Factors Influencing Financing Performance of Public Crowdfunding Projects

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Abstract

This study investigates the factors influencing financing performance of public crowdfunding projects. Based on the persuasion theory, we analyze the impact of information characteristics, issue involvement, information source credibility and social capital of information source on financing performance. Using the data in a large crowdfunding platform and the stepwise regression, we found that having evidence, project type, the number of successful projects in the past and the number of comments have a significant positive impact on financing performance. Our findings will make theoretical contributions to public crowdfunding, also help project creators and platform designers to manage public crowdfunding projects effectively.

Keywords

Public crowdfunding, financing performance, persuasion, stepwise regression.

Introduction

Crowdfunding is a new form of financing channel for small and medium-sized companies, individual entrepreneurs that were difficult to raise funds from previous financing sources (Zheng et al. 2017). In the public sector industry, crowdfunding is the trend of fund-raising model and it can make full use of crucial functions of the Internet (Hong 2018a). Prior studies investigated the influencing factors of the investment behavior of project supporters using quantitative methods (Sundermeier et al. 2018), the relationship between the investment behavior of investors and the amount of financing (Kuppuswamy et al. 2013), the credit risk arising from the different geographical locations of the project sponsors (Agrawal et al. 2011), and how online consumption community was associated with the crowdfunding project success (Hassna et al. 2018). Financing performance of crowdfunding in social entrepreneurship was examined (Lehner 2013).

The recent research investigated project characteristics and the social network of the project sponsors (Hong 2018b). Post-graduate executives had to provide business plans to promote projects for crowdfunding (Bechter et al. 2011). Although some studies have investigated the crowdfunding project success (Sundermeier et al. 2018; Kuppuswamy et al. 2013), extant research rarely looks into financing performance of public crowdfunding projects. For the number of projects initiated or the number of successful projects, public crowdsourcing projects are still in the state of toddlers which have a big gap compared to the product crowdfunding. How the creators of public crowdfunding projects carry out the design and operation better, attract more supporters and improve the total amount of funds raised?

In response to the above research limitations, this study analyzes the factors influencing the financing performance of public crowdfunding projects. Based on the persuasion theory (Zhou et al. 2018), we build the theoretical model in which information characteristics, issue involvement, credibility of information source and social capital of information source are explanatory variables, taking the total financing amount as the dependent variable, and using the financing target amount and the length of financing time as control variables. We analyze the data and text indexes of successful public crowdfunding projects in zhongchou.cn and implement stepwise regression to test the hypothesis. The findings are helpful to persuade supporters to make the investment decision and improve financing performance of public crowdfunding projects.
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Theoretical Background and Research Model

Persuasion is a process through which a persuasive person transmits certain information to the persuaded person to make a decision. Heuristic-Systematic Model (HSM) (Chaiken 1980) and Elaboration Likelihood Model (ELM) (Petty et al. 1986) are the two typical models in many persuasion theoretical models. Prior study found that credibility of information sources, emotions, message framing, social networks and issue involvement had an impact on persuasion effect (Sinclair et al. 2010). This study focuses on public crowdfunding projects posted on a return crowdfunding platform by public sector organizations or individual entrepreneurs. Based on influencing factors of persuasion theory, we explore factors influencing the financing performance of public crowdfunding projects from information characteristics, issue involvement, credibility of information source and social capital of information source.

Information Characteristics

The information characteristics of a project can reflect the quality of a project to a certain extent, and this paper measures it from two aspects: project description detail level and project status.

In addition to text and pictures, videos are widely used in the description and dissemination, which disclose the information more fully and display the project in a comprehensive way. In the field of crowdfunding, videos have also been adopted by many project creators. Whether or not having videos was used as the index variable for the quality of the crowdfunding project (Mollick 2014). The evidence with the official seal is more authentic and credible than the picture of the scene taken with the purpose by the creator, which can increase the trust of supporters. Presenting a business plan had a significant positive impact on the decision of investors (Bechter et al. 2011), thus a detailed project implementation plan has a stronger persuasion effect on project supporters. We propose the following hypothesis.

H1: The financing performance of a project is higher when the project description has videos.
H2: The financing performance of a project is higher when the project description has evidence.
H3: The financing performance of a project is higher when the project description has plans.

There is little chance to be aborted for a project which has been started after the crowdfunding finished. The creator of the started project has a deeper understanding of the situation of the project and comparing to the projects that were not started, the chance of success is greater. Prior study investigated the relationship between the product status and financing performance for product crowdfunding (Zhen et al. 2017). We propose the following hypothesis.

H4: The financing performance of the project is higher when it has been started.

Issue Involvement

The persuasion effect was strong under high involvement conditions (Sengupta et al. 1997). The project providing higher-value physical feedback can increase the supporter's evaluation and the expectation of outcomes than the project purely donating, thus it has the higher level of issue involvement. We use providing higher-value physical feedback as a classification criterion for issue involvement of public crowdfunding projects. We propose the following hypothesis.

H5: The higher the involvement degree of a project, the higher its financing performance.

Information Source Credibility

The information source credibility includes trustworthiness and expertise. The higher the trustworthiness and expertise of the information source, the stronger the persuasion effect.

If the crowd can obtain the credit information of the project creators from the website prior to their contribution, it will effectively reduce uncertainty and increase confidence in the creators and projects (Kim et al. 2019). But the current crowdfunding platforms generally do not provide the relevant audit mechanism for the project creators, so the crowd can only evaluate the creator's personal credit and execution ability according to their successful financing experiences in the past. We propose the following hypothesis.
H6: The more the number of successful financing projects in the past, the higher the financing performance of a project.

Professional public sector organizations have higher expertise and foresight than individuals in the implementation of public projects. When they encountered problems in new projects, they have more experience and thus reduce the risk of failure of projects. We propose the following hypothesis.

H7: If the project creator is a public sector organization, the financing performance of a project is higher.

Social Capital of Information Source

Social capital refers to resources embedded in a social structure that are accessed and/or mobilized in a purposive action (Lin et al. 2001). Recently many financial institutions have included the social capital of lenders into the personal credit evaluation. Supporters of the public crowdfunding project will view the creator's social capital information, then evaluate the credit of the creator. The number of the project progress update is defined as the frequency of the project creators informing project supporters of the progress of the project and is measured by the number of times the creator updating the latest progress of the project. Timely updating of project progress enables supporters to understand the project in real time and the importance of the project for the project creators, then it effectively reduces the uncertainty on the part of supporters. The creator responses to comments will strengthen the interaction with supporters and help supporters to better understand the content of the project. We propose the following hypothesis.

H8: The financing performance of a project is higher when creators update the project progress more.
H9: The financing performance of a project is higher when creators respond to comments more.

Research Method

Data and Variables, Econometric Model and Preliminary Results

Data for this study was collected from zhongchou.cn, which is one of the top crowdsourcing platforms in China with an operation model similar to the Kickstarter in United States. We collected the data of successful financing public crowdsourcing projects in the platform from May 2012 to November 2015. We removed projects whose financing amount and target financing amount are greater than ¥1,000,000 and those samples with missing data. In the end, we collected a total of 321 public crowdsourcing projects as a dataset for analysis. We summarize all variables and their operationalization in Table 1.

<table>
<thead>
<tr>
<th>Variable Description</th>
<th>Variables</th>
<th>Variables Abbreviation</th>
<th>Operationalization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dependent Variable</td>
<td>Total financing amount</td>
<td>Contri</td>
<td>The total financing amount of a project</td>
</tr>
<tr>
<td></td>
<td>Project description detail level</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Having videos</td>
<td>Video</td>
<td>Whether or not a project has videos (1= yes, 0= no)</td>
</tr>
<tr>
<td></td>
<td>Having evidence</td>
<td>Certif</td>
<td>Whether or not a project has evidence (1= yes, 0= no)</td>
</tr>
<tr>
<td></td>
<td>Having plans</td>
<td>Plan</td>
<td>Whether or not a project has plans (1= yes, 0= no)</td>
</tr>
<tr>
<td>Independent Variables</td>
<td>Project status</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Project beginning</td>
<td>Begin</td>
<td>Whether or not a project begins (1= yes, 0= no)</td>
</tr>
<tr>
<td></td>
<td>Issue involvement</td>
<td>Type</td>
<td>Whether or not a project provides product feedback (1= yes, 0= no)</td>
</tr>
<tr>
<td></td>
<td>Information source credibility</td>
<td>Experi</td>
<td>The number of successful projects of project creators in the past on the platform</td>
</tr>
<tr>
<td></td>
<td>Public sector organization</td>
<td>Comwea</td>
<td>Whether or not project creator is public sector organization (1= yes, 0= no)</td>
</tr>
<tr>
<td></td>
<td>Social</td>
<td>Progre</td>
<td>The number of project creators</td>
</tr>
</tbody>
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### Table 1. Variables and Operationalization

<table>
<thead>
<tr>
<th>Control Variables</th>
<th>capital of information source</th>
<th>progress update</th>
<th>updating the project progress</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of responses to comments</td>
<td>Reply</td>
<td>The number of project creators responding to comments</td>
<td></td>
</tr>
<tr>
<td>Goal of financing</td>
<td>Goal</td>
<td>the financing target amount of a project</td>
<td></td>
</tr>
<tr>
<td>Length of financing time</td>
<td>Period</td>
<td>the length of financing time of a project</td>
<td></td>
</tr>
</tbody>
</table>

To test the above hypothesis, the stepwise regression model is as follows:

\[
\ln(C ont) = \beta_1 \text{Video}_i + \beta_2 \text{Certifi}_i + \beta_3 \text{Plan}_i + \beta_4 \text{Begin}_i + \beta_5 \text{Type}_i + \beta_6 \text{Experi}_i + \beta_7 \text{Comwea}_i + \beta_8 \text{Progre}_i + \beta_9 \text{Reply}_i + \beta_{10} \ln(\text{Goal}) + \beta_{11} \text{Period}_i + \varepsilon_i
\]

Where \(X_i\) is a set of explanatory variables and two control variables of project \(i\) which determine the total financing amount of the project (Contri), \(\varepsilon_i\) is the error term, and \(\beta\) is the vectors of coefficients which will be estimated by stepwise regression. Due to the values of total financing amount (Contri) and the financing target amount (Goal) are large, the logarithmic transformation is carried out for the two variables.

In order to obtain the regression coefficient of the empirical model presented above, stepwise regression was implemented using Stata. Then a total of 9 significant variables was selected, including 2 control variables (goal of financing, length of financing time) and 7 explanatory variables (having videos, having evidence, having plans, project type, number of successful projects in the past, number of project progress update, number of responses to comments). The results of stepwise regression are shown in table 2.

| Variables | Coefficient | Std. Err. | z | P>|z| | 95% Conf. Interval |
|-----------|-------------|-----------|---|--------|-------------------|
| Having videos | -0.13849*** | 0.043532 | -3.18 | 0.001 | -0.22381 to -0.05317 |
| Having evidence | 0.223644*** | 0.0578 | 3.87 | 0 | 0.110358 to 0.33693 |
| Having plans | -0.18482*** | 0.041908 | -4.41 | 0 | -0.26696 to -0.10268 |
| Project type | 0.093634** | 0.047525 | 1.97 | 0.049 | 0.000487 to 0.186782 |
| Number of successful projects in the past | 0.072415*** | 0.026915 | 2.69 | 0.007 | 0.019664 to 0.125167 |
| Number of project progress update | -0.01032* | 0.00551 | -1.87 | 0.061 | -0.02112 to 0.000481 |
| Number of responses to comments | 0.002877** | 0.001131 | 2.54 | 0.011 | 0.000661 to 0.005093 |
| Goal of financing | 0.92862*** | 0.019269 | 48.19 | 0 | 0.890854 to 0.966386 |
| Length of time of financing | -0.00552*** | 0.001006 | -5.49 | 0 | -0.00749 to -0.00355 |
| _cons | 1.319025*** | 0.237957 | 5.54 | 0 | 0.852638 to 1.785412 |

*** p<0.01, ** p<0.05, * p<0.1

Table 2. Results of Stepwise Regression

Table 2 shows the result. The coefficient on having evidence is significantly positive, suggesting the financing performance of the project is higher when the project description has evidence. The results support H2. The coefficients on having videos and having plans are significantly negative. The results do not support H1 and H3. The coefficient on project type is significantly positive, suggesting the financing performance is higher when the issue involvement level of a project is higher. The results support H5.
However, the project beginning and whether or not public sector organization are not in the table above, so their impact on financing performance has not been validated, indicating that H4 and H7 are not supported. The coefficients on the number of successful projects in the past and the number of responses to comments are significantly positive, suggesting the more the number of successful financing projects creators experienced in the past and the more number the project creators responding to comments, the higher the financing performance of the project. The results support H6 and H9. The coefficient on the number of project progress update is significantly negative. H8 is not supported.

**Discussion and Conclusion**

Utilizing real-world public crowdfunding data from zhongchou.cn, we analyzed the factors influencing financing performance of public crowdfunding projects. The empirical results show that having evidence, project type, the number of successful projects in the past, and the number of comments have a significant positive impact on the financing performance of the public crowdfunding projects. This study will make theoretical contribution to public crowdfunding research, also provide empirical insights for practitioners to increase interactive communication with the crowd and establish personal image of credibility.

**REFERENCES**


