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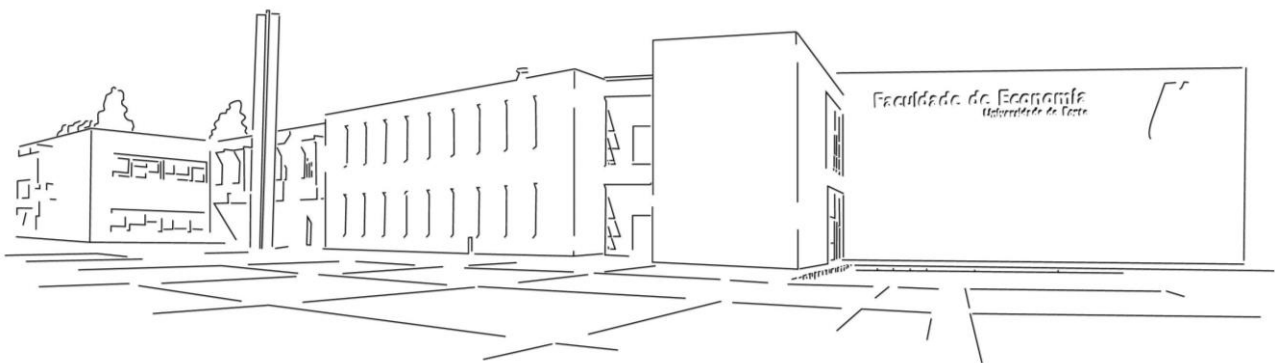UNIVERSIDADE DO PORTO

Funding Cycles as a Success Factor for Crowdfunding Projects: an Empiric Analysis

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Biography

Rui Diogo Amaral Nogueira was born in Mealhada, on May 14, 1989. After completing high school there, he moved to Porto in 2007 to pursue his studies in Economics, at FEP School of Economics and Management.

In 2011, after completing the Degree in Economics, he worked for one year at Optimus, a telecommunication company, first as a commercial consultant and then as a product manager.

His interest in microeconomics and strategic decision making led him to continue his academic journey again at FEP School of Economics and Management, but this time to enrol on the Master in Economics. It is to obtain this degree that this thesis has been developed under the supervision of Prof. Dr. Nuno Moutinho.

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[1] Conference in Faculdade de Letras da Universidade do Porto; December 2014 (http://encobciber4.wordpress.com)

Abstract: This work studies the evolution of the funding process of crowdfunded projects as a possible factor of their success. Through the empirical dynamic analysis of several projects, it will be possible to set trends and establish patterns between the early performance of a project and its success. Afterwards, the impact of categories on these patterns will be tested, in an effort to understand what drives the agents to adopt certain behaviours. This information allows not only to predict the behaviour of the investors in future projects, but also to proceed to a finer qualitative analysis on projects that diverge from the pattern, shedding some light on the reasons for such deviations.

Resumo: Este trabalho tem como objetivo estudar o ciclo de financiamento dos projetos de crowdfunding como um possível fator determinador do seu sucesso. Através de uma análise empírica dinâmica de vários projetos, será possível ver tendências e estabelecer padrões entre o desempenho inicial de um projeto e o seu sucesso. Após isso, será testado o impacto da categoria nestes padrões, numa tentativa de perceber o que leva os agentes a adotar certos comportamentos. Esta informação permite não só prever o comportamento dos investidores em projetos futuros, mas também passar a uma análise qualitativa mais detalhada de projetos que fujam à regra, de modo a compreender melhor as razões desses desvios.

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1. Introduction

In the economic context in which we live nowadays affected by the financial crisis there has been limited access to financing, specially to agents with less resources, or for projects which return is uncertain and which successful deploy is not assured. Good ideas may never see the light of day for lack of resources and many business opportunities may be lost. However, there is a new financing alternative ending said setbacks: crowdfunding.

Given certain rules, crowdfunding allows an agent with a project to publicise and fund it, reaching potentially everyone with access to the internet, in exchange for a reward. Each element of that crowd gives a small sum that can add up to, on average, 25 thousand dollars (Massolution 2012).

A simpler version of crowdfunding has always existed in the form of lottery tickets or charity fundraisings. It is, however, the growth on internet users and Web 2.0 that allow this call for help to go worldwide and reach a larger crowd, which explains the relatively recent success of crowdfunding. Data from Massolution (2012) backs up this belief on the increasing popularity of this technique: in 2012, the 530 existing on-line platforms (5 times more than in 2007) allowed the funding of more than 1 million projects by raising 2.7 billion dollars (also 5 times more than in 2007). This number is expected to surpass 5 billion dollars in 2013.

But the crowdfunding phenomenon goes beyond the profits and benefits for investors, entrepreneurs/companies, consumers and on-line platforms. This novelty is reshaping economic theory, both in the way we perceive consumers and on how producers can position themselves in the market. According to Ordanini et al. (2009), the consumer's role has been changing, with an increasing empowering of this agent. The latest step on this evolution is given when, through crowdfunding, "some people may decide to pay for producing and promoting a product (instead of buying it), and bear the risk associated with that decision" (Ordanini et al, 2009, p. 3), becoming an investor.

Furthermore, crowdfunding gives companies a privileged communication means with consumers in two ways: by placing a project for funding, companies gain access to information such as preferences, market penetration and reservation prices; besides that, crowdfunding platforms act as publicity agencies, promoting the projects directly in a

first stage, and through networking effects between the investors afterwards. This way, companies and entrepreneurs can simultaneously collect and give information to the market.

From all the changes brought by crowdfunding, it is still important to mention the legal impacts. For example, in a country where crowdfunding had such a strong presence as the USA (home to 35.3% of all the projects in 2009, according to Lambert and Schwienbacker, 2010), legislation presented itself as a setback to the development of equity crowdfunding (Kappel, 2009). The JOBS Act acted as a solution to this problem, changing the law in order to allow companies to sell equity to investors over social networks and ending much of the bureaucracy that slowed the old process (Stemle, 2013).

Crowdfunding may be used for several purposes, from raising charities to funding holidays, or from recording a music album to starting a business. This versatility is possible mainly due to the several crowdfunding models available. However, no matter how different they may be, there is a set of procedures common to all: firstly, when a project is submitted, there is also set a monetary goal and a deadline. The project will be up for a set period of time during which the goal must be met, otherwise a penalty may be applied, and in some cases all the amount collected may be returned to the investors. This implies that despite all the potential associated with crowdfunding, not all projects are successful (reach the goal amount before the deadline). Obviously, setting a too high goal may be the cause for this underachievement, but other factors may influence this outcome, one of them being the funding cycle.

Analysing the funding cycle allows us to understand the behaviour and drivers of the investors, the actions of the entrepreneurs, and even the cause-consequence effect of other success factors can be observed (and sometimes clarified). This analysis requires a dynamic observation of the sample through a wide period of time, and a generalization of the results to the whole universe of crowdfunding can only be made by relying on a large sample. Although existing literature approaches this subject, it does not take in consideration neither the dynamic analysis nor the dimension of the sample, therefore becoming somewhat incomplete. This gap presents itself as an opportunity for new researches and studies that we would like to embrace.

Thus the main question of this thesis arises: has the funding performance during the funding period of the project any impact on its success? From this starting point we can ask other questions: if there is any relation, how does the funding process develops for successful and unsuccessful projects and which are the most critical points? Which behaviours by the investors/consumers explain the funding cycles? In order to make the most of this funding method, a dynamic empirical analysis of a large sample of projects is suggested, setting a trend for successful and unsuccessful projects, comparing them and contrasting the cases which deviate from the average pattern. By answering the previous questions we are not only providing more knowledge on how crowdfunding works, but we are also better understanding the behaviour of the agents involved and their reasoning. More than a mere academic exercise, this knowledge can help both future entrepreneurs to maximise their fund raising and investors to better apply their resources, filling an existing gap in current literature.

To pursue this endeavour the work is structured as it follows: we will present a literature review, introducing crowdfunding, its different models, and what is already known about success factors. Afterwards the methodology will be discussed, with focus on the data selection, the quantitative analysis and the qualitative analysis, and then the sample will be presented. From then on comes the analysis: first the quantitative analysis (using statistical and econometric techniques) and then the qualitative analysis (through interviews on a specific set of observations). Finally the text ends by exposing the main conclusions and recommendations for further studies.

2.   Literature Review

2.1.   Crowdfunding – what it is and how it works

Crowdfunding is "an open call, mostly through the Internet, for the provision of financial resources either in form of donation or in exchange for the future product or some form of reward and/or voting rights" (Belleflamme et al, 2011, p.5-6). Despite being based on an old concept, it has become something new over the last decade much thanks to the development of digital platforms, and even though it presents characteristics of its own, one cannot dissociate crowdfunding from crowdsourcing. Crowdsourcing is a method used by companies to gather resources (usually intellectual) from the crowd in order to solve problems or create ideas, in exchange for a reward (Howe, 2006), and so we can see crowdfunding as a specific type of crowdsourcing, in which the resources are monetary (The Crowdsourcing Industry Website[2])

The rules in crowdfunding platforms can differ from platform to platform. However, there are some key points that shape the actions of the entrepreneur. These are the monetary goal, the reward policy, the deadline and the success conditions. As an example we shall look at Kickstarter[3]. When a project is submitted, the entrepreneur must set a (reasonable) monetary goal and a deadline (which can go from 1 to 60 days after the submission) until which the goal must be met. It must also be specified the type of reward. In this particular case, the reward cannot be neither monetary nor equity, and it is strongly advised to offer different kinds of rewards according to the amount of each contribution. By the deadline an "all-or-nothing" rule is applied: if the goal was met (successful project), the entrepreneur can keep all the money raised (even if the sum is larger than the goal); if not, all the money is returned do the investors. The platform keeps a 5% fee over the raised amount on successful projects.

In other platforms we can find different restrictions to deadlines (up to 90 days in, for example, FundedByMe[4]), or different rewards (Launchpad Investors[5] deals with equity). Platforms such as ArtistShare[6] allow the project creator to decide whether the

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[2] www.crowdsourcing.org

[3] www.kickstarter.com

[4] www.fundedbyme.com

[5] www.launchpadinvestors.com

[6] www.artistshare.com

money is kept or returned to the investors in case the goal is not met. However, Indiegogo[7], which also provides this option, charges different fees: 4% of the raised sum for successful projects and 9% for unsuccessful ones.

2.2. Crowdfunding models

The definition for crowdfunding presented can be applied to several projects which can differ in the type of reward given. Based on these differences, Massolution (2012) classifies the projects into four different crowdfunding models: equity-based crowdfunding, lending-based crowdfunding, reward-based crowdfunding and donation-based crowdfunding. These models will be presented and discussed individually.

2.2.1. Equity-based crowdfunding

In this model, each investor becomes a shareholder of the project, with the right to participate in decisions and vote in major decisions. If the project is successful, the investor will receive a share of the profit made. Despite some legal setbacks found, recent changes (like those brought by the JOBS Act in the USA) have made this crowdfunding model the fastest growing in number of platforms. Particularly effective to fund the creation and development of digital goods (software, for example), this model raises the largest sums per project, as more than 80% of these projects raise more than 25 thousand dollars (Massolution, 2012).

2.2.2. Loaning-based crowdfunding

Working like a regular loaning system, where the investors receive periodic payments up to the initial loaned value plus interests, this model represents the smallest share of projects. It is, however, the model with the shortest average launch-to-completion time (4.8 weeks, Massolution, 2012).

2.2.3. Reward-based crowdfunding

Being the largest model in number of platforms, reward-based crowdfunding is, along with equity-based crowdfunding, the source of the fast growth of the crowdfunding industry (Massolution, 2012). The investor, in this case, receives the

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[7] www.indiegogo.com

future output of the project, making this model extremely appealing and best expressing the true nature of crowdfunding: when a project is successful, the investor will receive what he helped to create. Together with donation-based crowdfunding, they are more effective when appealing to personal preferences, goals or beliefs of the investors.

Because of the large number of platforms and projects, and due to its genuine crowdfunding nature, this will be the model on which our study will be based.

2.2.4. Donation-based crowdfunding

This model detaches itself from the others as there is no real reward associated to the investment, although one could argue that the reward can be the feeling of satisfaction, fulfilment and selflessness by helping a cause. For this reason, donation-based crowdfunding is closely connected to charities, environmental causes or personal projects. This model also has the smallest projects in terms of raised money, with more than two thirds of all the projects being below the 5 thousand dollar mark. Interestingly, these are also the projects with the longest average launch-to-completion times (10.2 weeks, Massolution, 2012).

2.3. Success factors

Despite the huge potential of crowdfunding, not every project is successful in reaching its goal. On the other hand, some projects not only meet the goal but actually go much further beyond that value. In an attempt to maximise their profits, platforms usually provide a FAQ section and basic tips. This information is usually based on experience from past projects and is regularly updated, such as in the Kickstarter School webpage[8], or "7 Deadly Sins of Crowdfunding[9]" available on Sponsume. On the internet, one can easily find blogs and articles in technology related websites (techradar[10], for example) with tips for entrepreneurs. This kind of help is usually based on basic marketing knowledge on how to publicise a project, and even though they are helpful, they are mostly very generic.

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[8] http://www.kickstarter.com/help/school?ref=help_nav#defining_your_project

[9] http://www.sponsume.com/getting-started/7-deadly-sins-crowdfunding

[10] http://www.techradar.com/news/internet/the-power-of-crowdfunding-how-to-make-the-most-of-it-1206834

There are also several studies on different factors which can explain the success or failure of crowdfunding projects. One factor is the geographic distance between investors and projects. Entrepreneurs must be aware that this is no longer a barrier, and therefore must plan their campaign to be as far reaching as possible. If it is true that closer investors are the first to participate in a project, it is also true that the biggest sums come from further away (Agrawal et al., 2011).

But not only the reach of the marketing campaign must be wide, its means and content are also essential. Making the most of web 2.0 features and social networks is extremely important when using crowdfunding, so the entrepreneur should keep in mind that the target audience ought to know how to use these tools (Schwienbacker et al., 2010 and Mollick, 2013). As an example, if one's target audience is people more than 60 years old living in rural areas, it is likely that the funding campaign may fail, as usually these people lack the equipment or the knowledge to access the funding platforms.

Furthermore, by poorly choosing the target audience one may give a wrong image of the project (Kleeman, 2009), affecting the perception other investors have of its performance. And since the perception of the investors is one of the most important factors when trying to raise money for a project (Mollick, 2013), special attention should be given to this factor.

The type of project also plays an important role: non-profit organizations usually achieve better results than others, and goods attract more funds than services. However, since the production of goods usually implies higher costs than providing a service, the goal may be higher in the first case, and part of this discrepancy may be explained by that (Lambert et al., 2010).

Crowdfunding allows price discrimination (often accompanied by reward discrimination as well), which is a positive aspect both for entrepreneurs, as it enables them to extract more money from investors/consumers (Rubinton, 2011), and for investors, as they can participate with different amounts according to their resources. Entrepreneurs might be afraid of setting low minimum donation values, but since an investor will support a project which will bring him benefits in the future, low minimum donation values will not lead do free-riding behaviour; in fact, it can improve the

funding performance, as one can reach the investors with fewer resources (Fernandez et al., 2009).

Finally, there is already some insight regarding the main question of this study: funding cycles. According to Ordanini et al. (2009), the funding cycle of a project from its launch until the deadline can be divided in three parts. During the first one, there is a fast growth in the raised amount (until roughly half the goal) due to the participation of people close to the project (friends and family) and investors driven by the novelty of the project. On the second phase, the raising rhythm slows down and from then on it is required a stronger effort in order to motivate and catch new investors, for which this phase is called "getting the crowd" (Ordanini et al., 2009, p. 25). Many projects will never leave this phase mainly due to the vicious cycle of less investment/less attractiveness of the project. However, for those projects that reach the "engagement moment" (Ordanini et al., 2009, p. 26), there is a chain reaction which enables a fast raising until the goal is fulfilled. This happens because of the "race to be in" phenomenon (Ordanini et al., 2009, p. 26): when a project becomes interesting and gets many investors, other investors will want to participate as well before they lose the opportunity to do so.

However, this theory shows some flaws: firstly, it was developed based on the analysis of only three cases; secondly, those three cases do not account for every crowdfunding model, and therefore they do not portray all the different characteristics of each one; and finally, the cycle as it was described does not meet the empirical data provided on the "Crowdfunding Industry Report", which states that on average the raising rhythm is higher during the middle weeks of the project (Massolution, 2012).

Burtch et al. (2012) provide some improvements to this subject with their approach by analysing data from 154 journalism related projects, claiming that knowing how to read the signs in the early stages of a project, and acting accordingly, may be crucial for its success. This study suggests that there is a crowding-out effect, from which one can assume that the main drive for the investors is their altruism. What this means is that when facing projects with different performances (some able to capture large sums of money while others struggle to reach the goal), investors prefer to back underachieving projects (and suffer the risk of it not being successful, thus not getting any reward) instead of supporting projects closer to meet their goal. However, the

authors themselves admit that these results may have other interpretations such as a natural market effect of allocating resources to the projects that need them more, or an effort by the entrepreneurs/platforms (and not by the investors) to not let any project fail. Again we find in this study a problem with the reduced number of cases from one platform which deals exclusively with journalism, thus not being representative.

Given this background, we propose to study the funding cycles using an adequately large database. Considering that reward-based crowdfunding accounts for the larger number or platforms and projects (Massolution, 2012) and also because this model best represents the true nature of crowdfunding with a wide variety or project categories, this analysis will be based on that model. How can the funding cycle be described? Does the fundraising performance during the funding period have any effect on the success of the project? If it does, what can one say about the agents' behaviour? These questions shall be answered during the quantitative analysis, from which other questions may arise. Afterwards we will take in consideration some cases that deviate from the average pattern in order to find and understand other atypical effects through a qualitative analysis.

3.   Methodology

This work will rely on both quantitative and qualitative analysis. First, there must be a platform selection to choose where we are going to get our data from. Afterwards, we must select which projects can or cannot be included in the analysis. Once the data is collected, we will proceed with a statistical and econometrical analysis to determine patterns and trends. Finally, we will select projects that do not follow the pattern and understand why this happens by means of a semi-structured interview with the entrepreneurs. The methodology for each phase will be presented below.

3.1.   Platform and project selection

In order for the quantitative analysis to be representative, it is required to include a large number of observations. Dynamic information from crowdfunding projects will be retrieved from one online platform (to avoid different rules, category classifications or even units), so two questions arise: which platform shall be used, and which projects can be included in the sample?

The Crowdsourcing and Crowdfunding Industry Website[11] presents a list with the existing crowdfunding platforms divided into three subcategories: "Donations, Philanthropy and Sponsorship" which include donation and reward-based platforms, "Investing" with every platform related to equity-based crowdfunding, and "Lending" which include loaning-based platforms. Out of the 469 platforms, 310 belong to the first category, 123 to the second, and only 36 to the third. Our focus was on reward-based platforms, because they provide the largest amount of projects (Massolution, 2012).

Since this list includes platforms from various countries (in their own languages), we first filtered by platforms in English, reducing to 135 platforms. A thorough inspection of each of these platforms was carried out to select the best one to extract data from, with two criteria in mind: the popularity of the platform (by number of projects) and the amount of information available, namely: name of the project, start date, deadline, goal (in US dollars), current number of individual backers (single individuals who donated any amount of money to the project; it is impossible, however, to know if the same person supported more than one project in the study, by which we will consider groups of unique backers per project), category and current amount

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[11] www.crowdsourcing.org

collected (in US dollars) (because, unfortunately, some platforms do not include all these stats and no platform was willing to provide any kind of extra information but the one available on-line). The platform deemed to best meet our demands was Kickstarter[12] with over 150 thousand projects and all the information required. Plus, Kickstarter has very strict rules regarding the acceptance of projects (they must comply with copyright, quality, honesty and financial rules, as it is stated on the "Our Rules" webpage[13]; one must also keep in mind that Kickstarter only charges fees for projects that reach their goal, so it is in their interest to filter the projects), which will already ensure that any project that we might use in our analysis taken from this platform meets a reasonable quality standard.

With this in mind, the only criterion to select which projects would be analysed was that the projects should end during a certain time frame: April 28, 2014 to June 10, 2014. Because as soon as a project receives a new donation its webpage is updated, and because the purpose of this study is to analyse their evolution, this analysis must be dynamic, registering data on a daily basis. In order to accomplish that, each day a scrapping software designed for this task would access every project's webpage on Kickstarter, retrieving the required information (name of the project, start date, deadline, goal, current number of individual backers, category and current amount collected), and automatically including new projects started on that day and that would end until June 10. This process took place between 2pm and 7pm (GMT). The high number of projects caused the software to run slowly and even though the process was automatic, it required constant human supervision, thus the schedule chosen to retrieve the data.

After the quantitative analysis and setting a pattern for successful projects' and unsuccessful projects' funding cycles, it is expected to find some projects that deviate from these patterns. Why does this happen and how can we capture the effects of other variables present in these observations? According to Yin (2003a, p. 2) "the distinctive need for case studies arises out of the desire to understand complex social phenomena" because "the case study method allows investigators to retain the holistic and meaningful characteristics of real-life events", and therefore the reasons for said

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[12] www.kickstarter.com
[13] www.kickstarter.com/rules?ref=footer

deviations will be further studied by performing a qualitative analysis on a set of abnormal projects.

Whatever the reasons for the abnormal results may be, we acknowledge that there may be other reasons that explain the existence of abnormal cases. In either case, we believe that the further the abnormal projects' behaviour is from the pattern, the more noticeable those factors will be. As such, from the unexpectedly successful projects, we will be looking at the project with the worst performance (average amount raised per day) during the first week, the project with the worst performance during the last week and the project with the worst average performance during the whole period; and from the unsuccessful group we will select the project with the best performance during the first week, the project with the best performance during the last week and the project with the best average performance during the whole period.

As to why it was decided to carry six interviews, three aspects were taken into consideration. First, the complexity of the interviews: as they are not complex, it is not required a great number of interviews to extract meaningful information from them (Ryan and Bernard, 2006). Second, the resourcing (Kvale 1996; Seidman 2006): not every entrepreneur was willing to cooperate with the study, and some were even unavailable to be contacted. And finally and most importantly, "saturation of knowledge", defined by Bertaux (1981, p. 37) as how the researcher is surprised or learns a great deal from the first few interviews. Eisenhardt (1989) also suggests limiting the number to the point where the incremental contribution of extra cases is only marginal. The number of cases to be analysed was in fact decided during the interviewing process itself, and upon the sixth it was considered that no more new and relevant information could be retrieved.

3.2. Quantitative analysis

As stated by Myers (1997), quantitative methods include a large array of techniques such as surveys, laboratory experiments, numerical methods or formal methods such as econometrics. The last one will be the basis of this analysis.

After the data is gathered, it will be possible to divide the sample into two main groups: those that reached their goal (successful projects) and those that did not (unsuccessful projects). For each group it will be calculated the average collected

amount per day each day (in percentage of the goal amount), creating a trend curve to which every project can be compared to.

In order to understand the relevance and impact of the funding cycle to the success of the project, a *probit* econometric model shall be used as it follows:

$$SUCCESS_i = \beta_1 + \beta_2 Q1_i + \beta_3 Q2_i + \beta_4 Q3_i + \varepsilon_i$$

(3.1)

where $SUCCESS_i$ is a dummy variable which takes the value 1 if the project was successful and 0 if it was not; $Q1_i$, $Q2_i$ and $Q3_i$ are also dummy variables which take the value 1 if the project reached, respectively, 25%, 50% or 75% of the goal amount during the first 25%, 50% or 75% of the time it had available for raising funds, and 0 if it did not.

By interpreting the coefficients β_j it will be possible to know, for our sample, *ceteris paribus*, the starting probability of one project being successful, and the increase in this probability by meeting each of the intermediate goals. Since our explained variable is binary, choosing a *probit* model will assure that the estimated values for $SUCCESS_i$ is not lower than 0 neither higher than 1, but the coefficients interpretation will not be straightforward. For a given record, the predicted probability of success will be

$$F(\beta_1 + \beta_2 * Q1 + \beta_3 * Q2 + \beta_4 * Q3)$$

where *F* is the cumulative distribution function of the standard normal. However, the increase in probability attributed to a one-unit increase in a given predictor is dependent both on the values of the other predictors and the starting value of the given predictors. For this specific regression only with dummy variables it will be possible to build a table with the different possible probabilities; such will not be possible upon the inclusion of continuous variables.

As appealing as this estimator may be, it is possible that the right-hand-side variables present endogeneity. As in Krueger and Dale (2002), there may be an underlining factor which determines simultaneously the probability of success and of meeting 25%, 50% and 75% of the goal during the first 25%, 50% or 75% of the

funding period. To overcome this problem other variables may be added to the original estimator, namely $DAYS_i$ (number of days of the funding period), $GOAL_i$ (goal amount in dollars), $PART1_i$ (average donation per backer on the first quarter of the period), $PART2_i$ (average donation per backer on the second quarter of the period), $PART1_i$ (average donation per backer on the third quarter of the period) and a set of 13 dummy variables accounting for the project category: $FILM_i$ (Film & Video), $MUSIC_i$ (Music & Festivals), $GAMES_i$ (Games), $DESIGN_i$ (Design), $ARTi$ (Art), $TECH_i$ (Technology), $PUBL_i$ (Publishing), $FOOD_i$ (Food), $COMIC_i$ (Comics), $FASHION_i$ (Fashion), $THEATRE_i$ (Theatre), $PHOTO_i$ (Photography) and $OTHERS_i$ (including Crafts, Nature & Society and Journalism).

The new coefficients, if positive (negative) will allow us to determine *ceteris paribus* the increase (decrease) in the probability of success by increasing the number of funding days or by increasing the goal amount. Regarding the dummy variables, it will be possible to know how more likely a project is to be successful by belonging to a certain category in contrast to belonging to the others, *ceteris paribus*.

3.3. Qualitative analysis

After the first analysis is concluded, one may find projects that do not follow the pattern for reasons that the data by its own cannot explain. In this part we are interested in knowing the "how" and "why" certain projects diverge from the normal. In order to do so, we will follow a qualitative analysis. Qualitative analyses are inherent to social sciences so as to better understand social and cultural phenomena (Myers, 1997). Yin (2003a) suggests that a choice between case studies and other empirical methods depends on the kind of research question being posed, the extent of control a researcher has over actual behavioural events and the degree of focus on contemporary as opposed to historical events, once again pointing us in the direction of a qualitative analysis. In this particular case the entities behind these projects will be contacted and information will be collected by performing semi-structured interviews.

For each group of selected projects (successful and unsuccessful) there is a specific set of three questions; however, depending on the answers provided the interview may diverge amongst projects within the same group, thus the choice of this

method. In fact, while in some cases these questions provided enough information, in others there was a need to question the entrepreneur further.

The main reasons expected for the abnormal results are the project advertising management and the matching between the project and the universe of backers available. Accordingly, the first two questions are designed to approach these subjects via understanding the entrepreneurs' expectations towards the project's performance and their (re)actions when faced with the actual results. Nevertheless, we acknowledge that some other factors may explain the discrepancies reported, and a third more generic question opens the possibility to discuss them.

The structured part of the semi-structured interviews is available in the appendix and all the interviews were performed in English via the Kickstarter platform chat.

4.   Sample description

The scrapping software provided data on 7398 projects, all of them either started after or were ongoing on April 28, 2014 and ended until June 10, 2014. Along this chapter a description of the sample will be provided.

Our sample includes projects that differ amongst themselves in funding period (33 days on average), goal amount (43.3 thousand dollars on average) and category (15 different categories). Figures 1, 2 and 3 show how they are distributed according to these characteristics.

Figure 1 reveals that although the duration of the projects spans from one week to two months, the majority of them, 51.7%, last between three to four weeks. Projects lasting four to five weeks represent 13.6% of the sample and 10.6% last either around a month and a half or two months.
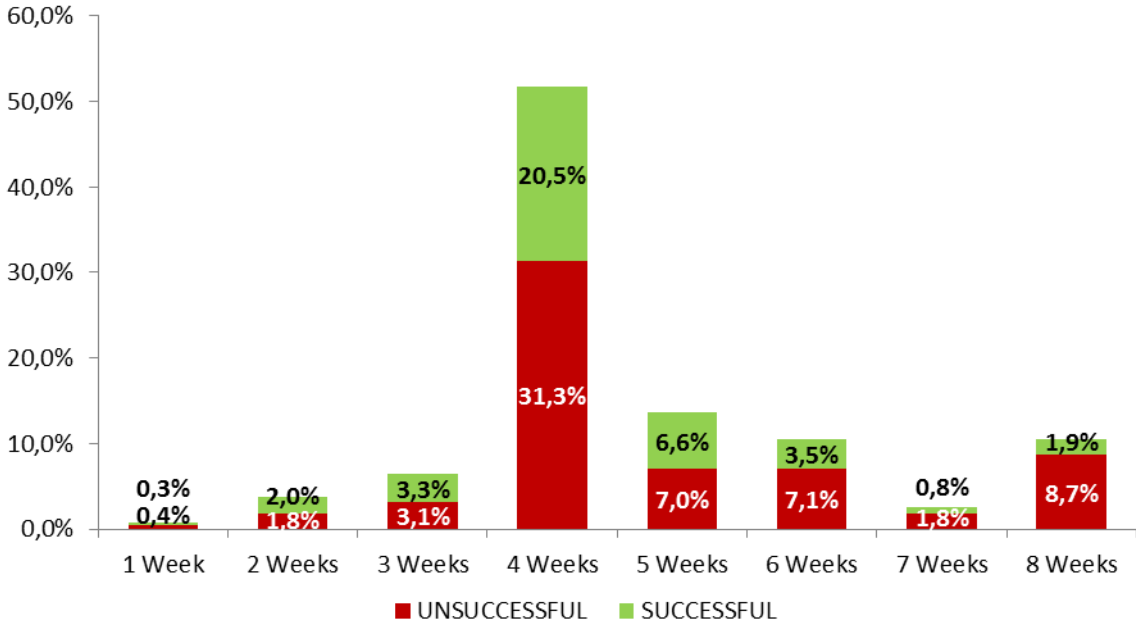

Figure 3 – Projects per funding period duration

Figure 2 shows how the projects are distributed regarding the goal amount. The vast majority (78.8%) require between one thousand to fifty thousand dollars and one third of the projects ask for from one to five thousand dollars. Even though the highest amount is 100 million dollars, "millionaire" projects are rare.
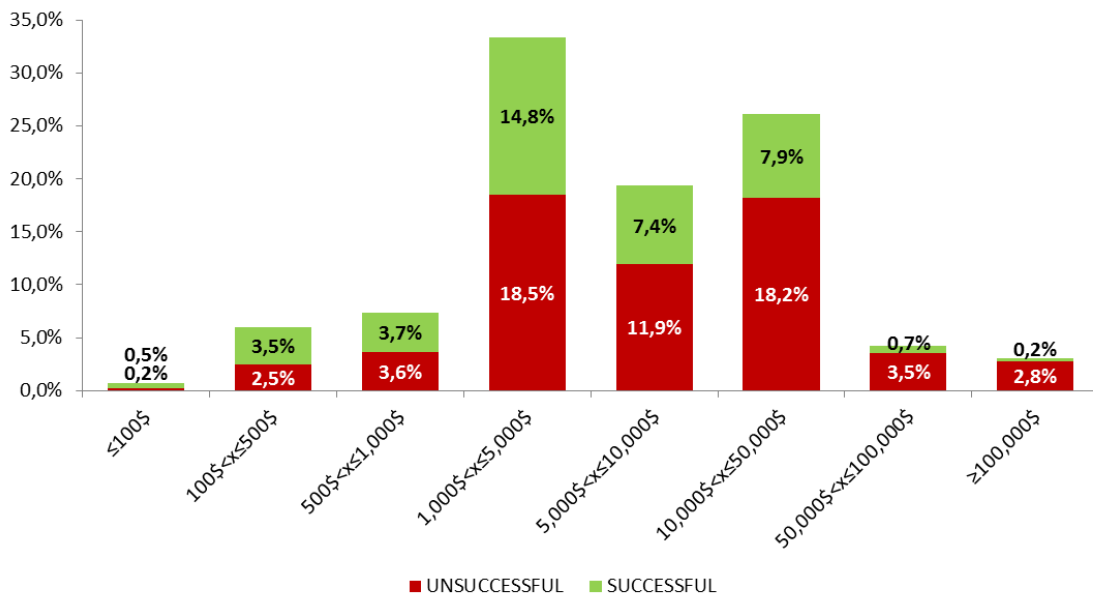
Figure 2 – Projects per goal (goal in US dollars)

Depending on the purpose of each project, Kickstarter allocates them to one of fifteen categories in order to make it easier for investors to search for the projects they like the most. These categories are Art (painting, sculpting, etc.), Comics, Crafts (DIY, woodwork, knitting, etc.), Design (architecture, product design, etc.), Fashion, Film & Video, Food, Games, Journalism, Music & Festivals, Nature & Society (philanthropy, ecology, social events, etc.), Photography, Publishing, Technology and Theatre. In Figure 3 it is depicted the distribution of our sample by category.

Figure 3 – Projects per category

If the distribution was homogeneous each category would represent 6.7% of the sample. However, Film & Video (20.3%) and Music & Festivals (15.8%) account for more than a third of the sample combined and, on the other side, Crafts, Nature & Society and Journalism were grouped into one new category (Others) due to having very few observations.

As for what these projects were able to accomplish until the deadline, there are two aspects to evaluate: number of individual backers and the amount collected. Figures 4 and 5 show us the global stats for the sample.

As far as backers are concerned, each project had on average 116 individual backers, but 67% had no more than 50. As we can see from Figure 4, this happens because of a small number of projects that move several hundreds of people, as 2% of the projects claim the help of more than one thousand backers.
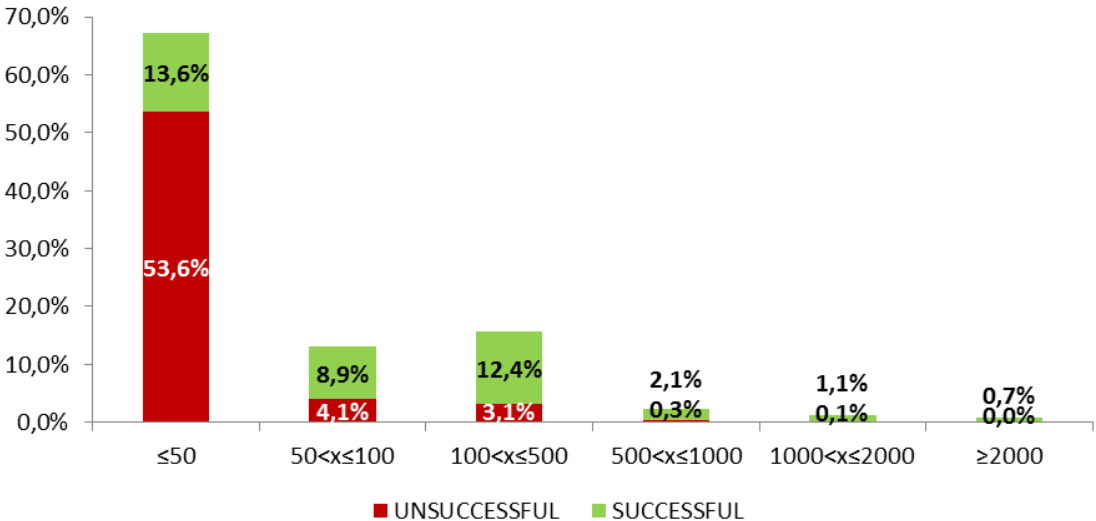
Figure 4 – Projects per number of backers

By looking at Figure 5, and quite surprisingly, one can observe that there is a big share of projects (25.6%) able to collect between one thousand and 5 thousand dollars. The second largest share (24.3%) comprehends the projects that reached 100 dollars or less. Only 3.1% of the projects raised more than 50 thousand dollars. The peak on the one thousand to 5 thousand group could indicate some critical benchmark from which on a project becomes more attractive, but can also be merely a consequence of the fact

that most projects set their goal over one thousand dollars. Still as far as the collected amount is concerned, on average each project succeeded in raising 9.2 thousand dollars.
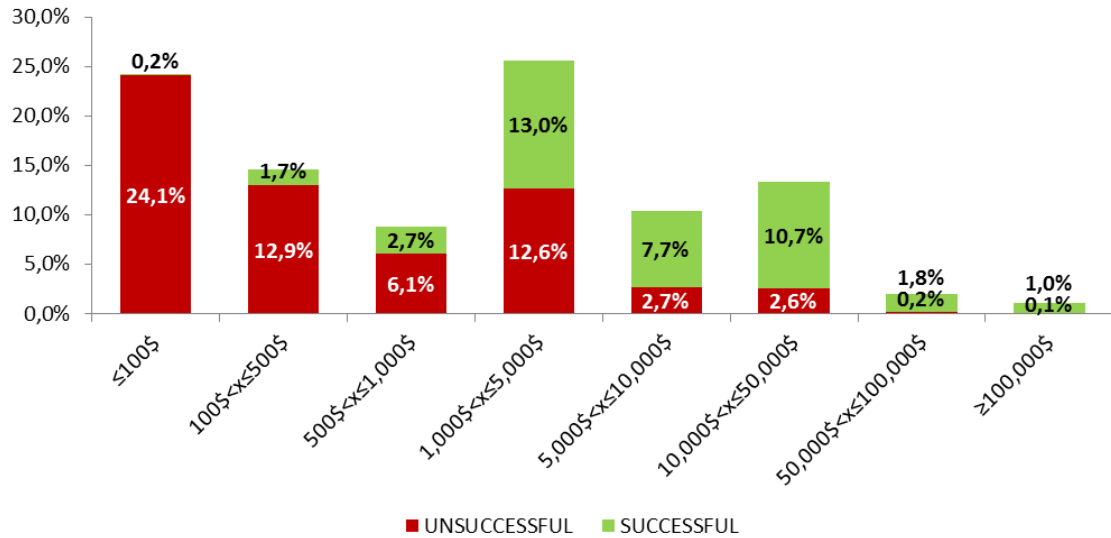
Figure 5 – Projects per amount raised (values in US dollars)

Finally, Figure 6 combines numbers of backers and the amount raised. For an average donation per backer (assuming that each individual backer only invests once in one project only) of 70.1 dollars, it is surprising to see that 44.5% of the projects have an average donation of 50 to 500 dollars.

Figure 6 – Projects per average donation per backer (donations in US dollars)

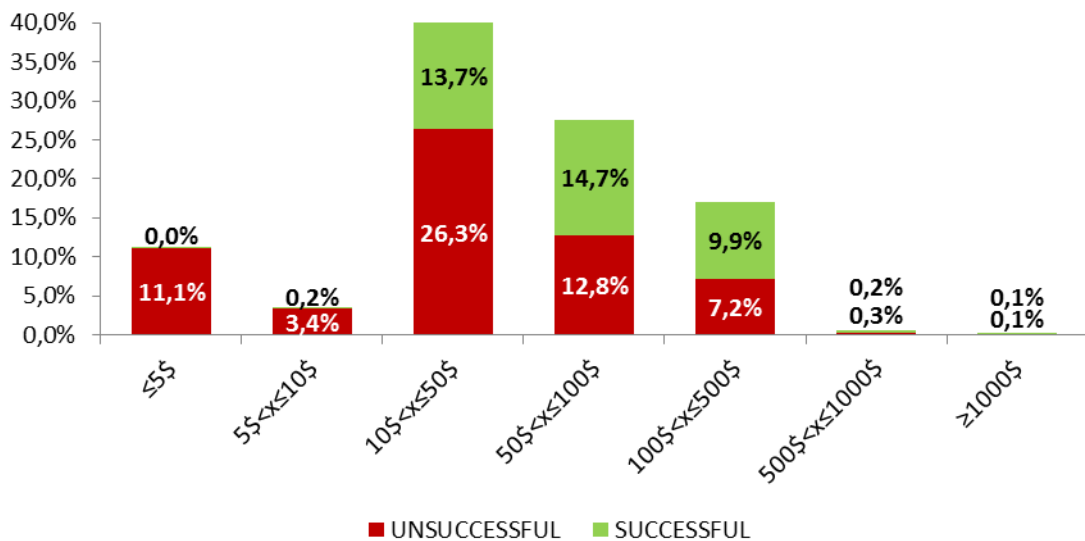Because of the heterogeneity observed, in order to continue the analysis it will be required to divide the sample according to certain criteria: successful and unsuccessful projects, complete and incomplete projects, and later, for the econometric analysis, projects with sufficient information and projects with insufficient information.

As mentioned before, a project is successful if, by the end of the funding period, it has reached its goal, and unsuccessful if it has not. This criterion will be used throughout the entire study and is applicable to any observation of the sample or possible subgroup, as we specified to only retrieve data from projects that would be complete until June 10, 2014 (every project in our sample reached the deadline by the time the data gathering was ended).

The scrapping software included, upon retrieving the data, every project that was ongoing from April 28, 2014 to June 10, 2014, as long as it ended until this last date. This means that from some observations we do not have data regarding the first days of the projects. On the other hand, in order to draw the average project funding cycle it is needed information from each and every day the projects were available to be funded. Therefore, upon this stage of our investigation, we will rely solely on complete projects, that is, projects for which we have all the information. In other words, complete projects are projects that started on or after April 28, 2014, and ended on or before June 10, 2014. Every other project is deemed incomplete.

Finally, for the econometric analysis, we will look at certain benchmarks (percentage of the goal reached at 25%, 50% and 75% of the funding period). Again we are faced with the problem of not having full information on some observations, but this time there is no need to be as strict as to use only complete projects. As long as there is information from the first quarter of the funding period onward, a project is suitable to be included in the regressions. These projects are denominated projects with sufficient information, and the others projects with insufficient information.

5. Quantitative analysis

In this chapter we will proceed to study the data collected resorting to statistical and econometrical instruments. On a first stage we will compare the successful projects to the full sample to better understand the differences amongst them. Afterwards, we will use the complete projects subgroup to describe the funding pattern of successful and unsuccessful projects. Finally, using the projects with sufficient information subgroup, we will run our econometric models and interpret their results (all definitions are according to section 4 of this work "Sample description").

5.1. Successful projects: how do they differ?

If this research focuses on why projects are successful or not, it is important to know how successful projects differ from unsuccessful.

Out of the 7938 projects, only 38.8% are successful. By analysing Figures 1 and 2 we can see how they are distributed in terms of number of days and goal amount. It is clear that there is little difference between the full sample and this subgroup regarding funding period duration, as 52.8% of the successful projects are up for fund raising for three to four weeks (and on average last 31 days), but when it comes to the goal amount the discrepancies are more noticeable: 58% set their goal below the 5 thousand dollar mark and the subgroup averages 10.6 thousand dollars. In fact there are more successful projects than unsuccessful ones under one thousand dollars. This piece of information already implies that lower goals, *ceteris paribus*, may have a higher chance of success, because there are proportionately more successful projects aiming to less than 5 thousand dollars and the subgroup averages a lower goal than the full sample.

Revisiting Figure 3 will bring new insights as well: the category with the largest share of successful projects is Music & Festivals (20% of all the successful projects and almost half of the projects in this category). Film & Video now come in second place (with 16.8% of all the successful projects) but Technology, even though accounting for 7% of all the projects, only has 4.9% of the successful ones.

A similar comparison exercise concerning project accomplishments can be done relying on Figures 4 and 5. 65% of the successful projects had more than 50 backers, which is a considerably high value when only 32.9% of all the projects captured the

same attention from the crowd. On average, this subgroup has 253 backers per project (contrasting with 30 backers per project in unsuccessful ones).

Figure 5 reveals a concentration of successful projects reaching from one thousand to 50 thousand dollars (81%). However, we must acknowledge that there are roughly as many successful projects achieving between one thousand to 50 thousand dollars as there are projects aiming to between one thousand to 50 thousand dollars as well. The interesting point is that there are three times more projects reaching more than 50 thousand dollars than projects aiming for those values. On average, each successful project raised 20.3 dollars.

Another look at Figure 6 suggests a connection between average donation and success. Despite both successful and unsuccessful projects being somewhat incapable of getting average donations higher than 500 dollars, it is clear that successful projects attract more giving backers (or are able to make the backers donate more). Moreover, successful projects present average donations of 93.6 dollars whereas unsuccessful ones only achieve 55.3 dollars on average.

In conclusion, by contrasting successful and unsuccessful projects, we can say that lower goal amounts may have a positive effect on project success. The number of investors that a project can appeal to is extremely important, especially because backers tend to be more generous in successful projects. It is true that upon the moment when they donate the backers still do not know if the project will be successful or not, but, as an entrepreneur, one should see high average donations as a positive sign. Also, success does not come equally to all the categories: Music & Festival projects tend to have good results, and by contrast Technology projects may underperform.

5.2.   Funding cycles – finding patterns

The data collection retrieved a total of 2067 complete projects. In order to carry out the cycle analysis it is required that the projects included have the same number of days. Out of this subgroup there are projects with durations that span from 1 to 40 days, but the amount of days with the most number of observations is 30, with 1224 projects. Even though this number accounts for only 60% of the complete projects subgroup, any other amount of days does not account for more than 70 projects on its own (there are 70 projects that lasted 21 days), which is not considered to be a number high enough to

carry out a study. Consequently, the sample used to study the funding cycles will be the 30-day complete projects.

Out of the 1224 projects, 459 (37.5%) are successful and 765 (62.5%) failed to reach their goal, which is a similar distribution to the full sample.

The next step is to calculate the average performance for these projects throughout the 30 days period. The variables to be analysed are the average number of backers and the average amount of money raised (as a percentage of the goal). Figures 7 and 8 describe this information and contrast successful to unsuccessful projects.

A considerable discrepancy is visible in the number of backers on Figure 7, with successful projects getting almost 8 times more backers than unsuccessful ones, but the differences start right from day one. On average, each successful project attracts six new backers per day, while unsuccessful projects get only one, and the growing rhythm differs as well: both groups benefit from a higher than average number of participations during the first week, but successful projects show another peak towards the last week. This non-altruistic behaviour by the investors clearly goes against the crowding-out effect described by Burtch et al. (2012).
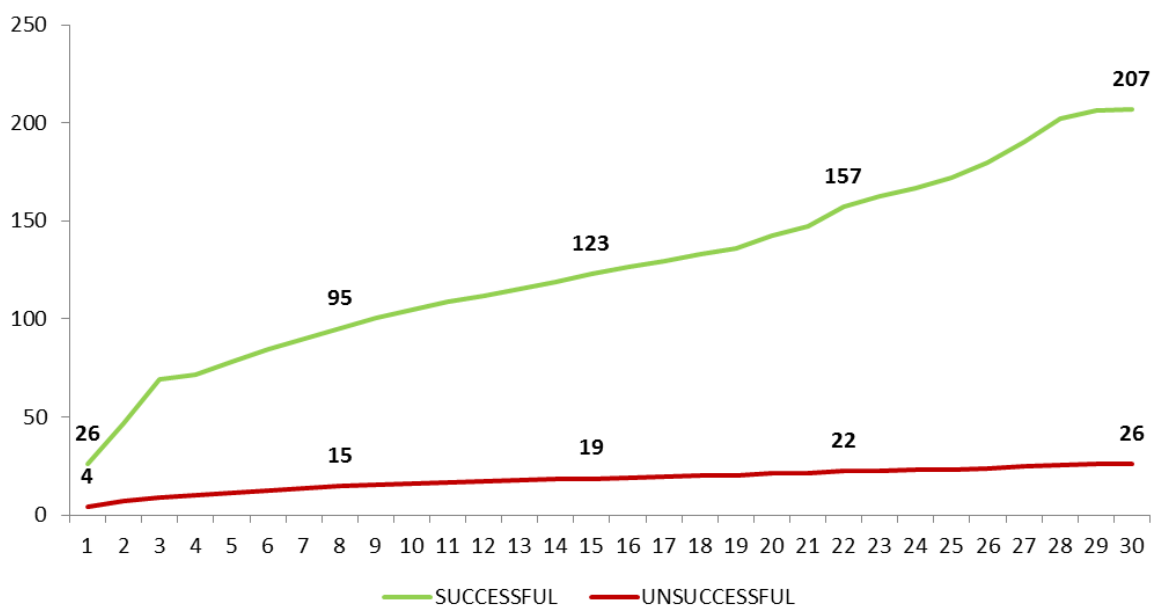

Figure 7 – Cumulative average number of backers per project per day (only 30-days complete projects)

Considering the last presented results and that successful projects attract more generous backers, it is expected to see similar patterns in the money gathering

performance graphic. It's plain to see from Figure 8 that successful projects not only have a better start, but also have a better development over the funding phase (6% of the goal per day *versus* 0.3%), ultimately achieving on average 1.8 the goal value and securing the success of the project within the first 13 days. It is true that for the 30-days complete projects subgroup the average goal for successful projects is 9.7 thousand dollars, whereas for unsuccessful projects it is 33.9 thousand dollars (3.5 times higher), but still, successful projects raise on average 4.8 times more money than unsuccessful ones (18.1 thousand dollars *versus* 3.7 thousand dollars).
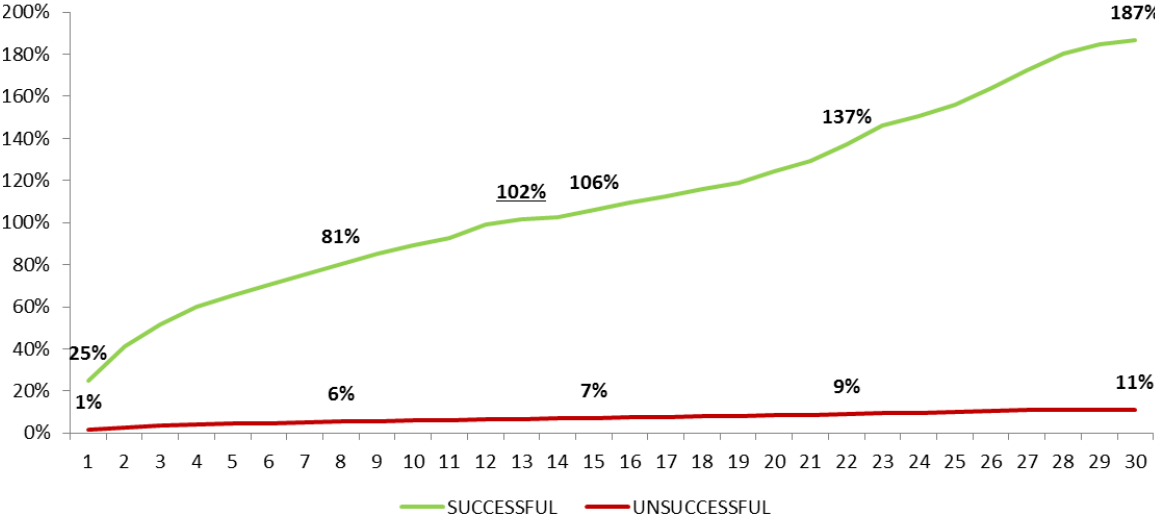
Figure 8 – Cumulative average percentage of the goal met per project per day (only 30-days complete projects)

Successful projects show a cycle similar to the one described by Ordanini et al. (2009): the first fast-growing friends and family phase on the first 4 days, the slower "getting the crowd" (Ordanini et al., 2009, p. 25) until the 23rd day, the "engagement moment" (Ordanini et al., 2009, p. 26) and finally the "race to be in" phenomenon (Ordanini et al., 2009, p. 26) over the last week. However, the pattern for the unsuccessful projects is rather monotonous: when a project starts poorly it will not pick up and will not go through any of the before mentioned phases. It would seem that the "engagement moment", as described by Ordanini et al. (2009, p. 26) as the differentiating point between success and failure, exists in the very beginning of the project. Or in other words, if a project does not start well it is fated to fail.

This data will also allow us to select the projects for the qualitative analysis. If, on average, successful and unsuccessful projects have distinct trends, then projects that despite following one specific trend end up in the other group are worthy being further studied. For the unexpectedly successful ones it was selected the following projects: ""Faith, Struggle, Victory" Porphyra's New Epic Metal Album" (worst first week), "Hunter Gatherers" (second worst last week; "Nanofarms" was in fact the project with the worst last week performance, but it was also the project with the worst average performance and was studied in that category) and "Nanofarms" (worst average performance).

A similar exercise was made for the unexpectedly unsuccessful projects: "Agnes The Bus: A Creative Journey" (best first week), "Brand Loving Tincture Magazine & Food Blog" (best last week) and "Drivemotion Animator" (best average performance).

These projects will be further studied later on in section 6 "Qualitative analysis of abnormal cases".

5.3.   Funding cycles and campaign success

For this part of the investigation we will run data from the projects with sufficient information, a subgroup with 2468 observations. The results of the first regression, Equation (3.1), are available on Table 1.

All the coefficients are significant for $\alpha=5\%$ and the p-value from the Likelihood Ratio (LR) test lead us to conclude that at least one of the regression coefficients in the model is not equal to zero. Since the McFadden pseudo R-squared behaves differently than the regular R-squared, the value 0.53, higher than 0.4 is, in this case, an excellent fit (Hensher and Stopher, 1979). Also, the estimator correctly predicts 80.81% of the sample, which is considerably good. The cross-effects of the three variables on the probability of success are available on Table 4.

On its own, a project has a base probability of success of 13.3%. By reaching 25% of its goal during the first quarter of the funding period that probability increases to 53.3%. If by half of the period it has also reached 50% of the goal, the probability increases to 88.4%. And if by the third quarter it has at least 75% of the goal, then the probability of success is 99.99%.

Table 1 – Explanatory factors of project success: *probit* analysis				
	Equation (3.1)	Equation (5.1)	Equation (5.2)	Equation (5.3)
(Constant)	-1.11***	-1.29***	-0.46***	0.06
	(0.04)	(0.27)	(0.03)	(0.10)
Q1	1.19***	1.21***	-	-
	(0.10)	(0.10)	-	-
Q2	1.11***	1.11***	-	-
	(0.17)	(0.17)	-	-
Q3	2.90***	2.88***	-	-
	(0.46)	(0.43)	-	-
GOAL	-	$-3.36 \cdot 10^{-6}$***	-	$-8.85 \cdot 10^{-6}$***
	-	$(1.13 \cdot 10^{-6})$	-	$(9.73 \cdot 10^{-7})$
DAYS	-	0.04*	-	0.02***
	-	(0.02)	-	(0.002)
PART1	-	-	0.002***	0.002***
	-	-	(0.001)	(0.001)
PART2	-	-	-0.001	-0.001
	-	-	(0.001)	(0.001)
PART3	-	-	0.002**	0.003***
	-	-	(0.001)	(0.001)
Obs	2468	2468	2468	2468
Mc Fadden's Pseudo R-squared	0.53	0.54	0.03	0.08
Prob (LR statistic)	0.00	0.00	0.00	0.00
Prediction accuracy	80.81%	81.10%	53.90%	56.44%

Standard errors are in brackets.
Significance at the 10% level is represented by *, at the 5% level by ** and at the 1% level by **.
Sample: projects with sufficient information.

If we compare the three intermediate goals, Q2 is the one that improves the probability of success the least, whereas reaching only Q3 grants a 96.3% probability of success. This big impact of Q3 reveal shows that better performances towards the end almost assure the success of the project, so however a good early performance may imply good results, if an entrepreneur notices a slow start of the project he should find the means to attract more backers, because the project is not yet lost.

As interesting as these results may be, there are still two points to consider: first, there is the problem of endogeneity on the right-hand-side variables (what if there is an underlining not included variable that explains both SUCCESSi and the explicative variables, being that the reason for such a good estimator?); second, why not to improve the model while trying to confirm some of the conclusions reached previously? To

address these points, we will have different approaches: for the first one we will replace $Q1_i$, $Q2_i$ and $Q3_i$ with $PART1_i$, $PART2_i$ and $PART3_i$, so we believe that we can still read the importance of the cycles without compromising the independence of the variables; for the second one, we will add $GOAL_i$ to study the impact of the goal amount, and $DAYS_i$ and to see how the number of days of the funding period may interfere with the probability of success. The new equations are presented below, and the results are available on Table 1.

$$SUCCESS_i = \beta_1 + \beta_2 Q1_i + \beta_3 Q2_i + \beta_4 Q3_i + \beta_5 GOAL_i + \beta_6 DAYS_i + \varepsilon_i$$

(5.1)

$$SUCCESS_i = \beta_1 + \beta_2 PART1_i + \beta_3 PART2_i + \beta_4 PART3_i + \varepsilon_i$$

(5.2)

$$SUCCESS_i = \beta_1 + \beta_2 PART1_i + \beta_3 PART2_i + \beta_4 PART3_i + \beta_5 GOAL_i + \beta_6 DAYS_i + \varepsilon_i$$

(5.3)

Starting with Equation (5.1), we can see that by adding the new variables the model improves slightly. The three initial variables remain almost unchanged, the coefficient associated to $GOAL_i$ is statistically significant for any α, but the one associated to $DAYS_i$ is only for α=10%. The apparently small values will be multiplied by the variable and then will go through the cumulative distribution function so that fact in itself is not a problem. The negative coefficient for $GOAL_i$ implies that the higher the higher the goal, the lower probability of success, *ceteris paribus*, and the positive one in $DAYS_i$ means that more days increase, *ceteris paribus*, said probability. These conclusions confirm the observations made previously.

Equation (5.2) is much less enlightening than Equation (3.1). In fact, this new estimator only correctly predicts 53.9% of the sample, albeit the p-value of the LR statistic being 0.00. The coefficients for $PART1_i$ and $PART3_i$ are similar and positive, meaning that it is equally important to attract high average donations in the first and third quarters of the funding period. It is curious, however, that the coefficient of

PART2$_i$ indicates an opposite relation between average donation per backer during the second quarter of the funding period and the probability of success. Nevertheless, this variable is not statistically significant.

In an effort to improve Equation (5.2), Equation (5.3) includes 2 new variables (GOAL$_i$ and DAYS$_i$), and in fact there is an improved pseudo R-squared and a higher percentage of accurately predicted sample, but these differences are minimal and the model does not surpass Equation (3.1) or (5.1). The three initial variables still behave in a similar way as described in the previous model, and both GOAL$_i$ and DAYS$_i$ behave similarly as in Equation (5.1).

The three new models solved some problems but created others, and overall brought little less information to discuss if we consider that some conclusions had already been taken in consideration previously. But there is yet one different approach to the endogeneity problem, one that also has the potential to give us more insights on the success factors problematic, that so far has not been explored: the role of project categories. What if the cycles differ not only for successful and unsuccessful projects but also for different categories? And do they affect the probability of success as well? These questions shall be answered in the next part.

5.4.   The importance of project categories

There are already some insights on the influence of categories on the distribution of projects, namely that the percentage of projects varies from 0.4% in Projects to 20.3% Film & Video, but also that the success rate also varies from category to category (Theatre, Publishing and Music & Festivals are the most successful categories) (see Figure 3). Now we want to understand why this happens.

On average, there is not a significant difference in funding periods duration amongst categories (Figure 9). Figure 10, however, shows some differences in terms of goal amount: Technology and Film & Video are the most daring categories, while Comics and Publishing appear as the most humble. This difference is easily understandable when one thinks about the resources needed for projects in these areas. The interesting fact is that, with some exceptions (Fashion is the most noticeable), categories with higher goals present the lowest success rates, a result previously reported.
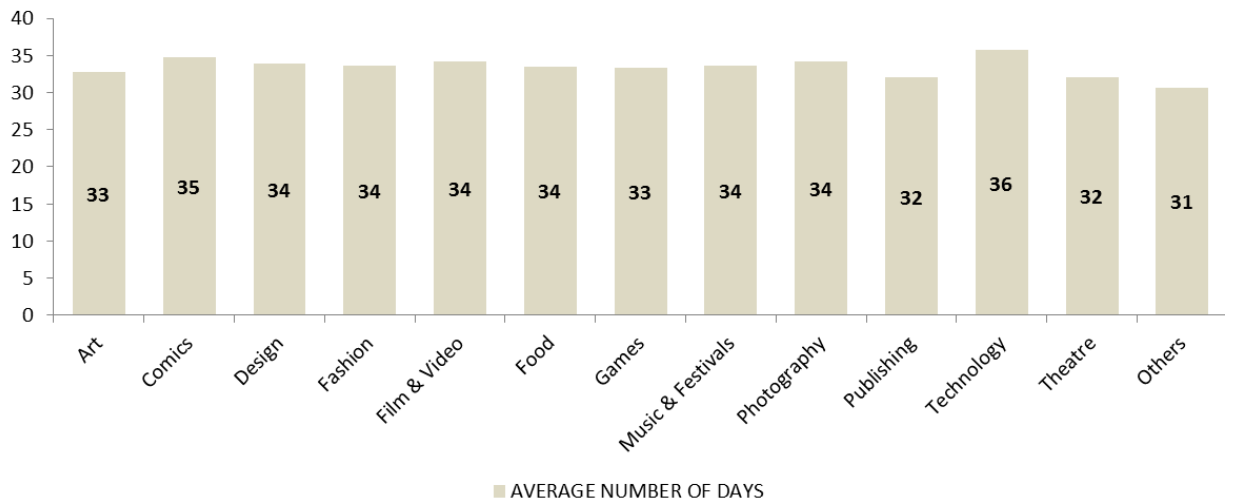
Figure 9 – Average funding period duration per project per category
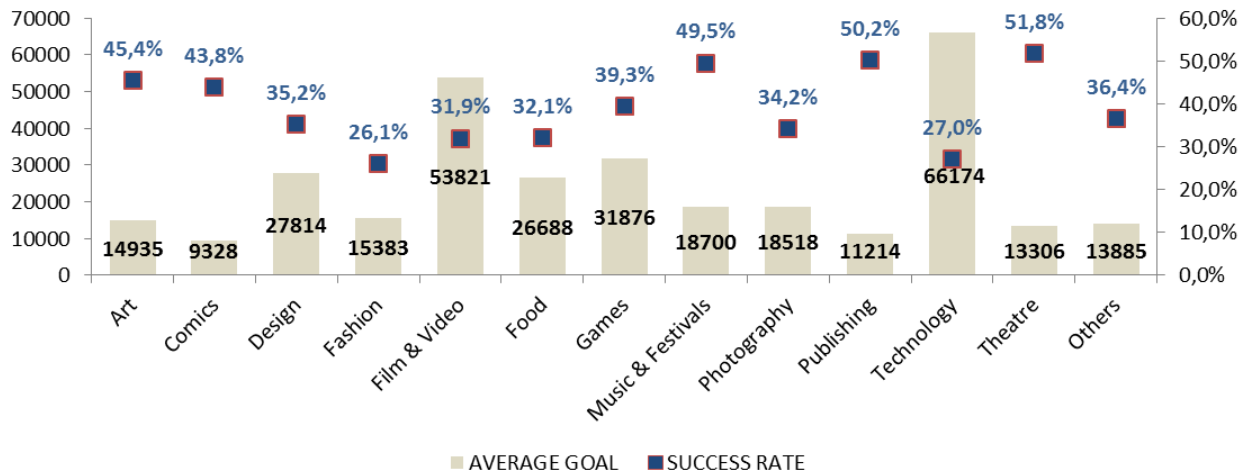
Figure 10 – Average goal per project and success rate per category (goal in US dollars)

On Figure 11 we can analyse the popularity of each category and compare it with success rates as well. Games, non-surprisingly, attract the highest number of backers per project, followed by Design and Technology, but it seems that popularity does not guarantee success if you do not attract the right backers. Figure 12 shows that Games' backers are the least giving while Design's, Technology's and Theatre's are the most generous.
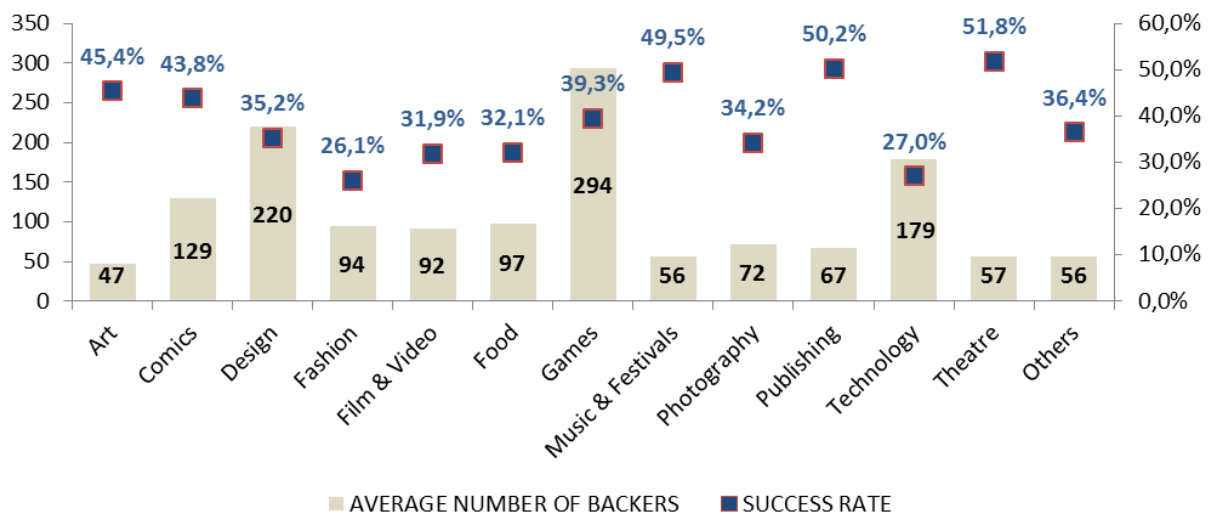
Figure 11 – Average number of backers per project and success rate per category
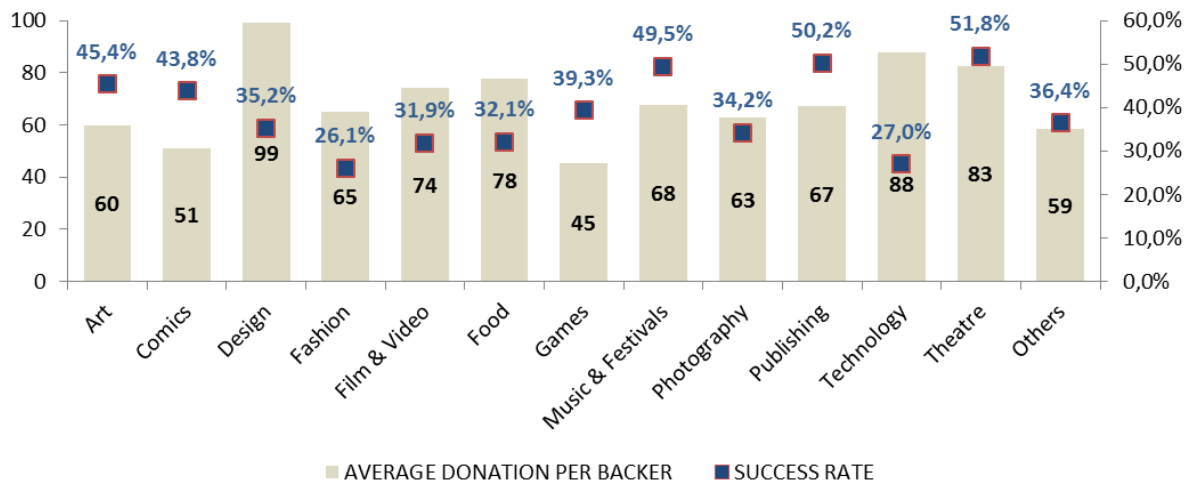
Figure 12 – Average donation per backer and success rate per category (donations in US dollars)

Finally, it is worth looking at Figure 13 to understand how investors behave accordingly to categories: how can it be explained that there are categories with low average raised amounts and high success rates, such as Theatre, Music & Festivals or Publishing, and categories with high average raised amounts and low success rates, such as Design, Games or Technology? The answer is simple: it depends whether the money is more or less dispersed amongst projects. And that dispersion is a direct result of the investors' behaviours: Theatre, Music & Festivals and Publishing projects attract emotion-driven investors; Design, Games and Technology attract reward-driven investors.
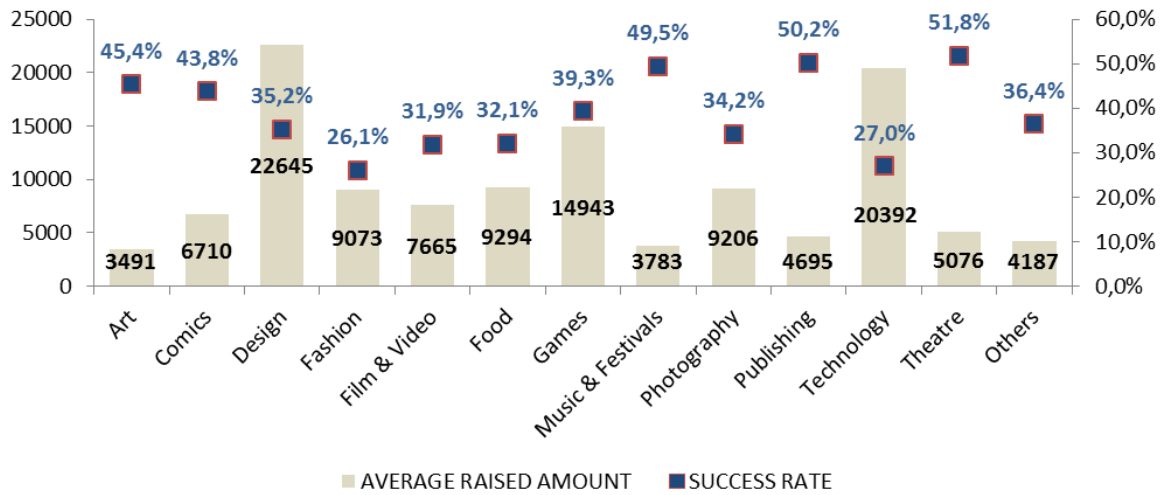
Figure 13 – Average raised amount per project and success rate per category (raised amount in US dollars)

To back this theory up, one should compare the average performance of successful and unsuccessful projects, grouped by emotion-driven and reward-driven categories. First, the "Drive Index" (DI) for the category i will be calculated as follows:

$$DI_i = \frac{AVERAGE\ RAISED\ AMOUNT_i}{SUCCESS\ RATE_i}$$

(5.4)

Higher (lower) index values indicate reward-driven (emotion-driven) categories, and as such, the twelve categories (Others is excluded from this particular analysis for comprising a small number of mixed projects) will be divided into two groups: the ones with the six higher values will belong in the reward-driven group, and the other six in the emotion-driven group. Table 2 shows this distribution: Technology and Design clearly lead the group of reward-driven categories, followed by Games and Fashion with lower values. Food, Photography and Film & Video present close values in the middle of the table, followed by Comics. Finally, Theatre, Publishing, Art and Music & Festivals are the most emotion-driven projects.

Table 2 – Categories and Drive Index		
	Category	Drive Index
Reward-driven	Technology	75595
	Design	64324
	Games	37978
	Fashion	34780
	Food	28957
	Photography	26930
Emotion-driven	Film & Video	24004
	Comics	15319
	Theatre	9802
	Publishing	9349
	Art	7697
	Music & Festivals	7638

With the categories divided, Figures 14 and 15 show how successful and unsuccessful projects behave in each of these two groups. Successful projects on reward-driven categories not only have a better start than their counterparts on emotion-driven categories, but they also have a higher growing rhythm. Backers continue to put money on them even though they have already met their goal during the first week, which shows that backers are no longing just helping the project; they want to participate in order to acquire the reward, either because it is a limited edition item, or because its cost will surely increase after the project is deployed; during the last days, the funding rhythm actually increases. On the other hand, emotion-driven projects take much longer to reach the goal, but they still have people believing in their success. Those who invest in them, at least during the first three weeks, are genuinely trying to make them work despite the relatively higher probability of the project not being successful; and during the last days the funding rhythm decays slightly.

Figure 14 – Cumulative average percentage of the goal met per project per day (group average; only 30-days complete and successful projects)

On Figure 15 the opposite happens with unsuccessful projects. Although their values are much more similar, emotion-driven unsuccessful projects start a bit worse than reward-driven ones, only to increase their funding rhythm especially during the last ten days, eventually ending with a higher percentage on average of the goal raised. This could imply an effort by the backers to try to "save" emotion-driven projects, contrasting with a seemingly apathy towards the reward-driven ones. From a reward-driven backer's point of view, one does better to invest on a project which is sure to be successful and get the special reward for it, than to try to save a project and miss on the opportunity of getting a bargain. The emotion-driven backer will support a project if he likes it, despite its probability of success.
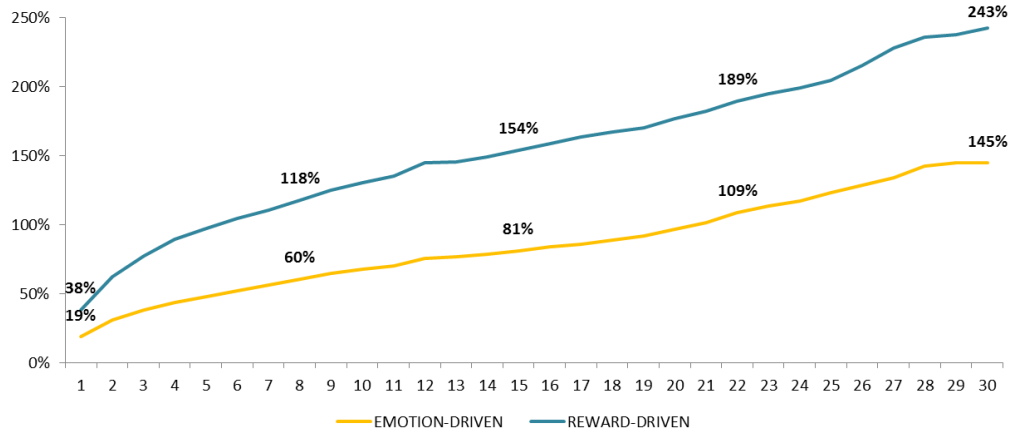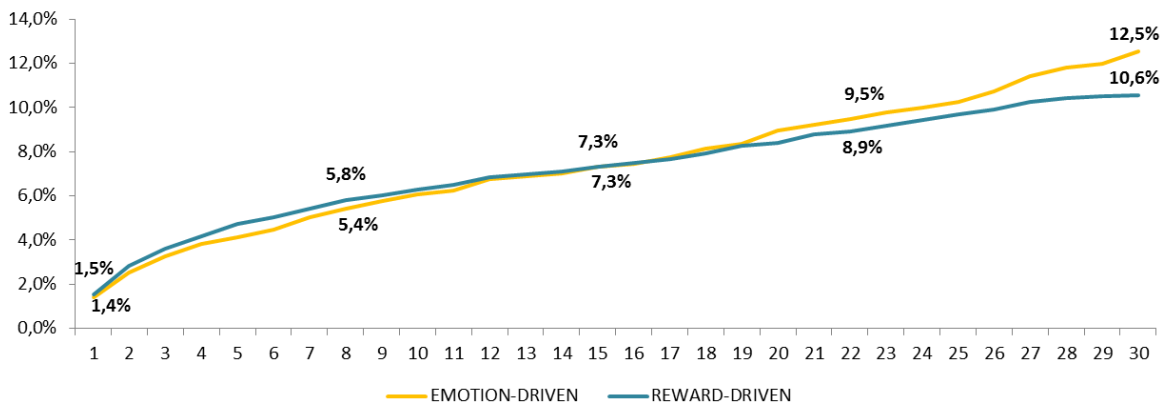

Figure 15 – Cumulative average percentage of the goal met per project per day (group average; only 30-days complete and unsuccessful projects)

Finally, a last estimator was studied to determine the impact of the categories on the probability of success:

$$SUCCESS_i = \beta_1 + \beta_2 Q1_i + \beta_3 ART_i + \beta_4 COMIC_i + \beta_5 DESIGN_i$$
$$+ \beta_6 FASHION_i + \beta_7 FILM_i + \beta_8 FOOD_i + \beta_9 GAME_i$$
$$+ \beta_{10} MUSIC_i + \beta_{11} PHOTO_i + \beta_{12} PUBL_i + \beta_{13} TECH_i$$
$$+ \beta_{14} THEATRE_i + \varepsilon_i$$

$$(5.5)$$

The results are available on Table 3 and their interpretation on Table 5. This new estimation is quite robust, presenting a good pseudo R-squared and high prediction accuracy. Unfortunately, some variables are not statistically significant (ART_i, $COMIC_i$, $FOOD_i$, $MUSIC_i$, $PUBL_i$ and $THEATRE_i$), but the effects that the coefficients suggest keep pointing in the same direction as our previous conclusions: when underperforming during the first quarter of the funding period, emotion-driven projects present a higher chance of success than underperforming reward-driven projects. Additionally, the positive effect of a successful first quarter ($Q1_i = 1$) is on average 3pp higher on reward-driven projects, which hints again at a greater need for them to start well in order to be successful.

	Table 3 – Category as an explanatory factor of project success: *probit* analysis
	Equation (5.5)
(Constant)	-0.71***
	(0.14)
Q1	2.32***
	(0.07)
ART	-0.070
	(0.18)
COMIC	-0.35
	(0.22)
DESIGN	-0.78***
	(0.19)
FASHION	-0.60***
	(0.23)
FILM	-0.35**
	(0.16)
FOOD	-0.27
	(0.19)
GAME	-0.65***
	(0.18)
MUSIC	-0.09
	(0.16)
PHOTO	-0.51*
	(0.27)
PUBL	-0.01
	(0.19)
TECH	-0.79***
	(0.19)
THEATRE	0.25
	(0.20)
Obs	2468
Mc Fadden's Pseudo R-squared	0.42
Prob (LR statistic)	0.00
Prediction accuracy	76.47%

Standard errors are in brackets.
Significance at the 10% level is represented by *, at the 5% level by ** and at the 1% level by **.
Sample: projects with sufficient information.

6. Qualitative analysis of abnormal cases

After establishing a funding pattern for successful and unsuccessful projects, it is possible to identify and study those that do not follow them. The identification was done in section 5.2. and said projects are represented on Figures 16 and 17. On this chapter, first there will be a brief description of each project and then it will be presented the information retrieved from the interviews.

6.1. Abnormal cases description

We shall begin with the unexpectedly successful projects. ""Faith, Struggle, Victory" Porphyra's New Epic Metal Album"[14] is a Music & Festivals project from Queens, NY and had the worst start of the successful complete projects; it was not until the 27th day that the project really picked up. The goal of ten thousand dollars was eventually surpassed on 75 dollars, thanks to the help of 45 backers.

"Hunter Gatherers"[15], a short film (Film & Video) from New York, NY about bullying, presents the worst last week performance of successful projects. Only 22 backers invested in this project; furthermore, only three new backers joined during the last week, and one of them contributed, on the last day, with almost 70% of the goal. Out of the 7.5 thousand dollars goal, the project surpassed it on 15 dollars.

"Nanofarms"[16] is a Crafts project, but also the name of the non-profit group behind it. The group promotes urban farming, providing training, educational material, and supplies to help those in urban areas farm. This funding in particular was to lease a plot and buy seeds to begin a community garden in Charleston, WV. The goal of 789 dollars was met and surpassed on 29 dollars by only eight backers, and one backer only provided 86% of the goal on the last day.

The next three projects are the unexpectedly unsuccessful ones. "Agnes The Bus: A Creative Journey"[17] is a documentary (Film & Video) about three college freshmen from Los Angeles, CA who repair an old school bus and travel the California Coast. 41 backers donated 3,755 dollars, but it was not enough to reach the six thousand dollars goal, so despite the good early performance, the project was unsuccessful.

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[14] www.kickstarter.com/projects/1652624391/faith-struggle-victory-porphyras-new-epic-metal-al
[15] www.kickstarter.com/projects/1062661229/hunter-gatherers
[16] www.kickstarter.com/projects/1274604265/nanofarms
[17] www.kickstarter.com/projects/1659517583/agnes-the-bus-a-creative-journey

"Brand Loving Tincture Magazine & Food Blog"[18] is a Publishing project from London, UK with two objectives: a magazine to shine a spotlight on and help small businesses and start-ups, and a food blog with photography a recipes. The company Tincture, Ltd set the goal on 13,272 dollars, but 108 backers only provided 10,244 dollars. This projected presented the best last week average performance.

The project with the best average performance was "Drivemotion Animator"[19]. From Portland, OR and falling under the "Technology" category, this project is a fully programmable driver-to-driver communication device. Out of the five thousand dollar goal, only 3,379 dollars were raised by 96 backers. However, this project did not exactly fail to reach its goal; it was actually suspended by the entity in charge of it.

6.2.   What happened differently?

In order to understand what happened to these projects, a semi-structured interview was conducted with each of the entrepreneurs responsible for them. The interviews were all made via the Kickstarter platform chat.

Starting with the "Faith, Struggle, Victory" album, the band was not expecting the early poor results as they have a large fan base, and at the end of the second week they decided to take action. In their opinion, the problem was that their fans were not receiving the message, so they managed to book a concert on the 26th day to promote the crowdfunding project. Although they feared that it might had been too late, the effort paid off: their fans immediately started to become backers and the project surpassed its goal.

The two other unexpectedly successful projects presented a similar reason for not following the pattern. Both projects were not receiving enough help, something that their entrepreneurs had feared that would happen. In fact, both entrepreneurs had a similar mind-set: they needed a certain amount of money for the project, which they could and were willing to get somewhere else; however, any money that they could collect from the crowd is helpful. The only problem is that Kickstarter applies an all-or-nothing policy towards the donations, preventing unsuccessful projects from keeping any money from their backers. Such a problem is not impossible to overcome: if one is

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[18] www.kickstarter.com/projects/tinctureltd/brand-loving-tincture-magazine-and-food-blog
[19] www.kickstarter.com/projects/411400053/drivemotion-animator

able and willing to fill the gap and reach the 100%, and if the amount invested by the backers is higher than the 5% fee applied by the platform, then it is advantageous for the entrepreneur to invest the money himself. This was the case in these two projects.

One can claim that actions as the previous are a distortion of the crowdfunding philosophy because entrepreneurs are just taking advantage of backers to fund a project that the entrepreneur's alone could afford. However, backers still get their rewards, platforms get their payment, and in some cases the project may even end up being fully funded by backers' money, so we consider this behaviour not to be wrong or dangerous.

Moving to the unsuccessful projects, "Agnes The Bus: A Creative Journey" faced the problem of not convincing the general crowd of its potential. The entrepreneurs report that all the help came from family and friends, but that despite their best attempts to promote the project no one strange to them backed their project. If we consider the purpose of this project, it is easy to understand the reaction of the crowd: it is a personal project with little outcome. In fact, the rewards include a Thank You phone call and photos of the travellers from the journey, which may not be worth the money invested.

"Brand Loving Tincture Magazine & Food Blog" is a reported case of bad campaign advertising management. The project was strongly advertised days before the deploy, but due to the early success of the campaign, the company reduced the efforts towards promoting it believing that word of mouth would keep the crowd interested in the project. Unfortunately, that did not happen, and it was too late when they decided to restart the advertising campaign.

Finally, "Drivemotion Animator" did not reach its goal because the company behind it (Drivemotion Co.) does not want to, at least yet. The project was doing well until the 10th day, when it was voluntarily suspended. Suspension means that the project can still benefit from the 20 days it has left in the future, keeping the money it has already gathered. Drivemotion Co. claims that the article is already being produced, and the crowdfunding project had as a primary goal to test the market acceptance of the product and to try to set a reservation price. As such, they are waiting for the official release of the product to resume the campaign, which will then work as way to promote the article amongst social networks.

Although these six examples cannot be generalised to the whole universe of crowdfunding, we can retain some information from them that both sustains some

already existing literature (the importance of good advertising, the importance of the target and the use of crowdfunding as a marketing tool) and adds new insights to what is already known (using crowdfunding to partially fund a project without really needing it). Funding cycles and trends exist, but are still vulnerable to erratic behaviours such as these. The existence of exceptions to the rules is what makes the world unpredictable, but the more we know and the better with understand these exceptions, the better prepared we are to face the uncertain and the most we can make of crowdfunding.

7. Conclusions

Nowadays crowdfunding is to many entrepreneurs a viable alternative to fund their projects. However, certain limitations prevent some projects from being successful in gathering the money needed. As a way to help entrepreneurs and investors alike, we proposed to study one of the factors that may interfere with the probability of success of a project: the funding cycle. The scarce literature on this particular subject and the fact that it does not rely neither on a dynamic analysis nor on a large sample act as the main reasons for why approaching funding cycles should be a major concern in research on crowdfunding.

Two opposing visions already exist concerning funding cycles: Ordanini et al. (2009) describes a three-stage cycle with the main premise that only upon achieving a certain threshold a project will capture increasingly more backers and funds, entering in an upward spiral driven by the backers' desire to participate on the project's success; Burtch et al. (2012), on the other hand, claims that there is a crowding-out effect, from which one can assume that the main drive for the investors is their altruism: backers tend to help projects with worse early performances rather than those closer to success.

After analysing the sample, it was established that there is indeed a difference in the funding patterns between successful and unsuccessful projects: while successful ones show a pattern similar to the one described by Ordanini et al. (2009), unsuccessful projects start poorly and never truly recover enough to catch the attention of new investors. Lower goals and higher number of backers tend to lead to success, and on average successful projects attract more generous backers as well. These factors combined promote a high overachievement by successful projects, which contrasted to the bad performance on unsuccessful projects reveals that there is no crowding-out effect as suggested by Burtch et al. (2012).

Additionally, an econometric *probit* analysis revealed that a good early performance indeed drastically and positively affects the probability of success. The conclusions are similar for lower goals and longer funding periods, although with a more subtle impact.

The study proceeded to evaluate if the category of a project could interfere with the probability of success. The discrepancy in success rates amongst the several categories lead us to believe that this was in fact true, but those discrepancies were not explained

neither by popularity nor by the average raised amount per project. It was hypothesised that in some categories backers would be driven by their emotions and personal feelings towards the projects, leading them to disperse their resources (similarly to the crowding-out effect on Butch et al., 2012), while in others backers would invest in a project in order to get the chance to participate and get a set reward. An index was created to divide the categories into two groups (emotion-driven and reward-driven), and both their funding patterns and the econometric analysis presented proof to this theory. As such, Technology, Design and Games are the most reward-driven categories, which backers are in for the return on their investment, and Publishing, Art and Music & Festivals are the most emotion-driven ones, where backers tend to show a more altruistic behaviour trying to "save" more projects.

Finally, and because some projects, both successful and unsuccessful, did not follow the funding pattern, we tried to understand why this happened. To do so, the three projects of each group that behaved most unexpectedly were selected and their entrepreneurs were interviewed. The information provided showed that good advertising and knowing how to get to the right backers can be decisive so far as to change the expected outcome of the project (confirming previous literature on the subject). It was also proven that crowdfunding is actively used as a marketing tool in order to evaluate the crowd's reaction to a new product, and a phenomenon where entrepreneurs force the success of the project in order to capture some of the amount donated was also registered.

It is now possible, therefore, to achieve a better understanding of which factors may influence the success of a crowdfunded project, how they influence them, and most importantly why this happens. More than just a mere academic exercise, knowing what drives the backers and how entrepreneurs use crowdfunding allows the intervenient parts to better allocate their resources or manage their projects. Even platforms can use this information to improve their image, maximise their profits and manage fraud detection.

However exciting these conclusions may be, this analysis presents some limitations which promote other questions to arise. First and foremost, the unavailability of the data and the laborious method used to collect it led us to study only one platform, from one specific crowdfunding model, with a specific set of rules, mainly from one country

(USA), and during a short period of time. But what may happen in platforms with different rules, or platforms that operate in other countries? And could there be any seasonal effect on backers' decisions or in the number of projects initiated throughout the year? Furthermore, since backers present different behaviours in different project categories, what can we say about funding patterns in different crowdfunding models? Similar analysis on equity-based and loaning-based crowdfunding could be of great interest to areas such as finance and capital markets. Unfortunately, it is even harder to obtain information on other crowdfunding models (fewer projects and platforms, and not so standardised), but with enough resources one could adapt the scrapping software to other platforms and collect data from a longer period of time, improving our conclusions.

Secondly, we deduced the backers' behaviour simply by analysing projects. Actually getting in contact with people who invest in these projects would enable us to confirm or contradict these results, or even present different reasons for said behaviour. The same way it was possible to trace the entrepreneur of a specific project, a similar analysis could be done with backers (obviously on a larger scale) where specific inquiries could be made for each project under observation.

Moreover, although studying the six cases in more detail did provide relevant information, it was a static and *ex-post* analysis (after they had already met the deadline). It would be of great interest to pursue a closer dynamic analysis on a set number of projects from day one in order to understand and assess a larger set of actions taken by the entrepreneurs. This would take a bigger cooperation from the entrepreneurs, but we believe that such effort would lead to new conclusions and perhaps even to the outline of an optimal project management *modus operandi*. Perhaps future studies will be able to provide the answers needed.

Finally, even though our results are highly convincing, we acknowledge and emphasise that there is no exact formula to assure the success of a project. In fact, we ourselves give examples of projects that break the pattern, and even when we present possible reasons for those deviations, there is no absolute way of proving that overcoming those reasons would surely lead to a different (and expected) outcome.

But until new literature appears on this subject, hundreds (or even thousands) of new projects will be born and introduced to the crowd, and for those, this work may

present itself as a useful and unique guide to better understand the dynamics of the crowdfunding phenomenon and to make the most out of this funding method.

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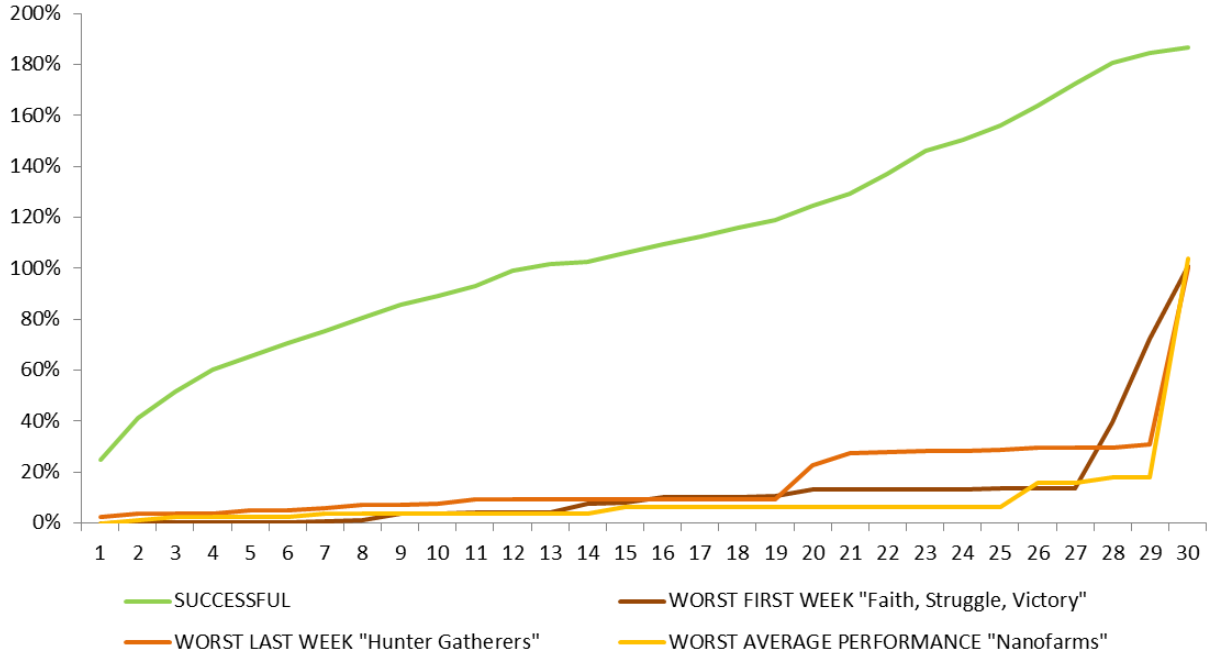
9. Appendix

Appendix 1 – Figures

Figure 16 – Selected unexpectedly successful projects

Figure 17 – Selected unexpectedly unsuccessful projects

Appendix 2 – Tables

<table>
<tr><th colspan="7">Table 4 – Cross-effects of Q1, Q2 and Q3 on the probability of success</th></tr>
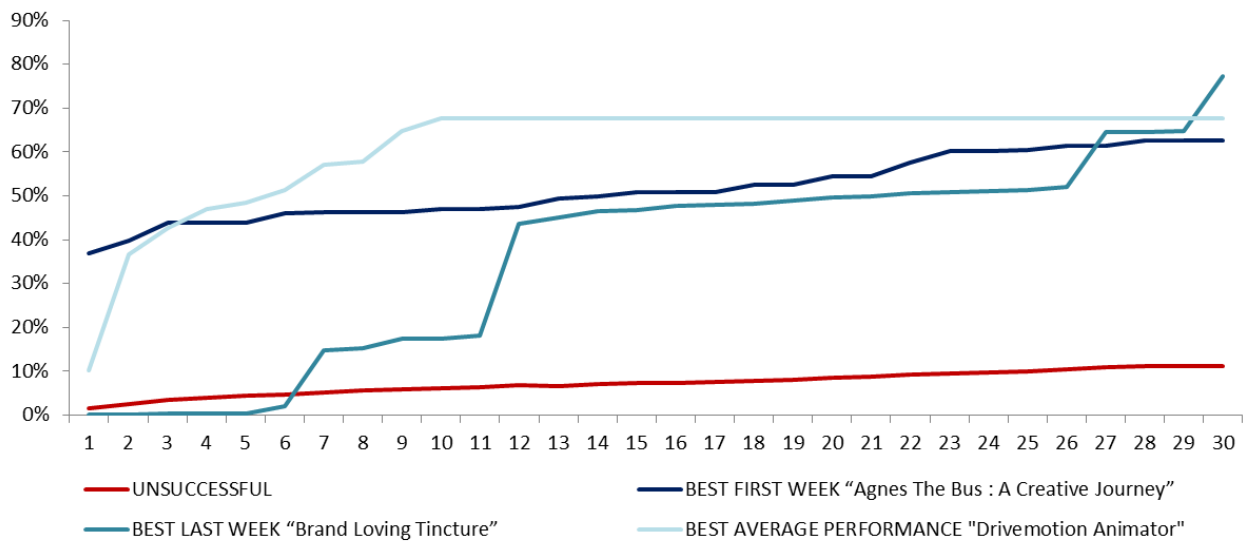<tr><td colspan="3" align="center">Q1 = 1</td><td></td><td colspan="3" align="center">Q1 = 0</td></tr>
<tr><td></td><td>Q2 = 1</td><td>Q2 = 0</td><td></td><td></td><td>Q2 = 1</td><td>Q2 = 0</td></tr>
<tr><td>Q3 = 1</td><td>99.99%</td><td>99.92%</td><td></td><td>Q3 = 1</td><td>99.8%</td><td>96.3%</td></tr>
<tr><td>Q3 = 0</td><td>88.4%</td><td>53.3%</td><td></td><td>Q3 = 0</td><td>50.1%</td><td>13.3%</td></tr>
</table>

<table>
<tr><th colspan="4">Table 5 – Effects of categories on the probability of success</th></tr>
<tr><td></td><td></td><td>Q1 = 0</td><td>Q1 = 1</td></tr>
<tr><td rowspan="6">Reward-driven</td><td>TECH</td><td>6.70%</td><td>79.47%</td></tr>
<tr><td>DESIGN</td><td>6.83%</td><td>79.78%</td></tr>
<tr><td>GAMES</td><td>8.68%</td><td>83.19%</td></tr>
<tr><td>FASHION</td><td>9.61%</td><td>84.56%</td></tr>
<tr><td>FOOD</td><td>16.55%</td><td>91.15%</td></tr>
<tr><td>PHOTO</td><td>11.16%</td><td>86.53%</td></tr>
<tr><td rowspan="6">Emotion-driven</td><td>FILM</td><td>14.52%</td><td>89.70%</td></tr>
<tr><td>COMIC</td><td>14.57%</td><td>89.75%</td></tr>
<tr><td>THEATRE</td><td>32.48%</td><td>96.91%</td></tr>
<tr><td>PUBL</td><td>23.82%</td><td>94.63%</td></tr>
<tr><td>ART</td><td>21.96%</td><td>93.93%</td></tr>
<tr><td>MUSIC</td><td>21.43%</td><td>93.70%</td></tr>
<tr><td></td><td>OTHERS</td><td>24.00%</td><td>94.60%</td></tr>
</table>

Appendix 3 – Interviews

Initial approach

Mr. /Mrs. [name of the entrepreneur],

I'm a Portuguese student writing my thesis on crowdfunding, and I'd like to ask you a few questions regarding your project [name of the project]. Would you be willing to help me?

Standard questions for the unexpectedly successful projects

Your project stood out of the sample by presenting an unusually poor performance despite reaching success.

- Were you expecting the poor early results of your project? Why? (e.g.: was the early advertising not enough?)

- As time went on did you make any particular effort to attract more backers (trying to reverse the situation) or did you take no action?

- In your opinion what promoted the success of your project?

Standard questions for the unexpectedly unsuccessful projects

Your project stood out of the sample by presenting an unusually good performance despite not reaching success.

- Were you expecting the early success of your project? Why? (e.g.: was it a result of any promoting campaign/ was there a particular group of backers interested in this project that helped in the beginning?)

- As time went on, did you stop advertising the project (because it was going well in the beginning), did you make any particular effort to attract more backers (fearing that the initial burst would fade) or did you take no action?

- In your opinion what prevented the project from reaching its goal?

Farewell note

Thank you for your time and cooperation and good luck for your future endeavors.