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This is a pre-print of the following article

Original Citation:

From the crowd to the market: The role of reward-based crowdfunding performance in attracting professional investors / Roma, P., Messeni Petruzzelli, A., Perrone, G.. - In: RESEARCH POLICY. - ISSN 0048-7333. - 46:9(2017), pp. 1606-1628. [10.1016/j.respol.2017.07.012]

Availability:

This version is available at <http://hdl.handle.net/11589/114535> since: 2021-03-15

Published version

DOI:10.1016/j.respol.2017.07.012

Publisher:

Terms of use:

(Article begins on next page)

**PRODUCT-BASED CROWDFUNDING AND TRADITIONAL CAPITAL FUNDING.
THE COMPLEMENTARY EFFECTS OF PATENTING AND SOCIAL CAPITAL**

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**PRODUCT-BASED CROWDFUNDING AND TRADITIONAL CAPITAL FUNDING:
THE MODERATING EFFECT OF PATENTING AND SOCIAL CAPITAL**

ABSTRACT

Keywords: crowdfunding, venture capital, patents, social capital

INTRODUCTION

THEORY AND HYPOTHESES

Product-Based Crowdfunding and Traditional Capital Funding

Crowdfunding has gained extreme attention in the academia in the years. Nevertheless, as a matter of fact, the body of existing contributions on crowdfunding consists of few studies, as three articles published in entrepreneurship journals and a plethora of working papers. In particular, with regard to the published articles, Mollick (2014) relies on a large dataset to provide a first description of the underlying dynamics of success and failure among crowdfunded ventures. Belleflamme et al. (2014) investigate the profitability of product-based vs. equity crowdfunding from a game theoretical perspective. Finally, Colombo et al. (2014) analyze the role of early funders and internal social capital in the success of crowdfunding projects.

However, despite the increasing relevance of this phenomenon, to the best of our knowledge, there are no studies trying to shed light on the signaling role of a crowdfunding campaign and the linkage with the traditional startup funding, as the case of business angels and VC investments. A product-based crowdfunding platform can in fact provide with entrepreneurs also the opportunity to gather information about how valuable their product is to the consumers (TO CITE), in addition to financial support. Indeed, they place an open call for funding their projects, set a money target to reach and design a relative system of rewards (referred to as pledges) ranging from a simple ‘thank you’ to the pre-order of an (even customized) version of the product. For example, let us consider the number of projects in games and technology categories included in the Kickstarter platform, where most of the amount pledged as well as the highest number of funders usually correspond to pledges that give people the right to receive the product for free if the

entrepreneurial project turns out to be successful. Therefore, crowdfunders often represent consumers extremely interested in purchasing the product and commit themselves to invest their financial resources despite incurring the risk of losing their money (because of a failure or even a fraud). Furthermore, even crowdfunders providing little support are still indication of the potential Market of the start-up and its entrepreneurial initiative, as they have also committed to put some money on the project, thus showing interest and appreciation.

All together, the amount invested by consumers in crowdfunding campaigns can be arguably viewed as a signal of the new product's potential market value. Indeed, a high amount pledged in crowdfunding suggests that there are people willing to buy the given product and, most importantly, that they are willing to spend money for it. From this perspective, crowdfunding and test markets share some similarities. In fact, they may both give indications about consumers' response to an innovation in numbers and, most importantly, in value (TO CITE). Thereby, a successful crowdfunding campaign may allow start-ups to signal outside the existence of a valuable market for their products, reducing information asymmetries with professionalized investors, who are thus more likely to provide subsequent larger funding to support the development of the entrepreneurial initiatives. The relevance of the signaling function of crowdfunding campaign is also reflected by the same behavior of the crowdfunders, who have been revealed to be largely wise in their funding decisions (Mollik and Nanda, 2014), hence increasing the investors' confidence in the reliability of this signaling effect.

In developing our first hypothesis, given the all-or-nothing model of Kickstarter, we argue that the amount pledged, irrespective of whether the start-up has been funded (i.e., whether the goal has been at least equalized), fully captures the market value and accepted signaled by crowdfundin. This is because in Kickstarter failure in campaigns may be just attributed to wrong or oversized goal setting, rather than to bad signals, especially when a large amount has been raised. In fact, in this case, traditional investors may still see high value in a project not funded, but able to attract a huge interest from the crowd. After all, venture capitalists look for business opportunities rather than

being concerned about adding one or two hundred thousand dollars to cover the portion missing from the crowd. Therefore, our measure of crowdfunding outcome is the amount pledged (and not necessarily received) in such campaign irrespective of the success and we accordingly formulate the first hypothesis:

H1: The amount of money pledged through a crowdfunding campaign increases the likelihood of receiving funding from traditional investors.

The Complementary Effect of Patenting

As previously discussed, we expect the existence of a positive relationship between the amount of money pledged by start-ups through a crowdfunding campaign and the likelihood of receiving funding from traditional investors, as business angels and VCs. In addition, we believe that this positive signaling effect exerted by market acceptance may be amplified by the technological capital of the start-up, as indicated by its patent applications. Indeed, patents have been widely recognized as crucial assets, being able to reveal that the start-up has developed a given technology, which is in turn “defined and carved out a market niche” (Lemley, 2001: 1505). Previous research has largely emphasized this issue, underscoring the technological signaling effect of patents in reducing information asymmetries and uncertainties (e.g., Baum and Silverman, 2004; Heeley et al., 2007; Graham and Sichelman, 2008; Hsu and Ziedonis, 2013). By filing a patent application, in fact, the start-up informs the market about its capability to develop a technological solution that is novel, inventive, and capable of industrial application (Messeni Petruzzelli et al., 2014), as well as that may benefit from an exclusive protection over certain markets (Haeussler et al., 2014). In fact, patents may provide the start-up with the benefits of profiting from distinctive products, services, or products, relying upon proprietary technologies. Moreover, as suggested by Conti et al. (2013b), a patent application demonstrates that the start-up has invested a significant effort, in terms of both time and resources, to satisfy the patenting criteria, thus showing that the underlying technology is at an advanced development stage (Long, 2002). Finally, patents may

provide useful information on the expected quality of the star-up's technological activity. Accordingly, Lemley (2001: XX), reveals that "venture capitalists use client patents (or more likely, patent applications) as evidence that the company is well managed, is at a certain stage in development, and has defined and carved out a market niche." Similarly, Long (2002: 646) states that "patent portfolios can convey information about the lines of research a firm is conducting and how quickly the research is proceeding". Thereby, on the basis of the above reasoning we believe that the access to a traditional investment is likely to be much more facilitated when both market and technological uncertainties are resolved or at least diminished. Thus, we hypothesize that:

H2: The amount of money pledged through a crowdfunding campaign and the start-up's patent applications are complement, such that their joint effect increases the likelihood of receiving funding from traditional investors.

The Complementary Effect of Social Capital

Beside patent applications, the entrepreneurs' social capital is also expected to magnify the benefits start-ups may gain from a successful crowdfunding campaign. Organizational theorists have in fact suggested that the establishment of social ties stimulates trust (Uzzi and Gillespie, 1999) and allows to overcome problems of information asymmetries and moral hazards in financing decision (Venkataraman, 1997), due to "social obligations between connected parties and information transfer through social relationships" (Shane and Cable, 2002: 366). Thereby, this may favor start-ups in reducing the difficulties of having short performance track records and thus scarce observable histories, since social ties make available information about the quality and talent of the founders, as well as their tendency to behave opportunistically (e.g., Uzzi 1996; Gulati and Gargiulo 2000; Shane and Stuart, 2002), which in turn influence further investment decisions (Shane, 2009; Oradinini et al., 2011). Indeed, a wide network of social relationships may offer endorsement opportunities (Mollick, 2014), and serve as a social risk reducing device (Batjarga and Liu, 2004) and as a signal for the investors' community about the actual reliability of the entrepreneurs, as

these ties may play the role of "intermediary in trust" (Coleman, 1990), being thus a basis for making quality and experience evaluation (Hsu, 2007). Furthermore, a social ties may also reflect the capability of entrepreneurs to access to a larger pool of strategic resources (e.g., Tsai, 2001; Koka and Prescott, 2002; Stuart and Sorenson, 2005; Stam and Elfrig, 2008), which may positively influence their capability to successfully proceed with the business initiatives. Social capital may be in fact defined as the "the sum of the actual and potential resources embedded within, available through, and derived from the social contacts of an individual or an organization" (Nahapiet and Ghoshal, 1998: 243). Thereby, a large set of relationships may expose the entrepreneurs to more opportunities for the new business creation process compared with more isolated individuals, as those having a lower level of social capital (Inkpen and Tsang, 2005; McEvily and Marcus, 2005; McFadyen and Cannella, 2004; Rotolo and Messeni Petruzzelli, 2013), which may in turn lower investors' risk and enhance their guarantees. Finally, social relationships may sustain the entrepreneurs in diffusing entrepreneurial ideas by representing channels through which increasing their market impact (Reagans and McEvily, 2003). Thus, social capital may increase the probability of crowdfunded entrepreneurs to receive a traditional investment by further reducing information asymmetries and providing additional resources fundamental for the start-up development stage. Accordingly, we pose that:

H3: The amount of money pledged through a crowdfunding campaign and the social capital of start-up's entrepreneurs are complement, such that their joint effect increases the likelihood of receiving funding from traditional investors.

METHODS

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