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# How to Crowdfund More: A Signaling Perspective

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*Completed Research Paper*

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## Abstract

*Although crowdfunding has received a great deal of attention, few studies utilize a theory-oriented approach to understand what lead to crowdfunding success. In this paper, we employ signaling theory to explore the secret of the fundraising success. We propose that signals from creators and project descriptions influence the fundraising success, and these effects are moderated by backers' comments and creators' replies. To test our hypotheses, we collected objective data of 400 successful crowdfunding projects from the largest crowdfunding platform in China. The results indicate that creators' previous creator experience, backers' comments, and creators' replies positively affect fundraising success. We also find partial support for the proposed moderation effects.*

**Keywords**: crowdfunding; social media; signaling theory

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## Introduction

Crowdfunding refers to "an open call, essentially through the Internet, for the provision of financial resources either in form of donation or in exchange for some form of reward and/or voting rights in order to support initiatives for specific purposes" (Schwienbacher and Larralde 2010). As a novel source of capital for entrepreneurs, it has grown rapidly in recently years. A research report predicted that the global crowdfunding market would get an 81% increase and exceed $5.1 billion in 2013 (Massolution 2013).

Despite the rapid growth of the crowdfunding market, the success rate of crowdfunding projects is relatively low. For example, among all of the 197, 399 projects in Kickstarter, only 88, 904 are successfully funded, yielding a success rate of 39.47% (Kickstarter 2015). Some empirical studies have examined antecedents of crowdfunding success (Burtch et al. 2013; Mollick 2014; Zheng et al. 2014). For example, Mollick (2014) finds that various characteristics of a crowdfunding project and its creator, such as the creator's social network, the duration of the crowdfunding project, and the size of the targeted amount, influence the fundraising success .

Although previous research has shed some lights on the secret of the successful crowdfunding, little attention has been paid to the characteristics of the creators and the interaction between potential backers and the creators. On a rational basis, backers need to have confidence in the creator's competence and have enough information to evaluate the project's prospect to succeed before they are willing to invest in the project. Therefore, it is surprising that few studies have been conducted in this regard. In order to fill the gap in the literature, we employ the signaling theory to examine behaviors of the creators in this paper. Specifically, we seek answers to two questions: (1) *what signals sent by the creator affect the success of a crowdfunding project?* and (2) *how do the backers' screening behaviors influence the success of a crowdfunding project?* Since information asymmetry exists in crowdfunding (Agrawal et al. 2013; Ahlers et al. 2012; Belleflamme et al. 2014), the signaling theory provides a suitable framework for understanding how extrinsic signals can be used by creators to convey project quality information to backers and how backers screen these signals to facilitate their investment decisions.

The reminder of this paper is organized as follows. First, we review the literature on crowdfunding and signaling theory. We then present our hypotheses about the impacts of creator's signaling and backer's screening on the crowdfunding success. Following that, we describe the research methodology and report the findings. Finally, we discuss the theoretical and practical implications and limitations.

## Theoretical Framework

### *Crowdfunding*

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" (Mollick 2014). Based on the exchange relationship between creators and investors, it takes the form of reward-based, donation-based, lending-based, or equity-based crowdfunding (Mollick 2014). Equity- and lending-based models rely on relatively traditional investment mechanisms, and supporters expect to get financial returns. Lending-based models link creators and supporters in a debtor and lender relationship, and the equity-based models (similar to traditional venture capital) create an entrepreneur–investor relationship. In donation-based models, project creators are social entrepreneurs while supporters serve as philanthropists. In reward-based crowdfunding, the predominant online model, entrepreneurs are characterized as 'creators' or 'project founders' and project supporters represent early customers or co-creators rather than investors.

To achieve crowdfunding success, creators need to find effective ways to clearly signal their value to a large audience in the crowdfunding market to reduce information asymmetry (Ahlers et al. 2012). The potential backers then can take advantage of these signals to assist their investment decisions.

### *Signaling Theory*

Signaling theory is fundamentally concerned with reducing information asymmetry between two parties (individuals or organizations) in a social exchange relationship (Spence 1973; Spence 2002). Typically, one party, the sender, chooses whether and how to communicate (or signal) the information, and the other party, the receiver, decides how to interpret (or screen) the signal. Management scholars have applied signaling theory to help explain the influence of information asymmetry in a wide array of research contexts, such as strategic management, entrepreneurship, organizational behavior, and human resource management. For more detail on signaling theory in management studies, please refer to the review of Connelly et al. (2011).

There are three key concepts in signaling: signaler, signal, and receiver (Connelly et al. 2011). Signalers are insiders (e.g., executives or managers) who possess information about an individual, product, or organization that is not available to outsiders. Signaling theory explains two different behaviors: signaling and screening (Spence 1973). Signaling refers to the signaler's sending information to the receivers by performing observable actions, while screening refers to the receiver's discriminating the true information from false information sent by the signaler. Both signaling and screening are deemed to be effective ways to reduce the level of information asymmetry. In the crowdfunding context, creators who initiate crowdfunding projects can be seen as signalers and backers are receivers. The creators possess private information about the crowdfunding projects and themselves, both positive and negative, and such information is unknown to the potential backers unless it is disclosed as signals.

## Hypotheses

Employing signaling theory, we propose that both signaling and screening have impacts on the crowdfunding success and screening moderates the effects of signaling on the crowdfunding success. In crowdfunding markets, many creators are not formal organizations, and most investors have no resources and capabilities to evaluate crowdfunding projects. Backers could rely on signals to assess the quality of crowdfunding projects, such as the project duration (Mollick 2014), past experience as backers (Zvilichovsky et al. 2014), and whether the description contains a video (Frydrych et al. 2014; Mollick 2014). Based on the source, there are two kinds of signals in the crowdfunding: signals of creators and signals of projects, and both of them may influence the crowdfunding success.

### *Signals of Creators*

In crowdfunding, a person could play the dual roles as both the backer and the creator. Similar to other social networking websites, all crowdfunding platforms allow each user to have a profile page. The user's history in a crowdfunding platform, including the number of previous projects the user initiated and their details as well as the number of previous projects the users backed and their details, can be easily accessed in the profile page. Before making an investment decision, a backer can browse the history of the project creator. Therefore, creators' experiences on the crowdfunding platform can be processed as signals by potential backers to judge the quality of the current project. If the past projects initiated by a creator are successful, the creators will be considered by backers as skillful and reputable at the crowdfunding. If the past projects supported by a creator are successful, the backers can deduce that if the creator can tell which projects will succeed he/she will be able to imitate the successful exemplars to increase the chance of winning for his/her own project. Even if the past projects initiated or supported by the creator are unsuccessful, the backers could still have an impression that the creator has learned from the failures and will be less likely to make the same mistakes. Thus,

***H1a****: Projects initiated by creators who have more past experiences as backers have a higher likelihood of the fundraising success.*

***H1b****: Projects initiated by creators who have more past experiences as creators have a higher likelihood of the fundraising success.*

### *Signals of Projects*

Information of projects could also play an important role in the success of a crowdfunding project. Based on past research, we study two signals related to the project: whether the project description has videos and the project duration. According to Chen et al. (2009), preparedness can be seen as a signal of quality for potential backers. Preparedness refers to the time and efforts the creator has spent in preparing the crowdfunding project. Compared to other forms of project description, like texts, tables, and figures, videos take more time and efforts to prepare and thus can indicate a higher level of preparedness. One good video can more effectively introduce the creator and the project team, tell the story behind the crowdfunding project in an intriguing way, and vividly present the thinking the creator has done and the actions the creator has taken. Kickstarter also states that a video is a demonstration of effort and a good predictor of success, and projects with videos succeed at a much higher rate than those without them (O'Connell 2014). Some empirical studies have found that the use of videos is associated with the crowdfunding success (Frydrych et al. 2014; Mollick 2014). Therefore,

***H2a****: Projects described by videos have a higher likelihood of the fundraising success.*

The creator announces the fundraising durations for which the crowdfunding projects will remain active in the crowdfunding platforms. Establishing the appropriate duration for the crowdfunding projects is an important consideration for any creator to ensure the success of the projects. Too long a duration can be treated as a signal of lack of confidence by the backer (Mollick 2014), then may lead to the failure of the crowdfunding campaign. Therefore, there should be a negative relationship between the campaign duration and the project success, and setting the right campaign duration can be considered as a signal of advanced planning and a dedicated and focused project team.

***H2b****: Projects with a longer campaign duration have a lower likelihood of the fundraising success.*

### *Screening by Backers*

Crowdfunding platforms support online interaction between creators and backers. The interaction allows the backers to screen out low quality crowdfunding projects. Posting comments is a screening mechanism through which potential backers can evaluate the quality of projects and their creators. If potential backers are interested in a specific campaign, they will likely seek more information than provided by the project description and past experiences of the creator in the crowdfunding platform. They can ask questions or express opinions by posting comments on the crowdfunding website. More comments for a campaign suggest that people interested in the project will develop a better understanding of the project. This will reduce information asymmetry and encourage the potential backers to become actual backers.

***H3a****: Projects with more comments have a higher likelihood of the fundraising success.*

When potential backers post questions on the crowdfunding website, they expect to get answers from the creator. They can judge the creator's commitment based on the reply speed and content. Frequent and dedicated replies indicate efforts by the creator to reach out to current and potential backers. It is an important way for the creator to send signals to the potential backers. Timely replies reflect the creator's passion in the project. Prior research indicates that passionate creators show strong and positive emotions toward their projects and are eager to mobilize resources to turn their ideas into reality (Chen et al. 2009). Based on the frequency of the creator's reply to questions, potential backers will be able to evaluate how passionate the creator is. The more replies the creator provides, the more likely people are influenced by his or her passion and become backers.

***H3b****: Projects with more replies have a higher likelihood of the fundraising success.*

### *Moderation Effects of Screening*

The signals sent by the creators, such as the number of past initiated projects and the number of past backed projects, could give potential backers an impression that the creators are experienced crowdfunding entrepreneur who are well prepared for the ongoing fundraising. However, such signals are simply numbers and contains no further explanation about what they mean. It is likely that when people look at these numbers, they only notice the involvement of the creators but neglect how successful the involvement was. Backers' comments and creators' replies can provide more details about the past

projects that the creators are involved with. These details can help the potential backers develop a more accurate evaluation of the creators. Given that the crowdfunding success rate is generally below 40% (Kickstarter 2015), the potential backers are likely to find out this fact by reading the comments and replies. As a result, creators' past experience will not play an important role in the backers' decision to invest in the project. Therefore,

***H4a**: Backer's comments negatively moderate the relationship between the experience as backers and the fundraising success.*

***H4b**: Creators' replies negatively moderate the relationship between the experience as backers and the fundraising success.*

***H4c**: Backer's comments negatively moderate the relationship between the experience as creators and the fundraising success.*

***H4d**: Creators' replies negatively moderate the relationship between the experience as creators and the fundraising success.*

Similarly, the use of videos for project description can also give people a false impression of the creators, because the creators tend to paint a rosy picture of their projects by emphasizing the strengths while neglecting the weaknesses of the project. That is, although videos are sending rich information to the backers, their information can still be manipulated and incomplete. The information that is missing from the videos can be provided by other potential backers in their comments. The potential backers can also ask the creators questions and force the creators to reveal truthful information absent from the videos. The comments and replies will help the potential backers develop a more complete understanding of the projects by showing both positive and negative information. As a result, the videos' influence will decrease as the potential backers have a more realistic understanding of the project.

***H4e**: Backer's comments negatively moderate the relationship between videos the campaigns contain and the fundraising success.*

***H4f**: Creators' replies negatively moderate the relationship between videos the campaigns contain and the fundraising success.*

Crowdfunding duration, or the active fundraising period, is found to be negatively related to the crowdfunding success (Mollick 2014). However, this relationship can be moderated by backer's comments and creator's replies. When a project has a large amount of comments and replies, it becomes popular and will attract more audience in the crowdfunding platform. In this case, a longer fundraising duration is deemed to be necessary and will not likely to be ascribed to the creator's lack of confidence. On the contrary, if a project attracts a small number of comments and replies but has a long fundraising duration, potential backers will become suspicious that the creator just want to use a longer time to raise fund for an uninteresting project. Therefore, when the number of backer's comments and creator's replies is high, the effect of the project duration on the crowdfunding success is likely to become less negative.

***H5a**: Backer's comments positively moderate the relationship between the campaign duration and the fundraising success.*

***H5b**: Creators' replies positively moderate the relationship between the campaign duration and the fundraising success.*

## Method

Our study is conducted in the Chinese crowdfunding market, a new and fast-growing section of the global crowdfunding market. The total value of this market reached about $75 million in 2013, and the World Bank predicted that it will get up to $50 billion in 2025, accounting for over 50% of the global crowdfunding market (Swart 2013). Compared with the crowdfunding market in developed countries, the crowdfunding platforms and related regulations in China are less mature and information asymmetry between creators and backers is more serious, which provides an ideal setting to test the impacts of creators' signaling and backers' screening on crowdfunding success. The data for this study was collected from Demohour (http://www.demohour.com/), the first and biggest online crowdfunding platform in China. Our dataset includes 400 successful projects. For each project, we gather information on creator

and backer characteristics, the goal of fundraising, the duration of the project, the description of the project, the final pledge amount, and the interaction between creator and backer.

Demohour was launched in May 2011 and it operates like Kickstarter. Figure 1 shows a screen capture describing the page of a typical project on the Demohour platform. We used a web data extraction method to capture detailed data from the Demohour website, similar to other crowdfunding studies (Mollick 2014; Zvilichovsky et al. 2014). Web data extraction facilitates the collection of relatively large data-sets with high levels of validity because the site is in active use and the data is generated for web-based transmission.


**Figure 1. Screen Capture of a Crowdfunding Project in Deamhour**

We collected data on April 24 of 2014. We remove all projects whose campaign was not finished at the time of data collection. Because Demohour did not list the unsuccessful projects, we could only collect the finished and successful projects for analysis. Our final dataset consisted of 400 projects. For each project, we gathered information on creator and backer characteristics, the goal of fundraising, the project duration, the description of the project, the final pledge amount, and the number of backer comments and creator replies. These projects received a total of RMB 17,852,097 pledges from 79,556 backers. Descriptive statistics of the project attributes are presented in Table 1.

## Results

We used regression analysis to test the hypotheses. Multiplicative terms were created to test the moderation effects and the independent variables and moderators are mean centered to minimize multicollinearity before computing the multiplicative terms (Aiken et al. 1991). To reduce kurtosis and skewness, the logarithms of the duration, comments, and replies are used in the analysis. Table 2 shows the correlations among the study variables. The regression results are shown in Table 3.

**Table 1. Descriptive Statistics**

| Variable | Minimum | Maximum | Mean | Std. Deviation |
|---|---|---|---|---|
| *Signals from creators* | | | | |

| | | | | |
|---|---|---|---|---|
| Experience as Backers (EB) | 0 | 101 | 1.70 | 6.195 |
| Experience as Creators (EV) | 0 | 5 | .36 | .887 |
| *Signals from Projects* | | | | |
| Video (Has not=0, Has=1) (VI) | .00 | 1.00 | .5000 | .50063 |
| Duration (Days) (DU) | 3 | 148 | 41.12 | 17.166 |
| *Screening by Backers* | | | | |
| Comments from Backers (CO) | 1 | 437 | 38.07 | 50.667 |
| Replies (RE) | 1 | 3254 | 192.13 | 366.242 |
| *Level of Success* | | | | |
| Number of Backers (BA) | 1 | 5534 | 198.89 | 508.873 |
| Pledge (PL) | 200 | 1709502 | 44630.24 | 160339.999 |
| Ratio of Pledge (RA) | 100.0% | 170950.0% | 804.580% | 8608.6512% |
| *Control Variable* | | | | |
| Pledge Goal (PG) | 200 | 1200000 | 17867.60 | 83007.533 |

**Table 2. Correlations between Variables**

| | EB | EC | VI | DU | CO | RE | PL | RA | BA | PG |
|---|---|---|---|---|---|---|---|---|---|---|
| EB | 1 | | | | | | | | | |
| EC | .062 | 1 | | | | | | | | |
| VI | -.023 | -.116* | 1 | | | | | | | |
| DU | .003 | -.072 | .098* | 1 | | | | | | |
| CO | .022 | -.016 | .037 | .171** | 1 | | | | | |
| RE | .012 | -.049 | .006 | .044 | .762*** | 1 | | | | |
| PL | -.041 | -.016 | .021 | .111* | .668*** | .630*** | 1 | | | |
| RA | -.018 | -.017 | -.060 | -.031 | .290*** | .245*** | .561*** | 1 | | |
| BA | -.025 | -.049 | .048 | .181*** | .604*** | .727*** | .835*** | .396*** | 1 | |
| PG | -.023 | -.049 | .133** | .232*** | .437*** | .446*** | .673*** | -.014 | .660*** | 1 |

**Note**: * p<0.05, ** p<0.01, *** p<0.001

Since the sample used in the regression analysis only contains the finished and successful projects, we measure the crowdfunding success by using three variables: number of backers, total pledge, and ratio of total pledge divide by pledge goal. Model 1, Model 2, and Model 3 separately present the regression results with each success measure as the dependent variable.

As shown in Table 3, when the number of backers is the dependent variable, the explained variance is 0.498, suggesting a strong predictive capability for the number of backers. The coefficients of comments (0.165, p=0.003) and replies (0.305, p=0.000) are significant, indicating that H3a and H3b are supported. No moderations are found to be significant.

**Table 3. Results**

| **Variable** | **Model 1, DV: BA** | | **Model 2, DV: PL** | | **Model 3, DV:RA** | |
|---|---|---|---|---|---|---|
| | Beta | Sig. | Beta | Sig. | Beta | Sig. |

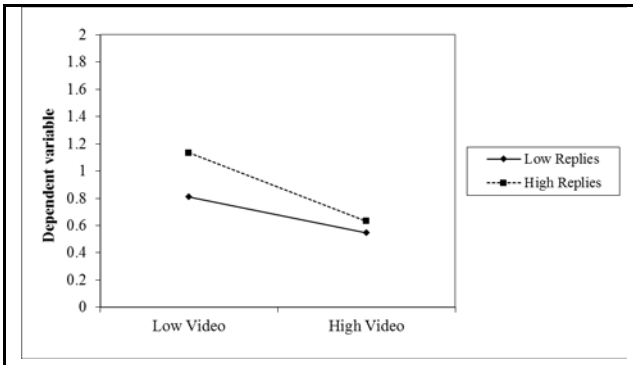
| *Control Variable* | | | | | | |
|---|---|---|---|---|---|---|
| Pledge Goal (PG) | **.415*** ** | .000 | **.687*** ** | .000 | **-.278*** ** | .000 |
| *Signals of creators* | | | | | | |
| Experience as Backers (EB) | .107 | .070 | -.015 | .705 | -.022 | .740 |
| Experience as Creators (EC) | .015 | .727 | **.068*** | .019 | .089 | .054 |
| *Signals of Projects* | | | | | | |
| Video (VI) | -.076 | .053 | -.046 | .090 | -.066 | .130 |
| Duration (DU) | .050 | .209 | -.025 | .377 | -.062 | .161 |
| *Screening by Backers* | | | | | | |
| Comments (CO) | **.165**** | .003 | **.139*** ** | .000 | **.244*** ** | .000 |
| Replies (RE) | **.305*** ** | .000 | **.253*** ** | .000 | **.381*** ** | .000 |
| *Moderation* | | | | | | |
| EB×CO | -.110 | .249 | -.071 | .283 | -.125 | .237 |
| EC×CO | -.008 | .891 | .042 | .322 | .073 | .283 |
| VI×CO | -.001 | .978 | .023 | .528 | .037 | .530 |
| EB×RE | -.002 | .984 | .003 | .949 | .014 | .869 |
| EC×RE | .044 | .462 | .007 | .875 | .029 | .661 |
| VI×RE | -.020 | .710 | **-.093*** | .012 | **-.148*** | .012 |
| DU×CO | -.100 | .143 | **-.164**** | .001 | **-.248**** | .001 |
| DU×RE | .053 | .424 | **.120**** | .009 | **.180*** | .015 |
| *Model Fit Indices* | | | | | | |
| R Square | 0.498 | | 0.758 | | 0.384 | |
| Adjusted R Square | 0.478 | | 0.749 | | 0.360 | |
| F | 25.346*** | | 80.169*** | | 15.983*** | |

**Note**: * p<0.05, ** p<0.01, *** p<0.001

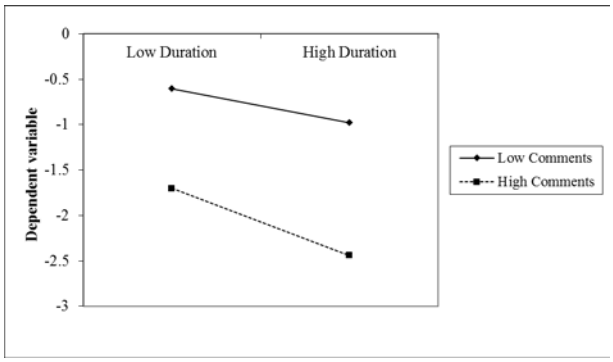
When the total pledge is set as the dependent variable, the explained variance is 0.758, suggesting a strong predictive capability. The coefficients of experience as creator (0.068, p=0.019), comments (0.139, p=0.000), and replies (0.253, p=0.000) are significant, indicating that H1b, H3a and H3b are supported. For the moderation effects, replies negatively moderate the effects of videos on the total pledge (-0.093, p=0.012), comments negatively moderate the effects of the duration on the total pledge (-0.164, p=0.001), and replies positively moderate the effects of the duration on the total pledge (0.120, p=0.009), suggesting that H4f and H5b are supported.

When ratio of the total pledge divide by the pledge goal is the dependent variable, the explained variance of Model 3 is significant with an $R^2$ of 0.384. The coefficients of comments (0.244, p=0.000) and replies (0.381, p=0.000) are significant, indicating that H3a and H3b are supported. For the moderation effects, replies negatively moderate the effects of the video on the ratio of the total pledge divide by the pledge goal (-0.148, p=0.012), comments negatively moderate the effects of the duration on the ratio of the total pledge divide by the pledge goal (-248, p=0.001), and replies positively moderate the effects of the duration on the ratio of total pledge divide by pledge goal (0.180, p=0.015), suggesting that only H4f and H5b are supported.

| A: Video×Replies | A: Video×Replies |
|---|---|




B: Duration×Comments




C: Duration×Replies

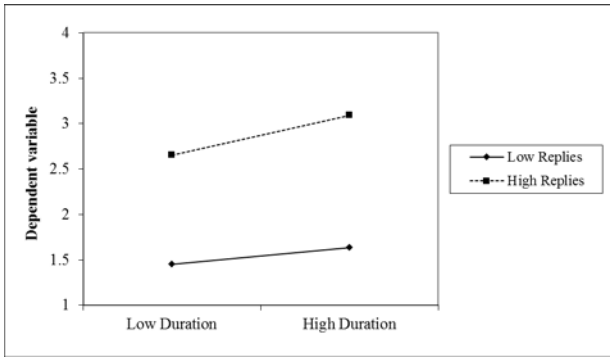
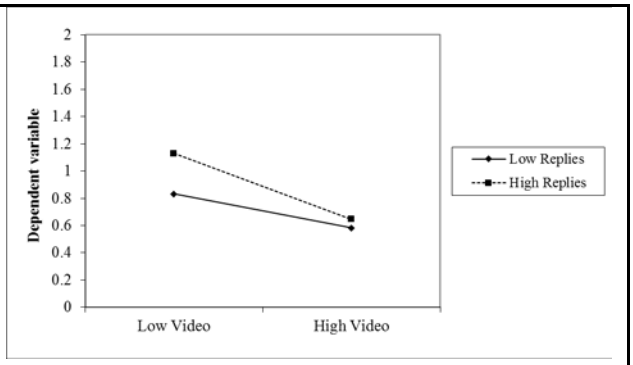
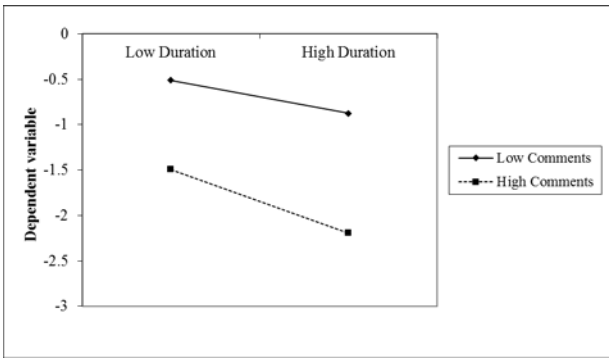



**Figure 2. Moderation Effects of Screening on the Relationship between Signals from Projects and PL**




B: Duration×Comments




C: Duration×Replies

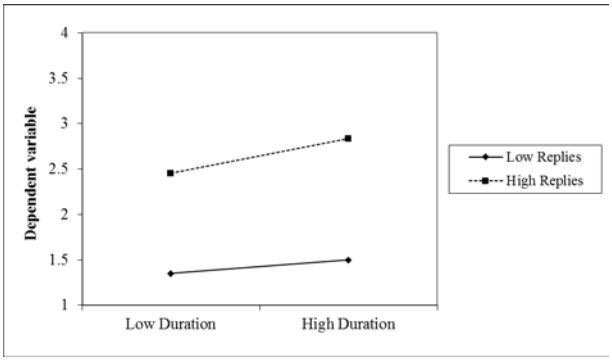



**Figure 3. Moderation Effects of Screening on the Relationship between Signals from Projects and RA**

To further analyze the moderating effects, we followed Aiken and West (1991) to draw simple slopes shown in Figures 2 and 3. For example, Figure 2c graphically illustrates the interaction effects of creator's replies on the link between the duration and the total pledge. Longer duration can help raise more pledge in the high replies setting than that of in the low replies setting. That's to say, it takes time to signaling the creators' passion to their potential backers in the social network platform.

## Discussion

To uncover the secret of the crowdfunding success, we employ the signaling theory as the theoretical lens to investigate the relationships between signals from creators and projects and the fundraising success, and examine the moderation effects of backers' comments and creators' replies on these relationships.

Our study has four key findings. First, signals from creators influence the fundraising success. As shown in Table 3, creators' past experience as backer significantly affects number of backers, and creators' past experience as creator is positively associated with the total pledge and the ratio of total pledge divide by pledge goal. We highlight the important roles of creators' past experience in the crowdfunding project that are neglected in the past studies. Creators' past experience as backers can serve as the signal of homophily (Zvilichovsky et al. 2014), and helps to create an implicit bonding between creators and backers, thus increasing the number of backers. Creators' past experience as creators can be seen as a signal of competence and helps to increase the total pledge and the ratio of total pledge divide by pledge goal.

Second, signals from the project description have no significant effects on fundraising success. Different from the prior studies (Kuppuswamy and Bayus 2014; Mollick 2014), our results indicate that the use of videos has no relationship with the fundraising success and neither does the campaign duration. A possible reason for the inconsistent findings is that our sample contains only successful projects. Our findings suggest that the projects that have a video are likely to succeed in reaching the pledge goal, but the videos cannot help the already successful project to be more successful by attracting a larger amount of funds. A long campaign duration may reduce the crowdfunding success before the pledge goal is reached; however, the duration has no effect on the total amount of funds after the pledge goal is exceeded.

Third, the numbers of backer's comments and creator's replies can significantly improve the chance of the fundraising success. This suggests that social interaction between backers and backers and between creators and backers can play an important positive role in the crowdfunding process.

Fourth, screening mechanisms moderate the relationship between signals and the fundraising success. Backers' comments negatively moderate the relationship between the campaign duration and the fundraising success. Creators' replies negatively moderate the relationship between the use of videos and the fundraising success, while creators' replies positively moderate the relationship between the campaign duration and the fundraising success. These results have theoretical and practical implications, as discussed next.

### *Implications for Research*

While some studies have examined the antecedents of the crowdfunding success (Burtch et al. 2014; Kim and Viswanathan 2014; Mollick 2014; Zvilichovsky et al. 2014), few studies utilize a theory oriented approach to understand the role of key factors in influencing the fundraising outcomes. We employ signaling theory to develop a theoretical explanation of the fundraising success. Three key aspects of this study signify our contributions to the crowdfunding research.

First, to the best of our knowledge, this work is one of the first to investigate the secret of the crowdfunding success from the perspective of signaling theory. By simultaneously considering both signaling and screening in the crowdfunding process, we investigate the relationships between the signals from creators and projects and the fundraising success and the moderation effects of backer's screening on these relationships, which not only provides a holistic view on the antecedents of crowdfunding success in the presence of information asymmetry, but also extends the research context of signaling theory.

Second, this study integrates two kinds of signals in crowdfunding: signals from creators and signals from projects. In the literature, information about creators' past experience is largely neglected when studying the antecedents of crowdfunding success. In this study, we show that creators' past experience as creator helps to increase the total pledge.

Third, we not only examine signals sent by creators, but also try to understand how these signals are screened by potential backers. We propose that potential backers perform screening by posting comments and asking questions to the creators. The point is, potential backers are not just passive receivers of signals. They can also proactively request additional signals from the creators. This dynamics of the relationship between creators and backers is only possible in the crowdfunding environment enabled by social media technologies. Our research shows that the potential backers' screening behavior and the additional signals generated during the screening process are much better predictors of the crowdfunding success than the signals generated by the creators at the beginning of the crowdfunding.

Finally, by examining the moderation effects of screening on the relationship between signals and the crowdfunding success, we show that besides the static information about creators and project description, the investment behaviors of potential backers can be influenced by other backers' comments and creators' replies. This suggests that the backers' investment decisions are possibly subject to social influences.

### *Implications for Practices*

Our findings provide several practical implications for creators who want to raise their fund in the crowdfunding platform. In order to get more funds, creators should emphasize their past performance as creators in the crowdfunding platform. Besides this signal, the creators should encourage potential backers to post comments and questions on the crowdfunding website. They also need to actively engage in providing timely answers to the questions raised by potential backers. A large volume of comments and replies will not only increase the popularity of the project, but also reduce information asymmetry between creators and potential backers by allowing potential backers to share information with each other and by transferring information from creators to potential backers. With more information about the project, potential backers' decision to invest on the project can be facilitated.

While the campaign duration is not a significant determinant of the crowdfunding success, our moderation analysis shows that when the number of backer's comments increases, the duration will have a negative effect on the crowdfunding success. Therefore, creators should carefully set the campaign duration so that it is not too long to leave doubts in the mind of potential backers. In the case that a prolonged fundraising period is needed, the creators need to actively interact with the potential backers to sufficiently explain why the extended time is necessary. The positive moderation effect of creator replies on the duration-success relationship suggests that creator's replies can mitigate the negative effect of the duration. In addition, we find a negative interaction between the use of videos and creator's replies. This is possibly caused by inconsistencies between the contents of the videos and creator replies. When potential backers notice inconsistencies, their confidence in the creator and the project will decline. Therefore, it is advisable for creators to be truthful about their claims in the videos and avoid self-contradictory statements in their replies to questions from potential backers.

### *Limitations and Future Research Directions*

We acknowledge several limitations that should be considered while interpreting our results. First, the data collection is conducted in one specific crowdfunding platform, which could limit the generalizablity of our results. Furthermore, since we cannot collect the information of unsuccessful projects, only successful projects are used in the analysis. Our findings are intended to explain the crowdfunding success in terms of how much more money is raised than the expected goal. They cannot be used to explain what factors influence the probability for crowdfunding projects to reach their preset goals. Second, we focus on the number of comments from backers rather than the contents. Positive and negative comments should differ in their effects on the crowdfunding success. It might be of interest for future research to measure the impacts of positive and negative comments separately, possibly by conducting the sentiment analysis. Finally, our findings suggest that the investment behaviors of potential backers are influenced by other backers' comments and creators' replies. Because of our cross-sectional research design, backers' investment behaviors can't be examined in a longitudinal manner. Future studies can use the panel data analysis to generate more insights.

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