

The Elements of a Successful Crowdfunding Campaign

-- Through the Eyes of Mental Accounting Theory

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Abstract

From the perspective of psychic accounting, this paper examines how psychological factors affect investment behavior and determine the performance of a crowdfunding through the representative theory "bounded rationality, willpower and selfishness". Taking the JD crowdfunding as research object, collect all data related through web crawler. And then establish regression models and conduct empirical research. The study found that the endowment effect in the psychic accounting will have a positive impact on the investment behavior of investors, and then have a significant impact on the success rate of the project. It is specifically reflected in the number of investors, the number of discussions and other factors that have a significant impact on the final success rate. To make a good use of endowment effect, we believe that crowdfunding platforms should use their own resources to promote project as early as possible. At the same time, the project sponsor should also set a reasonable target funding amount when launching the crowdfunding project. The level of return should also be carefully considered.

Keywords

Behavioral Finance; Endowment Effect; Herd Behavior.

1. Introduction

Originated from the idea of microfinance and crowdsourcing, Crowdfunding has received a lot of attention in recent years. It is a new and effective financing method. At present, there are four kinds of crowdfunding models in the world, namely donation crowdfunding, reward-based crowdfunding, creditor's rights crowdfunding and equity crowdfunding. Reward-based crowdfunding is the most common form of crowdfunding. In this mode, people can put their own projects on the platform and promise to provide certain products or services in return after successful crowdfunding. It is an effective way using the Internet to realize the dynamic matching of individual intelligence resources and funds. Under the background of mass entrepreneurship and innovation, a huge number of new ideas and products with a strong sense of technology, innovation and design have emerged. These high-tech products are in the immature stage, and they often encounter financing problems in the process of promotion and expansion. At the same time, the film industry is also facing with the same troubles which caused by too much uncertainty of the final result their products may cause. The advantage of crowdfunding is that each investor participating in it has a small proportion of capital contribution, and the possible loss is also limited. Therefore, reward-based crowdfunding can play a complementary role in the traditional financing ways. It also plays an important role in the promotion and development of some specific types of products. In recent years, the continuous development of crowdfunding industry has promoted the regional economic development, innovation and entrepreneurship, and increased employment. In particular, it has made some contributions to solve the problem of financing difficulty and high financing cost of small and medium-sized enterprises.

Considering the importance of crowdfunding in China's capital market at this stage, how to improve the success rate of crowdfunding has become a key issue for many scholars. The factors that investors consider when making investment decisions mainly come from two aspects: one is the characteristics of the project itself and the factors that reflect the quality of the project itself, such as the target amount of a project, financing period, pre-determined return level, qualification of the project sponsor, investment threshold, project category and other informations. The other is the real-time information, which changes over time, such as the accumulated amount of support, the number of current support, the number of project comments and the number of updates(Huang Zhigang, 2018).

The existing academic research on reward-based crowdfunding focuses mainly on those factors. For example, Yang Zhibin (2019) systematically considered the factors affecting the success rate of reward-based crowdfunding from the perspective of the 3 parties involved in the crowdfunding activities. On this basis, Tian Xin (2019) further discussed the business model and operation mechanism of crowdfunding, compared the differences between crowdfunding and traditional financing methods, and further discussed the impact of the behavior of all participants on crowdfunding performance.

Scholars have systematically verified the reasons that affect crowdfunding performance. On this basis, Yuan Xiang and Wang Hongwei (2019) also noticed that there was little analysis on the motivation behind the investment behavior of investors in the reward-based crowdfunding market. So they used self-determination theory to explain investor behavior, which effectively promoted the integration of psychological theory and economics. In fact, the same investment behavior may be driven by different psychological motivations, and it is of great significance to distinguish these psychological motivations for all parties involved in reward-based crowdfunding. First of all, for the fundraisers, it is helpful for the fundraisers to show their projects better and improve crowdfunding performance by identifying which features of the project can trigger investors' investment impulse. Secondly, for investors, it is conducive to their rational investment. Finally, for the crowdfunding platform, understanding the motivation behind investors' investment behavior is conducive to the better construction of the platform. For example, it is necessary to clarify which key points should be highlighted on the crowdfunding project display interface, and what information investors are most concerned about. In this way, it is conducive to promoting the reasonable completion of matching between financing parties and improving the efficiency of the platform.

In reality, the behavior of investors is often not completely rational, and the "rational man hypothesis" in traditional economics is not applicable. Mental accounting theory is a series of theories to explain the "irrational" behavior of people. First proposed by Richard H. Thaler in 1980, he has made important contributions to the research of product prices, public management and policy formulation in the securities market. Thaler further enriched and expanded this theory on the basis of recognizing that people are bounded rationality proposed by predecessors, and proposed that people have "three limitations", namely "bounded rationality", "bounded willpower" and "bounded selfishness", and formed a mental account system on this basis. The "three limitations" of human rationality also restrict and contact each other, which together constitute the psychological motivation behind human economic behavior. Therefore, from the perspective of mental accounting theory, it is necessary to explore the psychological motivation behind investors' investment behavior.

2. Theories and Assumptions

This paper constructs a framework based on mental accounting theory, and uses three representative perspectives of mental accounting theory to find and explain the factors influencing the success rate of crowdfunding. The mental accounting theory affects people's

decision-making process from three aspects: endowment effect, which is used to measure the value of what people have and what they don't have; effect of self-control, which is used to measure the value of a thing in present and future, and fairness preference, it is used to describe the judgments of the fairness of payment distributions to "self" and "other". Specifically, investors will be affected by many factors when making investment decisions. Whether to invest in the project depends on how the investor measures the value of the project. However, investors' perception of the value of a crowdfunding project is affected by many factors: first of all, people's perception of the value of something depends on whether it belongs to itself, that is, when measuring the same items belonging to "mine" and "his", the estimated value is different. Secondly, traditional economists assume that people are rational and have unlimited willpower. However, people's short-sighted or abnormal behavior in the intertemporal choice makes them have to consider that people are short-sighted. That is, people can not resist the temptation of reality and make far sighted decisions. Even if you know what to do and how to do it cognitively, it is difficult to achieve it in behavior. In the end, Zeller thinks that man is limited self-interest. The perceived sense of fairness is a part of the transaction utility. Not everyone will maximize their profits. People tend to sacrifice part of their resources to punish unfair behavior, which shows that people have certain fairness preference.

The endowment effect reflects the tendency that people do not want to give up what they have, that is, what they already have will be regarded as one of their endowments. Compared with the things that will be possessed or those that do not belong to them, people will regard the things they have as having higher value. Based on the random and continuous observation of the ongoing projects on several major domestic crowdfunding platforms, it is found that when the amount of support already obtained is close to the target amount set by the fundraiser, the new support fund will appear an accelerated process. This may be because the investors who have invested in the project will give higher psychological value to the project, and are more inclined to help promote and forward the project to other social platforms, so as to attract more investors. Therefore, successful crowdfunding projects tend to accumulate a considerable number of supporters during the duration of the project. Therefore, the first hypothesis is put forward.

H1: the success rate of crowdfunding projects is positively correlated with the number of support received

According to Wang Tao's (2009) research on the impact of customer participation on customer perceived value, customer's contribution to the product or provision of resources will increase the degree of customer endowment effect, thus affecting customer's value perception. In the reward-based crowdfunding activities, investors can leave messages to the project sponsors through comments, questions and other ways to exchange their opinions on the products with the sponsors, which makes the investors really participate in the design and production of products, strengthen the participation of investors, and improve the degree of endowment effect of consumers, making the project easier to achieve success. Therefore, the following assumptions are put forward.

H2: there is a positive correlation between the number of discussions on crowdfunding projects and the final amount raised

In addition, if the project sponsor can update the progress of the project frequently and share the latest news of the project with the investors, it will also enhance the sense of participation of the investors and increase the possibility of the investors to make investment decisions. Therefore, the following assumptions are put forward.

H3: the number of real-time updates of crowdfunding projects is positively correlated with the final fund-raising amount

The theory of self-control is based on the theory of Limited will power, that is, people can not completely rational from the future may obtain the product discounted to the current value to determine the value of the product. In other words, there is no economic optimal decision between the products available now and the products in the future. In the field of reward-based crowdfunding, the longer the delivery time promised by the project sponsor, the longer the waiting time for investors from payment to receipt of products. Longer fundraising cycles mean higher time costs and uncertainty for supporters. That is, the longer the financing cycle of reward-based crowdfunding projects, the weaker the investor's self-control ability, the more unable to accurately estimate the present value of the products that may be obtained in the future, thus weakening the investor's willingness to invest. Therefore, assumptions are put forward:

H4: the final completion of crowdfunded projects is positively related to the delivery speed

The theory of preference for public goods holds that people are of limited self-interest. The perceived sense of fairness is part of the effectiveness of transactions, and not all people will maximize their own benefits. When there is unfair situation, people tend to pay part of their resources to punish unfair behaviors, indicating that people have a certain preference for fairness. In the reward-based crowdfunding activities, if the level of return set by the fundraiser is too small, that is, the return received by the investors with large investment amount difference is not significant, which will lead to an unfair feeling of investors, thus reducing the investors' investment desire. It is the investors' decision not to invest in the project or invest less amount. This will reduce the success rate of crowdfunding projects. Therefore, assumptions are put forward:

H5: the return level of crowdfunding projects is negatively related to the final fundraising amount

3. Data, Specification and Variables

Jingdong crowdfunding is a reward-based crowdfunding financing platform under Jingdong group. Since its launch in 7 2014, it has gradually become an important pillar platform in China's reward-based crowdfunding industry. This paper takes Jingdong crowdfunding platform as the research object, and uses crawler software to grab 542 projects which were launched and successfully completed crowdfunding between April 2017 and July 2019. Excluding the projects with data missing such as return level, the remaining 435 projects with complete duration are taken as samples. This paper uses Eviews 7.2 for empirical research.

3.1. Specification

In this paper, the final amount raised by the reward-based crowdfunding project is taken as the explanatory variable to examine the impact of investors' investment behavior. Select the number of the final supporter of the project as the explanatory variable to reflect whether there is endowment effect, select the number of comments on the project and the number of updates from the sponsor as the explanatory variable to reflect the interaction between the investor and the sponsor, that is, the degree of investor participation; and select the delivery speed after the success of the crowd funding undertaken by the sponsor as the explanatory variable to reflect whether there is self-control effect; select the number of pre-determined return levels of promoters to reflect whether there is a fair preference effect of investors in the crowdfunding process.

Table 1. Meaning and description of variables

	Variables	Variables describes
Explained variable	Actual financing amount (fa)	The total amount raised by the deadline for crowdfunding projects initiated by the sponsor
Explanatory variable	Number of investors(ivst)	Total number of investors acquired by the project deadline
	Number of discussions(discuss)	Number of interactions between sponsors and investors during the duration of the project
	Number of updates(update)	Number of reports of sponsor on project progress during the duration of the project
	Delivery speed(time)	Delivery time after project success promised by sponsor
	Levels of return(level)	The number of different grades of return that the sponsor preset for investors with different investment amount
control variable	Target amount(ta)	Target financing amount preset by the sponsor
	Number of likes(likes)	Number of likes received by the project
	Number of concerns(concern)	Number of people following the project
	Number of previous projects initiated by sponsors(ffxs)	Number of projects previously initiated by the project's sponsors
	Number of previous projects invested by sponsors(ftxs)	Number of projects previously invested by the project sponsor

Table 2. Summary statistics

	Max	Min	Mean	Standard error
fa	1171837	2495	155621.1	163808.6
ivst	15029	5	962.6943	1550.2
discuss	1000000	1000	93050.57	99691.84
update	170	1	22.05057	13.26
time	10	1	6.549425	2.03
level	10000	0	876.646	1302.94
ta	10000	0	876.7885	1640.34
likes	56	0	8.409195	10.45
concern	815	0	71.11494	90.17
ffxs	109	1	5.648276	12.5
ftxs	688	0	8.648276	51.24

As can be seen from table 2, the minimum target amount of successful projects financed on the Jingdong crowdfunding platform is 1000 and the maximum target amount is 1000000. The accumulated number of investors during the project is quite different, with a minimum of 5 and a maximum of 15029. Meanwhile, according to the sample statistics, the completion rate of financing is between 100% and 500%, and more than half of the projects are within 200%. 64% of the projects are updated more than 4 times, indicating that most of the promoters will often report the progress of the project to the investors. As the sample selected in this paper is a successful financing project, almost all of the promoters have experience in launching other projects, but more than half of the promoters have not invested in other people's projects.

3.2. Empirical Results

Correlation tests were performed on samples before regression to eliminate the problem of severe multicollinearity between variables. As shown in Table 3, the correlation coefficient between each variable is below 0.5, indicating that each variable is weakly correlated or unrelated.

Table 3. Correlation coefficient between variables

	IVST	TA	TIME	LEVEL	UPDATE	DISCUSS	CONCERN	LIKES	FFXS	FTXS
IVST	1.000									
TA	0.250	1.000								
TIME	0.025	0.215	1.000							
LEVEL	0.284	0.196	0.125	1.000						
UPDATE	0.060	0.056	0.249	0.179	1.000					
DISCUSS	0.427	0.264	0.351	0.267	0.345	1.000				
CONCERN	0.261	0.052	0.128	0.177	0.348	0.292	1.000			
LIKE	0.319	0.016	0.093	0.144	0.378	0.176	0.892	1.000		
FFXS	-0.037	-0.142	-0.151	-0.042	-0.057	-0.103	-0.057	-0.050	1.000	
FTXS	0.075	0.172	-0.034	-0.031	0.017	0.017	0.032	0.029	0.006	1.000

The following multiple regression models were established:

$$FA = \beta_1 * IVST + \beta_2 * TA + \beta_3 * TIME - \beta_4 * LEVEL + \beta_5 * UPDATE + \beta_6 * DISCUSS + \beta_7 * CONCERN - \beta_8 * LIKE + \beta_9 * FFXS + \beta_{10} * FTXS + 3 \tag{1}$$

Among them, $\beta_1 \sim \beta_{10}$ are the coefficient to be estimated and 3 is the random error term. The estimated results of the model are shown in Table 4.

The empirical results are analyzed as follows:

The number of investors accumulated during the project is positively correlated with the final financing amount of the project, with a correlation coefficient of 16.220. A successful project requires a certain number of investors to accumulate over the duration of the project, and H1 is established. The correlation coefficient between the number of discussions and the final financing amount of the project is 383.085, which is also a significant positive correlation with the final financing amount of the project at the level of 5%. However, the correlation between the number of updates and the final financing amount has not passed the test, which indicates that investors are more inclined to participate in the crowd financing project through

participation in the discussion and generate endowment effect to improve the performance of the crowd financing.

Table 4. Multiple regression model estimation results

coefficient	correlation coefficient	standard deviation	t-value	p-value
IVST	0.0162	3.1825	5.0968	0.0000
TA	0.0011	0.0428	26.7897	0.0000
TIME	0.1786	304.1036	0.5872	0.5573
LEVEL	-0.3241	1264.3210	-0.2563	0.7978
UPDATE	0.2613	440.5900	0.5931	0.5534
DISCUSS	0.3831	57.9416	6.6116	0.0000
CONCERN	0.0146	7.1681	2.0369	0.0423
LIKE	-0.0152	5.8927	-2.5721	0.0104
FFXS	0.4494	309.9955	1.4496	0.1479
FTXS	0.1944	77.2765	2.5153	0.0123
R-squared		0.7612		
Adjusted R-squared		0.7561		

H2 was established. Through observation, it is found that a large part of the projects in the sample are updated to account for the delivery matters or explain the performance of the products after the completion of the projects, rather than completely reporting the progress of the projects to the investors during the duration of the projects, and H3 is not established. In addition, the number of concerns is also positively correlated with the final financing amount, with a correlation coefficient of 14.601, and passed the test at the significance level of 5%. The number of concerns can reflect, to a certain extent, whether investors are interested in the project and whether they are concerned about the progress of the project. This in turn will increase the participation of investors, thus stimulating the endowment effect and increasing the final financing amount of the project. Therefore, the positive relationship between the number of concerns and the final financing amount also supports the impact of endowment effect on the final financing amount. However, there is a significant negative correlation between the number of endorsements and the final financing amount of crowdfunding projects during the crowdfunding period. This may be because on the Jingdong crowdfunding platform, the amount of endorsements does not need any cost, so the increase in the number of endorsements will be greater than the increase in the number of investors, and investors will disperse their sense of responsibility when they observe a large number of endorsements. We believe that whether we invest in the project will not have a significant impact on the project, resulting in a decrease in the final amount of funds raised for the project. The impact of the delivery speed on the final financing amount is a positive correlation coefficient of 178.584, but not significant. The reason may be that the delivery time of different reward-based crowdfunding projects is mostly within 30 days, and there is no significant difference between them. Therefore, investors may ignore this factor when choosing reward-based crowdfunding projects, and H4 is not established. The impact of the return level on the final financing has not passed the significance test. After the inspection of the actual projects, we found that there are quota restrictions on the return level of reward-based crowdfunding projects. Only a small number of quotas are given for the lower level of some projects, which may lead to inaccurate regression results, and H5 has not been confirmed.

3.3. Robust Test

Through the statistical analysis of all the samples collected from 435 projects on the Jingdong crowdfunding platform, it is found that the target amount is between 1000 yuan and 100 million yuan. And 90.34% of the projects with a target financing amount of less than 10 million yuan. Therefore, in order to test the robustness of the above regression results and examine the impact of the selection of samples on the final results, 393 samples with the target financing amount of less than RMB 100 thousand were selected for regression. The regression results are shown in Table 5. It can be seen from table 5 that the regression results of this sample are basically similar to those of the original sample, and are generally stable.

Table 5. Robustness test: regression estimation results of projects with a target financing amount of less than RMB 10 million

	correlation coefficient	standard deviation	t-value	p-value
IVST	16.7262	2.5928	6.4511	0.0000
TA	1.3227	0.1057	12.5137	0.0000
TIME	-464.1772	278.1967	-1.6685	0.0960
LEVEL	616.6469	1210.3910	0.5095	0.6107
UPDATE	20.9359	5.5693	3.7591	0.0002
DISCUSS	-19.2836	4.5947	-4.1969	0.0000
CONCERN	636.3167	356.0190	1.7873	0.0747
LIKE	224.0350	55.5409	4.0337	0.0001
FFXS	504.0188	236.7247	2.1291	0.0339
FTXS	-72.7160	74.1820	-0.9802	0.3276
R-squared		0.5463		
Adjusted R-squared		0.5356		

4. Conclusion

As a new financing method, reward-based crowdfunding can help many entrepreneurs with innovative ideas but difficult to raise funds from traditional financing channels to complete the financing. It is conducive to promoting the implementation and launch of new projects and new products, promoting the growth of private economy, increasing employment and improving people's livelihood. Based on 435 reward-based crowdfunding projects conducted on Jingdong crowdfunding platform from 4 / 2017 to 7 / 2019, this paper conducts empirical analysis on the psychological factors behind the investors' investment behavior, looking for the ones that have significant impact on project financing. The results of empirical analysis show that:

Firstly, the endowment effect has a significant positive impact on the amount of funds ultimately raised by the project. Specifically reflected in the number of investors, the number of discussions, and the number of people concerned during the duration of the crowdfunding project have a significant positive impact on the final fund-raising amount.

Secondly, although the effect of self-control effect and fair preference effect on the final fund-raising amount is not significant, it may be due to the data sample is too small or the differentiation between samples is not enough. Through the actual observation, it can be found that the delivery time of most projects is controlled within 30 days without delay for a long time, and a careful multi-level division of the level of return that investors can obtain after the successful crowdfunding of products is made. This shows that the funders are also aware of the

possible impact of self-control effect and fair preference effect, so as to minimize the negative impact of the 2 on the final financing amount.

Based on this, we can make the following suggestions for the project founders who raise funds on the crowdfunding platform:

(1) In the early stage of the reward-based crowdfunding project, publicity should be carried out through social platforms and other means, and users can be encouraged to share the project to the social platform by way of lottery from the shared users, so as to accumulate a certain number of investors as soon as possible. In addition, the project founder should actively respond to the questions and suggestions raised by investors in the project comments, so as to enhance the participation of investors and improve their willingness to invest. Finally, the founder of the project should update the progress of the project in a timely manner and report the latest developments, which can also improve the participation of investors. Through these methods, we can use the endowment effect to positively affect the investment behavior of investors, so as to improve the final financing success rate.

(2) When setting up the financing cycle of a project, it should also be considered that the longer the financing cycle, the greater the uncertainty that may exist for potential investors, and the less attractive the "future cake" is to current investors, thus reducing investors' willingness to invest. Minimize the delivery time.

(3) Considering the fairness preference effect, the project creator should set up enough fair rules of the game as much as possible, and set up different return levels for investors of different investment levels in the amount, so as to ensure that investors can feel enough fairness, and thus increase investment willingness.

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