

Crowdfunding as the way of projects financing in agribusiness

N G Filimonova, M G Ozerova, I N Ermakova¹ and N B Miheeva

Krasnoyarsk State Agrarian University, 90 Mira Av., Krasnoyarsk, 660049, Russia

¹E-mail: irena-erm@rambler.ru

Abstract. Entrepreneurs in the sphere of agriculture often meet difficulty of receiving financial resources from traditional sources for financing of innovative and investment projects. The article considers use of crowd funding as alternative way of funds raising for projects connected with agriculture and rural areas development. Authors substantiated need of the factors accounting reflecting the social and economic level of regions development in which territory implementation of the project is provided. On the basis of the projects research presented on two the most popular Russian crowdfunding platforms it was found out that such factors as the income amount of the population and availability of the information and communication net Internet in the region in which it is planned to implement the project have the greatest impact on success of agricultural projects. Besides, the research established that such factors as the index of agricultural products manufacture and investment into fixed capital per capita in the region of the project implementation have no significant effect on the success of funds raising.

1. Introduction

Now the agrarian sector of Russia in connection with favorable external conditions (food embargo, policy of import substitution, the increasing interest in organic products of local manufacture) looks rather attractive branch for the investment of financial resources. However, the analysis of investments dynamics into fixed capital of the agricultural business, hunting and forestry shows contradictory trends. Unstable macroeconomic situation and rigid monetary policy of the Central Bank of the Russian Federation led to sharp decrease in investment activity in the industry in 2014-2015, investments decrease into fixed capital for this period made up 17.2%. In 2016 substantial state support stabilized a situation in the market of agrarian crediting and also increased a share of the profitable agricultural businesses in their total number to the record of 84.9% what promoted investments growth into fixed capital for 13% (the maximum indicator for the last 5 years). But in 2017 the considerable decrease in growth rates of the investment volume (up to 3.1%) is observed caused by system change of the credits subsidizing in the branch and the planned decrease in support volume from the federal budget for the state program of agriculture development for 2017-2019.

The most vulnerable field of investment in crisis conditions is the innovative technologies development. High risks and funds unavailability forces many landowners to postpone the innovative projects or to give them up at all. Especially the beginning entrepreneurs and small farms which business plans do not attract credit institutions in connection with the low capitalization volume suffer from the funds unavailability. According to Rosstat, 48% of small businesses regard as the major factor limiting investment activities the lack of own funds, 45% - high interest of the commercial credit. Data of the All-Russian agricultural census of 2016 show that only 10% of farmers get the



credits. The main reason of insufficient efficiency of preferential crediting programs, according to a number of researchers, is too big number of the documents required for submission in banks.

As one of the alternative financing ways of business ideas and projects in agriculture there can act crowdfunding- a project or an activity financing by means of small amounts raising from a big number of individuals via Internet.

Crowd funding as a projects financing source began to gain popularity from the second half of the 2000s. Initially "financing by crowd" was applied generally to support musical and creative projects, the film industry, charity. However, the accurate tendency to expansion of this investment instrument use was outlined in recent years, and today crowdfunding is considered as rather effective way of business projects and innovations financing in the most various spheres, including agriculture and the agro- industry.

By means of crowdfunding platforms, entrepreneurs have an opportunity to raise funds on the Internet from a large number of sponsors and investors without registration of a set of formal documents, the feasibility study on investments and mortgage obligations which, as a rule, are required when using traditional sources of financing.

By estimates of the Statista Research and Analysis Research group in 2018 the volume of the world market of crowdfunding was 6.9 billion USD with involvement in financial transactions of 8,724 thousand companies. The greatest success in crowdfunding development is made by China, which share in 2018 was 80% of all operations on financial platforms. The share of Russia in the world market of crowdfunding makes up 0.4%. By monitoring results of the Central Bank of the Russian Federation the volume of the crowdfunding market in Russia in 2018 was 15.2 billion rubles (0.25 billion USD) in which a significant part (14.85 billion rubles) is the share of financing of small and average business subjects.

However, despite fast development, the phenomenon of crowd funding is insufficiently studied both from practical, and theoretical point of view. For many entrepreneurs it is not clear how to account branch peculiarities of business at projects promotion through Internet platforms, the factors affecting success of funds raising from investors (backers) are not fully clear. In this regard projects initiators often have no accurate criteria impacting the choice of this financing form at making decision on the start of the project, what often leads to unsuccessful crowd companies, and, respectively, to loss of time and the missed opportunities at refusal of traditional fund raising sources in favor of crowd funding.

The purpose of our research was identification of the factors affecting success of crowdfunding projects in the sphere of agro-business and development of rural areas which could serve as a reference point for entrepreneurs in an issue of justification of expediency of crowd funding use when choosing financing ways.

2. Literature Review

The term "crowd- funding" was for the first time pronounced in 2006 by the Internet entrepreneur M. Sullivan (Word Spy 2008) and is considered as a variety of "crowd sourcing" - use for the problems solution of business, state or society of abilities of a wide range of persons involved on a voluntary basis and as a rule with use of information technologies [1].

So far the accurately certain scientific definition of the term "crowd funding" has not been created yet. Research in the field of business disciplines most often consider crowdfunding as the tool for small business and startups in this sphere [2]. And though in general we agree with this point of view, however, it is impossible to ignore the fund raising practiced by means of Internet platforms in large investment projects and also what crowdfunding development – entertaining and social projects financing began with. That's why for the purpose of our research we shall stick to the definition given by Mollick E. (2014): «Crowdfunding refers to the efforts by entrepreneurial individuals and groups–cultural, social, and for-profit–to fund their ventures by drawing on relatively small contributions from a relatively large number of individuals using the internet, without standard financial intermediaries» [3].

The research group of the company Massolution identifies four main varieties of crowdfunding implying various types of interrelations between entrepreneurs-project initiators and investors: donation-based crowdfunding; reward-based crowdfunding; equity-based crowdfunding; lending based crowdfunding [4].

Donation-based crowdfunding does not mean remuneration, or it is symbolic. It is most often used for financing of noncommercial projects.

Reward-based crowdfunding assumes remuneration in the form of the products manufactured by an entrepreneur. As Matteo Rossi notes in the research reward-based crowdfunding allows an entrepreneur to implement two important purposes: to test potential demand for the products and to raise necessary funds [5].

Equity-based crowdfunding is based on such rewards as stocks of a business, a share in property or participation in the profit of a company. Besides, participants can not only support the project financially, but also participate in other aspects of projects, for example, in development of a product. [6].

Lending based crowdfunding means as remuneration interest payment on the extended loan, also the private interest-free credits can be applied (mainly for social projects).

In rural economy all four models can be effectively used what is proved by a number of research [7,8,9].

One of the directions of scientific research in the field of crowdfunding is identification of the factors having an impact on success of projects promotion and fund raising. A number of authors distinguishes a project quality and work in social networks as key factors of success of a crowdfunding campaign [3,10], other research add stability, the practical importance and creativity of the project [11] to these factors, also some works investigate the interrelation between efficiency of a crowdfunding campaign and reliability of information provided to potential backers and investors about a startup [12].

In the last time there appear works devoted to factors influence studying on success of a crowdfunding form of projects financing specifically in agriculture [8,13,14]. The topicality of such works for agro-business is caused, first of all, by need of risk reduction when choosing a specific way of the project financing. So, Yan, Z., Wang, K., Wang, Z. - Y., Yu, J., Tsai, S. - B., Li, G. on the basis of studying of 7585 venture projects on various crowdfunding platforms found out that in comparison with other industries, influence of reliable qualification information about the project on financial performance of successful business drafts in agriculture is lower whereas the impact of interaction in social networks is higher [14]. Chang, W. - I. found out that the category of the project, the financing purpose and the number of participants have a considerable impact on efficiency of crowdfunding at implementation of agricultural projects [8]. However, it should be noted that the most research is focused on factors studying connected with the project itself and already started fund raising campaign and there are practically no works investigating the external environment factors in which the project is planned to be implemented. In this connection our research is the attempt to identify interconnection between crowdfunding projects efficiency in rural areas and socio-economic development level of the regions on which territory the project implementation is planned.

3. Data and methods

In Russia there are yet no specialized crowdfunding platforms in the field of agriculture therefore data for our research are collected in the empirical way on the basis of the activity analysis of two most popular Russian crowdfunding platforms: Boomstarter.ru and Planeta.ru where projects in the field of agro-business are presented in the heading "Food".

Planeta.ru provides flexible financing model: choice opportunity "everything or nothing" or "keep everything". Payments on model "everything or nothing" provide a payment for the platform in amount of 10% of the project amount, for the model "keep everything" – 15% provided, that the project collected from 50 to 99% of the stated amount. Material or non-material remuneration for sponsors of the project is obligatory. On the platform there are presented 49 agricultural projects from

which 30 are implemented in 2014-2018 and 19 projects were started in 2019. The maximum project cost is 1.080 million rubles, the minimum cost – 20.0 thousand rubles, average cost – 166.2 thousand rubles, a median – 300.2 thousand rubles. The number of sponsors of projects varies from 574 to 5. The range of donations is essential: from 0.56 thousand rubles (minimum) up to 33.3 thousand rubles (maximum).

Boomstarter.ru offers financing according to the scheme "everything or nothing", "up to the purpose". Payments include: a payment for the platform - 5% of the project amount; payments system fee (5%); income tax. The ownership of the developer of the project is reserved. Remuneration is provided to sponsors of the project. On the Boomstarter platform there are presented 68 projects connected with agriculture and rural areas development of which 44 have been successfully implemented in 2014-2018 and 24 projects started in 2019. The maximum project cost is 2.1 million rubles, the minimum cost – 33.6 thousand rubles, average cost – 534.8 thousand rubles, a median – 468.4 thousand rubles. The number of sponsors of projects varies from 807 to 1. Respectively, donations range is essential: the minimum donation – is slightly more than 1 thousand rubles, the maximum donation completely covers a stated purpose of the project and makes up 585.5 thousand rubles.

The research was conducted by method of the correlation- regression analysis. For this purpose, there have been selected 59 successfully and not successfully completed projects, connected with agriculture and rural areas development: 30 projects presented on Planeta.ru and 29 – on Boomstarter.ru. Descriptive statistics was formed of text content of crowdfunding platforms during the period from April 2014 to December 2018 as well as the data of Federal State Statistics Service of the Russian Federation.

4. Research model and hypotheses

When building correlation - regression model there is taken as high performance sign (Y) the success of the project defined as a percentage of the raised funds of the stated financial purpose. For model exactness there have been excluded from the studied population the units of population which are most sharply deviating from the mainstream.

In compliance with the formulated hypotheses we selected 4 factorial signs reflecting the social and economic level of regions development on which territory the implementation of the project is provided (table 1).

Table 1. Variables description and research hypotheses.

Research hypotheses	Variable
Hypothesis 1. The main sponsors of projects are the residents living in the region where implementation of the project is planned. Therefore, the hypothesis essence is that the amount of the average per capita income influences funds raising on the project	X_1 –the average per capita income of the population in the region of implementation of the project, rubles per month
Hypothesis 2. Investment development of the region is not only the multiplier concerning gross regional revenue, but also triggers investment activity (effect of accelerator). The research hypothesis is that the amount of investments affects activity of sponsors with support of regional projects on crowdfunding platforms	X_2 – investments into fixed assets per capita in the region of the project implementation, rubles
Hypothesis 3. Successful financing is received by projects in regions with high rates of agriculture development and vice versa	X_3 – index of agricultural products manufacture
Hypothesis 4. The crowdfunding project presentation and promotion is carried out by means of information- communication technologies, therefore the hypothesis essence is that success of financing depends on extent of the global network use in the region	X_4 – Use of the INTERNET, % of the total number of the population in the project implementation region

5. Results and Discussion

The statistical data processing and linear regression model construction were carried out by means of spreadsheets of Excel.

Table 2. Linear regression model of success of crowdfunding projects financing.

Index	multiple correlation coefficient R	determination coefficient R ²	F-test F	Model significance
Constant	0.872	0.760	41.09	<0.001
X ₁	0.864	X	X	X
X ₂	0.101	X	X	X
X ₃	0.083	X	X	X
X ₄	0.564	X	X	X

Results of the linear regression analysis showed that financing success of the crowdfunding project depends on average regional per capita income of the population ($R = 0.864$). Also there is observed noticeable relation between the project success and extent of development and use of the Internet in the region ($R = 0.564$). At the same time there is noted weak relation between high performance sign and the volume of investment into fixed assets per capita ($R = 0.1$) and absence of functional relations with the development rate of regional agriculture ($R = 0.08$). The dependence between variables is absent. The corrected coefficient of multiple determination (rated R^2) proves that 71.8 0% of variation of the crowdfunding project success are explained by the factors variation included into the model.

The multiple determination coefficient check was assessed with the aid of Student's t-test, which computed value (t_r) is bigger than table value (t_k): $t_r > t_k$; $13,05 > 2,002$, fiducial probability p (atp) = 0.05, degrees of freedom (df) = 58. Therefore, the determination coefficient is reliable, the probability of null hypothesis in relation to it equals zero. F-test obtained as the calculations results (F) is higher than the table one (F_{kp}): $F > F_{kp}$; $41,09 > 2,52$, fiducial probability a (ata) = 0.05, what confirms the significance of correlation and determination coefficients.

Thus, the research confirmed hypothesis 1 and hypothesis 4, hypotheses 2 and 3 were not confirmed what allows to draw a conclusion that projects which implementation is carried out in regions with high income and the developed information-communication system Internet are more successful.

The received results allow to establish reasonable reference points when drawing up forecasts of future projects promotion efficiency through Internet platforms and provides agrarian entrepreneurs with quantitative criteria of crowd funding choice as alternative source of financing. As such criteria act: a) the average per capita income of the population in the region of the project implementation, rubles per month; b) use of the INTERNET, % of the total number of the population in the region of the project implementation.

6. Conclusions

The carried out research allowed to draw the following conclusions:

First, entrepreneurs in the agrarian sector of Russia need alternative sources of financing, one of which may be crowdfunding.

Second, initiators of projects in agriculture and rural areas have no accurate criteria preconditioning the crowd funding choice as more successful way of financing in comparison with traditional forms of funds raising.

Third, in the modern works devoted to studying of crowdfunding development in agriculture there prevail research of crowdfunding success depending on the factors connected with the project itself and a crowdfunding campaign and the works considering the factors influence reflecting the social-economic level of regions development in which territory the project implementation is planned are not presented.

Four, it was established that the income amount of the population and availability of the information- communication system Internet in the region in which it is planned to implement the project has significant effect on success of fund raising by means of crowd funding, and have no impact on investment into fixed assets per capita and the agricultural products manufacture index.

Research results can be used by entrepreneurs in the sphere of agro-business at making decision on the choice of a way of startups financing, innovative and investment projects.

References

- [1] Howe J 2006 The Rise of Crowdsourcing. Wired Available at <https://www.wired.com/2006/06/crowds>
- [2] Beaulieu T, Sarker S and Sarker S 2015 A Conceptual Framework for Understanding Crowdfunding *Communications of the Association for Information Systems* **37** 2–37
- [3] Mollick E 2014 The Dynamics of Crowdfunding: An Exploratory Study *Journal of Business Venturing* **29**(1) 1-16
- [4] Crowdfunding Industry Report. Market Trends, Composition and Crowdfunding Platforms Crowdsourcing.org 2012 Available from www.crowdfunding.nl/wp-content/uploads/2012/05/92834651-Massolution-abridged-Crowd-Funding-Industry-Report1.pdf
- [5] Rossi M 2014 The New Ways to Raise Capital: An Exploratory Study of Crowdfunding *International Journal of Financial Research* Available at dx.doi.org/10.5430/ijfr.v5n2p8.
- [6] Hemer J 2011 A snapshot on crowdfunding *Working papers firms and region* R2/2011
- [7] Filimonova N G, Ozerova M G and Ermakova I N 2018 Distinctions of the crowdfunding model in agriculture *Digest Finance* **1** pp 98-107
- [8] Chang W -I 2018 Exploring Crowdfunding Performance of Agricultural Ventures: Evidence from FlyingV in Taiwan(Conference Paper) *Lecture Notes of the Institute for Computer Sciences, Social-Informatics and Telecommunications Engineering* **208** 165-73
- [9] Boldaruk D Yu and Boldaruk I I 2015 Crowd-funding as a new source of financing of innovative activity in agriculture *Russian Journal of Agricultural and Socio-Economic Sciences* **6** 22–8
- [10] Agrawal A, Catalini C and Goldfarb A 2010 The Geography of Crowdfunding *SSRN Electronic Journal* 16820
- [11] Hörisch J 2015 Crowdfunding for environmental ventures: an empirical analysis of the influence of environmental orientation on the success of crowdfunding initiatives *Journal of cleaner production* **107** 636-45
- [12] Ahlers G K C, Cumming D, Günther C and Schweizer D 2015 Signaling in equity crowdfunding *Entrepreneurship Theory and Practice* **39**(4) 955–80
- [13] Bi S, Liu Z and Usman K 2017 The influence of online information on investing decisions of reward-based crowdfunding *Journal of Business Research* **71** 10-8
- [14] Yan Z, Wang K, Wang Z-Y, Yu J, Tsai S-B and Li G 2018 Agricultural internet entrepreneurs' social network behaviors and entrepreneurship financing performance *Sustainability (Switzerland)* **10** 2677

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