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HOW WISE ARE CROWDS ON CROWDFUNDING PLATFORMS?

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How wise are crowds on crowdfunding platforms?

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Abstract

While firms have obtained outside financing from large numbers of investors on financial markets for centuries, online crowdfunding platforms have only emerged as a major source of funding for start-ups and new projects for a decade. The information available to backers on crowdfunding platforms is generally coarse. This paper surveys the existing literature on the extent to which crowdfunding harnesses the wisdom of crowds. We discuss two broad categories of crowdfunding. Reward-based crowdfunding platforms such as Kickstarter, where backers typically have private and independent valuations, appear to offer environments that may harness the wisdom of crowds. In contrast, initial coin offerings (ICOs) offering services with network externalities and security-based platforms with common values appear to exhibit some results eliciting valuable information, but several results appear to point to informational cascades.

Keywords: crowdfunding, backers, reward-based, securities-based, ICOs, informational cascades, wisdom of crowds.

JEL codes: D82, G14, G23, G32, G5, L26, L86, M13, M21, M31, 03

1. Introduction

While firms have obtained outside financing from large numbers of investors on financial markets for centuries, online crowdfunding platforms where crowds of individual, e.g.retail, investors fund projects have only emerged as a major source of funding for start-ups and new projects for a decade. In perhaps the most comprehensive overview of existing platforms to date, Rau (2017) found that funding volumes through about 1300 online platforms rose from around $0.5 billion in 2011 to about $140 billion in 2015.

Some platforms such as Kickstarter enable both established firms and, more often, start-ups to pre-sell new products through so-called reward-based crowdfunding campaigns where the only information available to prospective buyers or backers is typically merely a verbal description of the future products and a video showing a prototype. Others give access to a future service whose value often depends on the number of backers using the service. One example is a subset of Ethereum-based contracts in so called Initial Coin Offerings. Security-based platforms, e.g., the Lending Club and AngelList, market more conventional debt-based or equity-based securities but again the information available to investors is typically limited.

This chapter examines the efficiency of investment decisions made by crowds of investors on these various platform types. Whether crowds make efficient decisions is by no means a new question in and outside finance. Outside finance, the argument that crowds can make better decisions than few selected experts dates back to at least Greek philosopher Aristotle's Politics in the 4th century BC and it has

been widely discussed across centuries and fields (see, e.g., Galton, 1907). More recently, the wisdom of crowds was popularized by Surowiecki (2004) through a variety of examples and settings. According to him, for crowds to be wise, they must be encompass a diversity of opinion and each person's opinion should be independent of those around them.

In finance, at least since the East India companies in the 17th century, financial markets have financed large, risky firms that could not be funded as effectively by a restricted number of investors. Financial markets play an essential role in facilitating coordination by pooling and allocating resources and by generating information about the value of private and public firms. While episodes of misvaluations, bubbles, and crises have attracted a lot of attention (Angeletos et al, 2010, Brunnermeier et al, 2013, Tinn, 2010), information generated on marketplaces has broadly proven helpful in valuing investments and guiding financial decision-making (Grossman, 1989, Chemla and Hennessy, 2014, Goldstein and Yang, 2015).

However, there are several reasons why one may expect informational issues on crowdfunding platforms to differ from those in traditional markets. The quality of information available on online platforms is generally much less detailed than that available to financial intermediaries and financial market participants. For example, banks typically have detailed information about the way their clients manage their accounts. Publicly listed firms are required to provide substantial amounts of financial information to investors and they are also scrutinized by different types of professional investors and analysts. While new projects and start-ups of various sizes and risk profiles can be financed on crowdfunding platforms, the limited financial information available to backers who simply need an internet connection, a few dollars and hardly any financial expertise to scroll user-friendly platforms and

back a project may raise doubts on their ability to make wise investment decisions. As individual backers do not have resources or incentives to acquire costly information, this raises the question of to which extent large numbers of backer decisions may provide information about investment quality.

Crowdfunding offers perhaps a unique opportunity to examine whether crowds of backers may make wise decisions and whether those can compare well with those of professional investors. This chapter examines whether crowdfunding harnesses the wisdom of crowds in light of the recent literature. Since whether or not a backer's valuation is independent of other backers' appears to play an important role, it will be useful to organise the discussion around two broad types of crowdfunding: the first one, covered in Section 2, where backers' valuation for the item that they buy is private to them and independent of others', as is typically the case when they pre-order a product on platforms such as Kickstarter, and the second one, discussed in Section 3, where investor valuations are common, as in the case of long-term investment in a share or a bond, or depend on other investor valuations as in the case when purchasing a service that embodies network effects.

2. Private Valuations in Reward-Based Crowdfunding

On reward-based crowdfunding platforms such as Kickstarter and Indiegogo, firms can raise funds by pre-selling directly future products to potential consumers. Backers then form crowds whenever demand for products offered on the platforms appeal to a large number of potential consumers, as is typically the case for consumer products. In fact, innovative consumer products represent the bulk of projects funded on platforms such as Kickstarter. Chemla and Tinn (2019) found that

on August 8, 2018, 65% of the $3.4 billion raised on that platform funded firms selling technology, design or gaming products; successful campaigns raised $93K, $63K and $55K in technology, design and games on average, respectively, but only $10K across all other categories; 284 out of the 310 projects that had raised over $1 million (4,147 out of the 5,265 projects that had raised over $100K) were in the three categories mentioned above.

One may wonder why backers will pre-order new products rather than invest directly in the project by buying securities. Earlier explanations have relied on backer preferences. One argument is that participating in the development of a new product confers backers an increase in their utility relative to their valuation for the product itself (Belleflamme, Lambert, and Schwienbacher, 2014, Varian, 2013). This argument is compelling and it is certainly valid for some types of projects, e.g. with innovative, fun, or social characteristics.

This argument is unlikely to apply for most projects, however. If backers obtain an additional utility from funding a project, they will be willing to pay more for the product during a crowdfunding campaign than the future consumers who will buy it after the product development phase has been completed. This will give firms an incentive price-discriminate and to choose a crowdfunding price that is higher than the future retail price. However, evidence from Kickstarter suggests that crowdfunding prices are often lower than retail prices later on. In addition, the argument developed in Belleflamme et al and Varian implies that backers may not be representative of the population of consumers and hence that corporate investment decisions based on backer strategies may be biased. Of course, price discrimination incentives may also emerge in other contexts, e.g., when firms do not know interested backers'

willingness to pay (see Ellmann and Hurkens, 2019), a consideration that may also affect the empirical assessment of crowdfunding outcomes.

Absent considerations of an additional backer utility derived from participating in crowdfunding, that each backer's valuation for the products pre-sold on reward-based crowdfunding platforms is private and independent of other backer valuations can be very valuable for firms. In such an environment, Chemla and Tinn (2019) point out that reward-based crowdfunding platforms enable firms to obtain a proof of concept at an early stage of product development. The argument goes as follows: Pre-selling a product on platforms acts as a credible consumer survey where firms learn about target consumer preferences and demand before making investment decisions. This creates a substantial real option value: observing the decisions of a representative sub-sample of consumers enables firms to obtain information about demand from all future consumers.

In fact, both success and failure provide helpful information to firms: Firms may benefit from learning that their product will enjoy high consumer demand, which will prompt them to invest, or that the product will not sell in large enough numbers, in which case information enables firms to save on investment costs. The real option value of learning is particularly high when firms are more uncertain about future demand and when their investment cost is close to the present value of cash flows based on prior beliefs, in which case information about demand is particularly valuable. Innovative consumer products with high demand uncertainty are likely to benefit most from reward-based crowdfunding. From that point of view, backer crowds will help firms to obtain information that will lead them to make wise decisions.

Empirical evidence is very much consistent with these findings. Viotto da Cruz (2018) and Xu (2018), among others, find that entrepreneurs are more likely to complete their projects after the level of pledging through crowdfunding increases and that the effects are stronger when projects are subject to high demand uncertainty and when the crowd is more experienced. Xu also finds that entrepreneurs tend to start riskier projects when the opportunity cost of crowdfunding increases, which is consistent with the real option value of crowdfunding.

However, crowdfunding may be subject to a well-known moral hazard problem endemic in corporate finance (Tirole, 2006) and previously discussed in Strausz (2017) in reward-based crowdfunding. Despite the real option value of learning, firms may be tempted to divert the funds raised during a campaign instead of completing a project. This problem may be all the more acute as reward-based crowdfunding platforms are generally not legally responsible for the delivery of products. Further, providing compelling evidence that a firm has committed a fraud is difficult and coordinating a legal action among backers may be costly and complicated. Hence, if the funds collected through crowdfunding and the number of backers are large, firms may be more tempted to divert funds.

Yet, Mollick (2014) finds that only 3.6% of Kickstarter projects have failed to deliver products following a successful campaign. Further, the projects that receive noticeably more funds than their targets do not appear to fail to deliver rewards more frequently than others. This may seem surprising at first. However, Chemla and Tinn (2019) show that the real option value of learning enables firms to overcome moral hazard and reduces the incentives for firms that raise more funds typically from a large number of backers to divert them. The reason is that after its crowdfunding campaign, a firm that expects there to be sufficiently high future consumer demand

will choose to not divert funds even if it is costless to do so. During a crowdfunding campaign, firms will often choose a target of funds to raise that is set so as to make sure that corporate investment is incentive compatible. Specifically, campaigns will be designed so that the platform will return the funds to backers if that target is not met so firms will have no funds to divert. This so called "All-or-Nothing" (AoN) crowdfunding scheme with a sufficiently high target makes sure that firms have incentives to invest after a successful campaign.

One may then wonder whether large enough crowds and, relatedly, long enough crowdfunding campaigns are desirable. It turns out that because of the threat of moral hazard, shorter campaigns are more likely to succeed and a limited backer sample maximises both expected fundraising and platform fees. The reason for this is simple. If the product was entirely pre-sold during the campaign, then firms would always be tempted to divert funds instead of delivering the products. In fact, what makes the completion of the project incentive compatible is the possibility for firms to sell to a large enough number of consumers after both the campaign and the investment decision. Overall, the crowdfunding sample or the crowd must be sufficiently small. However, since firms crowdfunding their own project on their own platform may be tempted to extend the campaign length, third-party platforms may be preferable to make sure that the crowdfunding sample is indeed credibly small enough.

One may then wonder how crowdfunding compares with an investment in an entrepreneurial project that enables a firm to experiment a new technology (Hellmann 2002, Bettignies and Chemla 2008, Kerr, Nanda, and Rhodes-Kropf 2014). It turns out that crowdfunding has the advantage of enabling firms to learn about demand without having to bear investment costs.

Crowdfunding comes with another important advantage: the information that it generates makes it complementary to other, more traditional forms of outside financing. In several cases, after successful reward-based crowdfunding campaigns, firms obtain further funding from angels, venture capitalists and investor-based crowdfunding which they had not obtained before the crowdfunding campaign. In such cases, the information generated by a crowd of backers may be helpful to a small group of professional investors.

3. Common Values and Securities-Based Crowdfunding

Although the pre-sale of products in private value settings is an important feature of the projects crowdfunded on prominent platforms such as Kickstarter and Indiegogo, crowdfunding platforms marketing securities and projects with imperfect information about product quality or network effects lead to backer valuations that involve common values. In such environments, each backer's valuation for a project being crowdfunded depends on their beliefs about other backer valuations. This may lead backers to pay excessive attention to other backers' strategies and generate coordination problems and informational cascades.

For example, Li and Mann 2018 explore network effects in the context of the subset of Initial Coin Offerings (ICOs) that resemble reward-based crowdfunding in that the investors offer funds in exchange for access to a future service that the firm is developing. If the private value of the service increases with the number of backers who will use that service, pre-selling can help coordination. Many other

forms of crowdfunding and ICOs involve investors obtaining financial rewards that are common across investors.

When considering securities, larger crowds can still sometimes make superior predictions. Iyer et al (2015) finds some evidence consistent with wisdom of crowds in online lending platforms: Peer lenders who cannot observe credit scores can still predict an individual borrower's likelihood of defaulting with 45% greater accuracy than the borrower's credit score. Even when they cannot beat experts, peer lenders can achieve astonishing results. For example, they achieve 87% of the predictive power of an econometrician who observes all standard financial information about borrowers. This suggests again some complementarity between platforms and traditional financiers as combining information from both sources can enhance efficiency on the lending market.

Yet, the evidence regarding lending platforms is mixed and does not appear to always harness the wisdom of crowds. Mohammadi (2019) compares the crowd's ability to screen the creditworthiness of small and medium sized enterprises (SMEs) who applied for loans on the FundingCircle peer-to-peer lending platform with that of institutions. He finds that crowd underperform institutions in screening SMEs and that they fail to lend at interest rates that adjust for the likelihood of defaulting. The interest rate set by crowd predicts default 39% less accurately than institutions. Further, there is also some evidence that lending platforms allow sophisticated investors to take advantage of unsophisticated investors, Hildebrand et al (2016) find that group leader bids in the presence of origination fees are wrongly perceived by other lenders as a signal of good loan quality.

The sensitivity of a backer's belief about a project to others' valuations plays an important role in the debate on the wisdom of crowds and informational cascades. Just like on financial markets, this sensitivity is arguably more pronounced for information-sensitive securities such as equity. Brown and Davis (2019) examine a securities-based crowdfunding environment where dispersed, privately-informed investors simultaneously decide whether or not to back a project. They find that an optimal offering cannot generate a wisdom of the crowd result. Indeed, the investment decision by the entrepreneur affects investors' incentives to invest truthfully based on their private information. Cong and Xiao (2018) examine the informational efficiency of securities-based crowdfunding when investors move sequentially and they show that all-or-nothing thresholds improve the informational efficiency of crowdfunding.

Astebro et al (2018) study micro-level data of herding on Seedrs, a major European equity crowdfunding platform. They find that when the size of a pledge made by a backer doubles, a subsequent pledge is between 5.8 percent and 20 percent larger. This is consistent with the idea that a large pledge signals that the backer making the pledge has received positive information about the project that others might not. This in turn may cause follow-on investors to alter their investment strategies, even though they don't actually observe the information available to the investor making the large pledge. They also find that the probability that a campaign is successful depends largely on the support it gets early in the campaign. This may be due to the effect that low pledges have on investor beliefs about the project. A lack of support for a campaign is indicative that only a few investors are arriving with positive signals. Hence, having little support early in the campaign makes potential backers more pessimistic that the project is of good quality. Investors then either

pledge lower amounts or decide to not invest. In this context an abstention information cascade is likely to occur, and failed campaigns end up missing the mark by a large margin. Conversely, broad support early in the campaign may lead to excessive campaign success.

4. Concluding Remarks

Private value environments such as those on reward-based crowdfunding platforms such as Kickstarter exhibit patterns that are consistent with the wisdom of crowds. Such platforms enable firms to experiment and learn valuable information about demand which creates a valuable real option. However, it may be beneficial to limit the size of crowds on such platforms so meeting future consumer demand be an important concern to firms and prompt them to complete their project and produce and deliver the products pre-ordered by backers.

In many other environments, backer valuations depend on other backer strategies. This is the case, for example, when ICOs monetize a provision of services with network effects and when backers buy securities. Some evidence suggests that lending platforms may predict default probabilities better than common credit scoring instruments. However, beliefs about other backer beliefs will often entail fragilities prone to generate informational cascades. Further, investor bias such as home bias (Lin and Viswanathan, 2019) and the performance of textual analysis and various types of algorithms (Dorfleitner et al, 2016, Jiang et al, 2018, Jain and Jamieson, 2018) that are arguably more easily accessible to professionals

than to individual investors may also limit the ability of crowdfunding platforms to harness the wisdom of crowds. This will certainly be the subject of much research.

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