

Crowdfunding platforms as an example of innovation start-up's financial support

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Abstract. Financial support is very important in the innovative sphere, because it creates the basis of the whole economic development. There are several ways how this support can be organized: from the family money to government subsidy. This paper focused on a relatively new way how a startup as a small innovative business can gain finance - crowdfunding platforms. As a preparation for the analysis theoretical concepts of innovative startup investment were considered and the unique characteristics of crowdfunding market were examined. The purpose of the study is to underline main characteristic of startups as a way of financial innovation performance, analyze the determinants of crowdfunding platform's effectiveness, define an optimal strategic behavior for a platform to accumulate greater amount of investment and increase the number of startups which achieve their financial goals. Analysis is based on the data from 105 crowdfunding platforms during last 3 year (from 2018 till 2020). As a result, based on the multiple linear regression an analysis was conducted which showed that age, platform type and scope are main characteristics of crowdfunding platform efficiency while commission type is not correlated with startup crowdfunding success rate.

1 Introduction

The development of innovations is a very important aspect of entrepreneurship as it is a determining factor in economic growth of the country. Innovation is a materialized result of scientific and technological activity, which is in demand from consumers through the introduction of new technologies or the improvement of existing products and services. The main characteristics of innovation are practical relevance, profitability, scientific novelty and compliance with market needs [1].

Innovative project is such a venture that aimed to solve the unique problem of creating, introducing, mastering innovations, displaying their results on consumers. Most common way to create an innovative project is by organizing an start-up, as it can be easily done by one person or a small group without significant control from others like government or mother company.

There are many different ways how innovative start-ups can be financed: starting from personal or family funds and ending with venture capital funding or crowdfunding platforms. Existence of multiple ways of innovative projects funding helps to overcome the initial stage of financing and increase the survival rate of the company. For example, according to Russian researches, small business does not fulfill the function of selecting the most promising innovations in mass production [2], as the procedure for gaining the state support can take more than a year, during which entrepreneurs will need to pass the control of a large number committees and departments and get their approval. Crowdfunding is one of the example how to solve this issue, being an

innovative way to request online funding from a large audience (individuals and groups) on various projects, such as creative projects, business startups, charity events, etc., carried out through online platforms

The phenomenon of online crowdfunding comes from the United States, and crowdfunding platforms began to appear as early as 2006, initially collecting resources to support music groups and artists for a symbolic award. Nowadays there are many projects on such platforms starting from creating simple product to huge innovative start-ups that accumulate sufficient amount of funds. But despite the fact that crowdfunding platform is helping in raising funds for startups and getting an excellent informational occasion for publications in media, the innovative start-up funding fails much often than success.

This paper tries to understand the motivates behind investments in crowdfunding platforms and the factors that affect it efficiency.

2 Theoretic concepts

Startup is a new business that appeared on the market less than three years ago (the initial stage of entrepreneurship) that is trying to bring out a product or service different from the ones offered on the market, often creating a corresponding new niche in an environment of high uncertainty, aimed solving specific problems [3]. Thus, organization of start-ups is a prime application of innovation.

Organization of a small business through the creation of a new startup seems to be a rather attractive way of

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doing business in view of the possibility of implementing new, bold and innovative ideas, creating a business from scratch. However, the founders of an innovative startup project almost always face two problems: time constraints and insufficient funding.

Development of innovative startups is a new paradigm that has emerged as a result of the evolution of business over the past decade. Despite the existence of an opinion that the evolution of business models is natural and logical, there is an assumption that the startup boom (that has been going on since the early 2000s) shows the result of complex innovation processes in the world economy, technological progress and globalization. The volatility and complexity of the modern financial market creates new barriers for entrepreneurs in various fields, encourages them to explore new ways to attract funding, find opportunities to implement business ideas and try new ways of doing business [4]. In turn, startups aim not only technological improvement and optimization of production and business processes, but also provide companies with an increase in competitiveness in the market, beneficially contribute to the development of an existing business, opening up new horizons for development, investment and additional profit for the owners.

Government support of innovations can be carried out in different ways, including directly by the constituent entities of the Russian Federation, executive authorities or directly by the Russian Federation. At the same time the subjects can be not only higher educational institutions, state academies of sciences and scientific organizations, but also subjects of innovation infrastructure, including technological parks, incubators, information centers, innovation and venture funds.

However, because innovative start-up projects are characterized by a high level of risk with an extreme level of necessary funding, the usual ways of raising finance, such as a bank loan, seem to be unavailable to them, and personal finance and investments of friends and family members are insufficient. As a result, along with the development of startups, new ways of financial support for start-up projects and new financial intermediaries appeared, such as venture capital funds, private equity funds, as well as business angels, strategic investors and crowdfunding platforms.

3 Crowdfunding platforms

Crowdfunding platforms are an interesting way of startup financial support. The concept "crowdfunding" appeared in 2006 and in fact is a kind of collective microfinancing investment (what is close to peer-to-peer lending), the essence of which is the accumulation of funds from small investors using Internet platforms to fund risky projects. Many researchers who are working on the evaluation on crowdfunding platform effectiveness as a method of financing projects associate the success of project financing with the possibility of network interaction of participants - interpersonal communication between project creators and their investor-consumers. J. Birch [5] considered exchange in

communities as reciprocal in cases where project creators also finance projects of other creators, accumulating mutual obligations and social capital within the community. He also noted that the projects of such creators are more successful.

The crowdfunding platforms showed the effectiveness of 68 percent [6] in predicting project success, and the European Commission says that crowdfunding can transform the financial system and become a key source of capital for SMEs in the long term [7]. The crowdfunding platforms can exit because they are charging a commission from funds attracted by the authors of projects to finance them, which varies from 2 to 10%.

The principle of crowdfunding is that a startup creates an Internet page (usually special sites are used, such as Kickstarter, Indiegogo, Planeta.ru, etc.), which tells about the idea and sets the amount of money needed to launch the product, and investors make a decision [8]: to invest or not, so it can be considered as an open appeal to the public. Having the ability to attract a large number of sponsors, developing a well-coordinated selection mechanism, optimizing commissions, advertising and penalties when using asymmetric pricing, allows crowdfunding platforms to apply different types of commissions for applicants and investors, thereby controlling the quality of both parties. The crowdfunding platform wants to gather as many successful entrepreneurs as possible and attract loyal sponsors who will invest on their platform constantly. To achieve this goal the crowdfunding platform must earn a reputation, i.e. become a reliable and convenient platform for both applicants and sponsors.

Today crowdfunding includes three areas: crowdlending, lending by individuals to other individuals or legal entities through special Internet sites; crowdfunding - fundraising for the implementation of projects without further participation in the share capital; crowdfunding - fundraising for the implementation of projects with subsequent participation in equity capital. A feature of this method of funding lays in the absence of intermediaries, whether banks or venture capital funds, in the process of raising funds to create own project, as well as the lack of a legislative framework supporting the rights participants and guaranteeing the safety of investment and placement of business ideas. In some countries, such as the USA, there are several stimulation procedures as a source of capital for innovative start-ups. However, researchers know still not much about the dynamics of successful crowdfunding projects, factors of their success, as well as the functioning of various crowdfunding.

As main motivates behind investment in crowdfunding the researchers conclude in receiving a reward (as a material object: the product itself or a gift), helping others (close ones charity behavior), helping others, hoping to make a meaningful contribution to support the project and community membership (belonging to a select group, creators of a new one, the ability to interact with like-minded people) [8].

The biggest problem with crowdfunding platforms is that asymmetry of information about projects, lack of

mediation and regulation of crowdfunding platform business and relationships between agents, ineffective selection of successful projects makes crowdfunding platform an extremely favorable environment for fraud and deceit.

At this moment there is only one law in Russia that regulates the activities of crowdfunding platforms, namely the federal law dated 02.08.2019 No. 259-FZ "On attracting investments using investment platforms and on amending certain legislative acts of the Russian Federation"[9]. This law introduced the concept of an "investment platform", explains the possibility of providing a loan for a share (in addition to the purchase of equity securities and the acquisition of utilitarian rights), limits the possibility of raising funds in the amount of up to 1 billion rubles, and the volume of investments of funds to 600 thousand rubles per year from an individual. The goals of the law are to increase the availability of the digital services market, protect investors, specify the legal status of crowdfunding platforms and create an effective tool for their legal regulation.

The main idea behind this work is to find the important factors that affect the performance of the platform, because there are few research papers that concentrate on this fact. Previous studies mostly cover that relationship between success of the innovative startup funding and certain features of the project founder as, for example [10], gender, ethnicity, entrepreneurial experience, positive psychological capital [11], founders education, investors motivation, media content about start-up or the project itself [12].

However, some researchers concentrate on the fact that innovative startup funding depend from country to country [13] and strictly based on cultural dimension [14], in this work I focused on 2 main types of crowdfunding platforms - AON and KIA, regardless of the location. The first group is characterized by a situation when the founder of a startup cannot save money in the event of a startup failure, that is, entrepreneurs bear more risk in this case, and entrepreneurs invest more capital helping in achieving significant and global goals. Thus, the choice of funding method is a signal theory, where a project that collects funding through the AON type is considered more reliable. Thus, the choice of the funding method refers to the signal theory, where a project that collects funding through the AON type is considered more reliable. However, this structure encourages the entrepreneur to provide the investor with more information, thereby increasing not only the cost of time and human resources, but also the cost of providing incorrect information if the startup is not implemented within the planning framework.

To other main characteristic that were considered during analysis I outline the type of commission based on the person who is paying it: investor or start-up founder. I found this determinant very important as I can affect the decision of investor or founder in fundraising launching as each rational individual should tends to decrease own expenses. Another determinant is the term of platform existence (in years) as the older platform is

the greater reputation it can have, so it creates certain amount of trust not only between platform and investors, but also between platform and founders. Here we face interesting situation. Bigger and older platform, for sure, can help in raising bigger amount of money as they attract attention from many investors, have stronger reputation and bigger advertising budget. From the other side, bigger platform also contains bigger amount of project in it, making a new start-up that is looking for finance invisible in this crowd. This fact should be correlated to the last considered determinant - total number of projects launched on the platform during the year, which is interesting to considered in the field of correlation with the success rate of the platform.

3 Regression model

The regression model was constructed using the panel data from 105 crowdfunding platforms, which are usually presented in the form of the total number of projects and percentage of success, as well as news aggregators and sites describing the main parameters of startups. The initial analysis showed a high level of platform efficiency in the real estate market, where efficiency in 2018 - 2020 reached 62%, while other industries in the world were characterized by an average efficiency of about 32-35%.

As a result, the regression (1) was build:

$$SR = 0.24 + 0.18 PT + 0.13 CT + 0.03 Y + 0.004 PR \quad (1)$$

where

SR (Success rate) - percentage of successful projects completed by the platform during the year. By success I mean the achievement of the goal – collecting a certain amount of money, stated before the procedure started;

PT (platform type) - type of commission financing, where AON = 1 and KIA = 0;

CT (commission type) - type of commission divided by the situation where investors pay = 1 and 0, when the commission is paid by the startup founders;

Y (years) - number of years of platform existence;

PR (projects) - total number of projects launched on the platform during the year.

The correlation matrix demonstrates the following results (Table 1), which demonstrates a strong correlation between the type of commission and the type of platform, what is obvious because each platform is mainly associated with the certain type of business and as result a commission type that it represents. The other fact of existence in correlation between number of years of platform existence and total number of projects launched on the platform during the year was expected as the older platform should launching bigger amount of fundraising during the year.

Table 1. Correlation matrix

	PT	CT	Y	PR
PT	1	0.68	0.12	0.36
CT	0.68	1	0.07	0.08
Y	0.07	0.12	1	0.32
PR	0.36	0.08	0.32	1

4 Results

The analysis showed the significance of the “platform type”, “number of years” and “number of projects” coefficients at the 5% significance level, as well as the significance of the “platform type” and “number of projects” coefficients at the 1% significance level as well. These results indicate that projects adhering to funding such as AON are more likely to be more successful, which was previously postulated by many studies because of the proper level of preparation by startup organizers before launching a project on crowdfunding platforms.

The significance of the “number of projects” coefficient seems to be interesting for research, since it can be considered as a reputation indicator of the platform. Investors and founders of startups often rely on the popularity of the platform when deciding whether to invest / launch fundraising, because it is easier for investors on such platforms to find projects that suit their financial interests, and gives founders the opportunity to compare their project with others, demonstrating significant differences or advantages over other projects.

The significance of the “number of years” coefficient only at the 5% significance level is explained by the relative novelty of the method of funding startups through crowdfunding platforms and, as a result, by the relative youth of all the platforms considered.

5 Conclusion

This paper examined the phenomenon of crowdfunding, an innovative way to request online funding from a large audience. Crowdfunding was viewed as an atypical form of the market, and the investment behavior of participants was viewed as involving risk and based on trust, in which there are both acts of altruism or reciprocity, and equivalent exchange relations. At this moment the effectiveness of crowdfunding platforms is not only obvious, but, as it was proved in the work, is directly related to a number of indicators that depend both on the decisions of the founders and investors themselves and on the reputation of the platform itself.

The main goal of the analyses was to underline the determinants of the innovative startup financial funding on crowdfunding platforms. The model shows strong relation between the level of success of the project in term of achievement the main goal – collecting the listed amount of money - and platform type and total number of projects launched on the platform. This bring to

interesting point of consideration, as this factors together constitute crowdfunding platform reputation. The most important is that despite the fact that increase number of projects should decrease the total number of effective startups, it has contractional result in terms of startup effectiveness rate.

This leads us to the fact that this analysis needs detailed consideration of crowdfunding platforms in the future and the model itself suffers from lack of an in-depth analysis of the platform's reputational mechanism of influence and the construction of an appropriate index, which will include not only the lifetime of the platform in the market and the total number of launched projects, but also non-mathematical indicators of branding, reputation and additional services, which influence the attitude towards the platform both on the part of investors and on the part of startup founders. Despite this the work still has interesting and relevant conclusions that were not covered in previous research papers, so it constitutes its theoretical and practical importance.

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