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AN ANALYSIS OF CROWDFUNDED PROJECTS: KPI'S TO SUCCESS

Ieva Astrauskaitė[1], Arvydas Paškevičius[2]

[1,2] *Vilnius University, Saulėtekio av. 9, LT-10222 Vilnius, Lithuania*

E-mails:[1] ieva.astrauskaite@evaf.vu.lt; [2] arvydas@paskevicius.com

Abstract. The perception of alternative finances is stimulating the global financial markets and competition between banking funding and non-banking one. In order to encourage the demand of alternative funding the overall studies and researches concentrate on different relationships of economic indicators, describing lending, savings, prosperity, GDP per capita, etc. However, there is still a lack of encouragement to the market participants to provide the market with ideas and projects, which could be crowdfunded. In order to put the efforts for the better acknowledgement and demand incentives this paper was worked up. With the aim to introduce the key performing indicators (KPI's) for successful projects, which were financed through crowdfunding platforms, the comparative analysis was made, using Pearson correlation. It has been found, that narrative of the project and visualization are among the successful factors for crowdfunding. However, the requested amount of money, location or category of the project seemed to have lesser effect to success of crowdfunding. The results of the research are adoptable for initial offerings in crowdfunding platforms, potential projects owners, as well as the further researchers developing the topic of crowdfunding. With the strong novelty and broad (regionally) sample, the research represents its value and contributes to the theoretical and empirical background of crowdfunding.

Key words: crowdfunding; key performing factors; alternative financing; correlation

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1. Introduction

The perception of alternative finances is stimulating the global financial markets and competition between banking funding and non-banking one. According to ECB surveys (ECB, 2017), while business sector suffer from shortage of banking financing (27% of SME's applying for a bank loan with the rejection rate of 5%), alternative finances, such as crowdfunding, fulfill the market with finances needed.

Crowdfunding benefits are not limited to financial ones. Scholz (2015) shows that crowdfunding potentially shortens the development cycle of new products, thus enabling an earlier market entry. Hence, crowdfunding serves as a multifaceted early-stage support instrument for innovation implementation facilitated by the crowd's

resources. It not only provides upfront cash for product development and production, more importantly it enables a firm to show traction through the validation of the market demand that is based on the crowd's function as information multiplicator generating public exposure and feedback (Scholz, 2015).

Crowdfunding activities are still listed as developing depending on the country research is provided. However, there is enough evidence, that crowdfunding supply could enlarge the demand and whole volume of the market with further effects to substitute markets.

In order to encourage the demand of alternative funding the overall studies and researches concentrate on different relationships of economic indicators, describing lending, savings, prosperity, GDP per capita, etc.

The research community put its efforts in the analysis of success factors in crowdfunding. Cordova et al (2011) analyzed technological projects and the factors they have been financed while Koch and Siering (2016) worked on it overall, without any classification. Further researches were split into geographical locations by Beier and Wagner (2014) and Barasinska and Schlafer (2014), crowdfunding platforms by Rhue and Clark (2016), Zvilichovsky et al (2013), Kuppuswamy and Bayus (2015). The motivation and deterrents for participation were an interest of research by Gerber and Hui (2013). The two-sided approach of funders and founders win-win situations was examined by Song and Boeschoten (2015).

However, there is still a lack of encouragement to the market participants to provide the market with ideas and projects, which could be crowdfunded. In order to put the efforts for the better acknowledgement and demand incentives this paper was worked up.

The main aim is to introduce the key performing indicators (KPI's) for successful projects, which were financed through crowdfunding platforms.

The methods used. The comparative analysis was made, using Pearson correlation.

The paper is structured as follows: the motivation and relevance of the topic is revealed in introduction, when theoretical background is introduced. The second part consists of brief methodology approach and the empirical results of the research. The paper concludes with main insights and remarks on the topic.

2. Literature review

To begin with crowdfunding, an entrepreneur raises external financing from a large audience (the "crowd"), in which each individual provides a very small amount, instead of soliciting a small group of sophisticated investors (Belleflamme et al 2014). This is usually done via or with the help of the Internet (Rubinton, 2011).

There are four types of crowdfunding: donation-based, reward- based, equity-based, and lending or debt-based (Lambert and Schwienbacher, 2010; Rubinton, 2011; Buysere et al, 2012; Astrauskaite, 2017):

- **Donation**: a donor contract without existential reward. Crowdfunding is based on the fact that people want to help other people and projects they like and that are close to them, emotionally or geographically (Buysere et al, 2012).
- **Reward**: a contract with existential material reward (in money or production).
- **Lending**: a credit contract, that is being repaid plus interest.
- **Equity**: a shareholding contract, shares, equity-like instruments or revenue sharing in the project/business, potential up-side at exit.

The most popular crowdfunding sites which can be used to fund and fuel the startup, idea or project are Kickstarter, Indiegogo, Patreon, GoFundMe, Crowdrise, PledgeMusic, Razoo, RocketHub, Crowdfunder, Give, Charitable, Lending Club, AngelList, Ulule, Funding Circle, Seed&Spark, Crowdcube, GoGetFunding, Fundable, Kiva, etc. Market competition forces them to stand out, therefore some of them are more geared to developing products, others are about funding artistic endeavors, and still, others are ideally suited to nonprofits. There are

more distinctive features: some sites will collect all the money as it comes in, others won't collect it until the goal amount is reached.

Crowdfunding volumes differ geographically. Examining the values of funds raised through crowdfunding worldwide, it is observed an increase of 28 per cent in the year 2015 and a slight decrease of 3 per cent in the year 2016 (see Figure 1).
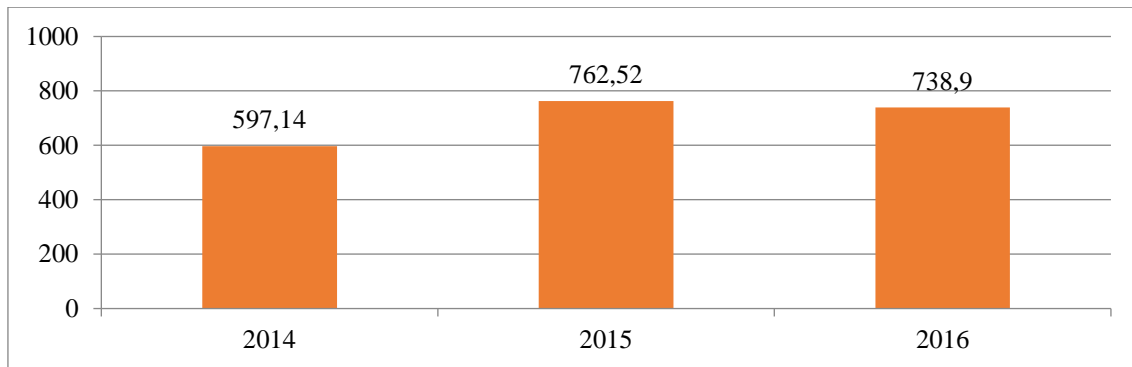

Figure 1. Value of funds raised through crowdfunding worldwide from 2014 to 2016 (in million U.S. dollars)

Source: https://www.statista.com/statistics

Top five contributing countries which are crowdfunding are United States, Canada, United Kingdom, Australia, Germany.

Turning out to the Europe, crowdfunding amounts are lesser. However, the market is driven and growth rates are measured in times: 1,3 in 2013, 1,5 in 2014, 1 in 2015 (see Figure 2).
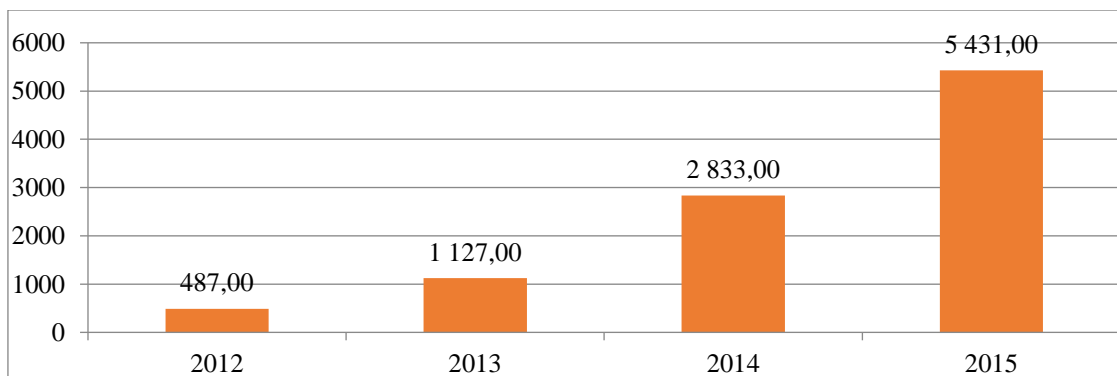

Figure 2. Alternative finance market size in Europe from 2012 to 2015 (in million euros)

Source: https://www.statista.com/statistics

Deducting the analysis to Lithuanian example, one can observe 7,8 million EUR rise on P2P consumer lending platforms in 2016. The average quarterly growth rate of the portfolio amounted to 36.4% (Lietuvos bankas, 2016). Local platforms: **Savy.lt**, a P2P consumer lending platform launched in 2014; **FinBee** an P2P consumer lending platform launched in 2015; **Paskolų Klubas** a P2P consumer lending platform launched in 2015; **Manu,** a P2P consumer lending platform launched in 2016; **Optimalus Kreditas (OK),** a P2P consumer lending platform launched in 2015Successful projects:

- PIGEON is a colorful kick scooter designed for a city "birds". 66 backers pledged 6 186 pounds to bring this project to live.
- PARKIS – effortless vertical bike parking system with 172 backers who already pledged 78 505 EUR to help bring this project to live.
- Laisves TV is creating TV shows with 4201 patrons and the monthly budget of 14 886 USD.

These success stories encourage the discussion on crowdfunding promotion, factors influencing its development as well as on prevention of factors inhibiting it (Astrauskaite, 2017). A Key Performance Indicator is a measurable value that demonstrates how effectively a company is achieving key business objectives. This definition can be adopted to crowdfunding projects as well. The project performance indicator which demonstrates how effectively one can attract the funding is supposed as key factor for success. Definitely, the success in crowdfunding projects possess the definition of reaching the goal amount that was set in launching the project or overcoming the financial measures of the project. Many researchers were examining the factors which attract the projects to success of crowdfunding in order to state the recommendation to further demand exposure. All recent insights on the crowdfunded success were divided into three categories of project characteristics, founder characteristics and communication and sharing campaign (see Table 1).

Table 1. Key performance indicators for crowdfunding projects and their effects to success

		KPI'S		No effect
		for success	for failure	
Project characteristics	Visualization: video's, photo's, overall design	Koch J.A. and Siering M., 2015; Courtney et al, 2016; Pardo et al, 2013;	Rhue L. and Clark J., 2016;	-
	Description of the idea: story telling, smooth language, key words	Koch J.A. and Siering M., 2015; Yuan et al, 2016; Du et al, 2015; Parhankangas A. and Renko M. 2017; Allison et al, 2014;	Parhankangas A. and Renko M., 2017; Allison et al, 2014;	-
	Narrative&case: sustainable, help others, support causes, the story behind, trust, potential	Calic G. and Mosakowski E., 2016; Gerber E.M. and Hui J.,2013; Allison et al, 2014; Song Y. and Boeschoten R., 2015;	Hörisch J., 2015; Gerber E.M. and Hui J., 2013;	-
	National proximity	Beier M. and Wagner K., 2014;	-	-
	Project duration	Cordova et al, 2015; Mollick E.V. and Kuppuswamy V., 2014;	-	-
	Project financial goal	-	Cordova et al, 2015; Kuppuswamy V. and Bayus B.L., 2015; Mollick E.V. and Kuppuswamy V., 2014;	-
	Money already pledged	Cordova et al, 2015; Kuppuswamy V. and Bayus B.L., 2015; Crosetto P. and Regner T., 2014;	-	-
	Number of backers	-	Kuppuswamy V. and Bayus B.L., 2015;	-
Founder characteristics	Previous experience of founder	Courtney et al, 2016; Zvilichovsky et al, 2015;	-	Koch J.A. and Siering M., 2015;
	Gender	-	-	Barasinska N. And Schlafer D.,2014;
Communication & sharing	Third party endorsements (e.g. crowdfunding platform), comments	Calic G. and Mosakowski E., 2016; Courtney et al, 2016; Pardo et al, 2013; Josefy et al, 2016;	-	-
	Spreading it through other media channels	Courtney et al, 2016;	Beier M. and Wagner K., 2014; Mollick E.V. and Kuppuswamy V., 2014;	-
	Updates	Kuppuswamy V. and Bayus B.L., 2015;	-	-

Source: compiled by authors

Projects characteristics include all features which describes the idea, the advert and its goals. Koch and Siering (2015), Courtney et al (2016), Pardo et al (2013) examined the visualization of the advert: videos, photos, overall design and stated its influence on funding success. On the other hand, Rhue and Clark (2016) were exploring the relationship of visualizations and race and found out that projects with black fundraisers or subjects in project photos face significantly lower success rates.

The crowdfunding projects have become an object of the linguistic research therefore the description of the idea was also taken under consideration in searching the success factors to funding goals. According to Yuan et al (2016) the most influential topical features embedded in project descriptions. Koch and Siering (2015), Due et al (2015) agree on information disclosed in project descriptions is associated with funding success. Parhankangas and Renko (2017) emphasize that linguistic styles that make the campaigns and their founders more understandable and relatable to the crowd boost the success of social campaigns, but hardly matter for commercial campaigns. These insights were earlier confirmed by Allison et al (2014), stating that lenders respond positively to narratives highlighting the venture as an opportunity to help others, and less positively when the narrative is framed as a business opportunity. Allison et al (2014) and Parhankangas and Renko (2017) research results reveals the proses and coins to crowdfunding projects, while socially oriented descriptions tend to attract the success in fund raising and vice versa, commercial profiles are less successful in attracting the funds.

Narrative telling is the next characteristic which combines sustainability, help to others, support causes, the story behind, trust and potentiality. Calic and Mosakowski (2016) found out that a sustainability orientation positively affects funding success of crowdfunding projects. Gerber and Hui (2013) add supporter motivations, which include the desire to collect rewards, support causes, and be part of a community. Gerber and Hui (2013) and Allison et al (2014) agree on highlighting an opportunity to help others as the key factor to choose the object to fund. Meanwhile Song and Boeschoten (2015) found 85% of the funders are interested in the story behind a crowdfunding project. The personal interests and potential of the projects are two important factors for funders to select a crowdfunding project (Song and Boeschoten, 2015) and for the project to succeed in financing. On the other hand, Hörisch (2015) cannot observe positive connection between environmental orientation and crowdfunding success. Furthermore, Gerber and Hui (2013) finds the lack of trust in project or its implementation to be the core factor of missing the financing on crowdfunding platforms.

Moreover, this field has a great potentiality to research. Prof. Shiller in his discussion paper on narrative economics (No. 2069, 2017) emphasized that the research in economics is already on its way to finding better quantitative methods to understand the impact of narratives on the economy. Textual search is a small but expanding area in economic research. He also predicted as research methods advance, and as more social media data accumulate, textual analysis will be a stronger field in economics in coming years. It may allow us to move beyond 1930s-style models of feedback, the "multiple rounds of expenditure," and get closer to all the kinds of feedback that really drive economic events. And it will help us to better understand the kinds of deliberate manipulations and deceptions we have been suffering under, and to formulate some positive economic policies that take into account the background of narratives (Shiller, 2017).

One more project characteristic, which could lead to success in financing is described as national proximity. Beier and Wagner (2014) confirms that specific project characteristics such national proximity leverage fundraising success.

Examining the effects of project duration to funding success, Cordova et al (2015) verifies that project duration increases the chances of success. These findings fulfill the research of Mollick and Kuppuswamy (2014), who found out that projects that are better prepared in terms of business plans and schedules are more likely to gain benefits and deliver on time.

Interestingly, there is no evidence on project financial goal to reach the fund raise success. Even on the contrary an increase in the project funding goal is correlated with a lower probability and extent of success (Cordova et al, 2015). Potential backers are less likely to contribute once a project reaches its goal (Kuppuswamy V. and Bayus

B.L., 2015). And bigger projects are less likely to be funded (Mollick E.V. and Kuppuswamy V., 2014). Another characteristic describing the crowdfunded project is money already pledged. This amount could be seen in the

advert of the idea of the project on the internet platform. Cordova et al (2015) states that chances of success are positively related to the dollar amount contributed per day. Moreover, Kuppuswamy and Bayus (2015) found that potential backers are influenced by how much of the goal has already been pledged. The agreement is reached by Crosetto and Regner (2014), approving the concept that the increased funding towards the deadline is due to pledges to projects that already made it, particularly pre-selling pledges.

One could observe the misleading differences and similarities between the project financial goal and money already pledged to the project. To be clear enough, the pre-selling pledges term used by Crosetto and Regner (2014) and the pledges before the financial goal may lead to successful funding. While the goal reached turns the motivation on the contrary.

If the economic logic could connect the amount of money already pledged to the number of backs or supporters to the project, there is not enough scholar evidence to prove it. However, Kuppuswamy and Bayus (2015) predicate a project with a lot of backers' draws potential contributors away from other projects.

All these project characteristics studied, make an image of key factors to take the attention before launching the project on crowdfunding platform. It is important to have fear financial ambition, clear story and ability to tell narratives to attract the funders, who by making the first pledges will attract the others. Visualization also matters. Therefore any investments in marketing campaigns have enough presumptions to break-even.

The second category of key factors to success is founder characteristics. Looking more widely there is a belief that the project and its success are strongly connected to its owner. For example, Zvilichovsky et al (2015) estimates an entrepreneur's backing-history which has a significant effect on financing outcomes. Campaigns initiated by entrepreneurs who have previously supported others have higher success rates; Project owners back their backers, when possible, at a rate that is significantly higher than other comparable projects (Zvilichovsky et al, 2015). Courtney et al (2016) examines the previous experience of founder in the way of creditworthiness and says that crowdfunding experience can mitigate information asymmetry concerns about project quality and founder credibility, enhancing the project's likelihood of attaining funding.

There is lack research on personal characteristics of founder and the project launched on crowdfunding platforms. Mostly the race and gender were analyzed. As it was mentioned in the section of visualizations, the black fundraisers are less successful (Rhue L. and Clark J., 2016). However, there is no effect of gender on the individual borrower's chance to receive funds on crowdfunding platform (Barasinska N. and Schlafer D., 2014).

The amount of founder characteristics studied lets to assumption of rather unexplored field of science. There are plenty of characteristics (general and personal) which could be taken into consideration while examining the profile of founder and crowdfunding project. The only research interruptions are the data and time.

The third category of key indicators to success is communication and sharing. It is thought that broad marketing campaigns, wide sharing circles could attract more attention to the crowdfunded project as well as the backers and their funds.

Firstly, third party endorsements (e.g. crowdfunding platforms) or comments related to crowdfunding projects are being analyzed. Calic and Mosakowski (2016) partly agree on third party endorsements which positively affects funding success of crowdfunding projects. However, Courtney et al (2016) has a stronger view on third-party endorsements (sentiment expressed in backer comments) which validate and complement start-up–originated signals. Those signals enhance the project's likelihood of attaining funding. Pardo et al (2013) finds positive effects on feedback on crowdfunding projects and their financing. Furthermore, the need for further integration of community and cultural constructs into models of venture funding, as such variables may have more relevance than previously believed (Josefy et al, 2016).

Secondly, spreading information about the idea and crowdfunding project through other media channels (than crowdfunding platform) could affect its financing. Courtney et al (2016) expands their conclusion to signals through start-up actions (use of media) which enlarge the project's likelihood of attracting funding. In contrast,

Beier and Wagner (2014) find the effects of the use of additional social media platforms and an additional homepage that are mixed. This opinion is being confirmed by Mollick and Kuppuswamy (2014) on the particular case study of Kickstarter. Some of the factors found to lead to successful fundraising (having many Facebook friends, being featured by Kickstarter), were less useful in getting long-term benefits from Kickstarter (Mollick E.V. and Kuppuswamy V., 2014).

Furthermore, the updates on the project status are supposed to be vital for the success of its funding. Kuppuswamy and Bayus (2015) confirms it with research on project support which is positively related to its updates.
All characteristics in third category were more positively than negatively related to success of funding of crowdfunding projects.

To sum up, lots of researchers are examining different factors for crowdfunding projects to success. These studies are embed into the field of behavioral and narrative economics and have huge future prospects to analyze.
To come up with the prosperous features to the projects of crowdfunding, one should determine the narratives (or the story behind), clear goal and schedule, invest into sharing and visualization, ensure support of third parties, concentrate on the process of pledging, not the financial goal and keep updating. The first attempt (and any other) seems to project the bridges for the future success.

3. Methodology

The argumentation of the research is still unchecked relations between several variables of the topic and data available.
Previous approximations to the topic were made using these methods:
- Domain-Constraint Latent Dirichlet Allocation (DC-LDA) topic model (Yuan et al, 2016), Elaboration Likelihood Model (Du et al, 2015), cognitive evaluation theory (Allison et al, 2014),
- machine learning classifiers (Pardo et al, 2013), language expectancy theory (Parhankangas A. and Renko M., 2017),
- a follow-up survey (Mollick E.V. and Kuppuswamy V., 2014), semistructured interviews (Gerber E.M. and Hui J., 2013).

As the research has a goal of relationship investigation, the data gathering methods such as surveys and the machine learning methods were rejected. The chosen method is Pearson correlation (r) with statistic significance check at p-value. This method is widely used in adoption of various listed theories to the topic (e.g. DC-LDA, Elaboration Likelihood Model, cognitive evaluation theory, etc.), therefore proven enough to be correct.
The Pearson correlation coefficient (PCC) is defined (Benesty et al, 2009) (1):

$$\rho\,(a, b) \ = \frac{E\,(ab)}{\sigma_a \sigma_b}\,(1),$$

where E (ab) is the cross-correlation between a and b, and $\sigma_a^2 = $ E (a^2) and $\sigma_b^2 \ = $ E (b^2) are the variances of the signals a and b, respectively.

One of the most important properties of the PCC is that $0 \leq \rho\,(a, b) \leq 1$. The PCC gives an indication on the strength of the linear relationship between the two random variables a and b. If $\rho\,(a, b) = 0$, then a and b are said to be uncorrelated. The closer the value of $\rho\,(a, b)$ is to 1, the stronger the correlation between the two variables. If the two variables are independent, then $\rho 2\,(a, b) = 0$. But the converse is not true because the PCC detects only linear dependencies between the two variables a and b. For a non-linear dependency, the PCC may be equal to

zero. However, in the special case when a and b are jointly normal, "independent" is equivalent to "uncorrelated" (Benesty et al, 2009).

The P value, or calculated probability, is the probability of finding the observed, or more extreme, results when the null hypothesis (H0) of a study question is true – the definition of 'extreme' depends on how the hypothesis is being tested. The P value, or calculated probability, is the probability of finding the observed, or more extreme, results when the null hypothesis (H_0) of a study question is true – the definition of 'extreme' depends on how the hypothesis is being tested. If P value is less than the chosen significance level then you reject the null hypothesis

i.e. accept that the sample gives reasonable evidence to support the alternative hypothesis (Benesty et al, 2009). The authors of this paper refer to statistically significant as $P < 0.05$.

The main aim of the research is to determine the geographic location, categorization of the project and reward given relationship with crowdfunding pledged. Variables were chosen according to the existing shortage of the empirical evidence on the relationship between them.

Data set & period. Data on projects were gathered by Random Walk theory on Kickstarter.com platform from 2014. Sample size consists of 36 projects.

Variables: percentage already pledged (%), location of the project (North America, Asia, Europe), category of the project (technology, entertainment, craft, fashion), the minimum pledge for a reward ($).

The Pearson correlations coefficients were calculated between variables using Microsoft Excel toolkit. All coefficients were validated by p-value check. Conclusions were made.

4. Empirical results

According to the methodology, the crowdfunding projects success indicators' correlations were formed as follows (see Table 2).

Table 2. Relationship between crowdfunding projects success factors

	Pledged, %	**Category**	**Location**	**Reward**
Pledged, %	1	-	-	-
Category	0,10326579 (0,55)	1	-	-
Location	-0,0716797 (0,68)	0	1	-
Reward	-0,1391097 (0,42)	-0,3310297	0,1619022	1

Source: compiled by authors

There could be found:

- a very small positive correlation (r=0,1) between percentage already pledged and category of the project; according to given values to categories it could be concluded that fashion projects are more successful in the terms of funding;

- meaningless negative correlation (r=-0,07) between percentage already pledged and location of the founder; to sum up, Asian projects attract higher percentage of investment;

- slightly negative correlation (r=-0,14) between percentage already pledged and the minimum pledge for a reward; hence, lesser reward, higher funds are raised.

It should be noted that these abbreviations are distant approximations to samples means according to statistically insignificant measures (all variables possess p value greater than 0,05 significance level).

These results could fulfill Table 1 as follows (see Table 3)

Table 3. Additional key performance indicators for crowdfunding projects and their effects to success

		KPI'S		No effect
		for success	**for failure**	
Project characteristics	Location (North America, Asia, Europe)	-	-	Astrauskaite and Paskevicius, 2018;
	Category (technology, entertainment, craft, fashion)	-	-	Astrauskaite and Paskevicius, 2018;
	The minimum pledge for a reward ($)	-	-	Astrauskaite and Paskevicius, 2018;

Source: compiled by authors

To sum up, location of the project (North America, Asia, Europe), category of the project (technology, entertainment, craft, fashion), the minimum pledge for a reward ($) have no significant effect on percentage already pledged (%).

5. Conclusions

According to the results of the research the following conclusions could be made:

- The narratives (or the story behind), clear goal and schedule of the project lead to its **crowdfunding** success.
- Investments into communication schemes and visualizations of adverts as well as the support of third parties, maximize the likelihood of fund raising success.
- Concentration on the process of pledging, not the financial goal, ensures better funding opportunities to **crowdfunded** projects.
- Splitting **crowdfunding** into categories is structured, however, with no validated input to financial outcomes.
- **Crowdfunding** is not attached to any location.
- **Crowdfunding** is more about narratives, personal impact, funder feelings, but not reward.
- Asian founders succeed in fashion lowers community.

Recommendations

The findings and conclusions of the study promotes these proposals:

- To enlarge sample size for more decent results of the research.
- Add more categories and or regions to variables.
- Add more independent variables to peer correlations.
- Chose different methods, e.g. the Granger causality test.

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Ieva ASTRAUSKAITĖ, PhD is the assistant professor of Vilnius University, Faculty of Economics and Business Administration, Finance Department. Research interests: capital market, corporate finance, taxation, fin-technologies.
ORCID ID: orcid.org/0000-0002-7901-6173

Arvydas PAŠKEVIČIUS, PhD is the Professor of Vilnius University, Faculty of Economics and Business Administration, Head of Finance Department. Research interests: investments, capital markets development problems, foreign Exchange, business valuation.
ORCID ID

Register for an ORCID ID:
https://orcid.org/register