Entrepreneurial Financing: Crowdfunding, Venture Capital, and Banks

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Crowdfunding is a form of financing where investors directly invest in projects, usually with the help of a technology platform, and bypassing traditional financing channels (e.g., financial markets and Venture Capital pools). In recent years, crowdfunding has emerged as a viable platform for raising funds for new products and ideas. In 2012 crowdfunding generated 1 million successful campaigns worldwide and raised $2.1 Billion (Grant, 2013). In the US, Kickstarter raised more than $500 million for over 22,000 projects in 2014 (www.kickstarter.com) and Indiegogo has more than 7,000 campaigns happening at any given moment of time (www.indiegogo.com). The popular press is abuzz with reports of hyper-successful crowdfunded projects. Pebble (personal fitness tracking device) raised $10.26 Million over the five week campaign on Kickstarter. Oculus Rift (virtual reality device) raised $2.4 million, also on Kickstarter. Crowdfunding sites outside of the US are proliferating even faster than those in the US and offer a variety of options for both the entrepreneurs and potential funders. According to "The Rise of Future Finance" report, total financing raised in the UK through alternative financial market went up from £309 Million in 2011 to £939 Million in 2013.

In this paper we study how this new form of entrepreneurial financing interacts with the more traditional financing sources, such as venture capital and bank financing and investigate whether entrepreneurs, venture capital investors, society benefit or lose from crowdfunding.

There is evidence that some projects that might not have been otherwise funded, attract backing from crowd-funders. Therefore, in as much as this overcomes informational costs of traditional financing, the existence of the new financing source could benefit both the entrepreneurs and the society. Moreover, crowdfunding does not usually directly compete with VC financing, but could complement it. Many successful crowdfunding campaigns have subsequently attracted VC financing. In Q4 of 2014, 10 startups including Scanadu, Formlabs and Misfit Wearables raised over $150M in aggregate VC funding (CB Insights, August 11 2014). Oculus Rift raised $75M in

VC financing, and was subsequently acquired by Facebook for $2 Billion, providing the largest windfall to venture capitalists who invested in a crowdfunded project to date. Thus, venture capital investors could use crowdfunding step as a way of market testing the project. By providing a signal about the project's future potential to the VC and entrepreneurs, crowdfunding allows them to separate the good projects from the bad ones. This benefits all parties: VCs, entrepreneurs, and the society, allowing to avoid investments in bad projects. According to CB Insights crowdfunding platforms are an important source of dealflow for VCs.

However, crowdfunding is not all good news for all parties all the time. While the money raised through these platforms might not be enough to finance the entire project, and therefore, the direct competition with traditional financing sources is not significant, the additional funds does increase the bargaining power of the entrepreneur. More importantly a good signal from a successful crowdfunding campaign could attract other investors. These could compete with the original venture capital investors. Therefore, the benefits to these original investors from the existence of crowdfunding is ambiguous. Even more surprising, as we show in this paper, and elaborate next here, the entrepreneurs and the society could be made worse off too.

We construct a multi-stage game model between the entrepreneur, venture capital investors, and banks. In stage 1, the entrepreneur negotiates a deal with either VC or bank investors. Bank investors are perfectly competitive, but are concerned about the moral hazard problem with respect to the entrepreneur's effort (this is one of the classical approaches to introducing frictions in financial markets, see Jensen and Meckling 1976, Myers 1977, and Tirole 2010). In contrast, VC investors conduct exclusive negotiations with the entrepreneur and the outcome of the negotiations is computed as a solution to a bargaining game (similar to Nash 1953, Binmore et al 1986). Another difference between bank and VC investors is that VC investors provide more than just money to the project. It has been documented (e.g., Casamatta 2003, Ueda 2004) that VC bring their networks, expertise in selecting management, experience of running startups, etc. to the new startup. This VC expertise is beneficial, but comes at a private cost to VC. Therefore, there is a moral hazard problem with respect to VC effort as well. Our model of interactions between the entrepreneur, the banks, and VCs at a single stage is similar to Renucci (2014). If negotiations with either banks or VCs break down, the entrepreneur has an option of sending the project through a crowdfunding platform in stage 2 of the game. Projects have different intrinsic quality, which is not known to any of the parties. The success or failure of crowdfunding campaign, however, sends a (noisy) signal about the project's quality. Therefore, following the campaign, the beliefs about the project's quality are updated, using Bayesian rule. Following a crowdfunding campaign, in stage 3, the entrepreneur again negotiates a financing deal with either VC or bank investors. To connect the stages, we look for a perfect Bayesian equilibrium, where the bargaining disagreement points for early stages reflect anticipated bargaining outcomes in later stages.

Using this model we find the following. Indeed, there are cases when the good projects that would not have received either bank or VC financing are financed following a successful crowdfunding campaign and this is beneficial for the entrepreneur, the VC investors, and the society. At the same time, crowdfunding serves to differential between good and bad projects, and avoid wasteful investments in bad projects. Again, this is beneficial for all parties. As we indicated above, following a successful crowdfunding campaign, the VCs could face competition from other investors and this could hurt the original VC investors. If the share of the profit that VC captures is reduced or VC is replaced by bank investments, the VC may fail to exert necessary effort (or the VC contribution is removed entirely). This can reduce the value to the entrepreneur and the society. Furthermore, this form of "damage" to the entrepreneur, the VC, and the society is not limited to successful outcomes of a crowdfunding campaign. The existence of crowdfunding as an option can increase entrepreneurs bargaining power during initial negotiations with VCs and this could reduce the incentives for the VC to exert effort even if the negotiations are successful. In summary, we show when and why crowdfunding could benefit or hurt the entrepreneur VC investors, and the society and provide conditions when either the benefits or losses are incurred.