Reward-Based Crowdfunding. How to Make it Work?

DANIELA HADAČOVÁ

TECHNICAL UNIVERSITY OF KOŠICE,
e-mail: daniela.hadacova@tuke.sk

LENKA MALIČKÁ, PHD.
ASSOCIATE PROFESSOR

TECHNICAL UNIVERSITY OF KOŠICE,
e-mail: lenka.malicka@tuke.sk

SUMMARY

The paper aims to identify attributes having a significant impact on the successful financing of crowdfunding campaigns published on the largest crowdfunding platform based on reward models in the Czech Republic. The paper's motivation arises from the theoretical background of crowdfunding and related empirical research, where crowdfunding based on rewards is analysed. The paper aims to identify the determinants of the success of selected crowdfunding projects using logistic regression analysis. Results of the logit estimation show that the number of fans on the campaign's Facebook page, the use of video in the campaign and the size of the campaign's financial goal have a significant impact on the campaign's success. The last part of the paper also includes the limitations of the performed analysis and suggestions for further analysis of crowdfunding.

Keywords: Logistic regression; Reward-based crowdfunding; Determinants of success

Journal of Economic Literature (JEL) codes: G32 - Financing Policy • Financial Risk and Risk Management • Capital and Ownership Structure • Value of Firms • Goodwill

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INTRODUCTION

Raising start-up capital is a milestone many entrepreneurs have to overcome in the initial stages of implementing their business idea. In recent years, we have witnessed the emergence of a new form of fundraising: crowdfunding. Crowdfunding, also called group funding, has become an increasingly important phenomenon; as compared to traditional forms of funding, it is a process where individuals or groups have the opportunity to concentrate relatively small contributions from a relatively large number of Internet users without financial institutions.

Therefore, in the last decade, the undeniable attention of researchers has been on crowdfunding and its various types. This paper examines one type of crowdfunding, namely, crowdfunding based on rewards. The research is explicitly conducted to analyse the impact of individual attributes to project campaigns on the success of these crowdfunding projects published on the most prominent Czech crowdfunding platform Hithit, based on a unique set of 3,694 projects.

The paper's primary goal is to analyse the determinants of crowdfunding projects using logit regression. Since there is a need to consider many explanatory variables in the analysis, a logistic regression model is employed, where the aim is to identify which independent variables have strong predictive power in terms of campaign success.

This paper consists of five chapters: the first is devoted to a literature review of crowdfunding, followed by a chapter on the methodology and data used. The third section of the paper is dedicated to describing the results of logistic regression. At the end of the paper, there is a discussion on the paper's results, possible extensions of the research and the overall conclusion.

Crowdfunding: A Literature Review

We encounter the term crowdfunding nowadays more often also in our latitudes, but it is still an unusual phenomenon of the modern age for the majority of the Czech and Slovak population.

Crowdfunding is perceived by the European Commission (2016, p. 12) as part of the broader world of financial innovation allowed by

technological advances, also known as FinTech. One of the FinTech subcategoriesis the Alternative Financing (AltFi) subcategory. AltFi refers to technology-based market financing outside the traditional financial system and includes crowdfunding, online marketplaces for consumer and commercial lending, invoicing and third-party platform payments (Terry et al. 2015).

However, the definition of crowdfunding meets a myriad of different definitions (GPFI 2016, p. 19; Kirby & Worner 2014, p. 4; European Commission 2016, 2019; FCA 2020; SEC 2019; World Bank 2013); they all have three key components in common, shown in Fig. 1.
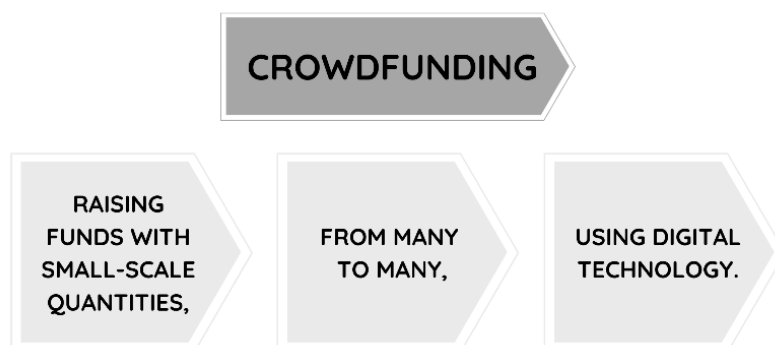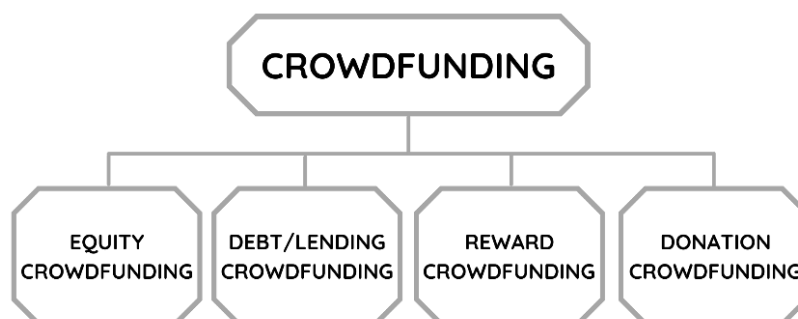

Source: authors' processing based on Jenik et al. 2017, p. 7

Figure 1. Key components of crowdfunding

According to Jenik et al. (2017, p. 7), a critical disruptive effect of crowdfunding is that intermediation by traditional financial institutions is kept to a minimum, as funds are channelled directly from backers to fundraisers through the platform.

A project is considered successful in the crowdfunding industry when it can obtain sufficient financial support from crowd funders. Different types of crowdfunding on the market are generally divided into four models, shown in Fig. 2.

Source: authors' processing based on Zhao et al. 2019

Figure 2. Types of crowdfunding

The results of Di Pietro & Butticè (2020) study suggest that, for different group funding models, both formal and informal institutions play an essential role in determining what can be considered a prudent decision.

In particular, Di Pietro and Butticè (2020) show that the size of the collective finance market is more significant in countries with a favourable business-friendly legal environment and a well-developed financial market. They also emphasise that individualistic societies are more open to group financing in all its forms.

Thanks to the rapid development of Internet technologies and the prosperity of e-commerce, reward-based crowdfunding has become a new star in online retail commerce and is of tremendous importance in raising finance in exchange for additional rewards (Guan et al. 2020). The rewards for contributors are mostly product samples, early rights to purchase a product or service, or even honourable mention (Zaggl & Block 2019).

According to Zhao et al. (2019), the basis for this type of funding is that reward-based crowdfunding platforms are not producers, publishers or marketers but a sophisticated intermediary that connects activists with supporters and allows them to communicate with each other to assess campaign benefits and prospects.

Factors influencing the success of online crowdfunding campaigns

Just as we distinguish between individual crowdfunding models, the factors that affect them, whether positive or negative, also differ. Thus, the factors influencing the success of crowdfunding campaigns are not universally valid for all available crowdfunding models. Shneor and Vik (2020) identified factors influencing the success of crowdfunding campaigns based on individual crowdfunding models; those influencing the success of reward-based crowdfunding campaigns are

- non-profit sector;
- female campaign creator;
- the historical accompanying other campaigns by the current campaign creator;
- the fundraiser's previous experience of successfully obtaining funding;
- the number of contacts in the fundraiser's social networks;
- levels of the concept of creativity and innovation;
- the use of precise language in the campaign texts;
- campaign text length;
- the number of updates provided;
- video inclusion;
- perception of the quality of campaign elements;
- perception of the level of preparedness of the campaign;
- use of prosocial stimuli;
- the number of rewards offered;
- external support;
- the number of comments and interactions with contributors;
- sharing on social networks by supporters;
- fake advertising on social networks;
- the state of the level of support at the time of view of the potential supporter and
- funding in the early stages of the campaign.

Zooming out and in on crowdfunding

The impact and role of alternative financing worldwide continue to grow, with alternative financing platforms raising as much as US$304.5 billion in 2018. This volume represents funds that have been raised through online alternative financing platforms and successfully delivered to individuals, businesses and other fundraisers but does not include platform or transaction fees (Cambridge Centre for Alternative Finance 2020, p. 24). In 2019, the amount collected was significantly lower at $175.7 billion. The declining trend was also recorded in the following year, i.e. in 2020, when "only" $113.7 billion was collected (Cambridge Centre for Alternative Finance 2021, p. 70).

This decline in global volume is mainly due to a sharp decline in alternative financial activity in China, where it fell by 35% between 2019 and 2020. Without the Chinese market, the global alternative financing market increased by 24%, from $91 billion in 2019 to $113 billion in 2020 (Cambridge Centre for Alternative Finance 2021, p. 70).

The European alternative financing market boomed until 2020, when it saw its first decline since 2013, from $23.2 billion in 2019 to $22.6 billion in 2020. The United Kingdom continued to be the most significant contributor, accounting for $12.6 billion in 2020 (Cambridge Centre for Alternative Finance 2021, p. 70). However, the share of the European Union's crowdfunding funding markets (not including the United Kingdom) is still low, with little cross-border activity (Chervyakov & Rocholl 2019). That is exacerbated by the fact that although the existence and market distribution of crowdfunding types in Slovakia and the Czech Republic are similar at the global level, the country's low level of awareness and conservatism is hampering the pace of development of this type of funding/accumulation in these areas (Šoltés & Štofa 2016).

Central European countries are considered small, and their markets have limited absorption capacity, including crowdfunding markets, so it is necessary to raise funds abroad. Domestic platforms focus on regional projects, which may differ in type, budget and area of implementation, rather than those located on international portals (Elexa et al. 2018).

Elexa et al. (2018) found that crowdfunding platforms have decreased recently, especially in Slovakia. The decrease can be caused by the effect of a small economy and relatively intense competition from the Czech Republic, as Czech platforms are relatively easily accessible and attractive for the Slovak donor crowd, mainly due to a low language barrier.

Proof of this statement is the relatively small base of crowdfunding platforms of individual models of crowdfunding operating in the conditions of the Slovak Republic (Table 1).

Table 1.
Crowdfunding platforms actively operating in Slovakia

Crowdfunding model		Name of the crowdfunding platform	Year of launch of the platform	Platform website
Equity crowdfunding		Crowdberry	2015	https://www.crowdberry.eu/
		Investícia Slovensko	2019	https://investiciaslovensko.sk/
Lending crowdfunding	**Business loans**	Conda	2013	https://www.conda.sk/sk/home-slovakia/
		Finnest	2014	https://www.finnest.com/sk/
		PORT Invest	2017	https://www.portinvest.sk/
	P2P	Žltý melón	2012	https://www.zltymelon.sk/
		Zinc Euro	2015	https://www.zinceuro.sk/
		Finzo	2016	https://finzo.sk/sk/
		Majak.sk	2018	https://majak.sk/#/
		Wishmaker	2018	https://www.wishmaker.sk/
		Pôžičky od ľudí	-	https://www.pozicky-od-ludi.sk/
Donation crowdfunding		Dobrá krajina	2009	https://www.dobrakrajina.sk/sk/
		ĽudiaĽudom	2011	https://www.ludialudom.sk/
		Srdce pre deti	2011	https://www.srdcepredeti.sk/
		DARUJME.SK	2012	https://darujme.sk/
Reward crowdfunding		Hithit	2014	https://www.hithit.com/sk/home
		StartLab	2015	https://www.startlab.sk/domov/
		startovač	2017	https://www.startovac.cz/

Source: the websites of crowdfunding platforms and Creative Industry Forum, Interreg Central Europe; authors' processing

The Slovak Republic has a less developed sector of collective financing than the Czech Republic, as evidenced by the fact that Czech portals for the crowdfunding model based on rewards (Table 2) are the main driving force behind the growth of reward-based crowdfunding in Slovakia. On the other hand, it should be noted that donation-based models and loan models play a more important role in Slovakia than in the Czech Republic. The unexplored territory remains the equity/capital model, a relatively new and underused type of crowdfunding for both countries (Šoltés & Štofa 2016).

Table 2.
Crowdfunding platforms actively operating in the Czech Republic

Crowdfunding model		Name of the crowdfunding platform	Year of launch of the platform	Platform website
Equity crowdfunding		Crowdberry	2015	https://www.crowdberry.eu/
		Penězdroj	2015	https://penezdroj.cz/
		Fundlift	2016	https://www.fundlift.cz/#/cs/
		Crofungo	2019	https://crofungo.cz/
		INVESTOWN	2020	https://www.investown.cz/
Lending crowdfunding	**Business loans**	Roger	2013	https://www.roger.cz/
		Fingood	2015	https://fingood.cz/
		SymCredit	2015	https://www.symcredit.com/cs/
		Upvest	2017	https://www.upvest.cz/
	P2P	Žlutý meloun	2012	https://www.zltymelon.sk/?lang=cs_CS
		Zonky	2015	https://zonky.cz/
		Bondster	2017	https://www.bondster.com/cz

|			
Donation crowdfunding	Nadační fond pomoci	2012	https://www.nfpomoci.cz/
	Darujme.cz	2012	https://www.darujme.cz/
	Donio	2019	https://www.donio.cz/
Reward crowdfunding	Hithit	2012	https://www.hithit.com/cs/home
	SPORTSTARTER	2014	http://www.sportstarter.cz/cs/
	Vision Partners	2014	https://www.visionpartners.cz/
	Penězdroj	2015	https://penezdroj.cz/
	startovač	2017	https://www.startovac.cz/
	Donio	2020	https://www.donio.cz/

Source: the websites of crowdfunding platform; Creative Industry Forum, Finlord; authors' processing

METHODS AND DATA

In line with the paper's goal, the logistic regression analysis was run to analyse the determinants of crowdfunding projects. The data employed in the empirical analysis were manually obtained from the official website of the Hithit platform using the Octoparse program. The data set consisted of 3,694 projects, representing all the published projects on the platform until March 2021. However, this sample was adjusted for extreme values; we removed all projects with a target amount higher than €50,000 (14 projects) and those with a fulfilment percentage exceeding 500% (13 projects). Based on this modification, 3,667 published Czech and Slovak project campaigns on the Hithit platform entered the subsequent logit model analysis. The Hithit platform is the best-known and largest Czech crowdfunding platform based on the reward model, also operating in the Slovak market. According to its marketing, Hithit connects creative people with those who want to support them. It is a place that fulfils the dreams of artists, creatives, designers, developers, and geniuses. Hithit is a space only for financing new ideas and creative intentions, publishing music albums, filming, producing innovative or newly designed products, developing software, mobile applications, etc. (Hithit).

Since its inception in 2012, the Hithit platform has "received" more than €12,634,882 out of more than 1,873 successfully funded projects published on the platform by March 2021*. Interestingly, the platform experienced its most remarkable growth in 2020, when 790 project campaigns were developed, with up to 439 successfully completed, representing the highest percentage of success since the platform was launched.
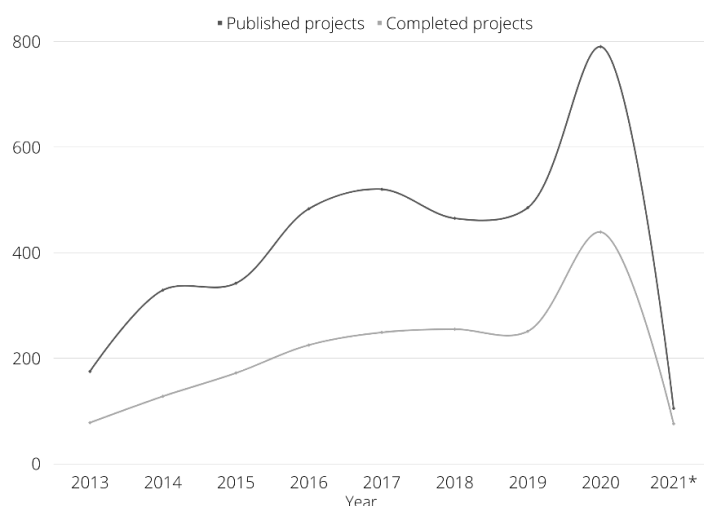
Source: authors' processing based on obtained data from Hithit

Figure 3. Evolution of the projects on the Hithit platform in 2013–2021*

Several variables were under consideration to examine the impact on crowdfunding campaigns' success. Their selection was preceded by a study of existing research on crowdfunding. A detailed overview of all used variables is listed in Appendix A, and descriptive statistics on the variables are given in Table 3.

Table 3.
Descriptive statistics on the majority of the variables

Variable	Mean	Standard deviation	Minimum value	Median	Maximum value
Updates	2.64	3.83	0	1	47
Contributors	101.92	194.04	0	46	4576
Comments	0.93	2.08	0	0	36
Target Set	5255.74	5589.63	191	3295	49732
Number of reward options	14.02	8.31	2	12	82
Number of photos	10.54	5.73	0	10	21
Min	3.18	2.98	0	2,34	58.51
Max	465.90	278.97	5	390,09	999
Year	-	2.22	2013	2017	2021
Words in name	4.48	2.40	0	4	13
Words in text	734.53	300.20	0	703	2292
Number of attempts	1.14	0.81	1	1	18
Fans	1631.57	7497.73	0	0	206889

Source: authors' processing

When including the *Updates* variable in the model, we were inspired by Shneor and Vik (2020), Mollick (2014), Aleksina et al. (2019) and Kromidha and Robson (2016). In selecting the *Contributors* variable, we were inspired by Song et al. (2019), Zhao et al. (2019) and Mollick (2014). Shneor and Vik (2020), Mollick (2014), Aleksina et al. (2019) and Kromidha and Robson (2016) inspired us to include the variable *Comments* in our model. The inclusion of the *Target Set* variable was inspired by Song et al. (2019) and Mollick (2014). Mollick (2014) also used the *Category* variable, which we then included in the model. When including the *Country* variable in the model, we were inspired by Song et al. (2019), Mollick (2014) and Kromidha and Robson (2016). Authors Shneor and Vik (2020) and Byrnes et al. (2014) inspired us to include *Number of reward options* variable in the model. The *Video variable* was included in the model based on an inspection by Shneor and Vik (2020), Mollick (2014) and Aleksina et al. (2019). The variable *Number of photos* was included in the model thanks to the inspiration of Aleksin et al. (2019). Lukkarinen et al. (2016) inspired us to include the *Min* and the *Max* variable in the model. The variable *Year* was included in the model based on inspiration from Song et al. (2019). The variable *Words in text* was used by Shneor and Vik (2020) and Thapa (2020) in their models. We included the *Fans* variable, representing the number of registered users of the Facebook social network that liked the campaign's Facebook page, in the model based on inspiration from Shneor and Vik (2020), Mollick (2014), Lukkarinen et al. (2016), Kromidha and Robson (2016) and Byrnes et al. (2014).

Using a logistic regression model, we subsequently analysed the data obtained mainly from the crowdfunding platform Hithit, supplemented with the social network Facebook. The analysis was performed in the RStudio program, using a binary logistic regression model. The use of logistic regression analysis was decided based on our literature study, looking at the motivation of crowdfunding researchers who analyse factors that significantly influence the success of campaigns implemented on crowdfunding platforms (e.g. Thapa 2020; Song et al. 2019; Mollick 2014; Kaur & Gera 2017).

Our logistic regression model belongs to binary models, where the dependent variable can take only two values: 1 (success) and 0 (failure). Compared to the linear probability model, the logit model serves as a convenient nonlinear alternative because it ensures that the adjusted probabilities are strictly between 0 and 1 (Wooldridge 2012; Aldrich & Nelson 1984).

The logit scale solves this problem by mathematically transforming the original linear regression equation to provide the logit or natural logarithm of the probability of being in one result category versus another (Stoltzfus 2011, p. 1099–1104):

$$P(y = 1|X) = P(y|x_1, x_2, \ldots, x_k) \tag{1}$$

However, since the logistic model does not require the fulfilment of most assumptions of linear regression and general linear models based on the OLS method, it is mainly the assumption of linearity, residue normality and homoscedasticity (Statistics Solutions 2021). The only assumption tested was multicollinearity (null hypothesis: all explanatory variables are orthogonal).

The logit model assuming the cumulative distribution function G (Wooldridge 2012) can be expressed as

$$P(y = 1|X) = G(\beta_0 + \beta_1 * x_1 + \ldots + \beta_k * x_k), \tag{2}$$

where β_0 is an intercept and $\beta_1, \ldots, \beta_k$ are parameters associated with the variable $x_1, \ldots, x_k$.

In our case, using Equation (2), the main logit model based on data obtained from the crowdfunding portal Hithit and the social network Facebook was defined in the form:

$$P(y = 1|X)$$
$$= G(\beta0 + \beta1 * updates + \beta2$$
$$* contributors + \beta3$$
$$* comments + \beta4$$
$$* log(target\ set) + \beta5$$
$$* category + \beta6 * country$$
$$+ \beta7$$
$$* number\ of\ reward\ options$$
$$+ \beta8 * video + \beta9$$
$$* number\ of\ photos + \beta10$$
$$* min + \beta11 * max + \beta12$$
$$* links + \beta13 * year + \beta14$$
$$* words\ in\ name + \beta15$$
$$* words\ in\ text + \beta16$$
$$* number\ of\ attempts + \beta17$$
$$* fans)$$

(3)

RESULTS

The estimated logit model results are shown in detail in Appendix B. Statistically significant variables are displayed in Table 4. The model does not suffer from multicollinearity, as the generalised variation inflation factor and the reduced generalised variation inflation factor are very low (Appendix C). Before the further estimation of the model, we also tested the power of the model, using McFadden's pseudo R^2, known as a likelihood-ratio index, which was 0.7253328 and Nagelkerke pseudo R^2, which came to 0.8455200. Based on those results, we can fairly say that our model quite neatly predicts the outcome, and therefore, we continued our estimating process.

Considering the results of applying logit regression to our model, we can say that the variables *Updates*, *Contributors*, the logarithm of *Target Set* and *Max* belong to the statistically significant variables at the level of significance $\alpha = 0.001$. *Number of reward options* and *Words in text* are statistically significant at the 10% level, while the categories *Arts* and *Country Slovakia* are equally essential. The categories *Theatre*, *Sports*, *Technology and Education* are significant at the 5% level. The variables *Fans* and *Video* are significant at the 1% level, as is the *Music category*.

Based on the regression results, it is shown that although the variable *Fans* is significant, the odds ratio corresponding to this variable is very close to 1 and therefore has no real impact on a success of a campaign.

Among the variables whose increase positively affects the campaign's odds of success, we include *Updates*, where an increase by one unit, ceteris paribus, increases the odds of success by 11.6%. Increasing the number of contributors while maintaining the other variables fixed will also increase the likelihood of the campaign succeeding by 8%. Including a video in a campaign, ceteris paribus, will increase the likelihood of a campaign succeeding by up to 66.7%. Increasing the maximum amount of a one-time contribution by €1 will increase the campaign's odds of success by 0.13%, assuming that the rest of the variables remain fixed.

Number of reward options is included among the variables whose increase negatively affects the campaign's odds of success: increase by one reward option, ceteris paribus, reduces the likelihood of success by 2.5%. Increasing the number of words in the campaign text by one reduces the campaign's odds of success by 0.05% while maintaining the other variables fixes. The Target Set variable is another variable whose 1% increase in logarithm, ceteris paribus, causes up to a 94% decrease in odds of project success.

Table 4.
Results of logit estimation: statistically significant variables

Variable		β coefficient (significance level)	Standard errors	Ratio of chances
Intercept		2.4510	0.7191	11.5999
Updates		0.1100 (****)	0.0261	1.1163
Contributors		0.0777 (****)	0.0032	1.0808
Target Set		-2.8830 (****)	0.1634	0.0559
Category	Theatre	1.0730 (**)	0.4758	2.9232
	Music	0.9385 (***)	0.3611	2.5561
	Sport	0.9613 (**)	0.4294	2.6152

	Technology	1.2440 (**)	0.5176	3.4708
	Arts	0.6790 (*)	0.3815	1.9720
	Education	1.2800 (**)	0.5174	3.5980
Country	**Slovakia**	0.6697 (*)	0.3803	1.9536
Number of reward options		-0.0253 (*)	0.0143	0.9750
Video		0.5107 (***)	0.1801	1.6665
Max		0.0013 (****)	0.0003	1.0013
Words in text		-0.0005 (*)	0.0003	0.9995
Fans		-0.00002306 (***)	0.000008107	0.9999

Note: Significance codes marked as (*), (**), (***) and (****) correspond to significance levels $p < 0.1$; $p < 0.05$; $p < 0.01$ a $p < 0.001$

Source: authors' processing

For the *Category* variable, six of its categories are significant, and for all of them, the chance of success is higher than the reference value, i.e. the *Antivir* category. The Antivir category was chosen as a benchmark because of the perfect balance of success and failure (50% success rate) of the campaigns included in this category. If the project belongs to the *Theatre* category, the odds of success, ceteris paribus, increase by 192% compared to the *Antivir* category. The same is true if the project belongs to the *Music* category, where the odds of success, ceteris paribus, increase by 155% compared to the *Antivir* category. The odds of success, ceteris paribus, increase by 161.5% compared to the *Antivir* category if the project is included in the *Sports* category. A slightly lower percentage of the increase in the odds of success, ceteris paribus, than the *Antivir* category is demonstrated in the *Arts* category, precisely 97%. If the project belongs to the *Technology* category or the *Education* category, the odds of success, ceteris paribus, increase by more than 240% compared to the *Antivir* category.

For the variable *Country*, the regression results show that if the project is included in the regional area of Slovakia, the odds of success of the campaign increase by 95% compared to the reference category Czech Republic, assuming that the rest of the variables remain fixed.

To evaluate the predictive power of the logit model, an estimate was made, and its results are summarised in Tables 5 and 6.

Table 5.
Predictive ability of the logistics model with p=0.9

		Status	
		0	1
Forecast / Estimate	0	1785	459
	1	27	1396

Source: authors' processing

The values suggest that the accuracy of the prediction of the estimated model can be assessed as solid. Of the 3,667 projects, 3,181 were correctly predicted, which represents an accuracy rate of 87% for the prediction when p=0.9.

Table 6.
Predictive ability of the logistics model with p=0.5

		Status	
		0	1
Forecast / Estimate	0	1711	151
	1	101	1704

Source: authors' processing

The values suggest that the accuracy of the prediction of the estimated model when p=0.5 can be assessed as solid. Of the 3,667 projects, 3,415 were correctly predicted, which represents even better accuracy than when p=0.9, with accuracy rate of 93%.

An estimate of the predictive power also serves as a check that the predictors included in the estimated model play an important role in terms of the likelihood of success of the campaign.

As we were interested in the importance of the variable fans, we subsequently adjusted the sample by removing all campaigns that did not have a

Facebook page. With this adjustment, we reduced the number of campaigns to 1,803. Detailed results of the regression analysis are in Appendix D, with the variable for fans remaining essentially unchanged from the primary model. Thus, the ratio of chances is again practically equal to 1.

Changes from the model containing all projects (except deleted projects based on extreme values) are visible in statistically significant variables. There is no significance in the Arts category within the Category variable nor the *Video* or *Words in text* variable. In contrast, the variable *Number of photos* is significant in this model, where increasing the number by one photo, ceteris paribus, will increase the odds of success of the campaign by 4.2%.

DISCUSSION

Before summarising the findings arising from this paper, it is necessary to realise that although the analysis revealed some forms of relationship between dependent and independent variables considered in the logit model, there is no evidence of why such mechanisms exist. However, the significance of these coefficients does not directly induce a causal effect on the campaign's outcome, nor does it mean that the factors in question are those that persuade individuals to contribute.

This paper analyses 3,667 published project initiatives of the most significant Czech crowdfunding platform Hithit from the beginning of its existence (June 2012) to March 2021.

As the use of social networks to engage the audience is a necessary step, we incorporated the variable Fans in our model. In the logistic regression, we discovered that the increase in the number of fans on the campaign's Facebook page or on the page of the campaign's creator had a negative impact on the odds of the campaign's success, which is borderline with almost no effect due to the ratio of chances equal to 1. However, the findings suggest that a crucial aspect of the campaign's success is the reasonable determination of the financial objective of the campaign, which is in line with several existing works, such as Mollick (2014). Findings also indicate that a more significant number of supporters, i.e. contributors, increases the likelihood of financing the campaign. This result aligns with several existing works, such as Thapa (2020).

The model results also suggest that the inclusion of video in a campaign has a positive and significant impact on the likelihood of success of the campaign, which is in line with several existing papers (see Mollick 2014). In the analysed sample, almost 79% (2,914 out of 3,694) of projects included a short video clip in their campaign. This model also implies the significant importance of the number of reward options offered per percentage of campaign funding,

with their increase harming the likelihood of campaign success.

The logistic regression analysis also showed that the increase in the number of updates positively affects the odds of success. A similar conclusion that frequent updates are associated with tremendous success was reached by Mollick (2014). The positive effect was also shown at the maximum amount of the one-off contribution. On the contrary, a negative impact on the campaign's success was shown by the number of words contained in the campaign's text where a text containing a high number of words is less effective than a standard reference text. This finding is consistent with several existing works, such as Thapa (2020) who identified that campaigns in which the description contained 2,000 - 3,000 words, had maximum probability of funding success, as readers are reluctant to read more than 5 minutes.. The regression also revealed that the project's inclusion in Slovakia increases the campaign's odds of success compared to its inclusion in the Czech Republic, while in the sample analysed by us, only 3.3% (122) of projects were included in this country.

As in previous academic work on crowdfunding by Mollick (2014), our analysis also showed that the categorization of projects is significant to increased campaign success odds.

Restrictions and possible extensions

As this paper analyses non-experimental data, it encounters several limitations.

The Hithit project policy is a constraint that could prevent the generalisation of the results; if the target amount is not collected from project fans and the community, the project creators can pay the rest themselves. As a result, the lack of information on the number of projects co-financed by their founders may compromise the reliability of the published results.

An insufficient number of explanatory variables included in the analysed file can also be considered as an aspect influencing the results. Despite our efforts to include as many relevant variables as possible in the models, many more could help us better understand how online crowdfunding campaigns work. In further studies, it would be beneficial to pay even more attention to the Facebook pages of campaigns and focus on other, in some cases perhaps more widespread, social networks today, such as Instagram, TikTok or Twitter. It would also be interesting to study whether the frequency of contributions is constant throughout the campaign on social media or whether changes occur as the end of the campaign approaches.

It would also be worth considering investigating whether synchronised publication of updates on the crowdfunding platform and on social networks has any effect on success.

Like most scientific work, this paper focuses on what happens during the campaign implementation phase. However, it could be interesting to examine the events after the end of the campaign, as at this stage, supporters have the highest expectations and campaign creators are expected to meet their social responsibilities. An analysis of the supporter-campaign creator relationship would be beneficial, as the interaction of campaign creators with their donor audience may well be the key to other successful projects or collaborations.

The analysis performed in this work provides the reader with a view only on projects published on the most significant Czech reward-based crowdfunding platform, Hithit. In addition to this would also be interesting to analyse other operators operating in both Slovakia and the Czech Republic. By comparing the results of these analyses, it would be possible to form a better picture of the use of the remuneration crowdfunding model and the effectiveness and use of the crowdfunding intermediaries themselves.

The pandemic associated with the spread of COVID-19 has also led to a boom in crowdfunding, as a new category of Antivir has been created on the Hithit platform. Since its launch in 2020, 183 projects have been published, with more than 50% of them (92) successfully funded. For this reason, it would be interesting to shift the focus from campaign creators to those who support them. Understanding the motivation and identifying the incentives contribute to the decision of whether to donate funds would be in the interests of all those seeking collective funding, in whatever form.

CONCLUSION

Reward-based crowdfunding is an innovative way of financing that allows individuals or companies to raise the funds needed to implement their project ideas. This work analyses 3,667 project campaigns published on the most prominent Czech crowdfunding platform, Hithit. The data set represents all published projects from the platform's launch in 2012 to March 2021. The main goal of the work was to determine which variables significantly impacted the campaign's success.

Because several explanatory variables had to be considered, this work uses a logistic regression model. Based on the estimated results of the analysis, it is possible to transform significant findings into general recommendations for future creators of crowdfunding campaigns.

The regression analysis showed that the result of the campaign affects the number of fans on the Facebook pages of the campaigns. This finding aligns with previous findings of crowdfunding researchers perceived by supporters/fans on social networks of campaigns as the equivalent of the usual fundraising from family and friends. It has also been shown that including video in a campaign positively affects its success. The campaign's success significantly and negatively depends on the set financial goal of the campaign, thus the higher the goal, the lower the chance of success. This finding is also in line with previous findings of crowdfunding researchers. Project creators should thus focus on adequately setting the financial goal of the project and on including video in the campaign, as well as paying sufficient attention to the presentation of their idea on social networks since the interaction with supporters of their ideas is important, as they are likely to be an initial source of significant funding for other projects.

The above findings also suggest that there may be other factors that significantly affect the success of a crowdfunding campaign. For example, the model estimated here did not include information about other social networks or information about the funders of campaigns.

Overall, findings can serve as a basis for further research focusing on both crowdfunding based on reward and the use of this method of financing in the conditions of Slovakia and the Czech Republic. It might also make sense to focus on researching the activities of campaign creators on other social networks or watching what happens after the campaign ends.

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Appendices

Appendix A. Key variables used in regression analysis

Variable	Description of the variable	Source
Updates	The number of announcements campaign creators add to a project during an ongoing campaign on the Hithit platform.	Hithit platform
Contributors	The number of contributors who decided to support the project during the campaign.	Hithit platform
Comments	The number of comments on the project from project supporters on the Hithit platform.	Hithit platform
Target Set	The financial objective of the campaign (in EUR) that needs to be raised for a project to be considered successful.	Hithit platform
Category	A group of variables corresponding to the classification of a project into a specific category on the Hithit platform. Each project falls into one of the following categories: Music, Literature, Community, Arts, Education, Film, Sports, Food, Design, Technology, Theatre, Fashion, Photography, Impact Hub, Games, Dance, Media, Ecology, Summer School, and Vodafone Foundation Note: Since 2020, during the pandemic associated with the new coronavirus (COVID-19) and the abovementioned categories, it is also possible to include the project in the Antivir category.	Hithit platform
Country	A categorical variable corresponding to the classification of the project into a particular geographical area, with the following four categories of variable: Czech Republic, Slovakia, Other and Unclassified.	Hithit platform
Number of reward options	The number of reward options that campaign creators offer in exchange for donations to the campaign. Each donor will choose one of these rewards when making a financial contribution, which will only be delivered to him/her if the campaign is successful.	Hithit platform

Video	A binary variable representing the value 1 (TRUE) if the project has a video published on the Hithit platform, otherwise 0 (FALSE).	Hithit platform
Number of photos	The number of photos published for the project on the Hithit platform.	Hithit platform
Min	The minimum amount of a one-time contribution to the campaign.	Hithit platform
Max	The maximum amount of a one-time contribution to the campaign.	Hithit platform
Links	A binary variable that is TRUE if the project on the Hithit portal contains links to either the project/project creator's website or the project/project creator's social media page, otherwise FALSE.	Hithit platform
Year	A number that reflects the calendar year the project was published on the Hithit portal.	Hithit platform
Words in name	The number of words that make up the name of the campaign.	Hithit platform
Words in text	The number of words in the campaign description.	Hithit platform
Number of attempts	The number of times campaign creators launched a campaign on the Hithit platform.	Hithit platform
Fans	The number of registered users of the Facebook social network that liked the campaign's Facebook page.	Facebook

Source: authors' processing

Appendix B. Detailed results of logistic regression

Variable		β coefficient (significance level)	Standard errors	Ratio of chances
Updates		0.1100 (****)	0.0261	1.1163
Contributors		0.0777 (****)	0.0032	1.0808
Comments		-0.0752	0.0479	0.9275
Target Set		-2.8830 (****)	0.1634	0.0559
Category	**Theatre**	1.0730 (**)	0.4758	2.9232
	Design	0.3741	0.5257	1.4537
	Ecology	0.6090	0.7586	1.8387
	Film	0.6235	0.4214	1.8654
	Photography	-2.5700	3.4520	0.0765
	Games	0.0068	0.7797	1.0068
	Music	0.9385 (***)	0.3611	2.5561
	Impact Hub	-0.6622	1.2200	0.5157
	Food	-0.9832	0.6024	0.3741
	Community	0.4194	0.3753	1.5211
	Summer School	-0.6610	3.8080	0.5163
	Literature	0.6112	0.3869	1.8426
	Media	-0.4595	1.1570	0.6316
	Fashion	0.8933	0.9750	2.4431
	Vodafone Foundation	-0.1059	2.0190	0.8995
	Sports	0.9613 (**)	0.4294	2.6152
	Dance	0.3133	1.3140	1.0318
	Technology	1.2440 (**)	0.5176	3.4708
	Arts	0.6790 (*)	0.3815	1.9720

	Education	1.2800 (**)	0.5174	3.5980
Country	**Other**	0.2816	0.3999	1.3252
	Unclassified	0.0011	0.1780	1.0115
	Slovakia	0.6697 (*)	0.3803	1.9536
Number of reward options		-0.0253 (*)	0.0143	0.9750
Video		0.5107 (***)	0.1801	1.6665
Number of photos		0.0187	0.0133	1.0189
Min		0.0254	0.0246	1.0257
Max		0.0013 (****)	0.0003	1.0013
Links		-0.5024	0.4179	0.6051
Year		0.0077	0.0356	1.0077
Words in name		0.0178	0.0301	1.0180
Words in text		-0.0005 (*)	0.0003	0.9995
Number of attempts		0.1309	0.1180	1.1399
Fans		-0.00002306 (***)	0.000008107	0.9999

Note: Significance codes marked as (*), (**), (***) and (****) correspond to significance levels $p < 0.1$; $p < 0.05$; $p < 0.01$ a $p < 0.001$. Source: authors' processing

Appendix C. Results of multicollinearity test for main logit model

Variable	GVIF	Df	GVIF$^{(1/(2 \cdot Df))}$
Updates	1.0369	1	1.0183
Contributors	1.1564	1	1.0753
Comments	1.8890	1	1.3744
Target Set	1.1281	1	1.0621
Category	1.9682	20	1.4029
Country	2.5760	3	1.0239
Number of reward options	1.2383	1	1.0363
Video	1.4528	1	1.2053
Number of photos	1.1852	1	1.0886
Min	1.1784	1	1.0855
Max	1.1608	1	1.0774
Links	1.3208	1	1.1493
Year	1.0768	1	1.0377
Words in name	1.3842	1	1.1765
Words in text	1.0881	1	1.0431
Number of attempts	1.2669	1	1.1255
Fans	1.0395	1	1.0195

Source: authors' processing

Appendix D. Detailed results of logistic regression for campaigns with Facebook pages

Variable	β coefficient (significance level)	Standard errors	Ratio of chances
Intercept	17.5300 (****)	1.675	41037629.65
Updates	0.1268 (***)	0.04273	1.1352
Contributors	0.07632 (****)	0.004481	1.0793
Target Set	-2.8590 (****)	0.2368	0.0573

Category	**Theatre**	1.5530 (**)	0.6742	4.7256
	Music	1.2980 (**)	0.5239	3.6620
	Sports	1.4630 (**)	0.6438	4.3189
	Technology	1.5170 (*)	0.7740	4.5585
	Education	1.5080 (**)	0.6838	4.5177
Number of reward options		-0.0577 (***)	0.01959	0.9439
Number of photos		0.0411 (**)	0.01954	1.0420
Max		0.0014 (****)	0.0004028	1.0014
Fans		-0.00002308 (***)	0.000008312	0.9999769

Note: Significance codes marked as (*), (**), (***) and (****) correspond to significance levels $p < 0.1$; $p < 0.05$; $p < 0.01$ a $p < 0.001$. Source: authors' processing