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## Article

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## Article

# The Effect and Impact of Signals on Investing Decisions in Reward-Based Crowdfunding: A Comparative Study of China and the United Kingdom

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**Abstract:** When traditional financial institutions faced difficulties in the task of assisting micro, small and medium-sized enterprises (MSMEs) with capital allocations, crowdfunding can upsurge as an innovative and vibrant vehicle that can support and assist the activity of such MSME's, by financing their activity and instrumenting the process of risk-sharing. Simultaneously with its enormous growth and popularity, crowdfunding is faced by several key challenges, one of biggest such challenges referring to the problem of information asymmetry that can exist between fundraisers and potential backers. Based on the signaling theory, a research taxonomy has been developed for a comparative analysis between China and the UK. This has been accomplished by retrieving secondary data from the following crowdfunding platforms: Dreamore (Chinese platform) and Crowdfunder (UK platform). The objective of the study is to investigate both the effect and the impact that signals (goal setting, project comments and updates) have upon mitigating the problem of information asymmetry, in order to make the project successful. We have thus deployed an Ordinary Least Square (OLS) regression and validated the models through a robustness check. The findings reveal that signals actively mitigate the problem of information asymmetry in both countries, but this varies in the sense that higher goal setting has a more positive/impactful relationship with project success in the UK than it does in China. Project comments are more positively associated with project success in China as compared to the UK, whereas project updates are more negatively related to project success in China as compared to the UK. These findings demonstrate the importance that signals have upon successful crowdfunding activities/campaigns, highlighting the theoretical and practical influence and relevance for potential fundraisers in the two aforementioned economies.

**Keywords:** crowdfunding; MSMEs; signaling theory; information asymmetry; China; United Kingdom

## 1. Introduction

The creation of employment opportunities for individuals at a large scale, even at a global level, together with uplifting the economies of developing and developed countries alike, have at their core the micro, small and medium-sized enterprises (MSMEs). The reasoning behind the previous statement

refers to the importance of MSMEs, given that they are considered as being the key contributors in a scenario where emphasis is placed upon the creation and development of employment opportunities (Huang et al. 2018). Even if their impact is quite large, as according to Abraham and Schmukler (2017), regardless of MSME's substantial and ever-increasing role in the improvement and development of economies, access to financial support is comparatively low, as compared to the ease of access manifested by large scale businesses. Such MSMEs are considered as “born to be young” companies, because to a certain extent, such companies are immature, have inadequate borrowing records, and have no apparent informational opacity. Such companies have made up 37% of the world market in 2018, whereas in Europe and the United States, such companies accounted for 18% and 33% of those respective markets. Furthermore, it is speculated by the World Bank that by the end of 2025, the developing economies would raise roughly \$ 96 billion in financing from the crowdfunding market, out of which \$ 50 billion would come from the Chinese crowdfunding market; what is more, such figures would also be accompanied by a rise in the number of female investors and fundraisers (World Bank 2013). There are many factors and dynamics influencing the fast progress of the Chinese crowdfunding market. Some of these factors are:

- A large number of online users (FSDC 2016). In 2018, the Chinese market had around 1.12 million mobile subscribers, together with 751 million internet users. At the same time, this great market also had 911 million social media mobile users, the majority of which are users who have used and which have possessed digital currency (Huang et al. 2018).
- The effects that the 2008 financial crisis has had on the world economy, including the Chinese market.
- Initiation/creation and launch of a large number of social media platforms through constant technological development.

At the same time, the United Kingdom (UK) was selected for this comparative study based on several reasons. The UK is the most global of all developed countries (BBC 2017). When measured based on nominal gross domestic product (NGDP), the economy is the fifth largest in the world. The UK market is the second-largest economy in the European Union (Pariona 2017; Torchio et al. 2020). What is more, the British economy is an archetypal moderately open Western economy. Simultaneously, the UK crowdfunding industry has shown an astonishing growth, flourishing from USD 2.20 billion to USD 4.05 billion in the 2014–2015 time-period. During 2016, the UK crowdfunding market expanded at a growth rate of 43.4%, totaling a growth of USD 5.80 billion (UpEffect 2018). According to the 5th UK Alternative Finance Industry Report, the UK market grew by 35%, to £6.2 billion (USD 8.08 billion) during 2017, from a total of £4.6 billion (USD 6.07 billion) over the last 12 months (UpEffect 2018). As per Statista (2018), the UK crowdfunding market transaction value amounts to USD 14.9 billion, and it is speculated that the market will attain an annual growth rate (CAGR 2018–2022) of 15.3%, which will result in an overall market value of USD 26.25 billion by 2022 (Statista 2018). According to the Office for National Statistics, the UK's internet penetration rate was 95% of adults aged 16 to 74 in 2018, the third-highest in the European Union (Prescott 2019).

Moreover, the UK is accepted as a world leader as regards equity crowdfunding from the perspective of market expansion, regulatory framework, and market size (Ralcheva and Roosenboom 2019). The ample market growth will endow a strong foundation and enriching environment, necessary for the future expansion and accelerated growth of the crowdfunding market. Hence, the UK is selected alongside China in order to compare the crowdfunding markets present in these two economies.

Based on the above popularity and the accelerated growth of the crowdfunding market, several challenges remain, for creators and backers alike. One of the most pressing challenge refers to information asymmetry (Ahlers et al. 2015; Mollick 2014; Belleflamme et al. 2014), which is pervasive in crowdfunding setting and markets (Steigenberger and Wilhelm 2018). This occurs for various reasons. One such reason refers to information held by potential backers, which are considerably less knowledgeable than traditional investors. Simultaneously, the regulatory framework is not

well-established, as opposed to other traditional forms of financing. Hence information asymmetries among creators and backers are more prevalent in crowdfunding than in venture capital financing (Courtney et al. 2017; Ahlers et al. 2015). In such a situation, signaling plays an important role in the decision-making process of potential backers for any particular project; this occurs because signals diminish the levels of uncertainties and observed information asymmetries (Herzenstein et al. 2011; Lin et al. 2013; Moysidou and Hausberg 2020). Former/earlier studies have been tasked with and have focused on investigating the role that signals play in resolving the problem of information asymmetry in crowdfunding markets (Courtney et al. 2017; Usman et al. 2019; Nguyen 2017; Wang et al. 2018), but some of these earlier empirical studies revealed inconsistent results while investigating the role, importance and effects of signals. The effects of goal setting on campaign success fall under this category (studies with inconsistent results), given that few studies have highlighted any positive effects (Li and Duan 2014; Yang et al. 2019), no effects (Xiao et al. 2014) and negative effects (Burtch et al. 2013; Lagazio and Querci 2018; Koch and Siering 2015; Kunz et al. 2017; Petitjean 2017). Similarly, inconsistent results concerning the impact of updates and comments on project success were either positive (Wang et al. 2018; Borst et al. 2017; Yang et al. 2019; Shahab et al. 2018), negative (Kuppuswamy and Bayus 2013; Raab et al. 2017), or with no impact (Petitjean 2017; Cordova et al. 2015). These contradictory results indicate that the associations between goal setting, project comments, project updates and project success are more complicated than the results predicted by former/past empirical studies.

Motivated by these unfilled gaps and so as to shed some light on these inconsistent outcomes, we have developed a hypothesis. We have collected data from Dreamore (China) and Crowdfunder (UK) crowdfunding platforms in order to examine the effects and impacts of signals (i.e., goal setting, project comments, and updates) on project success. To the best of our knowledge, this paper is one of the first empirical studies tasked with comparing and examining the effects and impacts of signals of two major economies, given that previous authors have only investigated signaling dynamics mostly related to single/individual economies (Clauss et al. 2017; Vismara 2018; Petitjean 2017; de Larrea et al. 2019; Courtney et al. 2017; Alfiero et al. 2014; Piva and Rossi-Lamastra 2018; Hong et al. 2018). After the analysis, we have found that signals are strongly mitigated by information asymmetry in both countries, but with specific variances/differences. Our investigations have found that higher goal setting has no substantial effect on project success from the Chinese perspective, as compared to the UK market. This means that high goal setting is not always positively signaling the likelihood of project success. By contrast, low and moderate goal setting also plays a vital role for the success of a project. Moreover, comments have a positive association with project success in China, as opposed to the UK market; lastly, project updates have a negative relationship with project success in China, as opposed to the situation of the UK market.

This study is designed as follows: during the next section, we have tasked ourselves with presenting the online alternative-financing market dynamics between the Chinese market and its UK counterpart. Following, we have developed the corresponding research hypothesis. Next, we have continued with an explanation of the research methods and have reported the empirical results. Lastly, the study ends with a brief presentation of our findings and a discussion regarding the practical implications for future research, together with some limitations of this present study.

## 2. Literature and Hypothesis Development

### 2.1. Cultural Differences Between China and UK

The two countries are also particularly relevant to our study because of their cultural differences. A leading expert on cultural disparities between nations, Hofstede (2007) found that cultural distinctions impact how people perceive and understand the world in a society or in various cultures. This continues to change people's way of living and job patterns across communities, contributing to diverse management styles and organizational frameworks (Westwood and Everett 1987). Cultural variations in these two markets have been identified from previous empirical studies associated with

backers' decision-making in any particular project and determining project success factors in the crowdfunding market (Zheng et al. 2014; Cho and Kim 2017; Chu 2017). Furthermore, these authors concluded that cultural disparities could partially explain the gap between the United Kingdom and Chinese crowdfunding markets and, more specifically, according to Zheng et al. (2014), the success of crowdfunding is influenced by culture. Another difference between the UK and China takes into account the diverse degrees of due diligence expressed both in terms of the cultural setting of the countries, and also in terms of the way in which due diligence is manifested on the crowdfunding platforms. Prior evidence indicates that due diligence is important in explaining crowdfunding success across platforms (Cumming et al. 2019).

On the one hand, the United Kingdom is described as an individualistic culture, whose members tend to rank several individuals' goals over those of the group (Hofstede 2007; Goraya and Usman 2011; Amankwah and Viyu 2011). The Chinese culture, on the other hand, emphasizes the concept of Guanxi, which is described as "drawing on connections to secure favors in personal relations" (Luo 1997, p. 44), and to satisfy own goals (Zheng et al. 2014). According to the theory of Guanxi, it consists of three aspects, namely "Ganqing", "Xinren" and "Renqing". These concepts accentuate the significance of own associations (Barnes et al. 2011). "Ganqing" refers to a personal feeling that indicates emotional attachment among members of a network, "Xinren" means trust that focuses on the credibility and benevolence between individuals. "Renqing" refers to the notion of favor, and often takes the form of gift-giving (Zheng et al. 2014). A study has showed that the Chinese are often more reciprocal than their American and European counterparts (Buchan et al. 2002). Chua et al. (2009) found that the impact of economic trade on "affect-based trust" is more favorable for Chinese than it is for Europeans and Americans.

Furthermore, effect and cognition-based trust are more interconnected for Chinese managers than they are for European managers. Therefore, a Chinese entrepreneur's duty can involve encouraging and bringing forth additional potential investors to pledge in crowdfunding campaigns favored by the entrepreneur. Since regions differ from the standpoint of business culture, risk-taking and crowdfunding strength, the means, methods and tools used to encourage crowdfunding vary greatly. Given such cultural differences, from a scientific point of view, it is important to consider the significance of signaling dynamics in a crowdfunding settings and how qualitative signals of a project can act as a catalyst in appealing to potential backers, in order to sponsor and promote innovative and viable projects.

## 2.2. Online Alternative-Financing Market Dynamics between China and UK

Numerous online alternative financing prototypes are being viewed as a "new brand of innovative, decentralized and potentially disruptive alternative finance source in supplying credit to consumers, providing early-stage investments to start-ups and growth capital to SME's" (Wardrop et al. 2015, p. 10). These various prototypes offer an opportunity for new projects and businesses alike. Such prototypes are to be considered as the source for future development and blooming in different societal segments and for diverse purposes (Baeck et al. 2014); as a result, these prototypes open even more exciting and vivid paths for potential consumers, granting them the opportunity to lend or borrow capital, thus creating challenging jobs, nurturing innovation, and financing social causes at a larger scale. The following Table 1 exhibits the market dynamics that exist at Chinese and UK market levels.



**Table 1.** China and UK market dynamics.

Crowdfunding Prototypes	China	UK
Overall market growth	China's online alternative-financing market volume accounted for 99% in total of the Asia-Pacific region, reaching USD 358 billion in 2017.	The UK online alternative-financing market volume grew by 35% year-on-year and has reached a value of USD 9.07 billion in 2017.
Crowdfunding market size	It is estimated that the transaction value of the Crowdfunding segment amounts to USD 7048.9M in 2020.	It is estimated that the transaction value of the Crowdfunding segment amounts to USD 99.5M in 2020.
Reward-based Crowdfunding	Reward-based CF raised a total of USD 16M in 2016 and USD 540M in 2017.	The total volume of reward-based CF between 2011 to 2017 has amounted to USD 243 million; 24% (USD 58M) of this value was obtained in 2017.
Donation-based Crowdfunding	In 2017, the volume of Donation based CF reached USD 22.1M. In comparison to 2016, this represents an increase of 7.68%.	Donation-based CF has raised a total of USD 126M between 2011–2017, out of which 43% (USD 54.1M) is attributable to 2017.
Equity-based Crowdfunding	China's equity CF market shrank by 51% during 2017, which amounts to USD 225M. Furthermore, the market share is 0.1%.	The total volume of equity-based CF between 2011 to 2017 has amounted to USD 1272.92, 34% (USD 43.7M) in 2017 alone.
P2P Lending-based Crowdfunding	The Chinese P2P lending-based CF market grew by 64%, amounting to USD 224 billion in 2017. This P2P market has captured 63% of the Chinese alternative-financing market.	The UK P2P lending-based CF market is considered the fastest growing market in the UK, with an annual growth rate of 66%, amounting to a total value of USD 6.11 billion in 2017.
Total number of platforms	Currently, 332 crowdfunding platforms operate on the Chinese market.	According to the CrowdingIn directory, a total of 65 active and operating UK-based CF platforms exist.

Source: (Ziegler et al. 2018; Huang et al. 2018; Statista 2019; Zhang et al. 2018; Tsai and Wang 2019).

### 2.3. Hypotheses Development

#### 2.3.1. Goal Setting

The creator of a project in a crowdfunding environment must specify and clearly define the setting of goals in advance. The latest studies have determined that the decision related to goal setting has a significant impact on the robustness of overload (Chernev et al. 2015). Hence, it is critical and crucial for the creator of a project to set a suitable funding amount. Therefore, building upon motivation theory, the importance of proper goal setting is implied. Thus, we can claim that goal setting is an essential factor for motivations, which has the opportunity of enhancing performance (Yang et al. 2019). Suitable goal setting acts as a guarantee and ensures the fruitful initiation of a project initiation and its future success (Cumming et al. 2020).

Current studies on the topic of goal setting specify unreliable outcomes associated with the role that goal setting has upon campaign success. On one side, setting higher goals (or goals that are more difficult to achieve/obtain) entails captivating a large number of financiers or backers that may hamper or inhibit the success rate of a campaign (Zhang et al. 2015; Cordova et al. 2015; Koch and Siering 2015). On the other hand, according to Hakenes and Schlegel (2014), setting a higher goal through All-or-nothing (AON) models helps to attract many crowds and thus reduces the level of information asymmetry and risk associated to financing such a venture. Similarly, the setting of higher goals is quite challenging and can arouse an individual's motivation and appeal towards any specific crowdfunding campaigns; this is true especially in the context of reward-based crowdfunding, which has adopted AON model, where backers would be tempted and interested in supporting the creative products of a fundraising

campaign (Burtch et al. 2013; Cumming et al. 2020). Based on the above propositions and given the mixed outcomes concerning project success in the goal setting process, we argue that the effect of higher goal setting on campaign success is more influential by nature. In contrast, low and moderate goal setting levels likely have no substantial effect on campaign success. Therefore, we hypothesize that:

**Hypothesis 1 (H1).** *The setting of higher/more challenging goals reveals a positive association to campaign success on the Chinese as compared to the UK market.*

### 2.3.2. Project Comments

Comments arising from the crowds of potential investors in any project show the community's involvement in a specific project. This, in turn, highlights the appeal for a particular project. In the same time, this appeal can be viewed as an expression of trust manifested by the community towards the project (Dwyer 2007). Answering the comments placed by potential backers during the campaign can provide extra information and give the project backers a signal that they are playing an active role in raising money for the campaign (Makysova 2017). Entrepreneurs should place more importance on such comments, given that successful entrepreneurs can transform them into valuable opportunities (Jack et al. 2008). Simultaneously, Cordova et al. (2015) claimed that the impact of comments on project success is still uncertain because such comments may contain an expression of information in the shape of opinions from potential backers. Such expressions may be positive or negative, but their real significance about campaign success has yet to be proven to be accurate. Buttice et al. (2017) have assumed that comments are chiefly positive, which automatically enhances the backers' interest, whereas negative comments about crowdfunding campaigns are sporadic. According to Reis (2015), when a project is online and has more than 10% comments, its success rate is increased by 3.5%.

Furthermore, according to Antonenko et al. (2014), project comments highlight the backer's engagement in the campaign. Such comments thus lead to a process of establishing a bridge/a connection between backers and the founder(s), which in turn provides the backers with the opportunity to learn more about the project and provide valuable feedback. Offering feedback is helpful for the founder(s), given that constructive feedback can lead to a more accurate and efficient product development process. Thus, it is suggested that the more feedback (in the shape of comments) is received by and through a crowdfunding campaign from its potential backers, the higher the success rate of the project will be. Therefore, we hypothesized that:

**Hypothesis 2 (H2).** *More comments received by a project will positively impact the likelihood of a successful crowdfunding campaign in the Chinese market as compared to the UK crowdfunding market.*

### 2.3.3. Project Updates

The updated information supplied by the founder(s) about the campaign gives the impression of support, given that the founder shares such information in the form of news concerning updated achievements and development opportunities. This type of information demonstrates the commitments and capabilities of the project creator to push the project forward. What is more, it also refers to ways of overcoming information asymmetry associated with/to the campaign (Kuppuswamy and Bayus 2013; Xu et al. 2014). According to Kunz et al. (2017), updates are a current method through which founders can brief their potential backers about the progress of the campaign. Updates could appear as separate pop-ups on the project page, or they can take the shape of a personal message to all potential backers who have already decided to make a financial contribution. Regularly updated information is thought of as a positive sign of more voracious funding efforts (Mollick 2014). Xu et al. (2014) have examined the updates of project descriptions and have sampled 8529 campaigns from Kickstarter. They claim that the chances of success for a project without updates were 32.6%, whereas the chances of success of a project that has consistently posted updates were 58.7%. Such results can be interpreted in the following way: updates have the potential of being just as important as creating the actual project

when determining the outcome of a campaign. According to Anglin et al. (2018), updates regarding the crowdfunding campaign play the role of communication and exchange of information between founder(s) and backers. Such sharing of information between said entities can only occur through dialogue. This may provide researchers with additional insight into how the dynamics between the crowd and the founder shape the crowdfunding decisions of the founder/entrepreneur.

In the same time, Mollick (2015) has stated that there were insufficient factors that seemed to predict the failure of a project, as observed by the backers of a project. Even so, projects that showed signs of creative efforts, such as making videos or posting updates before the fundraising deadline were perceived as less likely to fail. In the form of updates, the exchange of information and communication during a campaign can produce a unified rapport/conformity, which could lead to excitement and enthusiasm on the backers' side. This communication can thus assist in the process of decreasing information asymmetries among the involved parties (Moss et al. 2015). Therefore, we hypothesized that:

**Hypothesis 3 (H3).** *Project updates have a positive impact on the likelihood of success of a crowdfunding campaign in the Chinese market, as compared to the UK crowdfunding market.*

### 3. Methods and Data

#### 3.1. Measures

##### 3.1.1. Dependent Variables

**Project success:** Crowdfunding users are extremely interested in checking the project's status from its date of initiation/inception and up until its completion. As the funding levels differ from time period to time period and from project to project, it is inappropriate to think of project success only by measuring the total collected amounts. Therefore, the project success measurement was the ratio of the project's actual collected amount, divided by the targeted collected amount of the project. The formula, is shown/presented the below:

$$\text{Project Success} = \frac{\text{Actual Collected amount}}{\text{Targeted collected amount}}$$

##### 3.1.2. Independent Variables

**Goal setting:** Each project creator sets a target goal for a project that the founder would want to attain. Therefore, the targeted amount was an expression of the overall amount a creator sets to achieve as the desired target.

**Project comments:** Comments are one of the most important quality signals of a project and such, they have the potential of increasing the popularity of a project; what is more, comments strongly influence the success rate of projects Reiss (2015). Therefore, the project comments were operationalized as the total number of comments during the fundraising activity.

**Project updates:** The creator of the project communicates/shares information in the form of updates for fueling and increasing the confidence levels of the potential backers; updates also acts as an inspirational factor, motivating other backers into joining and financing the project. Therefore, project updates referred to the total number of updates during the fundraising activity.

##### 3.1.3. Control Variables

We also collected data for five control variables. *The pledged* amount was measured as the total amount of money received by the project during fundraising activities. *The role of media* was measured in the following manner: projects having no video and no image were coded with 0; if the project has only images, then it was coded with 1; if it has only videos, then it was coded with 2; finally, if the project has both video and images, then it was coded with 3. *Experience as a creator* was measured as the



number of campaigns that the project founder has previously initiated. *Experience as a backer* referred to the total number of campaigns that the project founder has supported. *The number of supporters* referred to the total number of backers who support the project during the funding activity. Based on the above literature, we designed the theoretical framework for the current study as shown in Figure 1.

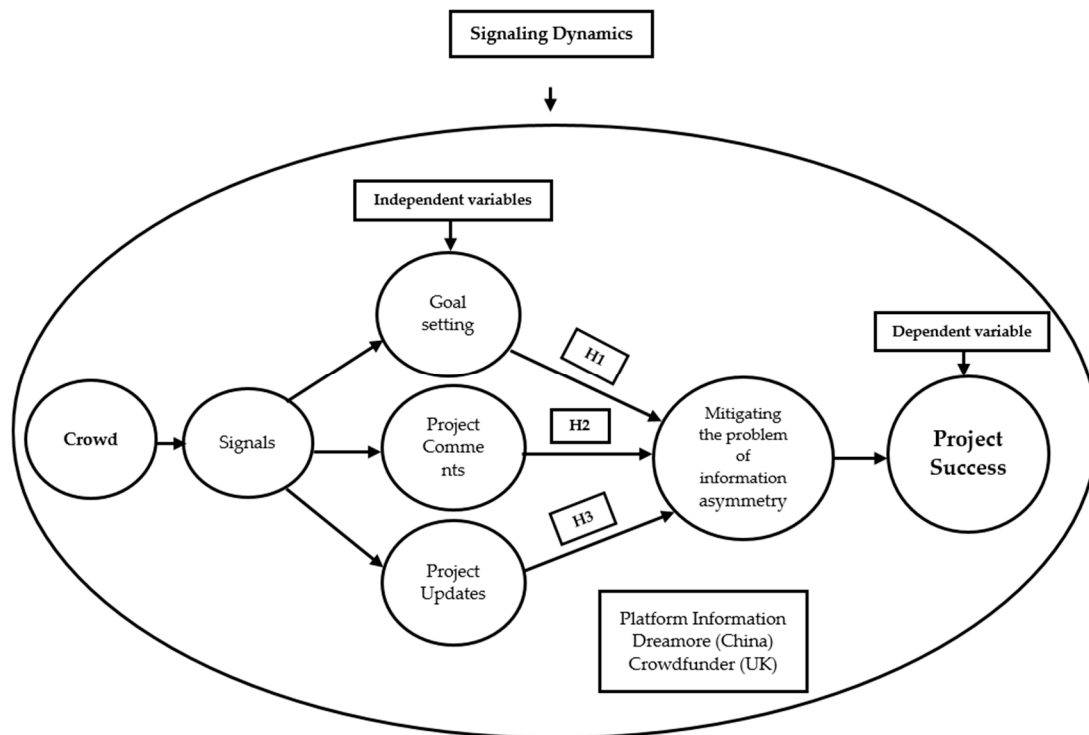


Figure 1. Theoretical framework.

### 3.2. Data Collection

We used and selected data from both Dreamore (China) and Crowdfunder (UK) crowdfunding platforms for cross-comparison. These reward-based crowdfunding platforms from each of the two countries are well-known, widespread and are actively used (Chu 2017; Wang et al. 2018). Both platforms are generalist platforms, as they accept campaigns from diverse areas and work in line with an All-or-nothing (AON) model. By adopting a random sampling procedure, we used hand-coded variables for the data-extraction procedure for each project. Following the approach of other crowdfunding studies (Oba et al. 2018; Bukhari et al. 2019; Clauss et al. 2017; Petitjean 2017), we extracted a total of 650 projects from Dreamore and 700 projects from Crowdfunder, for the time period between September and December 2019. We excluded projects with insufficient and incorrect information, e.g., missing information, deleted projects, those having goals of less than USD 1000, or those with enormous pledges/goals ratios, which were outliers in our dataset. Therefore, our final data set consisted of 500 projects from Dreamore and 500 projects from Crowdfunder. Previously, Wang et al. (2018) and Usman et al. (2019) have used these platforms for studying the interaction and signaling dynamics between creators and backers involved in crowdfunding.

### 3.3. Methods

To test the research model, this study adopted the Ordinary Least Square (OLS) regression framework for data interpretation and analysis. The present study made use of the following statistical tools: SPSS and STATA. Previously, Bukhari et al. (2019); Zheng et al. (2014); Shahab et al. (2018) also used such a framework to investigate the signaling dynamics from the perspective of diverse but singular/individual economies. Furthermore, following on the works of Kohtamäki et al. (2013);

Fang et al. (2008), and Yang et al. (2019), we created a square term for “goal setting<sup>2</sup>”, this being done in order to examine the effects of goal setting on project success. We thus estimated the following linear equation:

$$\text{Project Success} = \alpha_0 + \beta_1 * \text{Goal setting} + \beta_2 * \text{Project Comments} + \beta_3 * \text{Project Updates} + \beta_4 * \text{Goal setting}^2 + \text{Controls} + \varepsilon$$

In the above equation, goal setting refers to the total achievable amount set forth by the creator of the project. Project comments refer to the total number of comments that a project has received during the fundraising activity. Project updates refers to the total number of updates for a particular project during the funding activity. Goal setting<sup>2</sup> refers to the square value of goal setting.

#### 4. Data Analysis and Results

To run the research model in a regression framework, we have first run the diagnostic test to ensure and prove the results, this being accomplished by eliminating any controversial/inconsistent data that might exist between the variables. In this study, the diagnostic test included the following: multicollinearity, heteroscedasticity, and Durbin Watson test. Multicollinearity has been checked and verified through the variance inflation factor (VIF) (refer to Table 2); the results depicting multicollinearity for each independent have VIF variables below the threshold of 5, which means that multicollinearity is not a severe issue in the current approximation (Wang et al. 2018; Giudici et al. 2018). The Durbin Watson test is used to check for an autocorrelation between the models, and the test results should be between 1.8 and 2.2 (Fall 2008; Hui 2017). According to our findings, the Durbin Watson test results fall within the above-mentioned interval, suggesting the absence of an autocorrelation problem in the current study (refer to Table 4). Log transformations were applied on all of the independent and dependent variables in order to reduce heteroscedasticity, skewness and improve the significance of the results of the model (Usman et al. 2019; Henderson and Fredrickson 2001; Fong et al. 2015; Kennedy 2008).

Table 2. Multicollinearity.

Variable	China		UK	
	Tolerance	Variance Inflation Factor (VIF)	Tolerance	Variance Inflation Factor (VIF)
Goal setting	0.113	1.872	0.330	3.031
Project comments	0.826	1.210	0.748	1.338
Project updates	0.631	1.586	0.877	1.140
Pledged amount	0.360	2.779	0.316	3.166
Experience as backer	0.981	1.019	0.968	1.033
Experience as creator	0.807	1.239	0.963	1.038
Role of media	0.805	1.243	0.936	1.069
Number of supporters	0.102	1.830	0.627	1.595

##### 4.1. Descriptive Statistics

A sample of 1000 projects has been extracted from the two Chinese and UK crowdfunding platforms; 591 projects are successful while 409 are unsuccessful. Amongst the 591 successful projects, 244 are projects from the Chinese market sample, and 347 are projects from the UK market sample. The descriptive statistics and all the data of the analyzed projects are exact and based on the obligation/pledged amount (refer to Table 3). The correlation matrix coefficients for all the Chinese sample variables are between −0.04 and 0.277, whereas, for the UK sample, the coefficients are all between −0.01 and 0.484. Therefore, the correlation coefficients between all the variables in both countries are statistically significant at 1% and 5%, respectively. Table 3 shows the descriptive analysis and correlation matrix for both countries.

**Table 3.** Mean, standard deviations and correlations.

Variables	M(SD) China	M(SD) UK	Project Success	Goal Setting	Project Comments	Project Updates	Pledged Amount	Experience as a Backer	Experience as a Creator	Role of Media	Number of Supporters
Project success	80.82 (168.291)	105.32 (73.81)	1	−0.041 (0.363)	0.103 * (0.022)	−0.157 ** (0.000)	0.104 * (0.020)	−0.016 (0.721)	0.102 * (0.023)	−0.022 (0.626)	−0.033 (0.466)
Goal setting (USD)	5721 (14,158.65)	18,924 (43,344)	−0.175 ** (0.000)	1	0.070 (0.115)	0.216 ** (0.000)	0.278 ** (0.000)	−0.004 (0.937)	−0.106 * (0.018)	−0.041 (0.359)	0.229 ** (0.000)
Project comments	6.89 (29.26)	7.40 (14.12)	0.180 ** (0.000)	0.142 ** (0.001)	1	−0.209 ** (0.000)	0.100 * (0.025)	−0.013 (0.765)	−0.044 (0.321)	0.185 ** (0.000)	−0.062 (0.166)
Project updates	0.50 (0.501)	3.27 (4.45)	0.060 (0.183)	0.126 ** (0.005)	0.179 ** (0.000)	1	0.164 ** (0.000)	0.076 (0.089)	−0.351 ** (0.000)	−0.358 ** (0.000)	0.321 ** (0.000)
Pledged amount (USD)	3663.14 (11,564.93)	14,341 (36,002)	0.079 (0.079)	0.210 ** (0.000)	0.206 ** (0.000)	0.223 ** (0.000)	1	0.008 (0.853)	−0.061 (0.172)	−0.029 (0.514)	0.277 ** (0.000)
Experience as a backer	0.88 (1.606)	1.12 (2.205)	0.147 ** (0.001)	−0.080 (0.074)	0.066 (0.140)	0.091 * (0.043)	−0.024 (0.595)	1	−0.087 (0.053)	−0.079 (0.076)	0.024 (0.590)
Experience as a creator	1.74 (2.123)	1.38 (1.245)	0.295 ** (0.000)	−0.041 (0.361)	0.098 * (0.028)	−0.027 (0.540)	0.011 (0.799)	0.091 * (0.041)	1	−0.090 * (0.044)	−0.113 * (0.011)
Role of media	1.23 (0.643)	1.33 (0.810)	−0.068 (0.128)	0.157 ** (0.000)	0.001 (0.987)	0.195 ** (0.000)	0.146 ** (0.001)	−0.041 (0.364)	−0.039 (0.379)	1	−0.113 * (0.011)
Number of supporters	4315.18 (13,221.09)	131.20 (234.87)	0.183 ** (0.000)	0.390 ** (0.000)	0.484 ** (0.000)	0.217 ** (0.000)	0.434 ** (0.000)	−0.001 (0.983)	0.113 * (0.011)	0.118 ** (0.008)	1

Notes: \* China and UK currencies were exchanged into U.S. dollars for this comparison; \* The upper right side of the correlation matrix represents the Chinese crowdfunding campaigns, whereas the lower left side of correlation refers to the UK crowdfunding campaign; \*  $p < 0.05$  (2-tailed), \*\*  $p < 0.01$  (2-tailed).

#### 4.2. Multivariate Analysis

In order to investigate our results and to construct our research model, we have followed upon the works of authors such as Bukhari et al. (2019); Zheng et al. (2014); and Shahab et al. (2018). To validate our hypothesis, both an Ordinary least Square (OLS) regression and a robust regression have been conducted.

Table 4 portrays the result of the predictors of project success. What is more, Table 4 details the OLS regression results by using six models: Models 1, 2 and 3 represent values for China and Models 4, 5 and 6 refer to values for the UK. Model 1 and Model 4 examine the main effects of goal setting, project comments and project updates. Model 2 and Model 5 discuss the control effects, including experience as a backer, experience as a creator, the role of media and the number of supporters, whereas Model 3 and Model 6 refer to the control and the main effects. From Model 1 to Model 6, we examine the square term “Goal setting<sup>2</sup>” regarding project success.

**Table 4.** Regression results. Outcome variable: project success.

Independent Variables	China			United Kingdom		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Constant	96.357 *** (11.155)	63.606 ** (19.069)	82.386 *** (20.305)	112.423 *** (4.514)	79.592 *** (6.974)	90.537 *** (6.716)
Goal setting	−0.002 (0.001)		−0.005 ** (0.002)	−0.001 *** (0.000)		−0.002 *** (0.000)
Project comments	0.596 * (0.217)		0.531 * (0.274)	1.078 *** (0.223)		0.293 (0.229)
Project updates	−8.761 * (4.797)		−7.671 (4.713)	1.204 * (0.035)		0.112 * (0.676)
Goal setting <sup>2</sup>	1.803 (0.000)	−1.741 (0.000)	1.964 (0.000)	3.065 *** (0.000)	−1.921 *** (0.000)	2.002 *** (0.000)
Pledged amount		0.005 *** (0.001)	0.005 *** (0.001)		0.001 *** (0.000)	0.001 *** (0.000)
Experience as a backer		−0.404 (4.632)	−0.640 (1.289)		3.735 ** (1.375)	2.439 * (1.289)
Experience as a creator		7.261 * (3.541)	6.988 * (2.286)		14.786 *** (2.457)	13.580 *** (2.286)
Role of media		1.792 (10.252)	0.516 (10.265)		−8.005 * (3.781)	−2.450 (3.599)
Number of supporters		−0.003 * (0.001)	−3.702 (0.002)		0.039 ** (0.014)	0.064 *** (0.016)
Observations	500	500	500	500	500	500
R <sup>2</sup>	0.022	0.051	0.074	0.136	0.177	0.297
Adj R <sup>2</sup>	0.14	0.040	0.057	0.129	0.167	0.285
F-test	2.833 *	4.458 ***	4.338 ***	19.477 ***	17.655 ***	23.090 ***
Durbin-Watson	1.936	1.946	1.925	1.805	1.994	1.852

Notes: The standardized coefficients and standard error are reported; \*\*\*, \*\*, \* indicate that  $p < 0.001$ ,  $p < 0.01$ ,  $p < 0.05$ , respectively.

In terms of predictive power, the value of R<sup>2</sup> for all the above models illustrates and depicts that our independent variables clarify an essential percentage of the dependent variable. For instance, the maximum value of R<sup>2</sup> is 29.7%, and the lowest is 13.6%, based on the UK sample. Thus, we can explain that Model 4 and Model 6 have fitting explanatory power in the UK crowdfunding setting. In the Chinese market, on the other hand, the value of R<sup>2</sup> is critically low (Model 1 to Model 3), the maximum being 7.4% and the lowest value being 2.2%. Thus, we have enough evidence to conclude that the goodness of fit of the UK platform is higher/better than that of the Chinese platform.

For the empirical outcomes of goal setting, H1 is tested through the results of all Models (Model 1 to Model 12 in Tables 4 and 5, respectively). OLS regressions are used to examine Models 1 to 6 because the dependent variable is continuous in its nature. Model 4 and Model 6 report a positive and statistically significant effect ( $\beta = 3.065, p < 0.001$ ;  $\beta = 2.002, p < 0.001$ , respectively). The positive effect is even more evident at high levels of goal setting, the influence on project success is bigger/greater, but at the same time, the quadratic term of goal setting on project success is not constant. In Model 5, the results are vice versa; namely, they have a negative effect ( $\beta = -1.921, p < 0.001$ ); the negative effect of goal setting on project success is further exposed at low levels of goal setting, the impact on project success thus being smaller. Models 1 and 3 show a positive but statistically insignificant effect of goal setting on project success. Therefore, for Models 1 to 6, we explore the unexpected results not supported by H1. We reject the first hypothesis because the results illustrate a significant and positive relationship with campaign success in the UK crowdfunding market. Even so, there is an insignificant effect on campaign success in China.

**Table 5.** Robustness results. Outcome variable: log pledge.

Independent Variables	China			United Kingdom		
	Model 7	Model 8	Model 9	Model 10	Model 11	Model 12
Constant	2.462 *** (0.056)	2.166 ** (0.087)	2.140 *** (0.090)	3.577 *** (0.027)	3.488 *** (0.036)	3.435 *** (0.036)
Goal setting	5.939 *** (0.000)		4.823 *** (0.000)	8.725 *** (0.000)		5.076 *** (0.000)
Project comments	0.003 ** (0.001)		0.001 * (0.001)	0.005 *** (0.001)		0.001 (0.001)
Project updates	−0.056 * (0.024)		−0.040 (0.021)	0.025 *** (0.004)		0.009 ** (0.004)
Goal setting <sup>2</sup>	4.112 *** (0.000)	−3.783 *** (0.000)	3.207 *** (0.000)	1.316 *** (0.000)	−1.402 *** (0.000)	2.524 *** (0.000)
Pledged amount		6.360 *** (0.000)	5.505 *** (0.000)		1.000 *** (0.000)	1.036 *** (0.000)
Experience as a backer		0.004 (0.021)	0.013 (0.020)		3.735 ** (1.375)	−0.001 (0.007)
Experience as a creator		0.075 *** (0.016)	0.081 *** (0.015)		14.786 *** (2.457)	0.014 (0.012)
Role of media		0.125 ** (0.047)	0.102 * (0.045)		−8.005 * (3.781)	0.080 *** (0.019)
No of supporters		−1.488 * (0.000)	−3.425 (0.000)		0.039 ** (0.014)	0.000 *** (0.000)
Observations	500	500	500	500	500	500
R <sup>2</sup>	0.390	0.397	0.445	0.311	0.510	0.543
Adj R <sup>2</sup>	0.234	0.389	0.434	0.305	0.504	0.535
F-test	37.687 ***	52.031 ***	41.965 ***	55.945 ***	85.5722 ***	64.809 ***
Durbin-Watson	1.913	1.836	1.900	1.800	1.801	1.802

Notes: The standardized coefficients and standard error are reported; \*\*\*, \*\*, \* indicate  $p < 0.001$ ,  $p < 0.01$ ,  $p < 0.05$ , respectively.

In terms of H2 and H3, they are tested by Model 1, Model 3, Model 4 and Model 6. According to the results in Table 3, project comments have a positive and significant impact on project success in Model 1, Model 3 and Model 4 ( $\beta = 0.596, p < 0.05$ ;  $\beta = 0.531, p < 0.05$  and  $\beta = 1.078, p < 0.001$ ), the only exception being Model 6. In the case of Model 6, the effect is positive but not significant. Thus, H2 is not rejected and is supported in regards to the situation for the China market sample, but it is rejected and not supported in the case of the UK.

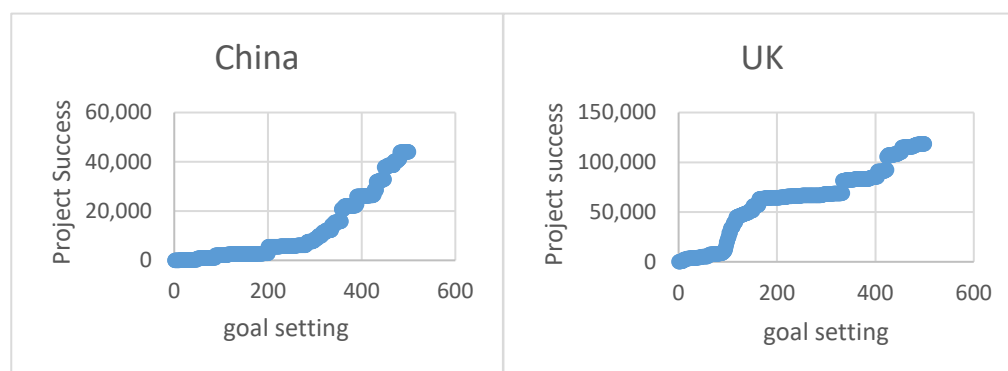


Project updates have been found to offer mixed results for the comparison of the Chinese and the UK markets. In China, project updates have a negative impact on project success in Model 1 and Model 3. In the UK on the other hand, project updates positively impact project success in Model 4 and Model 6. However, we have enough evidence to reject H3 because it shows a negative relationship between Model 1 and Model 3. Thus, H3 is rejected, and even though it is not supported in China, it is supported by the UK sample.

#### 4.3. Robustness Check

To avoid reverse causality, we further analyze the robustness of Models 1 to 6 in order to avoid the endogeneity problem between goal setting and project success. Table 5 reports the robustness regression results. For Models 7 to 12, to test the robustness model, we have re-estimated the proposed model by using the natural log of funds pledged over what was set as a goal (Shahab et al. 2018); they are to be considered as the dependent variables which are used in order to present another six models for the Chinese and the UK markets. According to Table 5, our results are still robust if we use Log Pledges as a dependent variable to estimate crowdfunding success. The results show that the main independent variables, such as goal setting, are significant in all-new six models of Table 5. These results reinforce our results and show robustness as regards our estimations.

Models 7, 8 and 9 refer to the Chinese market, whereas Models 10, 11 and 12 refer to the UK market. From Models 7 to 12, it is confirmed that there is a significant effect of goal setting on project success. This implies that goal setting is the primary variable that affects the project success, even though the quadratic term of goal setting is not constant (refer Figure 2). Model 12 has achieved the best predictive power of project success by 54.809%, significantly enhancing Model 10 and Model 11, where we have tested the control effect and main effect of project success ( $\Delta R^2 = 0.199$  and  $0.230$ ) in China. Model 9 also describes the variation of project success by 44.5%, significantly enhancing Model 7 and Model 8, where we have tested the control effect and main effect of project success ( $\Delta R^2 = 0.055$  and  $0.048$ ) in the UK. Following the robustness outcomes, our findings also point to the fact that our results regarding goal setting continue to influence the outcome of the Log Pledges variable on both the Chinese and UK markets. However, the results, significance, and magnitude of project comments and project updates are consistent with the main models.



**Figure 2.** The effect of higher goal setting on project success in China and UK after robustness.

## 5. Discussion and Conclusions

To examine the effects and impact of signaling dynamics on project success, we considered three signals: goal setting, project comments and updates, used from the perspective of the signaling theory. Based on these signals, we have developed hypotheses between the independent and the dependent variables. In doing so, we have collected a total of 1000 projects to test these hypotheses.

Firstly, our results clarify that higher goal setting has had a negative association with project success in the Chinese sample as compared to the UK sample. This means that small and moderate levels of goal setting also affect the success of a project. Such results are aligned with other studies i.e.,

(Mollick 2014; Vulkan et al. 2016). At the same time, higher goal setting has had a positive relationship with project success in the UK sample, which means that higher goal setting helps attract a larger crowd. It thus reduces the level of information asymmetry and risks for/to the crowd. Such results are similar with other studies i.e., (Hakenes and Schlegel 2014; Burtch et al. 2013; Cumming et al. 2020). Furthermore, we have validated the results through a robustness check, and the results have confirmed that there is a significant effect of goal setting on project success.

Secondly, we have examined the impact of the comments on project success from the Chinese and UK crowdfunding perspective. According to Liang et al. (2020), comments are the opinions, reviews, and attitudes of potential financiers, more comments reflecting the popularity and strong word-of-mouth capabilities of a project. Hence, comments are valuable for campaign success. Our empirical findings have indicated that comments have a positive impact on the success of a project for the Chinese sample as opposed to the UK sample. The findings are aligned with Wang et al. 2018; our findings/results show that comments have a negative impact on the projects that the UK sample is aligned with (Cho and Kim 2017).

Thirdly, our empirical findings indicate that project updates are festive and that they significantly impact project success on the UK crowdfunding platform as compared to the Chinese platform. Former studies revealed a negative association between project updates and the degree of project success in developed countries (Kuppuswamy and Bayus 2013). Our results contradict the above findings and are consistent with the findings of (Borst et al. 2017; Yin et al. 2019; Shahab et al. 2018). Moreover, we have validated our findings through a robustness check, and the results are compatible with the main models. We have also revealed that project comments and updates are the key signals used in mitigating information asymmetry in reward-based crowdfunding. As such, project comments and updates make a project successful.

### 5.1. Theoretical and Practical Implications

The current study has numerous theoretical and practical implications. First, this paper exerts contributions in the crowdfunding literature so as to form a vibrant understanding of project success, based on signaling theory. Most former studies have investigated signaling dynamics often limited to a single economy (Courtney et al. 2017; Usman et al. 2019; Nguyen 2017; Wang et al. 2018). By considering this and to the best of our knowledge, the current study is one of the first to investigate the importance of signaling in project success and its role in mitigating the problem of information asymmetry in the crowdfunding market from the perspective of two important economies: China and the United Kingdom. A limited number of studies have examined crowdfunding success and market development in the context of a cross-country analysis (Zheng et al. 2014; Cho and Kim 2017; Chu 2017; Bao and Huang 2017; Ashta 2018). Hence, this paper takes an initial attempt at exploring signaling dynamics and as a result, it enriches the prevailing literature related to crowdfunding in the context of diverse economies.

Second, the current paper advances the theoretical understanding regarding the association between goal setting, project comments, project updates and their effect upon project success in a reward-based crowdfunding market. Moreover, our research examines the effect and impact of goal setting, comments and updates on project success. This restores the inconsistent results expressed in previous studies regarding the roles of goal setting, project comments and updates on campaign success. It will act as a foundation for further research aimed at investigating the more complicated effects and impacts of campaign success predictors, from the perspective of developing and developed economies.

Third, as cultural features differ from country to country (an aspect discussed in the introductory section), we have explored the above-mentioned influences concerning the effect that signals have upon project success. In comparison to the UK, the Chinese society is more collectivistic. China is a society in which individuals attach more importance to personal relationships (“Guanxi”). The Chinese trust far more “in-group” followers than “out-group” followers (Fan and Zigang 2004). To enhance the outside validity of signals in a crowdfunding context, China’s platforms should stimulate “in-group”

entrepreneurs to assist and support the “out-group” potential entrepreneurs. This will not only increase the success likelihood of the campaign, but it will also mitigate the problem of information asymmetry between founders and backers.

Fourth, as per the practical viewpoint, the relationship between higher goal setting and project success is highly feasible for potential stakeholders in these diverse economies. The creators of the project may use the findings to set a more suitable targeted goal in reward-based crowdfunding, which will eventually increase the project’s chances of success. Moreover, creators should augment the overall funding volume within low or moderate levels of goal setting.

Fifth, project comments illustrate one of the signals related to project quality, and as such, they strongly influence the decision of backers. Many comments signify and connote the acceptance of the project by the community, and at the same time, comments develop (for the backers of a project) the perception that the project reflects better word-of-mouth. Thus, creators should focus more on the role of comments. Motivating potential backers to make comments about the project is considered a valuable element for crowdfunding success.

Sixth, the frequency of updates concerning the project development is also signaled as being an essential project quality feature and shows optimistic behavior of creators. Therefore, creators of the project should frequently communicate the necessary project developments to potential backers so that backers can have a more in depth/detailed understanding of the project; thus, this will reduce information asymmetry, uplift the trust of backers and enhance the success chances of the project.

## 5.2. Limitations and Future Research

Nonetheless, the current study has a few limitations that need to be communicated for future studies and for future reference. First, the results of the present study are context-specific, given that only the behavioral features of the Chinese and UK backers have been examined. The platforms which have been used for data collection are solely based on one type of crowdfunding model (i.e., reward-based and All-or-Nothing); therefore, we cannot speculate that the existing findings are feasible for other contexts and models.

Second, we have examined the effect on project success of only one project quality item (i.e., goal setting). It is thus suggested that more conditional aspects that affect reward-based crowdfunding success should be examined; namely, aspects such as social return, cultural factors, etc.

Third, the current study’s sample size is relatively small as compared to large data analysis trends (Zheng et al. 2014). Thus, insignificant findings are anticipated, which could restrict the portrayal of a more inclusive picture of signaling dynamics in the crowdfunding market. The role of predictor and non-predictor variables were estimated on the variation of their success ratio. Therefore, even though the prevailing findings have showed a point of interest for the stakeholders of both platforms, they may not be suitable for other crowdfunding settings.

Fourth, the campaign success in a crowdfunding environment depends on the form of reward, which is crucial in and for the crowdfunding setting (Bargain et al. 2018). However, the data used in our study do not permit the controlling of this variable, and as such, this represents one of the limitations of this study.

Fifth, the current study emphasizes the impact of updates on project success when creators launch their project on a crowdfunding platform. Thus, this diminishes the information asymmetry and enhances the trust of backers (Liang et al. 2020). Such updates about project descriptions have a substantial impact on project success. Still, looking one step further, it is suggested that more significant results could be perceived if updated content of information is granted, this being another area of interest for future studies.

Sixth, the current study has used two variables in its hypotheses (H2 and H3), but these variables are associated with a static framework. The authors of the study have adopted ex-post measures related to project updates and comments. However, a dynamic framework would showcase more significant outcomes. This approach was followed by Block et al. (2018), who has dynamically studied

the effect of updates (by using a daily setting). It would be recommended for future studies to explore this opportunity and exploit a daily data setting to identify and analyze more relevant outcomes.

Seventh, considering the growing interest manifested by researchers towards other crowdfunding concepts, such as capital allocation, economic development, capital structure, social responsibility and organizational performance (Popescu and Popescu 2019), we consider that taking into account such concepts in future studies will bring forth more significance in the crowdfunding literature. At the same time, this will thus provide a better explanation for the dynamics of the crowdfunding market.

Eighth, to bring more significance to the existing findings, other methodological techniques can be used, such as face-to-face interviews and administrated surveys, instead of analyzing web-based secondary data (Oba et al. 2018). Such approaches will determine the distinctive motivations of individuals from diverse economies towards supporting any specific project.

Finally, we cannot control the personal and demographic characteristics such as gender, age, level of education, income, category of interest of potential backers. All these characteristics can influence their decisions-making patterns. Thus, it is recommended for future research and researchers to consider the above aspects while investigating project success in the crowdfunding market.

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