0.001***
Previous funding			1.328	0.015**	1.159	0.042**	1.334	0.014**	1.128	0.092*	1.302	0.014**
Project updates			0.123	0.015**	0.110	0.033**	0.123	0.014**	0.122	0.016**	0.103	0.128
(Technology radicalness) × (Educational background)					-0.236	0.015**						
(Technology radicalness) × (Industry experience)							-0.018	0.784				
(Technology radicalness) × (Previous funding)									0.045	0.419		
(Technology radicalness) × (Project updates)											0.004	0.472
Log Likelihood	-44.65		-37.42		-35.96		-37.40		-37.29		-37.24	
Wald Chi-squared	9.53*		38.90***		50.09***		43.43***		43.81***		40.95***	

Second, we split our sample into two categories for product radicalness where less radical was defined as those projects with many related projects (more than the mean). We ran two different analyses, one for less radical products/services and one for more radical products/services. Table 4 reports the chi-square analyses. The results indicate that for both radical and less radical products caring improves the probability a great deal by about 40%. For instance, for more radical products, many updates earn 100% endorsement, but for few updates, that number is 44%. However, human capital factors, education and industry experience, do not have impact on less radical products, but they do influence more radical projects even though education is a positive force and industry experience exerts negative influence.

Table 4 Chi-square test

	<i>Main effect</i>	<i>Less-radical product</i>	<i>More-radical product</i>
Educational background	3.26	0.47	3.94*
Industry experience	3.40*	3.72*	0.47
Previous funding	18.53***	14.64***	4.54*
Project updates	35.83***	14.80***	20.91***

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

7 Discussion

First, we argued product radicalness signals novelty and breakthrough innovation and therefore it would have a positive impact on crowdfunding success. However, the results show insignificance. According to product diffusion model, product innovators and early adopters tend to take more risks by trying untested and radical products (Mahajan and Muller, 1998). Indeed, research has found crowdfunding funders “are innovators in the way they use technology to interact” and “decide to invest because they want to be the first” (Ordanini et al., 2011, p455). However, information asymmetry indicates that crowd funders may also be wary of the project founders’ moral hazards (Denis, 2004; Mollick, 2014). They may ask questions if the entrepreneurs are able to deliver a high quality product, and if they will fulfil their promises such as rewards to the funders. Due to the uncertainty aspect of communication (see Table 1) and given the entrepreneurship involves not only product but also the enterprising person (Shane and Venkataraman, 2000), funders may be also concerned with the entrepreneurial intent (Burtch et al., 2013). We contend the product radicalness may be a double-edge sword where it attracts innovators to fund the project by signalling quality, but at the same time, it also increases the funders’ concern of the entrepreneurs’ moral hazards therefore hurting the chance of getting funded.

Second, we expect human capital should be positively influencing crowdfunding achievement. However, our analyses show the opposite for specific human capital. Specifically, if a founder has industry experience, his/her probability of getting funding is only 0.63 while that for those without industry background stands at 0.79. That is, industry experience hurts a founder’s chance to obtain financing through CF platform.

We attribute the surprising findings to the following possibilities. First, information asymmetry may not exist in the crowdfunding market because most of the time the funding amount can be minimal (Ordanini et al., 2011). Thus, funders may not feel the huge damage even though moral hazards and adverse selection occur (Denis, 2004). Second, Ordanini et al. (2011) found that ‘social participation’ is more important to crowd funders. They may think that experienced founders with high human capital do not need their participation and hence their motivation to participate weakens. Third, crowdfunding serves as a platform for relative disadvantaged group (Greenberg and Mollick, 2014). Crowd funders have the tendency to help those who really need their support. Founders with a rich industry experience signal that they can find financing somewhere else such as through personal savings, banks and even venture capitalists. Crowd funders thus hesitate to lend their support to this group.

Third, we predicted caring characteristics such as sending updates often and having previously funded other projects positively influence financing achievement. Our hypotheses were supported. As discussed earlier, unlike traditional financing, crowdfunding is a platform for all, but it often lends more support to disadvantaged individuals (Greenberg and Mollick, 2014). For example, women benefit more than men in crowdfunding, and non-profit organisations find more success in crowdfunding than for profit ones because such founders may need the financing more and they may be more trusted (Lambert and Schwiendbacher, 2010). Previous funding experience and sending updates signal to funders that the founders do care about them and therefore are likeable and more trustworthy. Such signals reduce funders’ concerns over moral hazards. Thus the chance of obtaining funding increases when founders send signals that they care.

Fourth, our interaction analyses yield some interesting results. Specifically, of the four proposed moderators, only education strengthens the relationship between radicalness of a product and funding success. This suggests a few possible conclusions. First, caring characteristics are positive signals not contingent upon context. The heart in crowdfunding benefits the project founders no matter how radical one’s product is. For example, the likelihood to achieve successful financing for entrepreneurs who deliver more updates increases by 40% or more for both radical and non-radical products. But the same thing cannot be said for human capital factors. It can be seen, for instance, that education enhances the probability of successful financing about 7% for non-radical product, but the change for radical product becomes 23%. Second, crowd funders judge entrepreneurial mind from different angles. While specific human capital, such as industry experience, may hurt entrepreneurial financing strategies, general human capital like education may have an opposite effect. Indeed, it has been found that industry experience and education can exert different effect on entrepreneurs (Marvel and Lumpkin, 2007). We argue education is different from industry experience in that education may carry social characteristics with it and it is especially important to disadvantaged groups. Lofstrom and Bates (2009) found that Latina entrepreneurs with higher education command higher income than Caucasian entrepreneurs and Latina salary workers. Education for disadvantaged founders may signal not only opportunity quality but also their motivation and ability to achieve what they want, the combination of which enhances the potential success for them.

8 Limitations

While our research makes a few contributions, it is not without limitations. First, we studied only one industry. While different types of projects may vary in their probability of getting financing (Lambert and Schwienbacher, 2010), a comparison of two industries or more may give us more insights about the crowdfunding dynamics. However, examining one industry, in our research, high technology projects, can help screen out confounding effects (Wu et al., 2005). Second, we did not control some important variables, for example, demographics. Because crowdfunding may be favourable to disadvantaged groups (Greenberg and Mollick, 2014), gender may be an important factor to consider. Future research should control more such variables, such as minority or not, female or male and young vs. old. Third, we failed to find the interactive effect of product radicalness and the signals of heart and mind. That may be attributed to how we measured those variables. For example, we dichotomised industry experience and education. More fine-grained measures may be employed in future research to include the level of education and educational background such as engineering degree or business field. Fourth, we assumed sending updates and previous funding experience as caring characteristics. To comprehend the motivations behind those activities, future research should conduct surveys to project founders. Fifth, the causal effect of the variables are not investigated. Therefore, future research could examine more detailed about the causality relationship among the important variables. By the way, the margin of error and confidence interval should be considered when reporting the analysis results.

9 Conclusion

Generally, entrepreneurial financing can be viewed as an economic decision (Denis, 2004). However, this method of funding a project through the collective effort of friends, family, customers, and individual investors may be socially driven. This method of financing a project allows for the collective efforts of a large number of individuals. Crowdfunding utilises social media and the internet as well as some traditional methods of funding. These 21st century crowdfunding platforms leverage their networks for greater exposure.

Through our research we have found that Crowdfunding can be described as the opposite of most traditional approaches used to finance projects and first-time entrepreneurs. Business Finance teaches in order to raise capital to start a business or launch a new project, you would need a business plan, conduct a market feasibility study, take part in market research, and then take your idea to a limited group of wealthy individuals or institutions. This included banks, investors, and venture capital firms. This limits options to a few key players. If one fail to attract the right investor or firm at the right time your project will be lost.

Crowdfunding however, gives the entrepreneur an opportunity to showcase and gain resources needed to complete the project. This approach streamlines the traditional model. With crowdfunding, it's much easier for you to get an opportunity to display the business to more interested parties and give them more ways to help grow the business. We took a small step to theorise and empirically test if crowdfunding indeed is

a process where social participation of funders can be more crucial than economical motives. We call for more research regarding the benefits of crowdfunding to study this growing and interesting phenomenon. Our research indicates that more areas about crowdfunding could be explored in future. For instance, future research could examine what other social influence of CF may have, besides caring. Our research also shows that human capital of founders are also critically important in CF success. Therefore, future research could investigate if social capital that founders are involved with could influence CF success. We hope our research could offer a broader scope for understanding CF phenomena.

References

- Agrawal, A.K., Catalini, C. and Goldfarb, A. (2011) *The Geography of Crowdfunding* (No. w16820), National Bureau of Economic Research.
- Allison, T.H., Davis, B.C., Short, J.C. and Webb, J.W. (2015) 'Crowdfunding in a prosocial microlending environment: examining the role of intrinsic versus extrinsic cues', *Entrepreneurship Theory and Practice*, Vol. 39, No. 1, pp.53–73.
- Balboa, M. and Martí, J. (2007) 'Factors that determine the reputation of private equity managers in developing markets', *Journal of Business Venturing*, Vol. 22, No. 4, pp.453–480.
- Baron, R.A. and Markman, G.D. (2003) 'Beyond social capital: the role of entrepreneurs' social competence in their financial success', *Journal of Business Venturing*, Vol. 18, No. 1, pp.41–60.
- Becker, G.S. (1975) *Human Capital*, Columbia University Press, New York.
- Belleflamme, P., Lambert, T. and Schwienbacher, A. (2011) 'Crowdfunding: tapping the right crowd', *International Conference of the French Finance Association (AFFI)*, June, Paris, pp.11–13.
- Bruton, G.D., Chahine, S. and Filatotchev, I. (2009) 'Founders, private equity investors and underpricing in entrepreneurial IPOs', *Entrepreneurship Theory and Practice*, Vol. 33, No. 4, pp.909–928.
- Burtch, G., Ghose, A. and Wattal, S. (2013) 'An empirical examination of the antecedents and consequences of contribution patterns in crowd-funded markets', *Information Systems Research*, Vol. 24, No. 3, pp.499–519.
- Busenitz, L.W., Fiet, J.O. and Moesel, D.D. (2005) 'Signaling in venture capitalist–New venture team funding decisions: does it indicate long-Term venture outcomes?', *Entrepreneurship Theory and Practice*, Vol. 29, No. 1, pp.1–12.
- Certo, S.T. (2003) 'Influencing initial public offering investors with prestige: signaling with board structures', *Academy of Management Review*, Vol. 28, No. 3, pp.432–446.
- Chen, X.P., Yao, X. and Kotha, S. (2009) 'Entrepreneur passion and preparedness in business plan presentations: a persuasion analysis of venture capitalists' funding decisions', *Academy of Management Journal*, Vol. 52, No. 1, pp.199–214.
- Cholakova, M. and Clarysse, B. (2015) 'Does the possibility to make equity investments in crowdfunding projects crowd out reward-based investments?', *Entrepreneurship Theory and Practice*, Vol. 39, No. 1, pp.145–172.
- Cohen, B.D. and Dean, T.J. (2005) 'Information asymmetry and investor valuation of IPOs: top management team legitimacy as a capital market signal', *Strategic Management Journal*, Vol. 26, No. 7, pp.683–690.
- Connelly, B.L., Certo, S.T., Ireland R.D. and Reutzel, C.R. (2011) 'Signaling theory: a review and assessment', *Journal of Management*, Vol. 37, No. 1, pp.39–67.

- Cosh, A., Cumming, D. and Hughes, A. (2009) 'Outside entrepreneurial capital', *The Economic Journal*, Vol. 119, No. 540, pp.1494–1533.
- Crowdsourcing.org (2012) *Crowdfunding Industry Report: Market Trends, Composition and Crowdfunding Platforms*, Retrieved from <http://www.crowdfunding.nl/wp-content/uploads/2012/05/92834651-Massolution-abridged-Crowd-Funding-Industry-Report1.pdf>
- Denis, D.J. (2004) 'Entrepreneurial finance: an overview of the issues and evidence', *Journal of Corporate Finance*, Vol. 10, No. 2, pp.301–326.
- Eisenhardt, K.M. (1989) 'Agency theory: an assessment and review', *Academy of Management Review*, Vol. 14, No. 1, pp.57–74.
- Fama, E. (1980) 'Agency problems and the theory of the firm', *Journal of Political Economy*, Vol. 88, pp.288–307.
- Fama, E. and Jensen, M. (1983) 'Separation of ownership and control', *Journal of Law and Economics*, Vol. 26, pp.301–325.
- Forbes.com (2013) *Top.10 Crowdfunding Sites For Fundraising*, Retrieved from <http://www.forbes.com/sites/chancebarnett/2013/05/08/top-10-crowdfunding-sites-for-fundraising/>, 8 May.
- Gerber, E.M., Hui, J.S. and Kuo, P.Y. (2012) 'Crowdfunding: why people are motivated to post and fund projects on crowdfunding platforms', *Proc. of the International Workshop on Design, Influence and Social Technologies: Techniques, Impacts and Ethics*, Vol. 2, p.11.
- Giudici, G., Nava, R., Rossi Lamastra, C. and Verecondo, C. (2012) *Crowdfunding: The New Frontier for Financing Entrepreneurship?*. Available at SSRN 2157429.
- Goktan, A.B. and Miles, G. (2011) 'Innovation speed and radicalness: are they inversely related?', *Management Decision*, Vol. 49, No. 4, pp.533–547.
- Goldsmith, R.E. and Flynn, L. (1993) 'Identifying innovators in consumer service markets', *Service Industries Journal*, Vol. 13, No. 3, pp.97–109.
- Greenberg, J. and Mollick, E.R. (2014) *Leaning in or Leaning on? Gender, Homophily and Activism in Crowdfunding*, Gender, Homophily and Activism in Crowdfunding, 3 July.
- Gulati, R. and Higgins, M.C. (2003) 'Which ties matter when? the contingent effects of interorganizational partnerships on IPO success', *Strategic Management Journal*, Vol. 24, No. 2, pp.127–144.
- Henderson, R.M. and Clark, K.B. (1990) 'Architectural innovation: the reconfiguration of existing product technologies and the failure of established firms', *Administrative Science Quarterly*, pp.9–30.
- Herrmann, A., Gassmann, O. and Eisert, U. (2007) 'An empirical study of the antecedents for radical product innovations and capabilities for transformation', *Journal of Engineering and Technology Management*, Vol. 24, No. 1, pp.92–120.
- Higgins, M.C. and Gulati, R. (2006) 'Stacking the deck: the effects of top management backgrounds on investor decisions', *Strategic Management Journal*, Vol. 27, No. 1, pp.1–25.
- Jain, B.A., Jayaraman, N. and Kini, O. (2008) 'The path-to-profitability of internet IPO firms', *Journal of Business Venturing*, Vol. 23, No. 2, pp.165–194.
- Janney, J.J. and Folta, T.B. (2003) 'Signaling through private equity placements and its impact on the valuation of biotechnology firms', *Journal of Business Venturing*, Vol. 18, pp.361–380.
- Jensen, M.C. and Meckling, W.H. (1976) 'Theory of the firm: managerial behavior, agency costs and ownership structure', *Journal of Financial Economics*, Vol. 3, No. 4, pp.305–360.
- Kickstarter.com (2013, December 13) 'Kickstarter School. Retrieved from http://www.kickstarter.com/help/school?ref=footer#making_your_video
- Kickstarter.com (2013) *Kickstarter Stats*, Retrieved from <http://www.kickstarter.com/help/stats?ref=footer>, 27 November.
- King, J.E. (2008) 'Binary logistic regression', *Best Practices in Quantitative Methods*, pp.358–384.

- Koberg, C.S., Detienne, D.R. and Heppard, K.A. (2003) 'An empirical test of environmental, organizational and process factors affecting incremental and radical innovation', *The Journal of High Technology Management Research*, Vol. 14, No. 1, pp.21–45.
- Kuppuswamy, V. and Bayus, B.L. (2013) *Crowdfunding Creative Ideas: the Dynamics of Projects Backers in Kickstarter*, SSRN Working Paper, <http://papers.ssrn.com/sol3/papers.cfm>
- Lambert, T. and Schwienbacher, A. (2010) 'An empirical analysis of crowdfunding', *Social Science Research Network*, Vol. 1578175, pp.1–23.
- Lehner, O. (2012) 'A literature review and research agenda for crowdfunding of social ventures', *Research Colloquium on Social Entrepreneurship*, 16th–19 July, University of Oxford, Skoll Center of SAID Business School UK.
- Ley, A. and Weaven, S. (2011) 'Exploring agency dynamics of crowdfunding in start-up capital financing', *Academy of Entrepreneurship Journal*, Vol. 17, No. 1, pp.85–110.
- Lofstrom, M. and Bates, T. (2009) 'Latina entrepreneurship', *Small Business Economics*, Vol. 33, No. 4, pp.427–439.
- Mahajan, V. and Muller, E. (1998) 'When is it worthwhile targeting the majority instead of the innovators in a new product launch?', *Journal of Marketing Research*, Vol. 35, No. 4, pp.488–495.
- Marvel, M.R. and Lumpkin, G.T. (2007) 'Technology entrepreneurs' human capital and its effects on innovation radicalness', *Entrepreneurship Theory and Practice*, Vol. 31, pp.807–828.
- Massolution (2013) '2013CF The Crowdfunding Industry Report', Retrieved from <http://www.crowdsourcing.org/editorial/2013cf-the-crowdfunding-industry-report/25107>
- Midgley, D.F. (1977) *Innovation and New Product Marketing*, John Wiley & Sons, New York.
- Mollick, E. (2014) 'The dynamics of crowdfunding: an exploratory study', *Journal of Business Venturing*, Vol. 29, No. 1, pp.1–16.
- Moss, T.W., Neubaum, D.O. and Meyskens, M. (2015) 'The effect of virtuous and entrepreneurial orientations on microfinance lending and repayment: a signaling theory perspective', *Entrepreneurship Theory and Practice*, Vol. 39, No. 1, pp.27–52.
- Ordanini, A., Miceli, L., Pizzetti, M. and Parasuraman, A. (2011) 'Crowd-funding: transforming customers into investors through innovative service platforms', *Journal of Service Management*, Vol. 22, No. 4, pp.443–470.
- Rogers, E.M. (1995) *Diffusion of Innovations*, New York.
- Ross, S. (1973) 'The economic theory of agency: the principal's problem', *American Economic Review*, Vol. 63, pp.134–139.
- Sanders, W.M. and Boivie, S. (2004) 'Sorting things out: valuation of new firms in uncertain markets', *Strategic Management Journal*, Vol. 25, No. 2, pp.167–186.
- Schwienbacher, A. and Larralde, B. (2010) 'Crowdfunding of small entrepreneurial ventures', *Handbook of Entrepreneurial Finance*, Oxford University Press, Oxford, UK.
- Shane, S. and Cable, D. (2002) 'Network ties, reputation and the financing of new ventures', *Management Science*, Vol. 48, No. 3, pp.364–381.
- Shane, S. and Venkataraman, S. (2000) 'The promise of entrepreneurship as a field of research', *Academy of Management Review*, Vol. 25, No. 1, pp.217–226.
- Spence, M. (2002) 'Signaling in retrospect and the informational structure of markets', *American Economic Review*, Vol. 92, pp.434–459.
- Spence, M. (1973) 'Job market signaling', *Quarterly Journal of Economics*, Vol. 87, pp.355–374.
- Un, C.A. (2010) 'An empirical multi-level analysis for achieving balance between incremental and radical innovations', *Journal of Engineering and Technology Management*, Vol. 27, No. 1, pp.1–19.
- Unger, J.M., Rauch, A., Frese, M. and Rosenbusch, N. (2011) 'Human capital and entrepreneurial success: A meta-analytical review', *Journal of Business Venturing*, Vol. 26, No. 3, pp.341–358.

- Valanciene, L. and Jegeleviciute, S. (2013) 'Valuation of crowdfunding: benefits and drawbacks', *Economics and Management*, Vol. 18, No. 1, pp.39–48.
- Walther, J.B. (2011) 'Theories of computer-mediated communication and interpersonal relations', *The Handbook of Interpersonal Communication*, Vol. 4, pp.443–479.
- Wu, S., Levitas, E. and Priem, R.L. (2005) 'CEO tenure and company invention under differing levels of technological dynamism', *Academy of Management Journal*, Vol. 48, No. 5, pp.859–873.
- Zimmerman, M.A. (2008) 'The influence of top management team heterogeneity on the capital raised through an initial public offering', *Entrepreneurship Theory and Practice*, Vol. 32, No. 3, pp.391–414.

Bibliography

- Aguinis, H., Suárez-González, I., Lannelongue, G. and Joo, H. (2012) 'Scholarly impact revisited', *The Academy of Management Perspectives*, Vol. 26, No. 2, pp.105–132.
- Ariely, D. (2009) 'The end of rational economics', *Harvard Business Review*, Vol. 87, Nos. 7–8, pp.78–84.
- Burgoon, J.K. (1985) 'The relationship of verbal and nonverbal codes', *Progress in Communication Sciences*, Vol. 6, pp.263–298.
- Chang, Y.C., Chang, H.T., Chi, H.R., Chen, M.H. and Deng, L.L. (2012) 'How do established firms improve radical innovation performance? the organizational capabilities view', *Technovation*, Vol. 32, No. 7, pp.441–451.
- Chung, W. and Kalnins, A. (2001) 'Agglomeration effects and performance: a test of the Texas lodging industry', *Strategic Management Journal*, Vol. 22, pp.969–988.
- CNN (2013) *The CNN 10: Inventions*, Retrieved from http://www.cnn.com/interactive/2013/11/tech/cnn10-inventions/?hpt=hp_bn5, November.
- Colombo, M.G. Franzoni, C. and Rossi-Lamastra, C. (2013) *What Determines the Success of Crowdfunding Projects? The Crucial Role of Early Backers*, Working Paper.
- Elitzur, R. and Gavius, A. (2003) 'Contracting, signaling and moral hazard: a model of entrepreneurs', angels' and venture capitalists', *Journal of Business Venturing*, Vol. 18, No. 6, pp.709–725.
- Giudici, G., Guerini, M. and Rossi Lamastra, C. (2013) *Why Crowdfunding Projects Can Succeed: the Role of Proponents' Individual and Territorial Social Capital*, Available at SSRN 2255944.
- Janney, J.J. and Folta, T.B. (2006) 'Moderating effects of investor experience on the signaling value of private equity placements', *Journal of Business Venturing*, Vol. 21, pp.27–44.
- Scarborough, N.M. (2011) *Essentials of Entrepreneurship and Small Business Management*. Prentice Hall, Upper Saddle River, NJ.
- SEC (2013) *SEC Issues Proposal on Crowdfunding*, Retrieved from <http://www.sec.gov/News/PressRelease/Detail/PressRelease/1370540017677>
- Stiglitz, J.E. (2000) 'The contributions of the economics of information to twentieth century economics', *Quarterly Journal of Economics*, Vol. 115, No. 4, pp.1441–1478.