

Research on the performance factors of reward-based crowdfunding: evidence from China

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Abstract

In recent years, research on the financing performance of reward-based crowdfunding has received extensive attention. The research on the influencing factors of financing performance has also become a research hotspot. In order to further explore the influencing factors of the financing performance of reward-based crowdfunding, this paper uses 1,600 projects that have successfully financed on such platforms in China and measures their financing performance by the ratios of financing over goals. Through statistical testing, this paper finds that some independent variables with project information, such as the number of project backers, project

progress, and the minimum investment amount of the project, all of which have an impact on project performance. Regarding the independent variable of social capital, the number of followers of the project has a positive impact. On the contrary, the results of items "likes" by platform users are different from the general perception. Besides, it is interesting that a macroeconomic environment indicator PCDI (Per Capita Disposable Income Nationwide in China) introduced in this paper will also affect the financing performance of the project. The results will be described in detail in the paper.

Keywords: Crowdfunding, Reward-based Crowdfunding, Financing Performance, Social Capital.

JEL: G00; M21; M41

Estudio sobre los factores de rendimiento del crowdfunding de recompensa: evidencia de China

Abstract

En los últimos años, la investigación sobre el rendimiento financiero del crowdfunding de recompensa ha recibido una gran atención. La investigación sobre los factores que influyen en el rendimiento de la financiación también ha ido en aumento. Con el fin de seguir explorando los factores que influyen en el rendimiento de la financiación del crowdfunding de recompensa, este artículo utiliza 1.600 proyectos que se han financiado con éxito en este tipo de plataformas en China y mide su rendimiento de financiación mediante los ratios de financiación. Este trabajo encuentra que algunas variables independientes como el número de patrocinadores del proyecto, el progreso del proyecto y

la cantidad mínima de inversión del proyecto, tienen un impacto en el rendimiento del proyecto. En cuanto a la variable independiente del capital social, el número de seguidores del proyecto tiene un impacto positivo. Por el contrario, los resultados de los ítems "me gusta" por parte de los usuarios de la plataforma son diferentes a la percepción general. Además, es interesante observar que un indicador del entorno macroeconómico PCDI (renta per cápita disponible a nivel nacional en China) también afecte a los resultados de financiación del proyecto..

Palabras clave: Crowdfunding, Crowdfunding de recompensa, rendimiento de la financiación, capital social

JEL: G00; M21; M41

1. Introduction

In recent years, crowdfunding has attracted more and more attention. Backers can use the Internet to support the project with the least amount of funds, and projects that require funding can raise target funds through the joint investment of a large number of backers. Compared with traditional financing methods, crowdfunding is based on the Internet, which breaks through the constraints of geography, time and other factors, thus making crowdfunding develop rapidly. Academically, research on crowdfunding has also developed rapidly in recent years. More and more scholars are paying attention to crowdfunding. Many studies on crowdfunding have emerged, such as the classification of crowdfunding platforms (Leicht et al. 2016), investor motivation (Hornuf & Schvienbacher, 2018), and project supervision (Agrawal et al. 2015). Bannerman (2013) and other scholars believed that the types of crowdfunding are basically divided into four categories: reward-based, donation-based, equity-based and lending-based. Among them, reward-based crowdfunding has the highest activity level, the fastest growth rate, and the most important of the four. Belleflamme et al. (2015) proposed that reward-based crowdfunding is that entrepreneurs obtain financing through the platform. In return, backers can get benefits such as premium versions, and these backers do not expect financial returns.

The success of crowdfunding projects depends on their financing performance. Many scholars have begun to pay attention to the influencing factors in the financing process of crowdfunding projects, such as geographic location and network relationship (Guenther et al., 2018), project information (Mahmood et al., 2019), and project social capital and value (Gafni et al., 2019). Most studies mainly reflect the financing performance based on whether the crowdfunding project can achieve the goal. However, there are some specialized studies on the ratios of financing over goals of the projects (Liao et al. 2015). They use the ratios of financing over goals as a measure of the financing performance of crowdfunding projects. Compared with other studies on crowdfunding performance, this research branch is small and imperfect. For example, the choice of independent variables lacks theoretical basis, and the degree of explanation of the obtained regression results

is not high. Therefore, to contribute to this research line, the purpose of this paper is to study the factors that influence the financing performance (the ratios of financing over goals) of reward-based crowdfunding projects.

First of all, this paper sorts out the theoretical research related to this topic through a bibliometric analysis and makes a contribution to the theoretical basis of existing research. In the empirical part, this paper considers expanding the sample size because previous studies usually have limitations on this issue. This paper will use selected projects that have achieved the financing goals in the Chinese reward-based crowdfunding platform as data to study the financing performance of the projects. This study will further explain which variables can affect the financing performance of reward-based crowdfunding projects. More broadly, it can provide evidence for research in the entire field of reward-based crowdfunding performance.

2. Theoretical framework

2.1 Performance

The term “performance” came from management. McDonnell & King (2013) believed that it is a combination of achievement and effectiveness, which refers to the outcome of work, behavior or methods over a certain period and its impact on the objective world. There are many stakeholders in crowdfunding projects, and the most direct ones are the sponsors and backers of the project. For project sponsors, improving financing performance can help them raise funds more or faster. For backers, they are more concerned about the progress of the project in the implementation process, that is, the project's performance. Therefore, in the operation of crowdfunding projects, two aspects of performance are involved: financing performance and implementation performance.

The main body of financing performance in the traditional sense is the economics and efficiency of the financing activities adopted by enterprises or groups, that is, the comparison of financing costs and financing effects of enterprises or groups in the process

of financing. Wang, et al. (2017) believed that in the field of crowdfunding, financing performance refers to the overall results of crowdfunding projects from the beginning to the end of financing. Mainly manifested in the financing amount, whether the financing target is achieved, and the degree of completion of the financing target. Liang, et al. (2019) considered that implementation performance refers to the execution status of a task or work and is often used to measure the implementing performance of process matters. Most scholars choose the overall satisfaction degree of backers as an indicator to measure the implementation performance of the project. Since this paper will focus on the financing performance of crowdfunding project, the theoretical basis of crowdfunding projects' implementation performance will not be discussed in depth.

2.2 Financing Performance of Crowdfunding Project

As an emerging field, crowdfunding has grown exponentially in recent years, many scholars have begun to pay attention to this field. There are more and more researches on the financing performance of crowdfunding. Through reviewing the literature, this paper finds that the financing performance of crowdfunding projects can be roughly divided into three research lines.

The first line of research explored the influence of geographic location and network relationship on the financing performance of crowdfunding projects. Some studies have focused on the influence of geographic location on project financing performance. Burtch, et al. (2014) considered that geographic location affects backers' decision-making. Backers are more inclined to invest in project sponsors with similar cultural backgrounds and closer geographic locations. The geographic distance between the backers and the project sponsors affects the backer's choice of project. Ahlers et al. (2015) also held the same opinion on this view. They focused on the geographic relationship between backers and crowdfunding projects. The authors believed that the geographic distance between backers and project sponsors influences backers' investment decisions, Which affects the project's financing performance. Agrawal et al. (2015) considered that although crowdfunding's development on virtual networks has dramatically reduced the geographic

factors that backers considered when investing, this factor has not been eliminated. Similarly, Guenther et al. (2018) believed that backers' sensitivity to geographic factors would affect the project's financing performance. They proposed that the crowdfunding platforms have eliminated or reduced some of the economic frictions caused by geographic factors. However, due to the limited development of network technology, the crowdfunding phenomenon has not alleviated the distance's sensitivity. Therefore, geographic distance negatively correlates with the investment probability of domestic backers, but the degree of influence by distance factors on overseas backers is not obvious.

There are also some studies that have focused on the influence of network relationships on project financing performance. Brown et al. (2008) believed that the main factor to ensure the stable development of online communities is the relationship between community members. Younkin & Kashkooli (2016) also agreed with this view and pointed out that crowdfunding can develop rapidly because of the communication characteristics between the network and the community's user nodes. Based on this view, researchers tend to start research from the perspective of social networks. For example, Mollick (2014) conducted an empirical analysis by collecting data of product-type project on Kickstarter (the largest reward-based crowdfunding platform) and concluded that an essential factor in determining the project is the personal network relationship of the project sponsor. Inbar & Barzilay (2014) considered the degree of communication between project sponsors and backers to influence project financing performance. Similarly, Jung et al. (2015) found in empirical research that the key to the project's financing performance is the relationship among backers, the project sponsors and the platform. Lin & Viswanathan (2016) found in the recent project research on peer-to-peer (P2P) that community members' online relationship was positively correlated with the successful financing rate of the project, and negatively correlated with the loan interest and repayment delay rate.

The second research line is the influence of project information on project financing performance. Many scholars have found that project information is an important indicator

that affects network users and indirectly affects the financing performance of crowdfunding projects. Allison et al. (2015) found that the investment speed of P2P-type crowdfunding project is affected by project information. Demonstrating care and responsibility in the project description can enable the project to reach the financing goal faster. However, overemphasizing achievement and diversification will slow down the financing speed and even fail to achieve the goal. Furthermore, the authors also proposed that projects that appear to be investment opportunities are not as easy to achieve financing goals as projects that seem to help others. Backers prefer projects that seem to help others. This phenomenon also confirms that project information indirectly affects the financing performance of crowdfunding projects. Similarly, Belleflamme et al. (2014) also believed that non-profitability projects are easier to attract backers than profitable projects, and could achieve financing goals faster. Moss et al. (2015) proposed that crowdfunding projects' description has a specific impact on backers' decision-making through empirical research. Hobbs et al. (2016) studied the differences in success or failure of crowdfunding projects. The authors proposed that project forecast information can affect the financing performance of crowdfunding project, and positive forecast information can improve project financing performance. Parhankangas & Renko (2017) proposed that the language style of crowdfunding projects can promote social activities, but it has a little effect on the financing performance of crowdfunding projects and commercial activities. Kunz et al. (2017) studied the influence of reward-based crowdfunding project financing performance. The authors found that the preparation and presentation of the investment, the communication and mutual assistance with the group, and the rewards provided significantly impact the success of the crowdfunding project. Similarly, Bretschneider & Leimeister (2017) also studied the factors that affect project financing performance. The authors found that investment preparation and project presentation positively impact the financing performance of the project. Financing goal, the running time of the event and the expected delivery of rewards all negatively impact the project's financing performance. Kuppuswamy & Bayus (2018) proposed that the higher project update frequency and lower project financing goals can improve project financing performance. An excessively

high financing goal will cause backers to retain investment and reduce the likelihood of successful project financing. Block, et al. (2018) found that there is a significant positive correlation between the frequency of project updates and the number of investments. The updated content and the relaxed language style of the project can improve the financing performance of the project; the length of the update and the content of business development or cooperation projects will not have much impact. Mahmood et al. (2019) studied the impact of inefficient visual cues on project financing performance. The author found inefficient visual cues such as Logos, and the complexity of Logos. The proponents of the project believe that the complexity of the Logo is a signal of risk innovation. The more complex the Logo, the more unique it will be, and it will also have a positive impact on backers.

The third research line focuses on the influence of project social capital and value on project financing performance. Some scholars are concerned about the influence of project social capital on project financing performance. Koning & Model (2013) believed that capital ownership would affect crowdfunding projects' financing performance. The authors proposed that capital ownership generally refers to human capital, social capital, intellectual capital. Stiver (2013) also held a similar view on this. The social capital of the project sponsors is not only capital possession in real life, but also on social platforms such as Facebook, which affects the financing performance of crowdfunding projects. The author considered that especially the social capital of social platforms has a significant impact on financing performance. Beier & Wagner (2014) researched tourism-based projects on the crowdfunding platform and found that an important factor affecting project financing performance is the project sponsor team's human capital. Ahlers et al. (2015) believed that the project sponsors' intellectual capital will also affect financing performance of crowdfunding projects, but the impact is not significant. Also, they found that the ratio of these two indicators, per capita investment is also an important indicator that most scholars study and is often used to measure crowdfunding projects' financing performance. Vismara (2016) focused on the influence of information about project backers on project financing performance. The author collected a total of 212 project

samples through three platforms in the UK, and found that the public information of professional backers can improve the financing performance of the project, and all projects supported by professional backers have reached the financing goals. Bretschneider & Leimeister (2017) found that social relations and interaction with crowds will positively impact the project's financing performance. Clauss et al. (2018) believed that increasing social activities in the process of project financing can improve the project's financing performance, which indicates that the success of the project is related to the number of backers and the perception and common attributes of backers. Borst et al. (2018) proposed that social networks can improve the project's financing performance, and new types of social media can provide more social capital. Gafni et al. (2019) believed that the project sponsor's performance on social media affects its financing performance. The more frequently the project sponsors mention their names to potential backers, the higher the success rate.

Other scholars have explored the influence of project value on project financing performance. Wash & Solomon (2014) believed that project value mainly includes economic value, service value and donation value. The cost is generally considered to be the monetary cost of the backer when investing. Through research on donation-based crowdfunding projects, Meer (2014) discovered that the donation's cost directly affects the backer's motivation to contribute, and it also affects the financing performance of the project. Pitschner & Pitschner-Finn (2014) compared profitable and non-profit projects. The authors found that non-profit projects are more likely to achieve financing goals and receive higher personal investment than profitable projects. Cholakova (2015) proposed that by comparing the project's economic and non-economic factors, economic factors significantly impact the project's financing performance. However, non-economic factors did not have much impact. Profatilov, et al. (2015) believed that project value affects financing performance because backers' primary motivation is the return. The higher the project value, the easier it is to get a better return. Gorczyca & Hartman (2017) considered that charitable crowdfunding projects are more likely to attract backers' attention and have a higher investment rate, which also confirms the view that project value impacts financing

performance. Carè (2018) found that urban development's social value can affect projects' financing performance, such as smart cities in Italy. These projects are generally donation-based or reward-based, and most of the time without high return. However, these social values have improved the project's financing performance. Hsieh, et al. (2019) studied some crowdfunding projects in Asia. The authors proposed that the success rate of crowdfunding projects related to social movements is higher than that of general projects, especially those projects with public orientation. This view also confirms the influence of project value on project financing performance. Besides, some scholars have put forward different perspectives, such as Cowden & Young (2020) found that some project sponsors obtained higher financing performance by copying or imitating other projects regardless of the loss of their project value.

After reviewed the literature, the following research question is defined:

RQ1: Which factors determine the financing performance in reward-based crowdfunding projects in China?.

3. Methodology

3.1 Context

As a country with a large population and huge market potential, China has developed rapidly despite its late start. By May 2020, China's crowdfunding projects have become the world's highest projects, with a total value of 7.049 billion US dollars, and continues to grow at an annual growth rate of 13.1%. It is expected that by 2023, It is estimated that by 2023, the total transaction volume will reach 10.208.3 billion US dollars (STATISTA, 2020). This paper believes that the crowdfunding industry data from China is more representative of many emerging economies. Therefore, this paper will use data from China to study the financing performance of projects, that is, the ratios of financing over goals, and will use empirical analysis to explore which factors will affect the financing performance of these projects.

This paper will use selected projects on China's reward-based crowdfunding platform JingDong as data for empirical research ("JingDong," 2020). As a large e-commerce company in China, JingDong launched a crowdfunding business in 2014. Its extensive customer base and brand advantages have developed rapidly in the field crowdfunding. According to the *(China) January 2020 Crowdfunding Industry Monthly Report (2020)*, in January 2020, the number of projects on the JingDong platform that reached the financing goal was 241, an increase of 67.36% from the previous month, and it is also the platform with the most backers of successful financing projects, with about 177,600 users, an increase of 195.66% from December 2019. Therefore, as a representative of China's reward-based crowdfunding platform, this paper will use projects that have been successful on this platform to study the factors that affect the financing performance.

First, this paper uses web crawler software to collect 1,600 completed financing projects on JingDong from June 28, 2018 to April 13, 2019, all of which have completed at least 100% of the financing goal. This paper also collects the dates from these projects, including project name, financing deadline, financing goals, actual financing amount, the number of project backers, the number of project followers, "Likes", project progress and the minimum investment amount.

3.2 Variable

According to the research question raised in this paper, the dependent variable is the ratios of financing over goals. This indicator is used to measure the financing performance of the project. The projects collected in this paper are allowed to obtain financing beyond the financing goal within the financing period. The size of this indicator can be used to judge whether a project is really popular with backers. As a result, it has more practical significance than general indicators for measuring financing performance, such as "success or no" or "whether the financing target is reached".

Regarding the choice of independent variables, this paper is divided into three categories based on the collected data: social capital, project information, and the macroeconomic environment, as shown in Table 1.

Table 1. Independent variables

ID	VARIABLE	CATEGORY	DESCRIPTION	REFERENCES
1	Project followers	Social capital	The number of people interested in this project.	Bretschneider & Leimeister (2017)
2	Likes	Social capital	The number of people who like this project.	Clauss et al. (2018) Borst, et al. (2018) Gafni et al. (2019)
3	Project backers	Project information	The number of investors who have already invested in this project.	Kunz et al. (2017) Bretschneider & Leimeister (2017)
4	Project progress	Project information	The project sponsor announces the progress of the project, also can continue the events there.	Kuppuswamy & Bayus (2018) Block, et al. (2018)
5	Minimum investment amount	Project information	The minimum investment amount for project backers to participate in project financing.	Mahmood et al. (2019)
6	PCDI	Macroeconomic environment	The sum of final consumption expenditure and savings that residents can use.	Gallo et al. (2016)

Source: Own elaboration

This paper selected the number of project followers and “likes” as the independent variables of social capital. Number of project followers is the number of people interested in this project. “Likes” is the number of people who like this project. Users who are interested in the project or support it can learn about the project through social media, follow or “like” it, so that the project can get more attention. The attention of the project measures the feedback mechanism of the crowdfunding platform and users on the crowdfunding project. This feedback mechanism not only reflects the encouragement and affirmation of potential backers to the project sponsor, but also explains the amount of social capital owned by the project to a certain extent (Dellarocas, 2003). When backers

are faced with a large number of crowdfunding projects, only when the project successfully attracts potential backers can it be possible to convert social capital ownership into final investment. For example, Mollick (2014) pointed out that the degree of attention a project receives can mostly represent its final financing level.

The independent variables of the project information category include the number of project backers, project progress, and the minimum investment amount. The number of project backers is the number of investors who have invested in this project. Project progress refers the project sponsor announces the progress of the project, also can continue the events there. The minimum investment amount is the minimum investment amount for project backer to participate in project financing. Many researchers explored the impact of project information on financing performance from backer behavior and project value. They believed that project information such as project backers, project progress, and the minimum investment amount, are important aspects of measuring its value. It is of great significance to backers' decision-making and can affect backers' investment willingness and investment quota. Therefore, researchers believed that project information affects financing performance (Mollick, 2014).

At present, many scholars such as Gallo et al. (2016) have paid attention to the relationship between the macroeconomic level and the microeconomic level. Also, considering that the macroeconomic environment may affect this paper's results, a new variable has been added to the model: Per Capita Disposable Income Nationwide in China (PCDI). According to the definition of the National Bureau of Statistics of China (NBS). Disposable Income Nationwide refers to the sum of final consumption expenditure and savings that residents can use that contains income at the disposal of all residents, including cash and physical. Corresponding to the existing data, this paper collects the PCDI of the NBS for each quarter from 2018 to 2019. Since the original data is the quarterly cumulative amount, this paper regards it as the actual amount per quarter. Besides, as we know, financing is a continuous process rather than a time point. According to JingDong's data, the period is generally 60 days. This paper needs to find

the PCDI corresponding to the project financing period. The data collected in this paper includes project deadlines. Subtract them from the 30-day average financing period to obtain the corresponding PCDI. Therefore, to explore the relationship of PCDI on the ratios of financing over goals, this paper speculates that PCDI will affect the ratios of financing over goals. In other words, the more deposits available to people, the more willing to participate in crowdfunding investments. Then, the original data is classified according to the quarter corresponding to the adjusted date. Because the quarter sample is unordered multi-classification data, this paper converts it into a dummy variable for regression analysis.

3.3 Methodology

For the value of "y" (the ratios of financing over goals), this paper found in the exploratory test that at least 6 decimal places must be retained to avoid interference with the regression results due to small differences, for example, if only 2 decimal places were kept as usual, this will cause the "y" value of most projects to be the same value, so this paper keeps 8 decimal places.

Next, to reduce the influence of outliers on the results, this paper has eliminated 1% of the extreme value data, which is the first 0.5% and the last 0.5% of the maximum value of "y".

In addition, this paper no longer classifies all projects, because in the process of collecting data, whether it is Kickstarter or JingDong, the classification of the projects is very uncertain. Taking JingDong as an example, JingDong classifies all the projects into 8 categories: science and technology, food, home appliances, design, entertainment, culture, public welfare and others. However, many projects involve multiple classifications, which makes it unable to classify them into different categories clearly. Therefore, this paper believes that it is unreasonable to classify crowdfunding projects based on their ideas, so this paper does not recommend this.

Anyway, first, this paper constructs the following OLS model based on original data:

$$y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \gamma_1 + \gamma_2 + \gamma_3 + \gamma_4 + \varepsilon$$

Where:

y is the ratio of “financing goal” divided by “actual financing amount” of each project; X_1 is “project backers”; X_2 is “project followers”; X_3 is “likes”; X_4 is “project progress”; X_5 is “minimum investment amount”; X_6 is “PCDI”; γ_1 is “corresponding to 2019 first quarter”; γ_2 is “corresponding to 2018 second quarter”; γ_3 is “corresponding to 2018 third quarter”; γ_4 is “corresponding to 2018 fourth quarter”. In particular, γ_1 - γ_4 are not arranged in chronological order.

Before regression analysis, in order to exclude the influence of multicollinearity between independent variables, this paper uses the Poisson model to import all independent variables into the model. The results show that there is no multicollinearity among all the independent variables.

To obtain more accurate results, it is necessary to eliminate the influence of variable scale on the results and avoid heteroscedasticity in regression process. This paper takes a natural logarithm for all variables when using SPSS.

4. Results

After importing the sorted data into SPSS, Table 2 obtained the following results. Since the equation used in this paper belongs to the explanatory regression equation in the social sciences, when R-square's value is greater than 0.2, it indicates that this equation can explain the data well. According to Table 2, the R-square value is 0.557, and the adjusted R-square value is 0.311, which shows that this regression equation can explain the data very well. The DW value is 2.033, indicating that there is no sequence correlation between the data, and the equation is not a pseudo-regression.

Table 2. Results

	Standardized Coefficients	t	Sig.	Collinearity Statistics	
	Beta			Tolerance	VIF
(Constant)		-15.029	.000		
LnX1	.523	18.408	.000	.548	1.823
LnX2	.109	2.396	.017	.213	4.689
LnX4	.057	2.351	.019	.741	1.350
LnX3	-.092	-2.288	.022	.275	3.631
LnX5	.115	5.118	.000	.879	1.137
y1	.071	2.018	.044	.356	2.806
y3	.114	2.825	.005	.271	3.694
y4	.084	2.088	.037	.271	3.687
R-square = 0.311					
Durbin-Watson=2.033					

Source: Own elaboration

According to Table 2, the sig. values of X_1 (project backers), X_2 (project followers), X_3 ("likes"), X_4 (project progress), and X_5 (minimum investment amount) are all less than 0.05, and these independent variables will affect the dependent variable y (the ratios of financing over goals). In addition, the VIF values of all independent variables are less than 10, which means that there is no multicollinearity between independent variables. Then through their specific coefficients, it can be concluded that X_1 (project backers), X_2 (project followers), X_4 (project progress) and X_5 (minimum investment amount), all these dependent variables have a positive correlation effect on the independent variable y (the

ratios of financing over goals); X_3 (“likes”) has a negative correlation effect on y (the ratios of financing over goals); for other independent variables, this paper did not find statistical significance and correlation with the dependent variable.

Then, this paper continues to explore the impact of PCDI on the ratios of financing over goals. According to Table 2, γ_1 (2019 first quarter), γ_3 (2018 third quarter) and γ_4 (2018 fourth quarter) are converted into dummy variables, and the reference variable is γ_2 (2018 second quarter). Since the sig values of dummy variables are all less than 0.05, it means that they all have significance. Next, the B values of γ_1 , γ_3 , and γ_4 are 0.161, 0.207, and 0.154, respectively, which indicates that the impact of the first quarter of 2019, the third quarter of 2018, and the fourth quarter of 2018 on the ratios of financing over goals is higher than the second quarter of 2018. Comparing the PCDI collected in the original data, the first quarter of 2019 was 8493 yuan, the second quarter of 2018 was 6248 yuan, the third quarter of 2018 was 6972 yuan, and the fourth quarter of 2018 was 7193 yuan. PCDI was the lowest in the second quarter of 2018, so the null hypothesis was established, and there was a positive correlation between PCDI and the ratios of financing over goals.

5. Discussion and conclusions

As a financing tool that has now been widely used, crowdfunding is well known. More and more small and micro entrepreneurs are also using it to raise funds. Entrepreneurs initiate projects, and backers invest and support projects, so projects' financing performance becomes critical. This paper takes the projects of the Chinese reward-based crowdfunding platform as a sample, measures the financing performance by studying the ratios of financing over goals of the project, and discusses the factors that affect the financing performance.

First, this paper reviewed and analyzed the existing literature and found that the research on crowdfunding performance is divided into financing performance research and implementation performance research. This paper mainly focuses on the financing performance of crowdfunding projects but does not discuss projects' implementation

performance in depth. Regarding the research on the financing performance of crowdfunding projects, it is divided into three lines: Agrawal et al. (2015), Lin & Viswanathan (2016), Guenther et al. (2018) and other authors have paid attention to the influence of geographic location and network relationship; the authors such as Kuppuswamy & Bayus (2018), Block et al. (2018) and Mahmood et al. (2019) have studied the impact of project information; there are also some authors, such as Gafni et al. (2019), Hsieh et al. (2019) and Cowden & Young (2020) have concerned the impact of social capital and value. Regarding the influence of geographic location, although the rapid development of the network has reduced the impact of geographic location on project financing performance, researchers still believe that backers are more inclined to choose project sponsors with similar backgrounds or locations, that is, geographic location still affects the financing performance of the project. Based on related research on the influence of network relationship, the researchers studied the network relationship of the project backer, the personal network relationship of the project sponsor, and the network relationship with the platform. The researchers pointed out that a good network relationship can improve the financing performance of the project. For the influence of project information, the quality of the project information description determines whether the project can attract backers. Sometimes, projects that help others are more popular than projects with rewarding returns, which shows the influence of project information on the project's financing performance. Based on the relevant research on project social capital and value, researchers believe that capital ownership, that is, their human capital, social capital, and intellectual capital, can all contribute to the project's financing performance. And project value, the researchers found that the value of the project will also affect the financing performance of the project. Of course, the project value here may not necessarily be economic value, but can also refer to the service value, donation value.

In the empirical part, the factors that affect the financing performance of crowdfunding projects are analyzed. First, this paper uses a multiple linear regression model for regression analysis, which involves six dependent variables: "project backers", "project

followers”, “likes”, “project progress”, “minimum investment amount” and “PCDI”. It also includes four quarterly dummy variables: “2018 second quarter”, “2018 third quarter”, “2018 fourth quarter” and “2019 first quarter”. Through empirical analysis, it is concluded that the “project backers”, “project followers”, “project progress”, and “minimum investment amount” are all positively related to the financing performance of the project. Unexpectedly, the “likes” is negative correlation with the financing performance of the project. First, the more backers in a project, the higher the project's financing performance. This conclusion is logical. The number of project followers positively correlates with the project's financing performance. The social capital of the project sponsor can affect the financing performance of the project. This result is consistent with the views put forward by Stiver (2013) and other researchers. The more complete the project process, the higher the project's financing performance. It shows that the update speed and information quality of the project can improve the project's financing performance. This conclusion also confirms the views of researchers such as Moss et al. (2015). The higher the minimum investment amount, the higher the project's financing performance. One of the reasons is that the higher the minimum investment amount, the higher the value of the project. This paper also speculates that the cost of the project product itself is high or that the project sponsor has confidence in its product and hopes to control the number of backers and screen out better backers. Therefore, the minimum investment amount is also positively related to the financing performance of the project. Previous views of Profatilov et al. (2015) and some researchers are also consistent with the results of this paper. The number of “likes” is negatively correlated with project financing performance, which is different from general common-sense logic. This paper speculates that this phenomenon is because the number of “likes” can only indicate the popularity of the project, and the people who like it may not necessarily invest in the project. The phenomenon can be linked to the research of social media “likes” behavior. This paper do not provide in-depth confirmation of this problem. But it will be an interesting topic for future research.

To discover more interesting factors, this paper also attempts to study the macro factors and introduces the macroeconomic indicator of “PCDI”. For the four quarterly dummy variables in “PCDI”, this paper finds that the values in the third quarter of 2018, the fourth quarter of 2018, and the first quarter of 2019 are greater than the values in the second quarter of 2018. The value of the second quarter of 2018 is not added in the model. Nevertheless, the other three quarterly dummy variables have a significantly positive correlation with it. In other words, in this test, the level of “PCDI” will have an impact on “the ratios of financing over goals”. The impact of the other three quarters is more significant than the second quarter of 2018 because when this paper compares their values, it is found that the value in the second quarter of 2018 is the smallest. The conclusion of this paper is that the greater the “PCDI”, the greater the impact on “the ratios of financing over goals”, that is, the greater the impact on the project's financing performance. However, this paper cannot continue to quantify the magnitude of this positive correlation. This result will open up new research ideas for this topic. In the future, researchers interested in this field can further explore the macroeconomic environment's impact on crowdfunding performance. Of course, this kind of performance not only refers to the project financing performance that is concerned in this paper, but also the implementation performance of the project.

When collecting data in this paper, there is very little reference information about the platform projects, which makes this paper limited to the selection of variables. Some interesting variables, such as project financial information and project sponsor company information, were not published. Therefore, in future research, the information transparency of reward-based crowdfunding platforms can be studied.

Since most of the variables selected in this paper are based on social capital, there is a common limitation in related research on social capital. That is, there are many uncertainties in social capital. Scholars have been discussing the quantification of social capital and its theoretical basis. To this day, it is still a problem. In future research, capture

and determine the real value of social capital and its application in crowdfunding will also become a meaningful research direction.

Also, for the crowdfunding industry, this paper believes that it will usher in a reshuffle of the industry, plus the impact of the COVID-19 on the global economy in 2020, which will accelerate the crowdfunding industry's reform. This paper does not know what the crowdfunding industry will become in the future, but the crowdfunding industry will not disappear. For crowdfunding research, researchers need to pay more attention to its updates and discuss the science related to crowdfunding.

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