

Article

Role of Social Networks in Crowdfunding Performance During the COVID-19 Pandemic in Africa

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Abstract: The COVID-19 pandemic made it more difficult for entrepreneurs to obtain capital finance from banks. As a result of disruptions caused by the COVID-19 pandemic, entrepreneurs found alternative means of obtaining capital finance in the form of crowdfunding. Crowdfunding has the potential to help entrepreneurs get access to finance. The prevalence of crowdfunding campaigns in Africa is relatively low compared to most developed economies around the world. The objective of the study was to determine the role of social networks on crowdfunding performance during the COVID-19 pandemic in Africa. A total of 859 crowdfunding projects in Africa were analysed in the study. The ordinary least squares (OLS) and probit models were estimated in the analysis. The duration, comments, and target amount variables were found to be negatively and significantly associated with crowdfunding success in Africa. Conversely, the presence of videos, updates and backer's variables were positively and significantly associated with the success of crowdfunding campaigns. The study contributes to new knowledge by revealing the influence of the COVID-19 pandemic and the role of social networks on crowdfunding performance in Africa. Furthermore, the study makes a policy recommendation to African governments on the need to craft policy instruments that will foster the development of crowdfunding sources which will ultimately mitigate the problem of credit rationing by banks which curtail the growth of entrepreneurs.

Keywords: Crowdfunding; COVID-19 Pandemic; Financing; Social Network; Africa

1. Introduction

Restricted access to finance was a growing concern for new small to medium-sized enterprises (SMEs) after the global financial crisis. The COVID-19 pandemic made it even more difficult for entrepreneurs to get access to finance to ensure their survival. Crowdfunding has increased in popularity as part of a trend towards the disintermediation of the finance market and gives SMEs greater access to finance. Crowdfunding is an alternative source of finance that could provide a sustainable solution to entrepreneurs' lack of access to finance [1]. The COVID-19 pandemic influenced the use of crowdfunding as a means of accessing finance. Crowdfunding requires the involvement of an internet-based platform and many crowds to raise funds for capital openly and transparently. The role of entrepreneurs and SMEs in fostering economic growth and job creation in many economies is well documented in extant studies [2]. Another strand of studies has advanced limited access to finance from traditional sources of finance as the major impediment to the

development of economies. Given the rapid advancements in technology, investors allocate more risk capital to digital equity crowdfunding sites [3]. The involvement of social networks for entrepreneurs mitigates the challenges posed by the COVID-19 pandemic [4]. However, the crowdfunding industry is characterised by a lower success rate in respect of crowdfunding campaigns [5, 6]. Several studies conducted on the role of social network on the crowdfunding success were limited to mainly developed nations such as UK, Malaysia, China, and USA [7, 8]. Empirical research on the role of social networks in the success of crowdfunding is limited to developed nations. To the best of the researchers' knowledge, the present study is the first study with a large sample to be conducted on the African continent.

The wider context of the study is economic growth, which is predicated on the role of entrepreneurs (SMEs) in economic activity. The specific context of the study is that of the financial inclusion of entrepreneurs (SMEs). Thus, the real-world problem that this study seeks to address is that of limited access to finance for entrepreneurs or SMEs, or the lack of financial inclusion of entrepreneurs or SMEs, on the African continent. The purpose of the study is to investigate the influence of social networks on crowdfunding performance in Africa and, specifically, to determine the factors that contribute to the success of crowdfunding campaigns in order to alleviate the high incidence of unsuccessful campaigns on the continent. This study is based on the research objectives set out below.

- To determine the influence of social media on crowdfunding performance during the COVID-19 pandemic.
- To determine the influence of backers on crowdfunding performance in Africa.
- To determine the success rate of crowdfunding during the COVID-19 pandemic in Africa.

The paper is organised as follows; section 2 presents the literature review and develops the hypotheses for the study; section 3 sets out the research methodology applied in the study; section 4 presents the results of the study. Section 5 discusses the findings of the study and draws conclusions thereof by outlining the implications of the study the limitations of the study and suggestions for future research.

2. Literature Review and Hypotheses Development

Limited access to finance for SMEs and entrepreneurs around the world, particularly on the African continent, is a major impediment to economic development [9]. Unsurprisingly, the greatest challenge confronting African SMEs and entrepreneurs is limited access to finance [9, 10, 11]. An estimated 84% of SMEs and entrepreneurs on the African continent do not have access to finance, and there is a funding gap of about \$70 to \$170 billion [12]. Many studies in this area originate from developed economies, hence the current study focuses on the African continent.

2.1. Information Asymmetry

Information asymmetry is inherent in the relationship between the project creator and the backers of the campaign. The risk and untrustworthiness of the crowdfunding campaign project signal unsuccessful project because it discourages the crowd from supporting the campaign [13, 14]. The effectiveness of these signals depends on investor characteristics [15]. The problem of information asymmetry exists between the project creator who does not disclose information to backers concerning the crowdfunding campaign features. It is therefore important to overcome the

problem of information asymmetry. The theory of information asymmetry originates from Akerlof [16], Rothschild and Stiglitz [17].

Information asymmetry exists when the other parties between the project creator (entrepreneur) and the backers (crowd) have less information about the quality of the product, specifically, the crowdfunding campaign [18]. Information asymmetry has a negative influence on the success of a crowdfunding campaign [19]. Signalling theory was adapted to the crowdfunding market to mitigate the risk associated with information asymmetry [18, 20]. The consistent presence of information asymmetry decreases backers' participation in crowdfunding campaigns and consequently lead to failed projects. The ability of SMEs to send convincing signals could encourage both existing and potential funders to participate in new funding campaigns. Therefore, fundraisers must convey signals that reduce information asymmetry and vagueness in the crowdfunding market [21].

2.2. Signalling within Crowdfunding

The reward-based crowdfunding signals the crowdfunding success performance due return promised to backers [22]. On a reward-based crowdfunding platform, the signals of the backers of projects can be identified from the comments on the projects. Signals from the creators can be identified based on the number of updates to the projects. Comments can only be considered as comments from backers and not general users of the crowdfunding platform, since only supporters of a project can comment on it. To overcome the negative effects of asymmetric information, the more informed party of a project can create an action to signal the less informed party about the quality of the product. This signalling process regarding labour market signal was first identified in the seminal work of Ross [18] and Spence [20]. These authors highlight the asymmetric information in the labour market and point out that without signals of some kind, employers are unable to distinguish high-skilled workers from low-skilled ones. Information asymmetry puts distant funders at a disadvantage compared to nearby funders. Quality signals are valuable to informationally disadvantaged backers.

2.3. Social Capital Theory

The social network is an essential driver which attracts potential investors to support the crowdfunding project hence increases the crowdfunding success [23]. It is commonly accepted that social networks play an important role in the way in which backers and entrepreneurs communicate publicly on a digital platform [24]. The success of any entrepreneur's survival is influenced by the accessibility of financial resources [25]. The social network creates business opportunities, help to overcome challenges concerning resources and threats and are adaptable in the crowdfunding market, thereby creating opportunities to fund SMEs [26]. The success of social networking sites lies in the ability of users to create content, to consume content created by other users and to identify and interact with users who have similar or opposing views [27]. Social media platforms include web-based and mobile tools and apps that allow users to create content or to consume content created by creators and that ultimately facilitate connections [27]. The social media or networks are applied by role-players as follows to: (i) reveal themselves, (ii) know if others are available, (iii) relate to one another, (iv) know the social standing of others, (v) form communities, (vi) communicate with one another and (vii) exchange, distribute and receive content [28]. The crowdfunding platform connect participation between entrepreneurs and backers digitally in exchange of funds contributed to the

crowdfunding campaign project. Social media platforms like Facebook, LinkedIn, Twitter, and Instagram are based on network interactions, which include data analytics used for digital marketing and better consumer targeting [29]. Figure 1 depicts the conceptual model of the study which shows how the social capital and signalling theories mitigate information asymmetry to help ensure the success of a crowdfunding campaign.

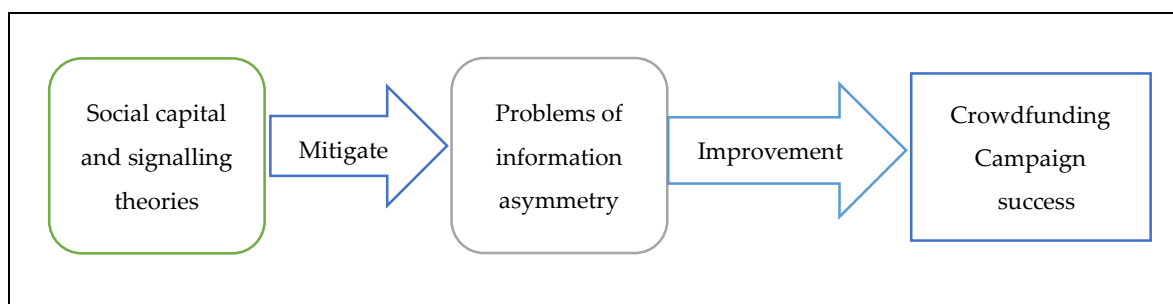


Figure 1. Conceptual framework (Authors' compilation).

The crowdfunding factors do not contribute equal chances to the project success, hence there are factors which contribute to failed crowdfunding campaign projects [30]. Generally, the duration, the target amount and the COVID-19 pandemic have a negative effect on crowdfunding performance [31, 32, 19]. In some studies, two parameters, namely, the funding rate and the number of donors were adopted to measure the performance of crowdfunding [33, 34]. Crowdfunding campaigns are more likely to succeed when they manage to attract both many investors and a large amount of funds [34]. In other studies, the success of campaigns (that is, the projects raised at least the funding goal) is regarded as a proxy for crowdfunding performance [35, 36]. The factors that influence the performance of crowdfunding campaigns are the subject of several in-depth studies [37, 38, 39].

2.4. Hypotheses Development

The target amount of a crowdfunding project is the minimum amount of money that is needed for the project to get funded [40]. A project is considered successful when it has reached the minimum amount of money raised through backers [41]. Therefore, the target amount signals a negative association with crowdfunding success, as supported by signalling theory. Agrawal, Catalini and Goldfarb [42] found no relationship between the target amount and the backers of a project, whereas Mollick [35] found a positive relationship between the backers and the target amount. There is a negative signal between the target amount and the probability of crowdfunding success, thus leading to the following hypothesis:

H₁: The target amount of money requested is negatively related to crowdfunding performance.

The large number of backers supporting crowdfunding campaign increases the probability of success compared to lower number of backers [43]. The presence of many backers influences investors' confidence and crowdfunding success. Therefore, the presence of many backers signals crowdfunding success. Social networks play an important role in crowdfunding success since they help fundraisers to attract backers. The more backers, the higher the probability of crowdfunding success and the lower the degree of information asymmetry. Therefore, the following research hypothesis is put forward:

H₂: The higher backers positively increase the probability of crowdfunding campaign success.

Duration is the period for which a project can receive financial support from backers. The prolonged duration provides potential backers with more time to comprehend the information on the crowdfunding platform [54]. However, the findings were not conclusive on whether prolonged duration signal success or not. Authors such as Frydrych et al. [44] and Nyberg and Aberg [2] found that a longer duration led to either an increase or a decrease in crowdfunding success [45], whereas Mollick [35] and Frydrych et al. [44] found a negative relationship between duration and crowdfunding success. Thus, the following research hypothesis is put forward:

H₃: The longer the duration of a crowdfunding campaign, the greater the expected success.

An update refers to information that is posted on a crowdfunding platform during and after the fundraising period of a project [35]. Updates represent the efforts of the founder of a crowdfunding project to reach out to current and potential funders. The founder also informs interested backers about the development of the project through videos, comments and information associated with crowdfunding success [46]. Updates have a positive impact on crowdfunding success [47]. The posting of frequent updates about a campaign on a crowdfunding platform attracts investors or backers to the campaign [48]. Signal theory holds that founder responses, formal websites and frequent project updates are clear signals from project founders of their intentional efforts to build social bonds with sponsors. These measures can thus strengthen the trust of sponsors and promote follow-up investment behaviour [49]. Thus, the following hypothesis is put forward:

H₄: Frequent updates have a positive influence on crowdfunding performance.

According to Kim and Hollingshead [50] describes as the change in crowd's thoughts, feelings, behaviour of one or more people is influenced by the engagement and communication made via social network. The social network users post messages to interact with others and to construct their social image, leading to greater social acceptance [51]. The messages posted by the users of a social network convey information about them through which the audience can get to know more about them. Network involvement is a means by which potential backers are informed about a crowdfunding project. The social media platform links backers to the campaign creator [35]. The social interaction between the stakeholders of a crowdfunding campaign signals the probability of its success [35]. The literature shows that network involvement has a positive influence on crowdfunding success. Successful crowdfunding projects have been shown to rely on the information provided to the crowd via social networks. In line with the findings of previous studies, the following hypothesis is proposed in this study:

H₅: The network involvement in a crowdfunding project is positively associated with crowdfunding performance.

The comments made on a crowdfunding platform by the creator (entrepreneur) and the crowd (backers) signal the effectiveness of transparent communication and a reduction of information asymmetry [53]. The comments feature on a crowdfunding platform allows backers and the project creator to post comments concerning the progress of the crowdfunding campaign. Previous studies have reported positive association between comments and crowdfunding success [54]. Bi, Liu and Usman [55] observe that comments may convince potential backers to contribute to a crowdfunding campaign, known as electronic word of mouth, hence overcomes the problems of information

asymmetry. Additionally, comments are commonly used as a marketing strategy to attract backers for crowdfunding campaigns. Bi, Liu and Usman [55] found that comments could persuade potential backers to participate in a crowdfunding campaign. Consequently, comments about crowdfunding campaigns could affect entrepreneurs' access to funding through crowdfunding platforms. Therefore, the research hypothesis put forward:

H₆: The more comment on the crowdfunding platform increases the probability of crowdfunding campaign success.

Backers easily understand the visuals that are used on a crowdfunding platform, which ultimately increases the success of campaigns and overcomes information asymmetry. Therefore, videos that are displayed on the page of a crowdfunding campaign must provide valuable information to backers, hence, increases the crowdfunding success performance [56]. Videos serve as means of communication between entrepreneurs (creators) and backers concerning the purpose of crowdfunding campaigns and the amount of money needed. The use of videos may encourage the crowd's participation or contribution to a crowdfunding campaign. The presence of a video signals trustworthiness, preparedness, and quality. Bi et al. [55] and Mollick [35] note that crowdfunding projects without videos do not achieve the target amount. Thus, the following hypothesis is put forward to determine whether videos increase the probability of crowdfunding campaign success or not:

H₇: The presence of a video on a crowdfunding page has a positive influence on crowdfunding performance.

Displaying pictures on a crowdfunding page enables potential backers to understand the campaign better [57]. Hence, pictures increase the probability of crowdfunding success. The presence of images on a crowdfunding page encourages potential backers to continue browsing the crowdfunding platform before they decide whether to support the campaign or not. A crowdfunding page with images has a higher probability of success than a page without images [58]. The presence of images provides a positive signal of crowdfunding success and overcomes information asymmetry. Zhu and Zhou [59] found that the availability of images on a crowdfunding platform increases the probability of success. However, the overuse of images may have an unpleasant appeal for potential backers, which decreases the probability of success. Therefore, the following research hypothesis is put forward:

H₈: The presence of images on the crowdfunding page increases the probability of crowdfunding campaign success.

The COVID-19 pandemic has shifted the focus from traditional forms of financing to innovative forms. Many crowdfunding projects around the world were affected by the disruption caused by the pandemic [60]. The presence of COVID-19 pandemic has negatively influenced the crowdfunding performance [61]. The popularity and the usage of social network has grown during the presence of COVID-19 pandemic [31]. Therefore, COVID-19 pandemic has potential to change investors and backers' behaviour in the financial markets and crowdfunding sector [31]. In order to verify if the social network influence the crowdfunding performance before COVID-19 is the same today thus, the hypothesis is put forward:

H₉: The COVID-19 pandemic influenced the main drivers of crowdfunding performance.

3. Research Methodology

A quantitative research method, which is based on a deductive and postpositivist philosophy, was adopted to test the research hypotheses formulated for this study. Secondary data covering the period 2019 to 2020 were collected from a crowd datacentre. Convenience sampling was used for purposes of the study. The below Figure 2 represent the research methodology flow chart of the study below:

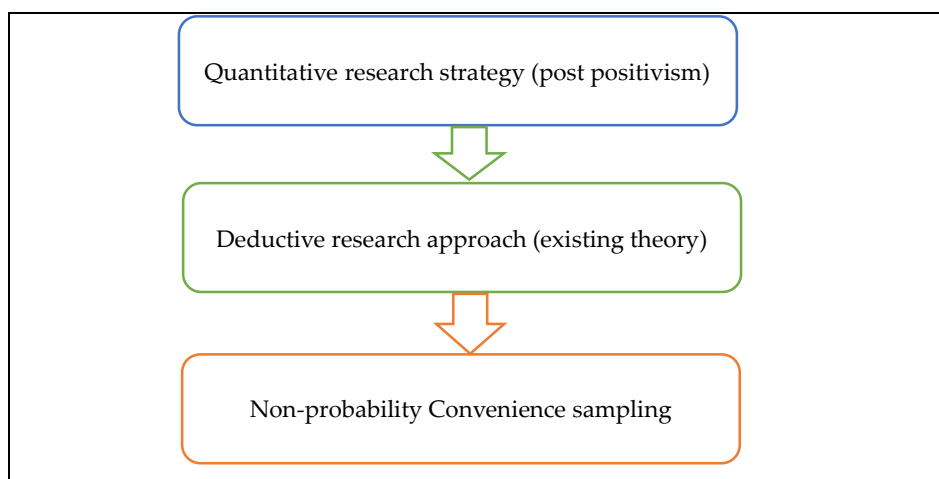


Figure 2. Research methodology flow chart (Authors' compilation).

The sample for the study consisted of 859 crowdfunding projects. Projects with missing information were excluded from the sample. The sample is depicted in Table 1.

Table 1. Sample Description.

Crowdfunding campaign period	Number of projects	Success rate	Amount raised (US dollar)
Before Covid-19 – 2019	749	7%	1 368 829
During Covid-19 – 2020	110	12%	403 389
Total	859	19%	1 772 218

Source: Authors' compilation.

Figure 3 depicts the sampling process and the data coding to reach a final sample. Data was collected from 1032 crowdfunding projects from 2019 to the year 2020. Hence, the invalid and incomplete crowdfunding projects from African continent (specifically reward based) were removed to ensure consistency.

The variables that were employed in the study are depicted in Figure 4. These factors constitute the independent, dependent and control variables. The dependent variables include backers, success rate and success, whereas the independent variables include the COVID-19 pandemic, social media, images and videos. Lastly, the control variables consist of backers, comments, duration and updates. Campaign success dummy variable that equals 1, if the project was successful and 0 if it is a failed project. The variables are defined more formally in Table 2.

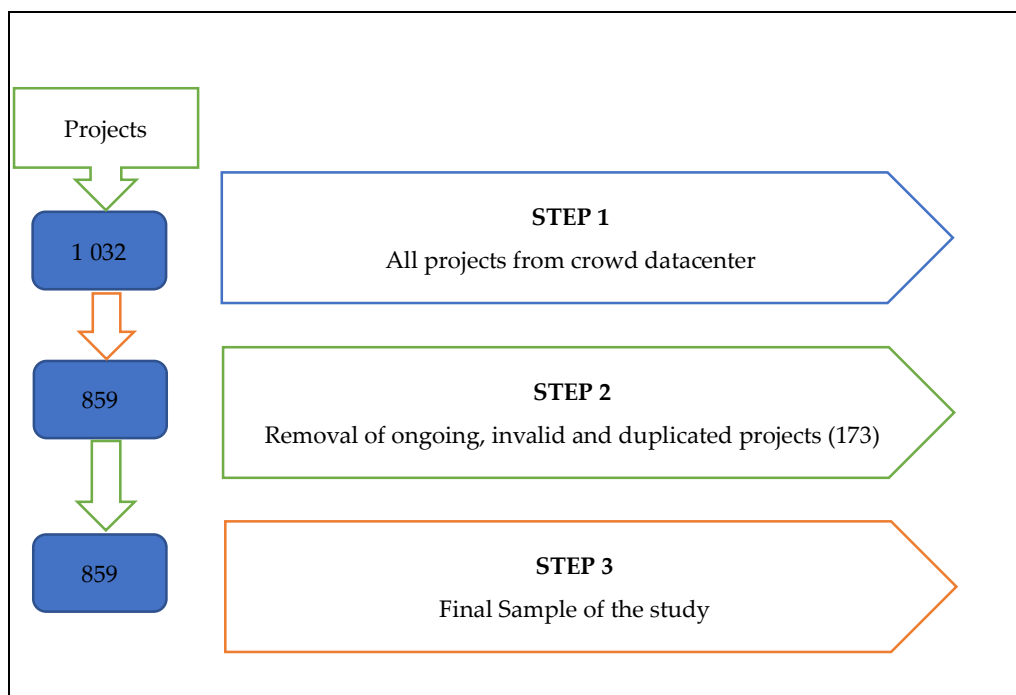


Figure 3. The sampling and data coding process (Source: Adapted from (Mamaro and Sibindi 2023)).

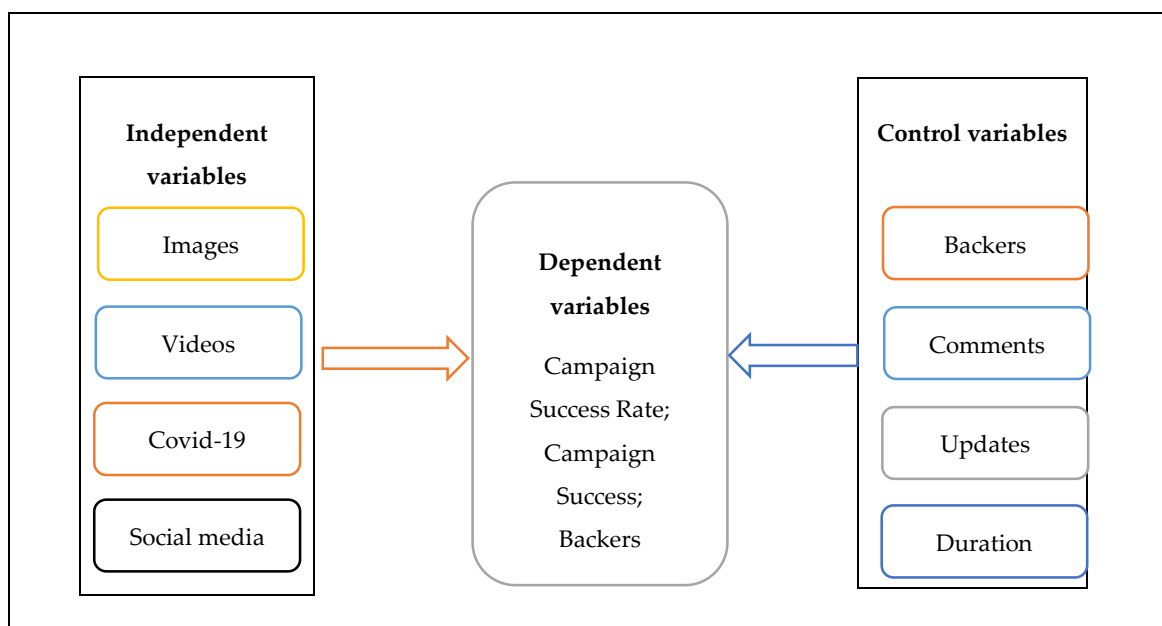


Figure 4. Research model (Source: Authors' compilation).

The econometric analyses that were conducted in the study were ordinary least squares (OLS) and probit regression. The following models were specified:

$$CSR = \beta_0 + \beta_1SN + \beta_2COVID + \beta_3VD + \beta_4DRN + \beta_5IM + \beta_6BCK + \beta_7UPD + \beta_8CMM + \beta_9TA \quad (1)$$

$$CS = \beta_0 + \beta_1SN + \beta_2COVID + \beta_3VD + \beta_4DRN + \beta_5IM + \beta_6BCK + \beta_7UPD + \beta_8CMM + \beta_9TA \quad (2)$$

$$BCK = \beta_0 + \beta_1SN + \beta_2COVID - 19 + \beta_3VD + \beta_4DRN + \beta_5IM + \beta_6TA + \beta_7UPD \quad (3)$$

Table 2. Variable Definition.

NAMES OF VARIABLES	MEASUREMENT OF VARIABLES	REFERENCES
Dependent variables	--	--
Campaign Success Rate (CSR)	A continuous variable is the ratio that is calculated by dividing each actual amount raised by each fundraising goal, which describes what extent can be achieved.	[35, 62]
Campaign Success (CS)	A dummy variable of 1 if a campaign was successful and 0 if is failed.	[63]
Backers (BCK)	The number of supporters who contributed to a project (transformed as log).	[32, 64, 35]
Independent variables	--	--
Social network (SN)	A binary variable of 1 if any of the following mediums are used: Facebook, Twitter, blogs, LinkedIn and Myspace, and 0 otherwise.	[47]
Video (VD)	A dummy variable of 1 if a video is available on a campaign website and 0 otherwise.	[56, 65]
Image or visuals (IM)	A dummy variable of 1 if an image is available on a campaign website and 0 otherwise.	[65]
COVID-19 pandemic	A dummy variable of 1 if a campaign during the COVID-19 pandemic and 0 if was launched before the presence of COVID-19 pandemic.	[31, 79]
Control variables	--	--
Backers (BCK)	The number of supporters who contributed to a project (transformed as log).	[32]
Comments (CMM)	The number of comments about a project by the entrepreneur and backers (transformed as log).	[67]
Duration (DR)	The number of days for a campaign to raise funds (transformed as log).	[68, 69]
Number of updates (UPD)	The number of updates on a crowdfunding platform (transformed as log).	[70]

4. Empirical Findings

The descriptive and correlation analysis results are presented in Table 3. The correlation coefficients range between -0.02 and 0.60. The correlation coefficients fall within the threshold of 0.80 suggested by Wooldridge [71]. It can be concluded correlation among the variables are not far less than 0.80. Consequently, there is no problem of multicollinearity between variables. Both descriptive and correlation of all variables reported in Table 3. Additionally, the variance inflation factor (VIF) was calculated to validate whether the model is free of multicollinearity. The VIF was found to be between 1,04 (minimum) and 2,00 (maximum). The VIF falls within the threshold suggested by McDonald and Moffit [72]. Therefore, the model is free of problems associated with multicollinearity.

Table 3. Descriptive statistics and correlations.

Probability	Mean	SD	VIF
CS	0.083	0.28	DP
SN	0.866	0.34	2.00
VD	0.47	0.50	1.41
IM	0.68	0.47	1.80
DRN	44.54	17.26	1.13
BCK	19.64	118.47	1.73
CMM	2.08	28.61	1.66
COVID-19	0.13	0.34	1.04
TA	4.07	0.80	1.12
UPD	0.92	3.16	1.33

Table 3. Descriptive statistics and correlations (continued Table).

Probability	CS	SN	VD	IM	DRN	BCK	CMM	COVID-19	TA	UPD
CS	1.000									
SN	0.094***	1.000								
VD	0.156***	0.373***	1.000							
IM	0.123***	0.578***	-0.049	1.000						
DRN	-0.162***	0.0152	-0.045	0.0427	1.000					
BCK	0.444***	0.059*	0.141***	0.0272	-0.113***	1.000				
CMM	0.223***	0.028613	0.071**	0.0231	-0.059*	0.609***	1.000			
COVID-19	0.047	0.070**	0.080**	0.128***	-0.059	0.089***	0.098***	1.000		
TA	-0.123***	0.033	0.082	0.0507	0.293***	0.058*	0.0145	-0.013	1.000	
UPD	0.493***	0.114***	0.177	0.141***	-0.103***	0.4161	0.393***	0.0610*	-0.020	1.000

Notes: Number of observations 851; * p < 0.1, ** p < 0.05, *** p < 0.01. Source: Authors' compilation.

The results of estimating Model 1 in table 4 shows that social networks and COVID-19 are negatively and insignificantly associated with crowdfunding campaign success, whereas duration, comments and target amount (TA) are negatively and significantly associated with crowdfunding success ($\beta = -0.01, -0.002$ and -0.045 respectively; $p < 0.1$ and $p < 0.01$ for comments and target amount). The presence of updates, pictures and videos on a crowdfunding page increases the probability of success ($\beta = 0.032, 0.067$ and 0.047 respectively; $p < 0.01$). Lastly, the presence of many backers positively influences crowdfunding performance.

In the second model, campaign success was measured by a dummy variable of 1 if the projects have reached the target amount and 0 if not. The logistic regression results (Model 2) suggest that SN, VD and DRN are negatively but insignificantly associated with crowdfunding success ($\beta = -0.046, -0.033$ and -0.01 respectively). Additionally, the results suggest that TA is negatively and significantly associated with crowdfunding success ($\beta = -1.323$; $p < 0.01$). Conversely, COVID-19, IM, UPD and CMM are positively but insignificantly associated with crowdfunding success ($\beta = 0.020, 0.559, 0.033$ and 0.001 respectively). Lastly, BCK is positively and significantly associated with crowdfunding performance ($\beta = 0.039$; $p < 0.01$).

Table 4. Regression analysis results.

Variables	Model 1 (OLS)		Model 2 (Probit)		Model 3	
	CSR		CS		BCK	
SN	-0.046	(0.031)	-0.046	(0.552)	3.648	(12.90)
COVID-19	-0.013	(0.023)	0.020	(0.292)	6.813	(9.398)
VD	0.047***	(0.018)	-0.033	(0.259)	12.694*	(7.370)
DRN	-0.001*	(0.0005)	-0.001	(0.006)	-0.546***	(0.019)
IM	0.067***	(0.022)	0.559	(0.384)	-4.796	(8.960)
UPD	0.032***	(0.003)	0.033	(0.033)	7.347***	(1.1038)
CMM	-0.002***	(0.0003)	0.001	(0.021)	2.156***	(0.119)
TA	-0.045***	(0.010)	-1.323***	(0.247)	-18.561*	(18.130)
BCK	0.001***	(0,000)	0.039***	(0.005)	--	--
C	0.235***	(0.045)	2.086	(0.822)	--	--
Pseudo R^2	0.3589	--	0.663105	--	0.421222	--
Number of observations	851	--	851	--	851	--

Notes: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Source: Authors' compilation.

In model 3, backers were used as the dependent variable. The findings reveal that SN, COVID-19 and VD are positively but insignificantly associated with crowdfunding success ($\beta = 3.648$ and 6.813 respectively). The presence of VD is positively and significantly associated with crowdfunding success ($\beta = 12.69$; $p < 0.1$). Further, UPD and CMM are positively and significantly associated with crowdfunding success ($\beta = 7.347$ and 2.156 respectively; $p < 0.01$). By contrast, IM is negatively and insignificantly associated with crowdfunding performance ($\beta = 4.796$). Additionally, VD is negatively and significantly associated with crowdfunding success ($\beta = 7.347$ and 2.156 respectively; $P < 0.01$).

The regression results of estimating in model 1 and model 2 suggest that social networks have a negative influence on crowdfunding success in Africa. The findings are in line with the findings of Tan and Reddy [73] and Bukhari, Usman and Hussain [74], that is, that the presence of social networks does not persuade potential backers to contribute to crowdfunding campaigns. Hence it does not overcome the problems associated with information asymmetry and signal the success of crowdfunding performance. By contrast, [60, 67, 75] found that entrepreneurs can use social networks are more likely to be successful than entrepreneurs without social network usage. The ability of campaigns to meet fundraising targets on a finite timeline is typically regarded as crowdfunding success [76]. However, the results of estimating model 3 show a positive relationship between social networks and backers which were in line with the findings of Renko, Moss and Lloyd [76]. Several studies suggest that social networks persuade potential backers to invest in crowdfunding campaigns [8, 64, 78].

The COVID-19 pandemic had a negative influence on crowdfunding success in Africa, as reflected in the results of estimating model 1. This finding is consistent with Zribi's finding [31] that the COVID-19 pandemic disrupted crowdfunding performance. During the COVID-19 pandemic there was a drastic decline in the number of crowdfunding projects in Africa, hence there is a negative association between COVID-19 and crowdfunding success. By contrast, the results of estimating models 2 and 3 reflect a positive signal between the COVID-19 pandemic and crowdfunding success

[66, 79, 80, 81]. A reliable communication strategy and social networks provide effective information to potential investors and reduce the distrust between backers and project creators [82]. Despite the popularity and the usage of crowdfunding globally, remains limited on the African continent owing to limited information and communications technology (ICT) infrastructure.

The use of videos increases crowdfunding success, as deduced by from the regression results in models 1 and 3. This is in line with the findings of Petitjean [68] and Aleksina, Akulenka and Lubl6y [83]. The presence of videos on crowdfunding platforms signals the success of crowdfunding while reducing information asymmetry. Some backers may not be able to read textual information concerning a crowdfunding campaign. Therefore, the presence of videos reduces demand uncertainty [84]. Conversely, Schraven, van Burg, van Gelderen and Masurel [85] found a negative relationship between the use of videos and crowdfunding success, which is in line with the findings presented in model 2. However, the results of the study point to a mixed association between the use of videos and crowdfunding success.

The use of images increases crowdfunding success, as reflected in models 1 and 2. Therefore, the use of images is a persuasive signal to potential backers to support a campaign, which ultimately leads to success [86, 87]. Aleksina et al. [83] and Petitjean [68] found a negative signal between the use of images and crowdfunding success, which is supported by model 3 of the study. The duration of crowdfunding campaigns has a negative effect on their success, as reflected in models 1, 2 and 3. This result is consistent with the findings of Zhang, Liu, Wang, Zhao and Zhang [88] and Dikaputra, Sulung and Kot [53].

Many backers and consistent updates on crowdfunding platforms have a positive influence on crowdfunding success, as reflected in all models presented in table 4 [52, 53]. Many backers and consistent updates on crowdfunding platforms signal the success of crowdfunding and enhance communication transparency. In contrast, [31, 68, 89] found a negative association between backers and updates on crowdfunding success. Additionally, the target amount decreases crowdfunding success, as reflected in table 4 [73, 90, 91]. Therefore, the findings are inconclusive.

The comments feature on crowdfunding platforms has a positive influence on crowdfunding success, as reflected in models 2 and 3. This result is supported by the findings of Pinkow and Emmerich [92], Zhang et al. [6], Petitjean [68] and Aleksina et al. [83]. Comments reduce information asymmetry by ensuring transparent and effective communication between backers and project owners (SMEs). However, model 1 reflects a negative relationship between backers and comments. The results suggest that continuous comments on crowdfunding platforms decrease crowdfunding success. This finding is not supported by the signalling and information asymmetry theories. One of the possible reasons for this finding could be the fact that crowdfunding projects that are based on the African continent differ from projects in developed economies owing to differences in ICT infrastructure.

5. Discussion and Conclusion

The purpose of the study was to investigate the influence of social networks on crowdfunding performance in Africa and, specifically, to determine the factors that contribute to the success of crowdfunding campaigns in order to alleviate the high incidence of unsuccessful campaigns on the continent. The study contributes to the streams of research on the role of social networks in crowdfunding success. The findings of the study provide greater insight into the relationship

between social networks and crowdfunding success. The study provides several theoretical implications in respect of the role of social networks in crowdfunding performance. Among the few studies that have examined the role of social networks in successful crowdfunding campaigns, primary attention is given to equity-based and reward-based crowdfunding campaigns. Most of studies conducted on crowdfunding originate from developed countries [78, 8, 93]. Hence, the current study fills a research gap by investigating the role of social network in crowdfunding success performance on the African continent.

The current study has several theoretical and practical implications. Firstly, the study applies contributions in the crowdfunding literature in examining the role of social networks in crowdfunding success from the perspective of signalling theory and social capital theory. Most former studies that investigated signalling dynamics were limited to a single economy or country [5, 67, 89]. To the best of the researchers' knowledge, the current study is one of the first to investigate the importance of signalling in crowdfunding success and its role in mitigating the problem of information asymmetry in the crowdfunding market from the perspective of African countries.

A limited number of studies have examined crowdfunding success and market development in the context of a cross-country analysis [14, 69, 88]. This study represents an attempt at exploring signalling dynamics and advancing theoretical insight into the association between project comments, project updates, backers, images, videos, duration, target amount, COVID-19 pandemic and social networks, on the one hand, and success in a donation- and reward-based crowdfunding market, on the other. Moreover, the study contributes to an understanding of the influence of social networks and backers on project success. The findings in respect of the variables are not consistent with the findings of previous studies.

The study validates previous studies concerning the role of social networks in crowdfunding performance. Furthermore, it highlights the complicated influence of the predictors of success, which was not previously explored. Entrepreneurs or creators of crowdfunding projects could use the findings of the study to design more successful campaigns. Lastly, the study indicates that project updates and comments signal quality and trustworthiness; these two aspects strongly influence backers' participation and ultimately increase the success of crowdfunding campaigns. Both the level of involvement of different campaign elements and their association with successful outcomes can differ, depending on the level of social trust that prevails in the context in which campaigns are launched.

There is no study without limitations. The sample of this study was limited to the African continent crowdfunding market. Future studies could investigate similar platforms established in other markets. The findings of the study cannot be generalised to all developing countries owing to differences in factors that play a role in the development and growth of crowdfunding, such as ICT infrastructure, culture, and internet participation. Moreover, all social ties were treated as one-way in this study, that is, a distinction was not made between the different types of social ties on social networks (for example: friends, families, or strangers). Further work could differentiate between relationship types in measuring perceived social influence.

The success of most crowdfunding campaigns depends on the rewards offered to backers [94]. Consequently, the success of crowdfunding, especially donation-based crowdfunding, was influenced by the COVID-19 pandemic. The secondary data collected in the study were limited to non-investment and donation-based crowdfunding models. Therefore, it is recommended that future

studies focus on investment crowdfunding models, namely, lending and equity-based models. Additionally, the current study emphasises that the presence of comments, updates and social networks diminishes the trust deficit of backers and information asymmetry [95]. It is recommended that future studies examine other variables, such as spelling mistakes, creators' experience, frequently asked questions and textual descriptions, in exploring crowdfunding success. Lastly, the study did not investigate the influence of personal and demographic characteristics, such as the gender, the age, the educational level, the income, or the interest category, of potential supporters. All these characteristics could influence potential backers' decision-making patterns. Therefore, future researchers are advised to consider the above aspects when studying project success in the crowdfunding market.

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References

- [1] Mollick, E.R.; Venkat K. After the campaign: Outcomes of crowdfunding. *UNC Kenan-Flagler Research Paper*, 2014, 2376997. Available at SSRN: <https://ssrn.com/abstract=2376997>. DOI: <http://dx.doi.org/10.2139/ssrn.2376997>.
- [2] Nyberg, A.; Åberg, M. Crowdfunding Social Entrepreneurship: The Influential Factors in Crowdfunding Success for Social Entrepreneurs, 2017. Available at <http://hdl.handle.net/2077/53751>.
- [3] Brown, R.; Mawson, S.; Rowe, A.; Mason, C. Working the crowd: Improvisational entrepreneurship and equity crowdfunding in nascent entrepreneurial ventures. *International Small Business Journal*, 2018, 36(2):169-193. DOI: <https://doi.org/10.1177/0266242617729743>.
- [4] Bacq, S.; Lumpkin, G.T. Social Entrepreneurship and COVID-19. *Journal of Management Studies*, 2021, 58(1):283-286.
- [5] Courtney, C.; Dutta, S.; Li, Y. Resolving information asymmetry: Signalling, endorsement, and crowdfunding success. *Entrepreneurship Theory and Practice*, 2017, 41(2):265-290. DOI: <https://doi.org/10.1111/etap.122>.
- [6] Zhang, Y.; Tan, C.D.; Sun, J.; Yang, Z. Why do people patronize donation-based crowdfunding platforms? An activity perspective of critical success factors. *Computers in Human Behaviour*, 2020, 112:1-9. DOI: <https://doi.org/10.1016/j.chb.2020.106470>.
- [7] Wahjono, S.I.; Marina, A.; Sezeli, S.S.; Mahardika, B.W. The Role of social awareness over the Success of Crowdfunding Platform. *Humanities & Social Sciences Reviews*, 2019, 7(3):534-540. DOI: <https://doi.org/10.18510/hssr.2019.7379>.
- [8] Liu, Y.; Chen, Y.; Fan, Z.P. Do social network crowds help fundraise campaigns? Effects of social influence on crowdfunding performance. *Journal of Business Research*, 2021, 122:97-108. DOI: <https://doi.org/10.1016/j.jbusres.2020.08.052>.

- [9] Beck, T.; Cull, R. SME finance in Africa. *Journal of African Economies*, 2014, 23(5):583-613. DOI: <https://doi.org/10.1093/jae/eju016>.
- [10] Adebayo, N.A.; Nassar, M.L. Impact of Micro and Small Business Entrepreneurship on Poverty Reduction in Ibadan Metropolis, South Western Nigeria. *International Review of Management and Business Research*, 2014, 3:1603-1626.
- [11] Ayyagari, M.; Demirgüç-Kunt, A.; Maksimovic, V. Financing of firms in developing countries: lessons from research. *World Bank Policy Research Working Paper*, 2012, (6036).
- [12] Hiller, A. An empirical analysis of crowdfunding in Sub-Saharan Africa. 2017, HHL Leipzig Graduate School of Management, Leipzig, Dissertation available at <https://nbn-resolving.org/urn:nbn:de:bsz:14-qucosa2-163562>.
- [13] Cerpentier, M.; Vanacker, T.; Paeleman, I.; Bringmann, K. Equity crowdfunding, market timing, and firm capital structure. *The Journal of Technology Transfer*, 2022, 47(6):1766-1793. DOI: <https://doi.org/10.1007/s10961-021-09893-y>.
- [14] Johan, S.; Zhang, Y. Investors' industry preference in equity crowdfunding. *The Journal of Technology Transfer*, 2022, 47(6):1737-1765. DOI: <https://doi.org/10.1007/s10961-021-09897-8>.
- [15] Kleinert, S.; Mochkabadi, K. Gender stereotypes in equity crowdfunding: the effect of gender bias on the interpretation of quality signals. *The Journal of Technology Transfer*, 2021:1-22. DOI: <https://doi.org/10.1007/s10961-021-09892-z>.
- [16] Akerlof, G.A. The market for "lemons": Quality uncertainty and the market mechanism. In *Uncertainty in economics* (pp. 235-251). Academic Press. 1978:237-251. DOI: <https://doi.org/10.1016/B978-0-12-214850-7.50022-X>.
- [17] Rothschild, M.; Stiglitz, J. Equilibrium in competitive insurance markets: An essay on the economics of imperfect information. In *Uncertainty in economics* (pp. 257-280). Academic Press. 1978:259-280. DOI: <https://doi.org/10.1016/B978-0-12-214850-7.50024-3>.
- [18] Ross, S.A. The determination of financial structure: the incentive-signalling approach. *The bell journal of economics*, 1977:23-40. DOI: <https://doi.org/10.2307/3003485>.
- [19] de Larrea, G.L.; Altin, M.; Singh, D. Determinants of success of restaurant crowdfunding. *International Journal of Hospitality Management*, 2019, 78:150-158. DOI: <https://doi.org/10.1016/j.ijhm.2018.10.003>.
- [20] Spence, M. Job market signalling. In *Uncertainty in economics* (pp. 281-306). Academic Press. 1978:283-306. DOI: <https://doi.org/10.1016/B978-0-12-214850-7.50025-5>.
- [21] Di Pietro, F.; Grilli, L.; Masciarelli, F. Talking about a revolution? Costly and costless signals and the role of innovativeness in equity crowdfunding. *Journal of Small Business Management*, 2020:1-32. DOI: <https://doi.org/10.1080/00472778.2020.1816435>.
- [22] Kromidha, E.; Robson, P. Social identity, and signalling success factors in online crowdfunding. *Entrepreneurship & Regional Development*, 2016, 28(9-10):605-629. DOI: <https://doi.org/10.1080/08985626.2016.1198425>.
- [23] Nahapiet, J.; Ghoshal, S. Social capital, intellectual capital, and the organizational advantage. *Academy of management review*, 1998, 23(2):242-266. DOI: <https://doi.org/10.5465/amr.1998.533225>.
- [24] Lynn, T.; Rosati, P.; Nair, B.; Mac an Bhaird, C. An exploratory data analysis of the# crowdfunding network on Twitter. *Journal of Open Innovation: Technology, Market, and Complexity*, 2020, 6(3):1-22. DOI: <https://doi.org/10.3390/joitmc6030080>.
- [25] Baum, J.A.; Oliver, C. Toward an institutional ecology of organizational founding. *Academy of Management Journal*, 1996, 39(5):1378-1427. DOI: <https://doi.org/10.5465/257003>.
- [26] Johannisson, B. Business formation—a network approach. *Scandinavian journal of management*, 1988, 4(3-4): 83-99. DOI: [https://doi.org/10.1016/0956-5221\(88\)90002-4](https://doi.org/10.1016/0956-5221(88)90002-4).
- [27] Hoffman, D.L.; Novak, T.P. Toward a deeper understanding of social media. *Journal of Interactive Marketing*, 2012, 26(2):69-70. DOI: <https://doi.org/10.1016/j.intmar.2012.03.001>.
- [28] Kietzmann, J.H.; Hermkens, K.; McCarthy, I.P.; Silvestre, B.S. Social media? Get serious! Understanding the functional building blocks of social media. *Business horizons*, 2011, 54(3):241-251. DOI: <https://doi.org/10.1016/j.bushor.2011.01.005>.
- [29] Ratten, V. Digital platform usage amongst female sport technology entrepreneurs. *Journal of Small Business & Entrepreneurship*, 2022:1-24. DOI: <https://doi.org/10.1080/08276331.2022.2116678>.

- [30] Beier, M.; Wagner, K. Individual and Corporate Decisions to Adopt social media: Perception of Risks and Benefits in Small Firms. 2014 (January 24, 2014). Available at SSRN: <https://ssrn.com/abstract=2384900>. DOI: <http://dx.doi.org/10.2139/ssrn.2384900>.
- [31] Zribi, S. Effects of social influence on crowdfunding performance: implications of the covid-19 pandemic. *Humanities and Social Sciences Communications*, 2022, 9(1):1-8. DOI: <https://doi.org/10.1057/s41599-022-01207-3>.
- [32] Fourkan, M. Crowdfunding: Antecedents of Number of Backers and Success of a Project. *Fourkan, M. (2021). CROWDFUNDING: ANTECEDENTS OF NUMBER OF BACKERS AND SUCCESS OF A PROJECT. International Journal of Small Business and Entrepreneurship Research*, 2021, 9(2):1-13. DOI: Retrieved from <https://www.eajournals.org/wp-content/uploads/Crowdfunding.pdf>. Available at SSRN: <https://ssrn.com/abstract=3865312>.
- [33] Vulkan, N.; Åstebro, T.; Sierra, M. F. Equity crowdfunding: A new phenomena. *Journal of Business Venturing Insights*, 2016, 5:37-49. DOI: <https://doi.org/10.1016/j.jbvi.2016.02.001>.
- [34] Lukkarinen, A.; Teich, J. E.; Wallenius, H.; Wallenius, J. Success drivers of online equity crowdfunding campaigns. *Decision Support Systems*, 2016, 87:26-38. DOI: <https://doi.org/10.1016/j.dss.2016.04.006>.
- [35] Mollick, E. The dynamics of crowdfunding: An exploratory study. *Journal of business venturing*, 2014, 29(1): 1-16. DOI: <https://doi.org/10.1016/j.jbusvent.2013.06.005>.
- [36] Colombo, M.G.; Franzoni, C.; Rossi-Lamastra, C. Internal social capital and the attraction of early contributions in crowdfunding. *Entrepreneurship theory and practice*, 2016, 39(1):75-100. DOI: <https://doi.org/10.1111/etap.12118>.
- [37] Pyayt, P.O.; Thomas, H.A.; Arvin, S.; Sakdipon, J. User entrepreneurs' multiple identities and crowdfunding performance: effects through product innovativeness, perceived passion, and need similarity. *J Bus Venture*, 2019, 34(5):105895.1-105895.16. DOI: <https://doi.org/10.1016/j.jbusvent.2018.08.005>.
- [38] Rose, S.; Wentzel, D.; Hopp, C.; Kaminski, J. Launching for success: The effects of psychological distance and mental simulation on funding decisions and crowdfunding performance. *Journal of Business Venturing*, 2021, 36(6):106021. DOI: <https://doi.org/10.1016/j.jbusvent.2020.106021>.
- [39] Zhang, Y.; Tan, C. D.; Sun, J.; Yang, Z. Why do people patronize donation-based crowdfunding platforms? An activity perspective of critical success factors. *Computers in Human Behaviour*, 2020, 112:106470. DOI: <https://doi.org/10.1016/j.chb.2020.106470>.
- [40] Neugebauer, P.; Medziasuysyte, J. Financing Success through Equity crowdfunding: The case of Start-ups and SMEs funded on a European crowdfunding platform. 2017.
- [41] Wachira, V.K. Crowdfunding in Kenya: Factors for Successful Campaign. 2021, 3:413- 428. Available at <http://ir.kabarak.ac.ke/handle/123456789/901>.
- [42] Agrawal, A. K.; Catalini, C.; Goldfarb, A. *The geography of crowdfunding* (No. w16820). National bureau of economic research. 2011, February 2011: DOI 10.3386/w16820.
- [43] Ralcheva, A.; Roosenboom, P. On the Road to Success in Equity Crowdfunding (November 1, 2016). Available at SSRN: <https://ssrn.com/abstract=2727742>. DOI: <http://dx.doi.org/10.2139/ssrn.2727742>.
- [44] Frydrych, D.; Bock, A.J.; Kinder, T.; Koeck, B. Exploring entrepreneurial legitimacy in reward-based crowdfunding. *Venture capital*, 2014, 16(3):247-269. DOI: <https://doi.org/10.1080/13691066.2014.916512>.
- [45] Burtch, G.; Ghose, A.; Wattal, S. Secret admirers: An empirical examination of information hiding and contribution dynamics in online crowdfunding. *Information Systems Research*, 2016, 27(3):478-496. DOI: <https://doi.org/10.1287/isre.2016.0642>.
- [46] Drabløs, C. *What influences crowdfunding campaign success* (Master's thesis, Universitetet i Agder; University of Agder). 2015.
- [47] Koch, J.A.; Siering, M. Crowdfunding Success Factors: The Characteristics of Successfully Funded Projects on Crowdfunding Platforms (April 4, 2015). Proceedings of the 23rd European Conference on Information Systems (ECIS 2015); Muenster, Germany 2015. Available at SSRN: <https://ssrn.com/abstract=2808424>.
- [48] Kuppuswamy, V.; Bayus, B.L. Does my contribution to your crowdfunding project matter? *Journal of Business Venturing*, 2017, 32(1):72-89. DOI: <https://doi.org/10.1016/j.jbusvent.2016.10.004>.
- [49] Xie, K.; Liu, Z.; Chen, L.; Zhang, W.; Liu, S.; Chaudhry, S.S. Success factors and complex dynamics of crowdfunding: An empirical research on Taobao platform in China. *Electronic Markets*, 2019, 29(2):187-199. DOI: <https://doi.org/10.1007/s12525-018-0305-6>.
- [50] Kim, Y.J.; Hollingshead, A.B. Online social influence: Past, present, and future. In *Communication Yearbook*, 2015, 39 (pp. 185-214). Routledge.

- [51] Toubia, O.; Stephen, A.T. Intrinsic versus image-related motivations in social media: Why do people contribute content to Twitter. 2012, *SSRN Electron J.* DOI: <https://doi.org/10.2139/ssrn1949833>.
- [52] Ho, H.C.; Chiu, C.L.; Mansumittrchai, S.; Yuan, Z.; Zhao, N.; Zou, J. The influence of signals on donation crowdfunding campaign success during COVID-19 crisis. *International journal of environmental research and public health*, 2021, 18(14):7715. DOI: <https://doi.org/10.3390/ijerph18147715>.
- [53] Dikaputra, R.; Sulung, L.A.K.; Kot, S. Analysis of success factors of reward-based crowdfunding campaigns using multi-theory approach in ASEAN-5 countries. *Social Sciences*, 2019, 8(10):293. DOI: <https://doi.org/10.3390/socsci8100293>.
- [54] Lagazio, C.; Querci, F. Exploring the multi-sided nature of crowdfunding campaign success. *Journal of Business Research*, 2018, 90:318-324. DOI: <https://doi.org/10.1016/j.jbusres.2018.05.031>.
- [55] Bi, S.; Liu, Z.; Usman, K. The influence of online information on investing decisions of reward-based crowdfunding. *Journal of Business Research*, 2017, 71:10-18. DOI: <https://doi.org/10.1016/j.jbusres.2016.10.001>.
- [56] Kunz, M.M.; Bretschneider, U.; Erler, M.; Leimeister, J.M. An empirical investigation of signalling in reward-based crowdfunding. *Electronic Commerce Research*, 2017, 17(3):425-461.
- [57] Prasopiboon, S.; Ratanabanchuen, R.; Chandrachai, A.; Triukose, S. Success factors in project fundraising under reward-based crowdfunding platform. *Academy of Entrepreneurship Journal*, 2021, 27:1-20.
- [58] Kuppuswamy, V.; Bayus, B.L. Does my contribution to your crowdfunding project matter? *Journal of business venturing*, 2017, 32(1):72-89. DOI: <https://doi.org/10.1016/j.jbusvent.2016.10.004>.
- [59] Zhu, H.; Zhou, Z.Z. Analysis and outlook of applications of blockchain technology to equity crowdfunding in China. *Financial innovation*, 2016, 2(1):1-11. DOI: <https://doi.org/10.1186/s40854-016-0044-7>.
- [60] Mamaro, L.P.; Sibindi, A.B. Entrepreneurial Financing in Africa during the COVID-19 Pandemic. *Journal of Risk and Financial Management*, 2022, 15(11):511. DOI: <https://doi.org/10.3390/jrfm15110511>.
- [61] Sansa, N.A. The Impact of the COVID-19 on the Financial Markets: Evidence from China and USA. *Electronic Research Journal of Social Sciences and Humanities*, 2020, 2(2). Available at SSRN: <https://ssrn.com/abstract=3567901>. DOI: <http://dx.doi.org/10.2139/ssrn.3567901>.
- [62] Kim, P.H.; Buffart, M.; Croidieu, G. TMI: Signalling credible claims in crowdfunding campaign narratives. *Group & Organization Management*, 2016, 41(6):717-750. DOI: <https://doi.org/10.1177/105960111665118>.
- [63] Anglin, A.H.; Short, J.C.; Drover, W.; Stevenson, R.M.; McKenny, A.F.; Allison, T.H. The power of positivity? The influence of positive psychological capital language on crowdfunding performance. *Journal of Business Venturing*, 2018, 33(4):470-492. DOI: <https://doi.org/10.1016/j.jbusvent.2018.03.003>.
- [64] Greenberg, J.; Mollick, E. Activist choice homophily and the crowdfunding of female founders. *Administrative Science Quarterly*, 2017, 62(2):341-374. DOI: <https://doi.org/10.1177/0001839216678847>.
- [65] Xu, T. Learning from the Crowd: The Feedback Value of Crowdfunding (September 30, 2018). Available at SSRN: <https://ssrn.com/abstract=2637699>. DOI: <http://dx.doi.org/10.2139/ssrn.2637699>.
- [66] Cummings, D.; Reardon, R.S. COVID-19 and entrepreneurial processes in US equity crowdfunding. *Journal of Small Business Management*, 2022:1-24. DOI: <https://doi.org/10.1080/00472778.2022.2051178>.
- [67] Wang, N.; Li, Q.; Liang, H.; Ye, T.; Ge, S. Understanding the importance of interaction between creators and backers in crowdfunding success. *Electronic Commerce Research and Applications*, 2018, 27:106-117. DOI: <https://doi.org/10.1016/j.elerap.2017.12.004>.
- [68] Petitjean, M. What explains the success of reward-based crowdfunding campaigns as they unfold? Evidence from the French crowdfunding platform KissKissBankBank. *Finance Research Letters*, 2018, 26:9-14. DOI: <https://doi.org/10.1016/j.frl.2017.11.005>.
- [69] Song, Y.; Berger, R.; Yosipof, A.; Barnes, B.R. Mining and investigating the factors influencing crowdfunding success. *Technological Forecasting and Social Change*, 2019, 148:119723. DOI: <https://doi.org/10.1016/j.techfore.2019.119723>.
- [70] Giudici, G.; Guerini, M.; Rossi-Lamastra, C. Reward-based crowdfunding of entrepreneurial projects: the effect of local altruism and localized social capital on proponents' success. *Small Business Economics*, 2018, 50(2):307-324. DOI: <https://doi.org/10.1007/s11187-016-9830-x>.
- [71] Wooldridge, J.M. *Introductory econometrics: A modern approach*. Cengage learning. 2018.
- [72] McDonald, J.F.; Moffit, R.A. The uses of Tobit analysis. *The review of econometrics and statistics*. Kristjanson, P.; Okike, I.; Tarawali S.; Singh, B.B. 1980, 1000:195-210. DOI: <https://doi.org/10.2307/1924766>.

- [73] Tan, Y.H.; Reddy, S.K. Crowdfunding digital platforms: Backer networks and their impact on project outcomes. *Social Networks*, 2021, 64:158-172. DOI: <https://doi.org/10.1016/j.socnet.2020.09.005>.
- [74] Bukhari, F.A.S.; Usman, S.M.; Usman, M.; Hussain, K. The effects of creator credibility and backer endorsement in donation crowdfunding campaigns success. *Baltic Journal of Management*, 2019, 15(2):215-235. DOI: <https://doi.org/10.1108/BJM-02-2019-0077>.
- [75] Vismara, S. Equity retention and social network theory in equity crowdfunding. *Small Business Economics*, 2016, 46:579-590. DOI: <https://doi.org/10.1007/s11187-016-9710-4>.
- [76] Allison, T.H.; Davis, B.C.; Webb, J.W.; Short, J.C. Persuasion in crowdfunding: An elaboration likelihood model of crowdfunding performance. *Journal of business venturing*, 2017, 32(6):707-725. DOI: <https://doi.org/10.1016/j.jbusvent.2017.09.002>.
- [77] Renko, M.; Moss, T.W.; Lloyd, A. Crowdfunding by non-profit and social ventures. *Handbook of research on crowdfunding*, 2019:249-268. DOI: <https://doi.org/10.4337/9781788117210.00017>.
- [78] Farhoud, M.; Shah, S.; Stenholm, P.; Kibler, E.; Renko, M.; Terjesen, S. Social enterprise crowdfunding in an acute crisis. *Journal of Business Venturing Insights*, 2021, 15:e00211. DOI: <https://doi.org/10.1016/j.jbvi.2020.e00211>.
- [79] Igra, M.; Kenworthy, N.; Luchsinger, C.; Jung, J.K. Crowdfunding as a response to COVID-19: Increasing inequities at a time of crisis. *Social Science & Medicine*, 2021, 282:114105. DOI: <https://doi.org/10.1016/j.socscimed.2021.114105>.
- [80] Cummings, D.; Reardon, R.S. COVID-19 and entrepreneurial processes in US equity crowdfunding. *Journal of Small Business Management*, 2022:1-24. DOI: <https://doi.org/10.1080/00472778.2022.2051178>.
- [81] Liu, Z.J.; Panfilova, E.; Mikhaylov, A.; Kurilova, A. Assessing stability in the relationship between parties in crowdfunding and crowdsourcing projects during the COVID-19 crisis. *Journal of Global Information Management (JGIM)*, 2021, 30(4):1-18. DOI: <https://doi.org/10.4018/JGIM.297905>.
- [82] Wu, W.; Huang, X.; Wu, C.H.; Tsai, S.B. Pricing strategy and performance investment decisions in competitive crowdfunding markets. *Journal of business research*, 2022, 140:491-497. DOI: <https://doi.org/10.1080/17517575.2020.1734239>.
- [83] Aleksina, A.; Akulenkina, S.; Lublóy, Á. Success factors of crowdfunding campaigns in medical research: perceptions and reality. *Drug discovery today*, 2019, 24(7):1413-1420. DOI: <https://doi.org/10.1016/j.drudis.2019.05.012>.
- [84] Miglo, A. Crowdfunding in a competitive environment. *Journal of Risk and Financial Management*, 2020, 13(3):39. DOI: <https://doi.org/10.3390/jrfm13030039>.
- [85] Schraven, E.; van Burg, E.; van Gelderen, M.; Masurel, E. Predictions of crowdfunding campaign success: the influence of first impressions on accuracy and positivity. *Journal of Risk and Financial Management*, 2020, 13(12):331. DOI: <https://doi.org/10.3390/jrfm13120331>.
- [86] Zhou, M.; Lu, B.; Fan, W.; Wang, G.A. Project description and crowdfunding success: an exploratory study. *Information Systems Frontiers*, 2018, 20:259-274. DOI: <https://doi.org/10.1007/s10796-016-9723-1>.
- [87] Shneor, R.; Mrzygłód, U.; Adamska-Mieruszewska, J.; Fornalska-Skurczyńska, A. The role of social trust in reward crowdfunding campaigns' design and success. *Electronic Markets*, 2021:1-16. DOI: <https://doi.org/10.1007/s12525-021-00456-5>.
- [88] Zhang, X.; Liu, X.; Wang, X.; Zhao, H.; Zhang, W. Exploring the Effects of Social Capital on Crowdfunding Performance: A holistic analysis from the empirical and predictive views. *Computers in Human Behavior*, 2022, 126:107011. DOI: <https://doi.org/10.1016/j.chb.2021.107011>.
- [89] Usman, S.M.; Bukhari, F.A.S.; You, H.; Badulescu, D.; Gavrilut, D. The effect and impact of signals on investing decisions in reward-based crowdfunding: A comparative study of China and the United Kingdom. *Journal of Risk and Financial Management*, 2020, 13(12):325. DOI: <https://doi.org/10.3390/jrfm13120325>.
- [90] Hapsari, N.S.; Sulung, L.A.K. The Role of Social Capital and Reward Factor in the Success of Crowdfunding Project Fundraising: Case Study of Emerging Market Countries. In *Asia-Pacific Research in Social Sciences and Humanities Universitas Indonesia Conference (APRISH 2019)*, 2019 May (pp. 591-599). Atlantis Press. DOI: <https://doi.org/10.2991/assehr.k.210531.074>.
- [91] Tian, Z.; Guan, L.; Shi, M. The key factors of successful internet crowdfunding projects-an empirical study based on different platforms. In *2018 15th International Conference on Service Systems and Service Management (ICSSSM)* (pp. 1-6). IEEE. DOI: <https://doi.org/10.1109/ICSSSM.2018.8465009>.

- [92] Pinkow, F.; Emmerich, P. Re-Examining Crowdfunding Success: How the Crowdfunding Goal Moderates the Relationship of Success Factors and Crowdfunding Performance. *Central European Business Review*, 2021, 10(2):91-114. DOI: <https://doi.org/10.18267/j.cebr.263>.
- [93] Kubo, T.; Verissimo, D.; Uryu, S.; Mieno, T.; MacMillan, D. What determines the success and failure of environmental crowdfunding? *Ambio*, 2021, 50:1659-1669. DOI: <https://doi.org/10.1007/s13280-021-01522-0>.
- [94] Bargain, O.; Cardebat, J.M.; Vignolles, A. Crowdfunding in the wine industry. *Journal of Wine Economics*, 2018, 13(1):57-82. DOI: <https://doi.org/10.1017/jwe.2018.3>.
- [95] Liang, X.; Hu, X.; Jiang, J. Research on the effects of information description on crowdfunding success within a sustainable economy – the perspective of information communication. *Sustainability*, 2020, 12(2): 650. DOI: <https://doi.org/10.3390/su12020650>.



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