Reward-based Crowdfunding Technological Projects Determinants of Success: A Quantitative Study

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Abstract

Crowdfunding success in terms of the achievement of target capital in reward-based crowdfunding projects is impacted by many factors (e.g., past created projects, campaign duration, pledged capital). This paper studies the determinants of success rate (pledged capital/target capital) or (P/T) in successful technological crowdfunding projects. The quantitative study started by data collection of 328 successful Kickstarter technological crowdfunding campaigns which are later decreased to 289 due to model censorship. Tobit model was adopted as the censored linear regression model to determine the existence of relationships between the dependent variable (P/T) and the independent variables. Results suggest that success rate is associated with 7 independent variables: visuals, duration, internal social capital, comments and education are found to impact success rate positively while target capital and past created projects are found to impact success rate negatively. The study contributes to the literature in crowdfunding by paving the path to study success factors that might impact successful technological projects, and to investigate the significance of backers' feedback and project creators' education in maximizing their campaign's outcome.

Introduction:

The understanding of crowdfunding is evolving given the increasing magnitude and popularity of the mean of entrepreneurial finance. In the past 10 years, crowdfunding has received a considerable amount of research to study the different typologies and mechanisms crowdfunding platforms adopt to provide the best experience and campaign outcome for their users.

In general, the literature has focused on the period before and during the crowdfunding campaign to understand project creators' and users' motives, the mechanisms and tools they use, the general success factors in both successful and unsuccessful projects and the ways users interact with each other. Alternatively, this study focuses on successful technological projects in reward-based crowdfunding in attempt to find out what drives higher success rates in some projects compared to others, accordingly, this paper studies factors that could drive excess funding in technological projects. In crowdfunding literature, specific contexts (e.g., countries, industries, technology) have not been addressed enough to unveil differences in success factors and their respective importance. The same could be observed in regard to excess funding, it hasn't received enough attention from scholars. This study contributes to addressing the mentioned gaps and highlights practical and academic implications for project creators and backers to allow both of them to increase their outcome from the project.

Crowdfunding and Reward-based CF Projects:

Crowdfunding is a significant phenomenon that has got momentum in Entrepreneurial Finance; the mean of finance has gained more popularity in the last 10 years. Kickstarter is a globally popular reward-based crowdfunding platform; it has helped project creators in fundraising $3.6 B to support 35% of total posted projects (Kickstarter, 2018). The phenomenon has drawn the attention of (Stanko & Henard, 2017) as they underline the importance of such platforms as major finance vehicles for innovative entrepreneurs and one of the rapidly growing finance sources that small innovative organizations and individuals can use to gain capital.

The widely accepted categorization of crowdfunding platforms proposes four typologies: equity-based crowdfunding, lending-based crowdfunding, reward-based crowdfunding and donation-based crowdfunding (Belleflamme, Omrani, & Peitz, 2015). However, the focus of this study is on reward-based crowdfunding.

In reward-based crowdfunding, fundraisers offer a list of rewards at different prices or contributions, these contributions are called "menu pricing" or "rewards range". On the other side, backers evaluate the rewards on the list (as incentives) to decide on whether to support the project or not. The backers who decide to support the project pledge their contributions based on their selection from the menu pricing then later on fundraisers deliver the promised rewards.

Rewards play a significant role in project success as they could influence backers' decision on whether to contribute or not. In reward-based crowdfunding projects,

the most typical reward to backers is the delivery of a (sometimes customized) product or service which makes this type of crowdfunding somehow similar to financial boot-strapping (i.e., project creators are asking for payments in advance of production and delivery of the rewards in order to decrease the accounts receivables) (Block, Colombo, Cumming, & Vismara, 2018). Backers may also be offered ego-boosting rewards such as a handwritten personal message addressed directly to the backer, a picture signed by the photographer, or community-belonging rewards such as invitations for social events (e.g., events related to the product like parties, launching events) or the offering of symbolic objects (e.g., gadgets) that display support for a project (Block, Colombo, Cumming, & Vismara, 2018). Project advocates are either individuals or firms. Although not enough research has been conducted yet to determine the full spectrum of how rewards could influence the success of a crowdfunding campaign, but some are there, (Lin, Lee, & Chang, 2016) suggested that rewards with limited offerings usually achieve higher results in terms of raised capital in comparison with the target capital (overfunding) whether these projects succeed or not. Moreover, scholars proposed a strategic toolbox to help fundraisers in selecting a proper range of rewards for their projects (Thürridl & Kamleitner, 2016).

Success factors:

Much crowdfunding research has shown efforts to shed light on the concept of success and success factors in crowdfunding: suggesting several interpretations for what is meant by success and success factors. For example, some studies proposed factors that

might impact campaigns' success either directly or indirectly (Koch & Cheng; Kim, Por, & Yang; Kim, Por, & Yang, 2016; Butticè, Colombo, & Wright, 2017). These studies have adopted a generalized approach with no regard to the campaign's success outcome and also have largely ignored differences in crowdfunding campaigns clusters. Alternatively, we measure success as the excess capital (amount raised above target amount) calculated as pledged capital divided by target capital.

Several questions arise regarding successful projects: what drives the increase in success? Why are some projects more successful than others? And how can fundraisers maximize the amount raised? While past studies have focused more on project creators' preparedness, this study investigates the social and technical factors that project creators would need to work on to maximize their success rate. The importance of social factors is clear in the way project creators use visuals to leverage the available information and media channels to influence funding success (Koch & Cheng, 2016). Even beyond that, creators exchange interactions with backers, the characteristics of these interactions seem to be also associated with success (Kromidha & Robson, 2016).

Reward-based crowdfunding uses several means of communication (i.e., project descriptions, video pitches) between both fundraisers and project backers, the form of relationships that are being established on crowdfunding platforms are significantly important to decrease information asymmetry implications between the two sides (e.g., less willingness by backers to contribute) (Thies, Wessel, & Benlian, 2016). Therefore, concepts such as social capital and quality signaling have dominated much research to

navigate ways to form and strengthen the relations between different parties in crowd-funding. The increase of internal and external social capital might increase campaign's success, (Butticè, Colombo, & Wright, 2017) unfolded the tradeoff between social capital from previous projects and the one from project creators' network, suggesting that this internal social capital -which is not available to "normal" serial entrepreneurs- gives an advantage to serial project creators' campaigns which makes them more successful in terms of raised capital if compared to the ones launched by novice fundraisers, despite the limited lifespan of this social capital. In fact, social capital in crowdfunding has dragged more attention lately, with around 100 papers addressing the topic since 2016. For example: (Josefy, Dean, Albert, & Fitza, 2017) explored the relationship between crowdfunding and local communities in attempt to understand whether crowdfunding campaigns in certain communities lead to better funding outcomes (raised capital). Conversely, (Skirnevskiy, Bendig, & Brettel, 2017) addressed the topic of how internal social capital can expand through project track record and how internal social capital can spill over to external online communities focusing on the long-term implications of the manifestations of social capital.

One the other hand, technical factors could be traced to creators' past experience; the success might be positively associated with the number of past created projects (Kromidha & Robson, 2016). Similarly, updates and backers' comments might have a positive impact on the success rate (Kim, Por, & Yang, 2016). Despite the considerable amount of research in crowdfunding success, a generalized approach domi-

nated the studies measuring either the pledged capital or the success rate among both successful and unsuccessful campaigns.

In regard to the specific contexts under which crowdfunding could draw different circumstances, few papers have addressed the topic. For example: In Czech Republic and Slovakia crowdfunding is found to draw special characteristics which could impact the outcome of crowdfunding projects (Šoltés & Štofa, 2016). Similar cases are found in industry-specific contexts such as the music industry (Gamble, Brennan, & McAdam, 2017). In particular, this study addresses the context of technological projects which could be characterized differently if compared to other typologies of crowdfunding projects.

The emergence of reward-based crowdfunding has substantially shortened the entrepreneurial process for many entrepreneurs, nowadays, entrepreneurs endure fewer costs by leveraging a direct sales channel and marketing tool, and benefiting from a community that is not bounded by investors or lenders restrictions. Even though crowdfunding has its own problems (e.g., information asymmetry), plenty of research is being carried out to address these problems and propose solutions.

Reaching a successful funding is dependent on the contribution of backers and their motivation to support a particular project. (Steigenberger, 2017) used a survey to address backers suggesting that the motivation to pledge can be demonstrated in two groups, one is with a single motivation for purchasing while the other is with a purchasing motive, but also involving an altruistic and intrinsic motive . Alternatively,

(Kuppuswamy & Bayus, 2017) questioned the way the contribution of a single backer can matter to a crowdfunding project predicting that the support for a crowdfunding project will accelerate as the project funding gets closer to its target capital, and that the motivation decreases after the project reaches its goal while the expected impact moderates the relationship and effects on goal proximity.

A crucial factor in project's success is backers' decision to contribute or not, several articles have researched the topic studying backers' decision characteristics and drivers. (Bi, Liu, & Usman, 2017) pointed out contradicting findings to the ones demonstrated by (Thies, Wessel, & Benlian, 2016) as the first show that the central route information (signals of project quality) and the peripheral route information (e-word of mouth) have almost an equal effect on backers' contribution decisions. Alternatively, (Polzin, Toxopeus, & Stam, 2018) helped in understanding and distinguishing between the two types of backers based on the way they gather the information about the campaign and the decision they make to whether contribute or not taking into account the different typologies of crowdfunding platforms. The same study helps also in differentiating between backers' input information in terms of comments and the perception of project's innovativeness (i.e., how do backers construct their decision of whether or not to pledge and how innovative the project is).

(Calic & Mosakowski, 2016) examined the effect of sustainability in the success of a crowdfunding campaign addressing social entrepreneurs and their ability to acquire financial resources through crowdfunding, they concluded that sustainability orienta-

tion has a positive effect on funding success while the relationship is mediated by third-party endorsements and project creativity. Another dimension of success is 'cultural': culture influences the success of crowdfunding and platform communication strategies either positively or negatively depending on the context and project characteristics (Cho & Kim, 2017).

Trust management is – among others - a significant factor in campaign's success, delay in rewards delivery affects trust. (Kim, Shaw, Zhang, & Gerber, 2017) studied the factors influencing backers' trust in a project when rewards delivery is delayed, the outcome suggests that target capital, number of backers, success rate, number of reward levels, and creator's previous crowdfunding experience (i.e., in terms of obtained experience and social capital) are associated with the duration of delay.

In conclusion, some attempts to formulate a recipe for success or define the way towards it in crowdfunding are evident in the literature; (Li, Rakesh, & Reddy , 2016) tried to suggest a success formula stating that new projects that take into account the outcomes of both past successful and unsuccessful campaigns (censored information) are associated with higher probability of success than others that do not, and that social network-based features can help predict success better while temporal features that are set at the beginning of the campaign can improve success prediction significantly. Furthermore, (Xu, Zheng, Xu, & Wang, 2016) proposed a roadmap to satisfy backers and reach success in a campaign by using marketing methods concluding by addressing several variables that contribute to backers' satisfaction including delivery

timeliness, product quality, project novelty, sponsor participation and entrepreneur activeness.

In general, the majority of crowdfunding research -in terms of success factors- have focused on factors like social capital, signaling, trust management, target capital and delivery time while some have highlighted the interrelations between crowdfunding and other sources of entrepreneurial finance. Few articles have focused on specific geographical or industrial contexts; however, studies that explore success rate drivers among successful crowdfunding projects have not been evident in the literature yet.

The goal of this study is to highlight the factors affecting success rate in successful technological crowdfunding projects, and how project creators can maximize the pledged capital. As demonstrated before, some of the variables included in the study have been addressed in crowdfunding literature while some others haven't received enough attention. Visuals, duration, and internal social capital are success factors that have received considerable attention in crowdfunding literature; however, they haven't been explored in the context of successful reward-based crowdfunding projects which might lead to a contradiction with mainstream studies addressing the general behavior of success factors in crowdfunding. On the other hand, project creators' education has not been addressed in crowdfunding literature while backers' comments have received little attention as no contribution to its role as a success factor is found.

Hypotheses Development:

As the measure for a campaign's success is the percentage of pledged capital to target capital (P/T): the lower the denominator, the higher the outcome, therefore, the lower the target, the higher the success given the absolute achievement of the campaign's target capital.

H1: Given the achievement of a campaign's target capital goal, the lower a campaign goal in terms of target capital is, the higher the success the campaign achieves.

Visuals are the images and videos including pitches a project creator would post to her crowdfunding campaign. It also includes the images and videos posted during the campaign until the end of campaign's duration. Visuals are communication tools used by fundraisers to acquire social capital and supporters that would provide monetary contributions and feedback to the project. The more visuals posted by fundraisers, the less the information asymmetry between the two sides for which the crowd might decide to contribute to the project.

H2: Given the achievement of a campaign's target capital goal, the more visuals project creator posts in a crowdfunding campaign, the higher the success the campaign achieves.

By applying signaling theory, (Kunz, Bretschneider, & Erler, 2017) claimed that the longer the campaign's duration, the less probability of success the campaign endures. One explanation is that the longer the campaign duration is, the stronger the signal of lack of quality could be, but on the other hand, the longer the campaign duration is, the higher the chance of acquiring more backers. Accordingly, fundraisers

tend to set considerable durations for their campaigns because the limitedness of the offering stimulates backers' response and rationality towards supporting the campaign. Therefore, we hypothesize that:

H3: Given the achievement of a campaign's target capital goal, the longer the campaign's duration is, the higher the success the campaign achieves.

Project creators always seek to build a community within the crowdfunding platform to support the projects they create, therefore, they use available communication tools (e.g. images, videos) to establish the needed social capital for the success of their campaigns (Vismara, 2016). Accordingly, the community built within the platform is called internal social capital; it has a limited lifespan, but it is very important for the provision of monetary contributions and feedback (Butticè, Colombo, & Wright, 2017). Internal social capital is maintained through active interactions with the community and backing others' projects. To benefit from the internal social capital a firm needs to adopt open innovation practices to maintain and expand the social capital it possesses.

H4: Given the achievement of a campaign's target capital goal, the more internal social capital a project creator possesses, the higher the success the campaign achieves.

Past created projects' outcome and gained experience contribute to the success of new ones, as projects creators learn from their past experiences. "Participation efforts" is a term that was introduced by (Raasch & von Hippel, 2013) and is defined as all the benefits to be acquired for an innovator solely from participating directly in the

innovation process (e.g., online consumer product design). Participation efforts are not existent in the solution if they were handed over from someone else to the innovator. (Kromidha & Robson, 2016) suggested that funders and backers who identify themselves with their projects in their own social networks are associated with greater pledge/backer ratio. Claiming so, it is possible for project creators to benefit from past projects in terms of experience, but in the case of "participation efforts" experience is not determined by past projects' success. Non-participation benefits may be gained from reputation when project creators associate themselves with past projects. From this perspective, one could argue that "participation efforts" could contribute to project's innovativeness and subsequently to its success. Accordingly, (Himam, 2017) argued that entrepreneurs learn informally at their workplace by exploiting resources more efficiently and sharing knowledge and skills. It is important to take into account the number of successful projects in comparison to the total of created ones, generally, the average percentage of success on crowdfunding platforms is just below 35% and for that, we assume the same percentage of success within past created projects by fundraisers.

H5: Given the achievement of a campaign's target capital goal, the more past created projects a project creator has run, the less the success the campaign achieves.

The comments provided by the crowd are a form of feedback that could be of an advisory nature, question nature or an opinion nature. We assume that the crowd provides different typologies of feedback that could be positive or negative and could

be technology-oriented or marketing-oriented. In both cases, it is more likely to be beneficial to project creators as they would be testing the market in such early stages of development. Crowdfunding scholars haven't given enough focus to the comments provided by the crowd, although some studies in open innovation and crowdsourcing have shed a light on the subject as a source for crowdsourcing ideas. In US-based projects, backers' comments have a positive correlation with updates, given a delivery schedule and campaign success (Cho & Kim, 2017). Another article, (Short, Ketchen Jr., McKenny, Allison, & Ireland, 2017) suggested that third-party endorsements (could be sentiments expressed in backers' comments) play a role in and complement startup-originated signals for quality, similarly, social media buzz is found to impact projects' signals outcome positively (Summers, Chidambaram, & Young, 2016).

It is expected that the more feedback a firm gets on a crowdfunding campaign, the more knowledge of market needs and design issues the firm might acquire; therefore, the firm would be more successful in satisfying customers' needs. (Huang, Singh, & Srinivasan, 2013) claimed that the so-called "idea market" is a source of open innovation that firms can leverage, this market exists within crowdfunding platforms, bearing in mind that low quality ideas tend to leave the market faster than others. More importantly, firms' role is to identify viable ideas in terms of novelty, customer benefit, and feasibility then come to the development of the product/service design to achieve success in the market. Therefore, we suggest that for the firm to implement open innovation practices, it needs to acquire the characteristics of a successful campaign

which would help in building the needed social capital, gaining feedback and raising the capital needed to develop and deliver the product or service in time. The more feedback a crowdfunding campaign gets from its backers, the more success rate it can achieve. Accordingly, we hypothesize that:

H6: Given the achievement of a campaign's target capital goal, the more comments a project campaign receives, the more the success the campaign achieves.

Project creator's achievement of post-graduate studies might increase backers' trust which might impact the success rate and probability positively. Project creator's education has not received attention from crowdfunding literature, yet this study attempts to unfold any association between project creator's education and success rate. We assign dummy variables to the attribute indicating the occurrence of post-graduate degree or not. Accordingly, if the project creator has a post-graduate degree, the quality signaling of the project will be better.

Alternatively, creators' education could influence their know-how in managing the project and the campaign as much as it could play a role in product or service development increasing project's general probability of success and success rate.

H7: Given the achievement of a campaign's target capital goal, project creators holding post-graduate degrees are associated with higher success rate.

Methodology:

The original dataset includes 1697 campaigns that were running on Kickstarter between 2009 and 2013. The dataset has been filtered, cleaned and appended with other manually collected attributes. Then non-technological projects and projects created by individuals have been excluded. After that, a manual check was applied to check whether each campaign was successful or not, and if the product or service is still available or not at the time of data collection. Eventually, the dataset was filtered to include only successful campaigns that were being run by companies and have their crowd-funded product or service still offered on their websites. Based on this dataset, several attributes were added (i.e., campaign starting data, campaign ending date, product or service category, number of updates and company contact).

After the data collection and cleaning phase, 328 campaigns remained while the final dataset consisted of only 289 campaigns due to the data censoring that is done by the Tobit model. Another attribute (Pledged capital/Target capital) or (P/T) has been added to the dataset as the measure of success rate. In table 1 we can find the seven attributes included in the model as independent variables for the dependent variable success rate.

Tobit model has been adopted as the linear regression model for several reasons: the ability to censor observations, the use of continuous variables, in addition to the overall performance of the model compared to other linear regression models. Eventually, we built the empirical model which is shown in Table 3.

Research Model Evaluation:

Table1 shows all variables measurements included in the model. The independent variables except for past created projects have been normalized by computing the natural logarithm of their values due to the large differences in standard deviation, minimum and maximum values. However, the dependent variable (P/T) is kept the same as its standard deviation and mean are reasonable. Table 2 shows the minimum and maximum values, the mean and the standard deviation of each of the variables. It is observed that some projects are associated with extreme success if compared to others, therefore, in terms of success there is a considerable difference in terms of success-ability, the gap could happen due to the difference between the different campaigns in target capital, as some might be aiming for very high funding as observed in the difference between the mean and standard deviation of pledged capital compared to all other variables. Generally, it is worth highlighting that some projects are far more successful than others in terms of pledged capital.

VARIABLE	MEASUREMENT	UNIT
P/T	Pledged Capital (US dollars)/Target Capital (US dollars)	N/A
ln_target capital	Natural logarithm of Target Capital.	US dollars
ln_visuals	Natural logarithm of the sum of videos and images posted in a campaign	N/A
duration	The duration the campaign lasts for	Days
Internal social_capital	Natural logarithm of Kickstarter community members.	N/A
Past created projects	Number of past created projects.	N/A
ln_comments	Natural logarithm of comments provided by the crowd.	N/A
d_education	A dummy variable indicates if project creator has achieved a post-graduate degree.	N/A

Table 1: Variables measurement.

VARIABLE	OBS.	MEAN	STD. DEV.	MIN	MAX
P/T	**289**	**5.943343**	**11.31328**	**0.825903**	**92.6402**
ln_target capital	289	9.719453	1.316114	6.044359	12.3723
ln_visuals	289	2.389046	0.797002	0.693147	4.17439
duration	289	35.08304	10.53928	9	87
internal_social_capital	289	1.704070	1.128397	0	4.20469
Past created projects	289	1.505190	0.837992	1	4
ln_comments	*289*	*4.451961*	*1.630390*	*0*	*8.13593*
d_education	*289*	*0.065744*	*0.248264*	*0*	*1*

Table 2: Descriptive analysis of independent variables.

Table 3 shows the results of the Tobit model unfolding the relationship between the success rate -achieved by technological projects in crowdfunding- and independent variables that might have affected the success rate (P/T). Considering the 289 campaigns included in the model, it is observed that visuals, duration, internal social capital, comments and education are impacting the success rate positively.

The visuals (images and videos) can reduce the information asymmetry between project creators and backers while they can serve as a quality signal for the project by communicating how the product or service could satisfy backers' needs and how much effort has been put in development and quality assurance. Campaign's duration is an essential factor to success. The longer the campaign duration, the more success the campaign achieves. However, it is important to consider reasonable number of days to deter any signal of lack of quality that might be associated with longer durations. The internal social capital could provide more support to project

creators, as members of the internal social capital of the fundraiser are considered to be more likely to support the project both financially and socially.

Backers communicate their feedback by commenting on the project. The feedback is important to project creators as it serves both as a marketing tool and as an input for open innovation in terms of new ideas. Accordingly, the higher the number of comments, the more the social buzz around the project attracting more backers to support the project which increases the success rate. The positive impact is more significant in all positive impacting variables than in the case of education. Project creators' education seems to have a less significant positive impact on success rate.

Conversely, the campaign target capital and the number of past created projects seem to have a negative impact on the success rate. For what regards past created projects, it could be argued that two explanations are valid: first, given the low general probability of success in crowdfunding, there is a high chance that most of past created projects are unsuccessful which sends a negative quality signal to the crowd. Second, fundraisers with past experience are more able to optimize the funding target to increase the probability of success as well as they are able to introduce projects with better quality if compared to novice fundraisers. For the two reasons, such fundraisers are more likely to set targets that are closer to the actual backers' pledging, subsequently, increasing the raised capital, but decreasing the success rate due to the set of higher target capital.

The results shown in Table 3 are significant in terms of robustness, given the coefficients, p values and confidence intervals of independent variables.

	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
				Std. Err. adjusted for 4 clusters in Categories		**Robust**
ln_target	-2.162296***[1]	0.2299802	-9.4	0.000	-2.6150	-1.7096
ln_visual	0.5118588**	0.1121006	4.57	0.000	0.2912	0.7325
duration	0.2752116**	0.1362912	2.02	0.044	0.0069	0.5435
int_social_capital	0.3187796**	0.0671086	4.75	0.000	0.1867	0.4509
createdprojects	-0.2098197**	0.0511404	-4.1	0.000	-0.3105	-0.1092
ln_comment	2.391027***	0.4627503	5.17	0.000	1.4801	3.3019
d_education	0.0981566*	0.0195735	5.01	0.000	0.0597	0.1366
Number of obs.	289					
Pseudo R2	0.3072					

Table 3: Tobit regression results.

Discussion:

This study has several implications on crowdfunding literature, but it contributes also to open innovation literature. While for crowdfunding platforms and users the study underlines factors that users should take into account in order for project creators to maximize the amount raised compared to the target goal of their campaigns, and for backers to better their judgement on choosing the rewards they want to buy and the projects that are more likely to succeed. As could be observed from the regression model, the target capital and the number of comments coefficients have the highest

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[1] Refers to variable significance (***: very significant, **: significant, *: less significant).

significance in the model: firstly, it is clear that the decision of how much project creators can ask for is crucial to the success rate, they should take into account that backers have their own decision on how reasonable and support-deserving the project is. Secondly, from comments variable, fundraisers may implement ways to stimulate potential backers to respond by commenting on the project, one way could be by engaging the crowd in the project by adopting open innovation practices (e.g., toolkits, crowdsourcing), so that backers could get to engage with the project at early stages and also provide feedback.

The independent variables internal social capital, created projects, campaign duration, and visuals have reasonable significance while past created projects variable is found to be negatively associated with success rate; project creators could increase their internal social capital by establishing -within the platform- relationships with backers and creators from past projects, this could increase the amount raised by their campaigns, but at the same time it increases creators' experience regarding target capital setting thus prevents underestimating the maximum target capital they can ask for. Subsequently, this might impact their decision on target goal setting positively by being less precautious and more certain about backers' decision to pledge or not. From this perspective, it might appear from the model that past experience has a negative impact on campaign's success while in fact, it is the contrary. In regard to creators' education, it is evident in the model that the achievement of post-graduate degree is positively related to the success rate which might be explained as more education

increases backers' trust on the project; therefore, it could be beneficial for fundraisers to communicate their team members' educational achievements as a quality signal and a promotional tool.

It is possible to say that the relationships between the independent variables and the dependent variables have both academic and practice-oriented implications. The study urges project creators to post more images and videos in their campaigns as that might decrease the information asymmetry with backers, as well as it helps in enriching the internal social capital that would have a positive impact on campaign's success rate. Project creators should set reasonable durations for their campaigns, duration setting experience comes from observing and learning from other campaigns belonging to similar categories and providing similar products. Nevertheless, the comments provided by the crowd could be a viable source for open innovation practices as they could help creators in improving their products as well as testing the market.

Study Limitations & Recommendations:

The study has limitations concerning several facts; first, only one keyword (i.e., crowdfunding) has been used to search for crowdfunding literature in addition to some open innovation literature. Second, the study focuses only on firms excluding individuals as project creators and backers. Also the inclusion of only successful campaigns of technological projects -that were run between 2009 and 2012- has resulted in a dataset of only 289 projects. Therefore, we recommend for future studies

the inclusion of a longer period of analysis to offset the impact of limited data. Nonetheless, the use of a nonlinear regression model could be more robust in results as it could indicate non-linear relationships between the dependent and some of the independent variables.

The outcome of the model supports the hypotheses claimed earlier in the study and for that, the study urges for further research on the topic as per the provided recommendations. Project creators' education is found to be associated with capital raising in other entrepreneurial finance contexts; further research in the topic in crowdfunding context might unfold similar associations. In conclusion, Backers' feedback is an area of crowdfunding that hasn't received enough attention from scholars; attempts to classify the comments using artificial intelligence techniques would be beneficial in the determination of different comments typologies and any possible impact on the success rate.

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