LUND UNIVERSITY
School of Economics and Management

Exploratory Study on Technology related Successfully Funded Crowdfunding Projects' Post Online Market Presence

Master Thesis in Entrepreneurship – New Venture Creation (MSc)

Final Thesis: 2014.05.23.

Supervisor: Diamanto Politis

Murat Samanci

Gabor Kiss

Table of Content

Abstract

The influence of crowdfunding on financing entrepreneurial ventures and projects have been increasing in recent years. It allows founders of crowdfunding projects to achieve investments from a relatively big crowd using the internet. The recent rise of the crowdfunding phenomena attracts more project founders to establish it as a new entrepreneurial finance method, between bootstrapping and traditional way of finance. This emphasize the need for an exploratory study on the field of technology related crowdfunding projects. The research used quantitative approach, with bivariate analyses to discover the relationship between crowdfunding indicators and the product's post online market presence. The research examined 3169 technology related projects, from which 170 were successfully funded tangible products, which was the basis of this research. Using this methodology the research tested four hypotheses that were deducted from diffusion of technology (Miller & Garnsey, 2000), forms and dynamics of crowdfunding (Belleflamme et al., 2013, Mollick, 2014). Aiming by that to find the degree of significance between the higher numbers of needed and received funds, the total number of funders and the number of pre-sales with the product's post online market presence. The research concludes that more project gets funded within the technology category, and particularly for tangible products, which is generally a high-cost product development. Furthermore the research found significant relationship between the higher numbers of received funds, the total number of funders and the number of pre-sales with the product's post online market presence. To this end the research concludes by suggesting future research to investigate further the different actors separately within the crowdfunding phenomena.

Keywords: crowdfunding, crowdsourcing, web 2.0, entrepreneurship, entrepreneurial finance, pre-ordering, diffusion of technology, post online market presence, reward based crowdfunding

1. Introduction

Entrepreneurship is and will be influenced profoundly by crowdfunding – the gathering of resources via internet platforms in the form of lending, equity, donations or substitution for future products – regarding funding needs of a start-up (Drover & Zacharakis, 2013). A significant reason for that is the obstacle to innovation of early-stage funding (Cosh, et al. 2009). The complexity of attracting funds from venture capital, business angels and investors, leads many entrepreneurs to collect funds for investment from crowds in social networks (Schwienbacher & Larralde, 2012) as a result the relevance of crowdfunding on funding of start-ups is enhanced. The involvement of crowds as active investors, customers or both; introduces entrepreneurs to adaptation of new approaches to endeavoring entrepreneurial projects and managing ventures. This in turn, leads to distinct forms of business developments caused mainly by crowdfunding (Belleflamme et al., 2013).

The notion of crowdfunding is embedded in the ubiquitous concept of crowdsourcing, which is generally acknowledged to be first used by Howe (2006). Crowdsourcing is characterized by utilization of a crowd with the aim to receive feedback, ideas and solutions to emerge corporate activities (e.g. Bayus, 2013). As an element of crowdsourcing, it is possible to define crowdfunding in the context of various areas. However, regarding entrepreneurship which is highly relevant for this thesis, crowdfunding can be defined as *"...the efforts by entrepreneurial individuals and groups – cultural, social, and for-profit – to fund their ventures by drawing on relatively small contributions from a relatively large number of individuals using the internet, without standard financial intermediaries." Mollick (2014, p2).* Investments received from backers on crowdfunding platforms can be obtained by equity purchase, loan, and donation or pre-ordering of the product (e.g. Kuppuswamy & Bayus, 2013).

As start-ups move from an early stage phase into prototyping and towards commercialization, more formal sources of capital become available, initially drawn from business angels and then from venture capital and private equity investors. Throughout the process, particularly in technology-based ventures, the entrepreneurs may undertake consultancy or project work to provide initial cash flow for the business (Politis et al., 2012). This, as Hemer et al. (2011) point out, may also include the development of commercial and quasi-commercial arrangements leading

to donations of cash and assets from sponsors, as in collaborative R&D support. Despite the fact that start-ups are important for job creation and economic growth, it is acknowledged that they are lacking in attracting long-term finance (financial gap). This financial gap is mainly caused by the information asymmetry on the market between investors and entrepreneurs (Winborg & Landström, 2001; Tucker & Lean 2003). In this light, crowdfunding can help entrepreneurs to overcome this financial gap by tapping the crowd for funds.

Not only overcoming the finance gap, crowdfunding can also help a project or start-up that utilized crowdfunding platforms to establish a presence on online markets resulting in more visitors and increase sales. One possibility to measure the diffusion of products that achieved funding on crowdfunding platforms, is to measure the existence of a webshop or an offering on websites such as Amazon.com. With 85 million unique monthly visitors, selling your product on Amazon.com can help you to increase your sales volume and online market presence. On average of 50% increase can be noticed according to an Amazon executives when sellers join Amazon Marketplace (Bensinger, 2012). In this thesis we aim to evaluate tangible technology related projects' post online market presence, through analyzing samples in the category technology at Kickstarter – the largest and most dominant crowdfunding website - which was our main data source (Appendix 1), and their online presence after they achieved successfully funds from a campaign. We define successfully funded as projects that reached their funding goal during the time of the crowdfunding campaign.

Despite being in the tentative beginnings, an increased popularity of scholars studying crowdfunding as a general phenomenon is obvious. Contrary to this trend, we are aiming to look on the long term impacts of each tangible technology crowdfunding projects that is accordance with the selection criteria. It can be stated that little is known about the long term implication on the post online market presence of successfully funded crowdfunding projects. The increasing importance and the fact that crowdfunding becomes a successful alternative to traditional funding methods, emphasizes that it is important to understand how factors such as funds and backers of crowdfunding projects affects post online market presence.

This research paper will also contribute to a better understanding of the association between needed and received funds with the post online market presence of technology based crowdfunding projects. In addition, contribution towards the coherence between numbers of backers of a

technology based crowdfunding project and post online market presence will be achieved. Results of this thesis can indicate if crowdfunding helps to evaluate how the successfully achieved funding affects the post presence on online markets. Our research may conduce towards decision making in whether to participate on crowdfunding platform and the results that may occur on their post online market presence. The research examined 3169 technology related projects, from which 170 were successfully funded tangible products, as the basis of the research. This thesis used quantitative approach, with bivariate analyses to discover the relationship between crowdfunding indicators and the product's post online market presence.

This research paper is structured as follows the next chapter focuses on theoretical frameworks based on entrepreneurial finance, crowdfunding, and motivation and behaviour of backers. The theoretical framework has the aim to argument and justify the four hypothesis of this paper. This section is followed by the research methodology part, which aims to justify the chosen methodology and samples. In addition, a detailed data collection process will be given with the aim to give other researchers to recreate this papers research methodology for their own research. Next section explains the main findings that are empirically analyzed and discussed in section number 5. Section 6 completes the paper with the conclusion of main findings and implications for entrepreneurs.

2. Literature Review

2.1. Entrepreneurs and diffusion of technology

Drawing on Miller & Garnsey (2000), entrepreneurs introduce technological innovations to market resulting in growth stimulation of completely new industries around introduced innovations. However, at the beginning entrepreneurs will generally struggle to locate a commercial market for their technological innovation. Still, once they are successful, they set an example that other can choose to follow, due to the diminished difficulty of copying. In this light, early efforts of entrepreneurs in the marketplace, trigger a series of competitive pressures, leading to considerable diversification of resources in order to improve marketing, design and aggressive pricing, all of which have been discovered to favor rapid diffusion (Robertson & Gatignon, 1986). Furthermore, Audretsch and Mata, 1995 distinguished that traditional structural barriers - scale economies and product differentiation – do represent an obstacle of survival. They also identified that post-entry performance is shaped by an innovative environment which served as a spur to entry. Particularly, in highly innovative industries the survival of new entrants is generally lower, still, new entrants that survive the first years, have a greater possibility of surviving (Hung & Chu, 2006). As a result, the Hung & Chu (2006) concludes that highly innovative environments encourage growth and survival of new entrants who are able to adapt successfully according to the market, but still serves as an apparatus of eliminate new entrants who are unable to adapt.

To this end, Miller & Garnsey (2000), argue that in order to stimulate further diffusion of technological innovation and the growth of entrepreneurial ventures, it is crucial that the entrepreneur has the capacity to efficiently match opportunities and resources, mobilize and promote innovation. As a result, the innovation is carried out and incubated by the entrepreneurial venture and draw other followers to promote the development of the infrastructure for general diffusion of innovation. Especially, the diffusion of technological products can be enhanced via online market utilization. The use of online markets helps small-and medium sized companies (SMEs) that are generally characterized with limited resources (Bennett, 1997) to access markets and improve efficiency in terms of acquiring customer order and handling on a global platform (Sinkovic et al., 2012). As a result Sinkovics and Penz (2005) argue that early internationalization

has become a more feasible and cost-effective alternative for SMEs. Research conducted by Sinkovics, et al. (2012) supports these arguments through their findings that online sales channel strategy increases export performance for SMEs. Higher firm performance is reached when IT resources, IT capabilities and non-IT resources and capabilities are utilized. Online markets need to be used as sales channel by offering additional advertising and support of delivery (Sinkovics, et al., 2012). As a result, the presence on online markets and reach to potential customers are enhanced, and so is the diffusion of the product. Furthermore, crowdfunding represents first steps towards internationalization and a stronger post online market presence as result of online markets.

2.2. Entrepreneurial finance according to Crowdfunding

There are still a limited number of articles specifically about crowdfunding in the entrepreneurship literature. However, Lambert and Schwienbacher (2010) described crowdfunding as an additional source of finance model of SME's which are covered quite well in literature. According to this paper debt or equity finance are the two options for SME's when looking for new capital.

2.2.1 Early stage financing and crowdfunding

Based on the definition of Leach and Melicher (2008), entrepreneurial finance is "…the application and adaptation of financial tools, techniques, and principles to the planning, funding, operations and valuation of an entrepreneurial venture" p.19. In light of this definition, crowdfunding is one method of finance in the early stage of a start-up. According to Leach and Melicher (2008) this stage is indicated by ventures that have diminutive operating history while being in their startup- development- or survival life cycle stages. In particular, bootstrapping techniques (Winborg & Landstrom, 2001; Ebben & Johnson, 2006) show similarities to crowdfunding. Entrepreneurs utilize bootstrapping when they try to use various alternative resources as possible, this is in line with when they exploit capabilities of crowdfunders. Both, crowdfunding and bootstrapping utilize innovative methods to achieve investments. These investments avoid to use traditional sources of funding. However, in case of crowdfunders,

looking and attracting external investors is one major characteristic, while bootstrappers generally depend on internal resources and management techniques based on active cash.

According to Cosh et al. (2009), who studied a comprehensive range of alternative methods for startup financing, social network methods, including crowdfunding, can provide a solution for financial gap in the seed phase resulting from market failure (e.g. Shane & Stuart, 2002; Shane & Cable, 2002). Financial gap and new Web 2.0 technologies such as blogs, wikis and social media, have enhanced the development of new forms of social networking (Adams & Ramos, 2010) resulting in a social movement, which on the other led to crowdfunding platforms. According to Rao and Giorgi (2006) vital for these social movements are among others, the joint vehicles through which individuals mobilize supporter. In addition, the motivation of ordinary people investing in projects on crowdfunding platforms is distinguished from traditional investors. People investing in projects are motivated by the cause promised by the project creator. Monetary benefits are inferior motivation compared to promised cause. These findings are acknowledged by Harms (2007), who confirmed intrinsic motivation and immaterial rewards as the main motivators of participating.

2.3. Web 2.0 - collaborative communication

Web 2.0 is a commonly used term for two-way collaborative communications over the Internet, where users generate and share content within this environment (Kleemann et al., 2008). Many studies also recognized the advancement of Web 2.0 as an essential development of crowdsourcing (e.g. Brabham, 2008a), which is a new way of how problem-solving models can be viewed (Brabham, 2008b). Crowdsourcing via Web 2.0 enhances companies to attain inexpensive labour on a limitless market of potential workers (Howe, 2006), while the motivated crowd are able to solve problems with high-performance quality in tremendous quantity, comparing to the traditional forms of business methods (Brabham, 2008).

Web 2.0 structure facilitates the ability to mobilize audiences and networks of consumers in order to gain inputs with high efficiency (Braet & Spek, 2010). This is supported by Lee et al, (2008) who describes Web 2.0 from three different point of views: technological, sociological and economical. Sociologically, online collaboration allows individuals with mutual interest to create

networks and share contents with each other. Economically, such collaboration gives everyone the opportunity to create content and upload on the internet. From a technological point of view, the automation of processing information by computers leads to easy spreading and recombination. This leads to a plethora of information and, consequently to deficiency of attention from customers, which can't be mentally processed due to the amount of available information.

According to Schwienbacher and Larralde (2010) an explanation of individual's motivation to originate content is imminent reward, from acknowledgment to tangible products. Nevertheless, the three main characteristics of Web 2.0: collaboration, openness and participation broadens the abilities of small firms to inflow content by users and value creation by users for companies (Lee et al., 2008). Collaboration refers that every user of Web 2.0 are content creators and consumers constantly through blogs and social applications (Lee et al., 2008), while openness relates to their communication and sharing behavior. Participation refers to the possibility of being involved in user generated content for any consumer based on their willingness to participate.

2.4. Crowdsourcing

In order to describe crowdfunding it is important to look at existing literature. The term crowdsourcing was used in an American magazine for high technology called Wired Magazine by Howe and Robinson in June of 2006 (Belleflamme et al., 2010). The word crowdsourcing arises from the combination of crowd and outsourcing (Schenk, 2009) and a useful definition for our study is contributed by Kleemann et al., (2008):

"*Crowdsourcing, as argued in this article, takes place when a profit oriented firm outsources specific tasks essential for the making or sale of its product to the general public (the crowd) in the form of an open call over the internet, with the intention of animating individuals to make a contribution to the firm's production process for free or for significantly less than that contribution is worth to the firm." p.6*

Individuals that are making these contributions are called the working consumer by Kleemann et al, (2008). The working consumer is involved in production process and diminish the need of employees for the performance of specific tasks. Furthermore, a main reason for the use of

crowdsourcing for companies is generally cost reductions through creating value for the company by the user and participation in product design and improvement.

Crowdsourcing can take part in both commercial and non-commercial environments and reflect a different kind of outsourcing by accessing and utilizing resources from the crowd via an open call utilizing the internet. Hence, this approach more analogous with the open innovation, which is based on the concept of sharing not only knowledge, but also research and development through intellectual property rights (Schenk, 2009). Rather than keeping R&D in-house, it can be seen that companies such as P&G and Boeing search solution for their most difficult R&D problems by tapping into global scientific communities (Brabham, 2008a). When compared with traditional forms of conducting business, crowdsourcing can lead to renewed strategic models that draw a motivated, interested crowd, which is able to achieve solution of superior quality and quantity to complex problems (Brabham, 2008a).

2.5. Crowdfunding

The phenomenon of Crowdfunding is a relatively new, when compared with the traditional form of financing, hence a few related literature to the topic of crowdfunding exits. Nevertheless, Mollick (2014) states that crowdfunding inherits the concepts of micro-finance and crowdsourcing. Furthermore, it covers many currents and future uses of various disciplines, which leads to the argumentation of a narrower definition of the term in relevance to the research area (see Introduction).

Agrawal et al. (2013) acknowledged a range of common inducements and disincentives to explain in the light of transaction costs, reputation and market design, the rise of non-equity crowdfunding. On one side, decreasing the cost of capital and gather additional information, while expose a project to the public are main factors for project creator to participate on crowdfunding platforms. Especially, a project that contains ideas or information that are sensible to disclose to the public and as result the cost of capital could comprise an unpredictable risk factor, lead to non-participation of their project on crowdfunding platforms. In addition, the same effect can be seen when benefits of lower costs are surpassed by benefits of traditional investors such as networks and status (Hsu, 2004). On the other hand, the main motivation to participate in projects is the

prospect of generating profits with their investment. Also, receiving a new product before anyone else influences crowdfunders motivation. Additionally, supporting a project on a crowdfunding platform results in being a part of an exclusive community and therefore it is an intangible assets for crowdfunders. However, it has to be pointed out that crowdfunders are still exposed to project failure, incompetence of entrepreneurs or even fraud but at the same time crowdfunding gives them the security through the formalization of a contracts, which is usually not the case when borrowing money from friends and families.

Similarly, Ahlers et al., (2012) emphasis the importance of information flow from the entrepreneur to the crowd. Australian data was used in their study to analyze equity crowdfunding initiatives, showing that successful initiatives on crowd funding platforms rely on the quality of the startup, credible signals and sound information presented to the crowd. Due to the fact that backers await a future return, Ahlers et al., (2012) concluded that financial roadmaps such as exit strategies; risk factors such as offered equity and the team influenced backer's decision to invest in the project.

Ordanini, et al. (2011) examined three different crowdfunding platforms (SellaBand, Trampoline and Kapipal) concentrating on how and why consumers turn into crowdfunding participants and why service providers set up a crowdfunding initiative. The findings showed that depending on the crowdfunding platform, also the participant's purposes, characteristic, roles and tasks and investment size varied. The same pattern could have been observed about the purposes, services and network effects of crowdfunding firms on the platforms. On an investment platform that is characterized by innovativeness, identification and exploitation, roles of backers are mainly that of a shareholder who are investing large amounts. As to the crowdfunding firms the main purpose is to raise funds to help to grow, while the network effects are intermediate from an existing intermediary (Ordanini, et al., 2013). On social participation platforms, firms are looking to fund social projects online and taking the role of a social keeper. The characteristics are similar to investment platforms, but the roles and tasks of participants are to help people by donating a small amount of money. Main critique points about this study consist nature of being an inductive discussion of preliminary insights about crowdfunding. Secondly the perspective reflects only the perspectives of managers in service firms, while excluding insights from involved customers.

Crowdfunding handbooks are emphasizing the importance in setting appropriate funding goals as a paramount of success during the campaign time (Steinberg, 2012). This fact is supported by

Kuppuswamy and Bayus (2013) empirical study about the impact of social information in the dynamic behavior of project backers. The study aims to clarify the noted bathtub shaped pattern of support by backers over time. In addition to the explanation of the bathtub shaped pattern, Kuppuswamy and Bayus (2013) found out that short duration, smaller goals and having a video attract more backer support, as are crowdfunding projects with many reward categories. Additionally, Giudici, et al. (2013) is backing up this fact with their findings that the success of campaign on crowdfunding projects is negatively impacted by the amount of capital needed to complete the project. Moreover, it is stated by Agrawal et al. (2013) that the numbers of crowdfunders investing in a project increases rapidly with accumulated funds. Similar to online lending platforms (Zhang & Liu, 2012), the rate of investments is specifically strong towards the end of the campaign which raises concerns of herding behavior (Agrawal, et al., 2013). Initially, the accumulated capital is generated usually by friends, family and foes, this leads to a signal for later funders (Agrawal, et al., 2011).

However, given the fact that this thesis concentrates on only successfully funded technology related crowdfunding projects of tangible products, it can be concluded that the higher amount of funds needed and pledged by the project will increase the chance of success due to the fact that backers are rather early consumers than traditional investors. Given the fact that backers of crowdfunding campaigns are motivated by the cause and the membership of a special community differs them from other traditional investors (Mollick, 2014). Furthermore, achieving your goal indicate the appropriateness of the funding goal apart from the amount needed. Hence, the amount of funds received indicates the demand on the market for the project and can be an indicator of further success.

In sum, our discussion leads us to the following hypotheses:

H1: Higher amounts of funds needed by the crowdfunding project is positively associated with the product's post online market presence.

H2: Higher amounts of funds received by the crowdfunding project is positively associated with the product's post online market presence.

2.5.1. Reward-based and Equity-based Crowdfunding

Two dominant crowdfunding mechanisms can be identified in the literature: Reward based (pre-ordering) and equity based (profit-sharing). Reward-based crowdfunding is the most dominant form of crowdfunding used by campaign creators on platforms. Backers of projects receive rewards in form of crediting in a movie, possibility of input into the product under development or meeting the creators of the crowdfunding project (Mollick, 2014). In other words, reward-based crowdfunding deal with backers as they are early customers, giving them the possibility to access to thefinished product earlier to better price or granting them special benefits (Mollick, 2014).

Embed in the reward-based crowdfunding is the pre-purchase model which has parallels to the reward model with the difference that the backer of a project receives the product of the project rather than a nominal return (Harrison, 2013). This model can be categorized in ex ante crowdfunding which is a model where the project has not been completed yet, while ex post facto crowd funding on the other hand, is a financing model of finished products (Kappel, 2008). Ex ante crowdfunding is the more interesting model due to the fact that the realization is only possible by participation in the process of capital distribution (Rubinton, 2011).

According to Belleflamme et al., (2013), entrepreneurs favours reward-based if they want to collect a small amount of initial capital. On the other hand, equity models are chosen if they want to congregate large amounts of initial funds. Equity crowdfunding gives the entrepreneurs the opportunity to gather more funds with the negative effect of lower net profits due to the share of profits which is held by investors. The chosen method depends on the distinctions between community benefits and relative performance perceived by the entrepreneur. Especially, differences in community-based benefits of reward based and equity based crowdfunding lead to further benefits for the crowdfunder.

These community benefits for each method is assumed by Belleflamme et al. (2013) as the following: profit-sharing (equity) crowdfunding reflects a financial benefit for the backers. Hereby, it is not important if the crowdfunder turns into a consumer, the project gained its additional utility just by investments that it received. Backers rejoice the perception of belonging to a privileged community that helped to realize the project. In pre-ordering crowdfunding community benefits are generated through consumption experience, which is expressed by the

perception of higher quality of the crowdfunding project and being according to their taste increase the general utility (Belleflamme et al., 2013). Therefore, comparison of community benefits in relevance to existing crowdfunding does increase the chance of success and increase efficiency.

Following this argumentation, community benefits are heterogeneous regarding the taste of backer when they pre-order, while profit-sharing reflects a homogenous benefits due to the fact that individuals are not always the consumer.

2.5.2. Pre-Ordering

One of the dominating methods to attract capital on crowdfunding platforms is pre-ordering. Funds are mainly obtained by pre-orders from crowdfunders, who then receive the finished product once the production has started. In order to reach the funder, who are willing to pre-order or even invest in the campaign, Belleflamme et al., (2013) argues that pre-ordering opens the possibility to entrepreneurs to price discriminate between crowdfunders and other consumers. Projects with need for more funds may change the pricing scheme to attract more pre-orders. In addition, Kappel (2008) identified two aspects. Firstly, different drivers, motivations and abilities for participation and lastly, the ability of entrepreneurs to trigger potential crowdfunders to pre-order the product. This can be reached through utilization of various tools that increases the initial affection to the project by offering ameliorated experiences. Regarding entrepreneurs, Mollick (2014) states that new ventures, which are producing for example, innovative software, hardware or consumer products, tend to use the pre-ordering method through crowdfunding.

Pre-order crowdfunding aims to attract a certain needed capital in order to start producing, this is achieved usually by setting the price for potential backers. The designated goal for monetary investments are reached when a certain amount of pre-orders at a specific price is ordered by backers. In this connection the readiness of backers to pay the price during the campaign is one of the factors of success of the crowdfunding campaign. However, if the targeted amount is not reached, platforms such as Kickstarter prevent misuse of received money by not paying out the crowdfunding project (Agrawal et al., 2013). Successfully funded projects enter the retail period, this gives potential customers who did not pre-order during the campaign, the possibility to order under different retail prices. Depending on the strategy, entrepreneurs can choose to sell the product with lower retail prices to attract more undecided or indifferent customers; or chose to sell

it to a higher retail price which is backed up by the success of the campaign that may indicate a high demand after the start of production. As a result, higher net profits can be achieved (Belleflamme et al., 2013).

However, entrepreneurs cannot identify consumers' willingness to pay a high price, therefore pre-ordering can be utilized as a screening device that indicates the willingness to pay the set price or not (Belleflamme et al., 2013). As it is indicated, fixing an optimal price during the campaign and as a result, optimal profits is not easy, moreover to reach the targeted amount of funds expresses a constraint for the entrepreneur. Indifferent consumers can be attracted to pre-ordering during the campaign only by the price and additional utility. In the light of optimal pricing during the campaign, Belleflamme, et al. (2013) states that the optimal price according to the entrepreneurs, can force projects distort their pricing scheme in order to attract more people to pre-order resulting in success of the project. The downside of this approach is lower profits.

Aforementioned, Belleflamme et al. (2013) argues that crowdfunding projects tend to favour pre-ordering over profit sharing, in case of lower capital needs. Pre-ordering is able to achieve higher net profits if the entrepreneur utilizes optimal price discrimination between crowdfunding campaign time (ex ante) and the retail market (ex post facto). In sum, our discussion leads us to the following hypothesis:

H3: Higher number of the product's pre-order sales is positively associated with the product's post online market presence.

2.6. Backers in Crowdfunding

The analysis of funded projects listed on Kickstarter by Kuppuswamy and Bayus (2013) revealed that social information such as the assumption of necessary supply of funding through crowdfunding participants of projects that has already received a large amount of support leads to non-contribution by other individuals. That implies, potential backers prefer non-contribution caused by their beliefs that a project with already achieved large amount of funds will be successful even without their help. Furthermore, the findings are also in-line with deadline effect generally observed in online auctions and bargaining (e.g. Ariely and Simonson, 2003), this expresses by the diminishing of the diffusion of responsibility effect as the funding cycle of the project nears its

closing date. In addition to these findings, Gerber & Hui (2013) states that crowdfunding inherits elements of online philanthropic behaviour, online peer-to-peer lending, online consumer behavior and online peer production. In their research, they confirmed the fact that backers are motivated to participate in crowdfunding to enhance their social networks and the feeling of belonging to a special community. Hereby, the financial part is not the major point rather to satisfy people's social and cognitive needs plays a major role in investing in a project.

According to Mollick (2014), the success of the project on crowdfunding platforms are determined by the quality of the product and the likelihood of success which is evaluated by potential customers who act more like venture capitalist or other traditional sources of capital. Quality signals in crowdfunding are additionally amplified through a Matthew Effect (Merton, 1957) that multiplies the ramification of project backers. As a result, the projects with high quality products attract backers who may advertise the project to other backers, or external media, hence it increases the success of the project.

Concluding on literature, it can be argued that it is more likely to be successful on post online markets with a crowdfunding campaign if it reached high numbers of backers. Not only backers are motivated to invest, they also interact in the community. They could recommend the product such as a brand ambassador to other individuals, increasing to reach more people. This will lead to higher presence on online markets and help in the process of diffusion.

H4: Higher numbers of backers supporting the project is positively associated with the product's post online market presence.

3. Research Methodology

As it was mentioned before, crowdfunding is a fairly new phenomenon (Schwienbacher and Larralde, 2010), and the academic literature around this topic is largely descriptive. The general academic knowledge on crowdfunding is concentrated on particular crowdfunding efforts and motives of community support, rather than the dynamics of crowdfunding itself. (Agrawal et al., 2013; Burtch et al., 2011). With a few exception of Mollick's (2014), Kuppuswamy's (2013) and Belleflamme's (2012) study, the dynamics of crowdfunding is a fairly undiscovered area of entrepreneurial research.

The main contribution of this research is to gain a better understanding of the successfully funded technology related projects' post online market presence. Given the limited knowledge on crowdfunding it would be appropriate to write an exploratory study around the mentioned area, which usually aims at "develop[ing] hypotheses or questions for further research" (Cooper & Schindler, 2006).

Davidsson (2004) argued that, "research questions that are inherently quantitative in nature need quantitative research to be answered. Questions about quantitative differences (more; better; stronger; more often, etc.) between groups, or about such within-group changes over time are inherently quantitative in nature" (p.60). Therefore questions about strength of relationships between variables have to be analyzed by quantitative methods, which is the main purpose of this paper.

The goal is to discover whether there are any significant relationships between different crowdfunding indicators and the successfully crowd-funded, technology related product's post online market presence. Pearson's correlation test will be used in order to identify the connection in the hypotheses. The following subchapters will give an outlook on how this research has come together.

3.1. Data collection

In order to have a big scope on crowdfunding projects, we used Kickstarter as the main data source. This platform is the most dominant crowdfunding site today (Appendix 1).

Kickstarter does not accept projects for charity cause or to cover general business expenses, and every participant must join to the Kickstarter community (can be with anonymous username). Through this website the entrepreneurs (called “creators” on Kickstarter) create an individual project page under Kickstarter website, where they explain the purpose of the project, general aims, required funding goals (called “project goal” on Kickstarter) and information on funding duration (called “crowdfunding campaign” on Kickstarter). Kickstarter has an “all-or-nothing” aspect on fundraising, which means a project must be fully funded before the crowdfunding campaign ends, or no money will be transferred to the project account from the supporters (called “backers” on Kickstarter). This platform uses the reward-based approach, which means the backers do not receive any financial incentives, or equity from the projects in exchange of their contributions. Instead, they can receive (which varies by the level of contribution), typically for a pre-selling price the actual product, for a small amount of donation a thank you letter, and for a bigger contribution a sets of products or personal visit or interview with the creators (Kuppuswamy 2013).

Kickstarter does not provide a database with all the projects’ details for the public at the moment in a compacted format. However, these data is freely available on the project’s individual page through the crowdfunding platform from the amount of funds received till the number of backers. Kickstarter has 13 categories, (Appendix 2.) and our research only concentrate on projects under the category called Technology. Within this category filter, we found 3798 projects till the time of gathering (2014.03.17.) from its inception from May 2009, which means manual data collection is not a preferable option. In order to collect all this information, a so-called web-scraper needed, which collects the data automatically from websites.

Web pages are built using text-based programming languages like HTML and XHTML, and generally contain the majority of the data in text form. Even so, the web pages are designed for human end-use, which are hard to automate to gather data. In order to automatically and systematically extract the data from a website, a web scraper is needed.

We gathered publicly available information on successfully funded technology related crowdfunding Kickstarter projects, which was used in the empirical study in order to examine the project’s post online market presence. Even though we conducted our research from Kickstarter’s inception, we used a time restriction in our sample. The paper concentrates on projects within the

timeframe from 2012.01.01., till 2012.12.31, however in our general findings we examine the projects in a longer time perspective as well.

We found two, open-source and freely available kickstarter-scraper over the internet. The first one mitsuhiko/kickstarter-scraper (Mitsuhiko 2014) is two years old and the second neight-allen/ django-kickstarter-scraper (Neight-Allen 2014) is one year old, which possibly make both of them outdated. In these terms outdated means that, there is a possibility that the scraper will not work. A scraper reads the information in a systematic order from a website, and cannot handle automatically if in this case Kickstarter, makes some modifications in their platform. Therefore we had to create a new updated tool in order to read those information, which was developed on the request of this paper (Nagy 2014). This customized API automatically and systematically scraps the data which is important especially for this research. Hence the paper was interested only on those projects, which was finished before 2013.01.01., therefore the new ongoing projects have no effect on our sample, regardless of the time of the data collection. As a result, we collected information on 3169 projects, which will be described under the chapter 4.1. Descriptive Patterns of Technology Related Crowdfunding Projects. The basis of the hypotheses test contains 170 projects after the final data sampling, which will be described in the subchapter 3.3. Data Sampling.

Our scraper gathers the data in the following two ways. Firstly, the information is collected from the ajax queries, which occurs during surfing the website. This data is in JSON format, which is an optimal form of data processing in programming terms. Most of the information like the name of the project, project description, project owner or project goals are collected via this way. The other method is called html parse, which downloads the project's html website and from its source, reads selected html tags, which holds important data for our research. This gathers the information for the number of backers, different pledge ranges and if it exists, the link to projects own website. The parameters of the scraper can be modified via command prompt, for example, if we are interested in different types of information, which makes the tool flexible in terms of data collection.

3.2. Description of variables

The specific elements that are used for statistical analysis are elaborated on in detail in this subchapter. The full list of all the variables that are available from the data collection can be found in Appendix 3.

During the statistical analysis the following indicators and variables were used:

Variables	Description
Project Goal	The amount founders seek to raise during the crowdfunding campaign. Kickstarter has a non-flexible funding model, so funders' pledge money is only collected if the goal is reached. If the project cannot meet with its goal, then the backers receive their money back. There are other crowdfunding platforms like IndieGogo who has flexible financing model. Generally the currency was USD for most of the projects (97.8% of the sample), but in cases of GBP (2.2% of the sample) we used a conversation ratio of 1.678 from GBP to USD.
Project Pledged	The amount of fund raised during the crowdfunding campaign. This can vary regarding the popularity of the project, for example two or three times more than the amount what founders seek to raise as a project goal.
Total number of Backers	The number of funders supporting the crowdfunding project during the campaign.
Sum of Backers from the pre-sale price	The number of funders supporting the crowdfunding project, who paid at the minimum one item pre-sale (or “early bird”) price. The pre-ordering price was defined from the first fully assembled model, the individual elements, parts of the product or unassembled models were not considered as a full product. In other terms, this is the total number of Backers minus the number of donors, who are donated money below the pre-order price range.
Webshop Availability	Dummy variable to measure that the project has an own webshop or not. In the project’s crowdfunding page, there is a possibility to have a link

	for an external website, which was used by most of the projects (96% of the sample). This variable was conducted manually, hence an automated method could not check effectively that the webshop exists or not. There were cases when the project changed its website domain, or it was only a blog without having the option to actually buy the product through that platform (27% of the sample). It was considered as an available webshop, if there were a link to an external online e-commerce site, where the customer could buy their products. It was considered as a not available webshop, if the product was sold out, or the webshop was temporarily unavailable.
Amazon Presence	Dummy variable for the product's availability in Amazon.com, which was collected in two steps. Firstly search for the product by its name from the crowdfunding project name. In case of unsuccessful search, we used the product developer or company name to explore that if the company exists on Amazon, but maybe they renamed their product.

The Webshop Availability and the Amazon Presence were created in order to measure the online market presence for analysis.

3.3. Data Sampling

In order to test our hypotheses, we had to introduce some filters to exclude projects, which be might not relevant for our study. This was partly based on basic logic, for instance, project which are by nature not pre-order related, for example one-time promotional technology events. These are still under the category of Technology in Kickstarter, hence the main motive is connected with technology, and there are no restrictions accepting only product designs. Hence, these projects could not be filtered out automatically, we created an own label called Personal Projects.

We labeled every project within the technology category, as a Personal Project, if the project's major goal was to reach funds for private purposes, for example buying a school bus, or organization support.

The project is promoting a tangible item or product. This was done by reading the project's product description from the crowdfunding platform (61.8% of the sample). There were project which was labeled as personal projects, one-time events or organization support (22.2% of the sample). There were projects which were offering intangible products (software, application, video tutorial, web applications). These projects by its nature, not a webshop or online store related projects (13.2% of the sample). There were projects where the product's name was universal, or hardly identifiable like: Open Source Universal 3D Printer Extruder (1.8% of the sample). Hence the low number of these projects, we did not considered this as a major limitation. In this case for the Amazon search we used the company or project owners name in order to identify the product without a specific product name.

We also introduced a time restriction for our samples, however we conducted our research from 2009 till end of 2013 for our general findings. The extensive information on these five years, enabled us to conclude some general patterns, which supported our final outcome with the hypotheses testing.

In our hypotheses testing, we used the data within the range of 2012.01.01.-2012.12.31. This was the basis of the evaluation of the successfully crowd-funded technology related project's post online market presence. Our aim was to focus on projects which was older than one year, because within this threshold all the projects were finished with their product manufacturing. All these information was stated in their project description.

In total 310 successful projects were found under the Technology category and 170 projects met with our final filters, which is the basis of the hypotheses testing. Once the data has been collected Pearson's correlation analysis will be performed using the computer statistic software SPSS (Statistical Software for the Social Sciences).

3.4. Limitations of Data Sampling

During the search for the project's available webshop there were some, which were challenging to identify. Products, which were reportedly out of stock or the webshop service was temporary unavailable. This means that the product is not available at the time of gathering, therefore we considered as not available in the sample. As a limitation we would like to mention that, if they maintained their webshop and the product is up there as available to buy, it was considered as available for order. However, there is the possibility that they maintain the webshop, but the item is there due to lack of website update from a previous year, even if the product does not exist anymore. This is a limitation of the data gathering, hence this particular problem is hardly traceable with the website search. The data is collected by an online scraper tool from a large number of crowdfunding projects at a single point in time, which did not affect our sample due to the time restrictions in data sampling.

4. Findings

The data collection process was successful, and at the time of gathering (2014.03.17.) 3798 projects were under the category called Technology in Kickstarter. We excluded the project from 2014, therefore our sample contains 3169 projects. We consider the general descriptive patterns valuable to mention, because this introduces the importance of outcome from the hypotheses tests.

The following subsections will present the findings from the statistical analysis.

4.1. Descriptive Patterns of Technology Related Crowdfunding Projects

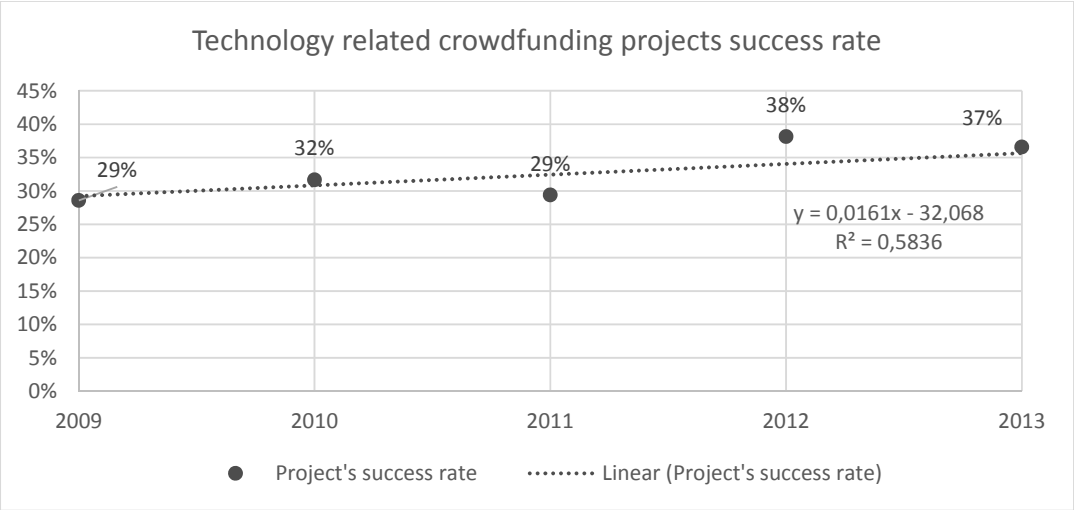
Simple linear regression analysis was used for analyzing general patterns through time. The goal is to discover whether there are any ongoing trend towards crowdfunding success rates of technology related tangible products based on the last years statistical data. All these observations will be discussed further in the next chapter.

Table 1. General Statistics from Kickstarter under the category called Technology

Year	All	Successful	Personal Projects	Tangible Product
2009	42	12	-	-
2010	199	63	24	8
2011	415	122	34	42
2012	**813**	**310**	**61**	**170**
2013	1700	622	-	-
Sum:	3169	1129	119	220

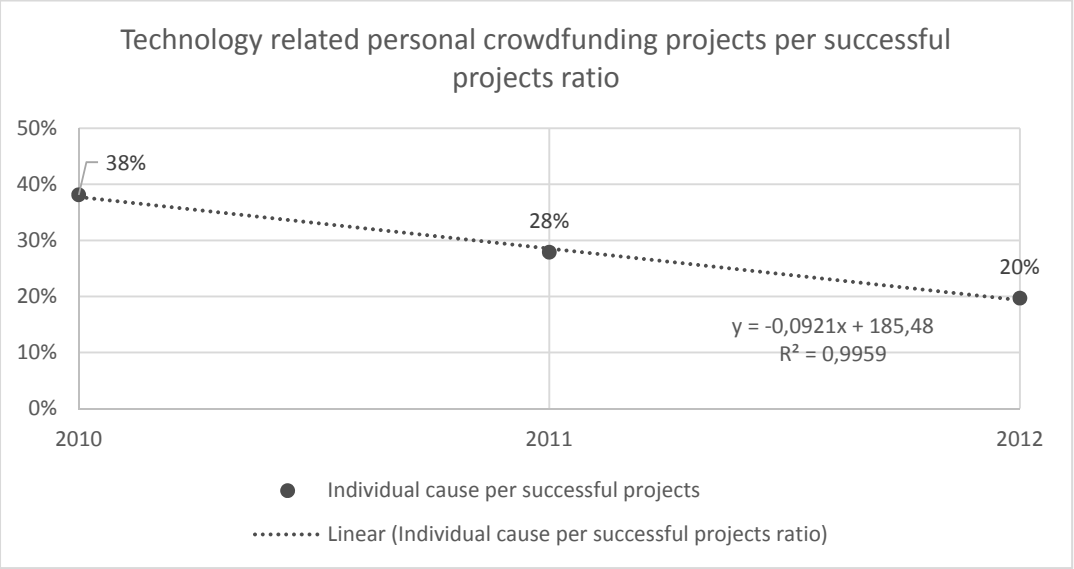
As Table 1 shows, in overall till the day of gathering 3169 projects were presented on Kickstarter under the category called Technology, from which 1129 projects were successful. Successful in these terms means that, the project met with their Project Goal, which is labeled by the crowdfunding platform itself. Detailed information on these project labels can be found in Appendix 5.

Diagram 1. Technology related crowdfunding projects success rate



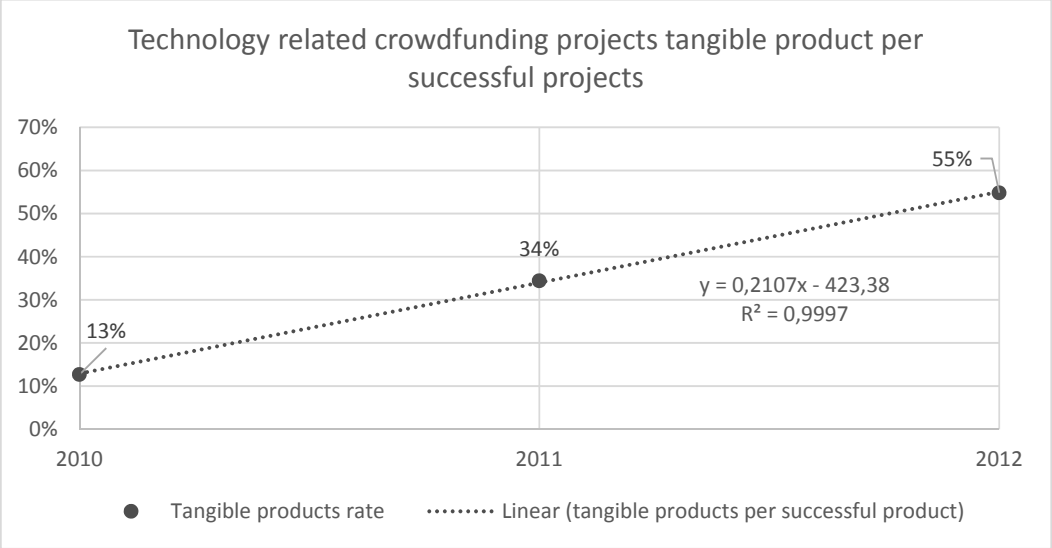
As a general findings from the last five years, using simple linear regression, we can conclude that the Technology related crowdfunding projects on Kickstarter have a positive increasing success rate.

Diagram 2. Technology related personal crowdfunding projects per successful projects



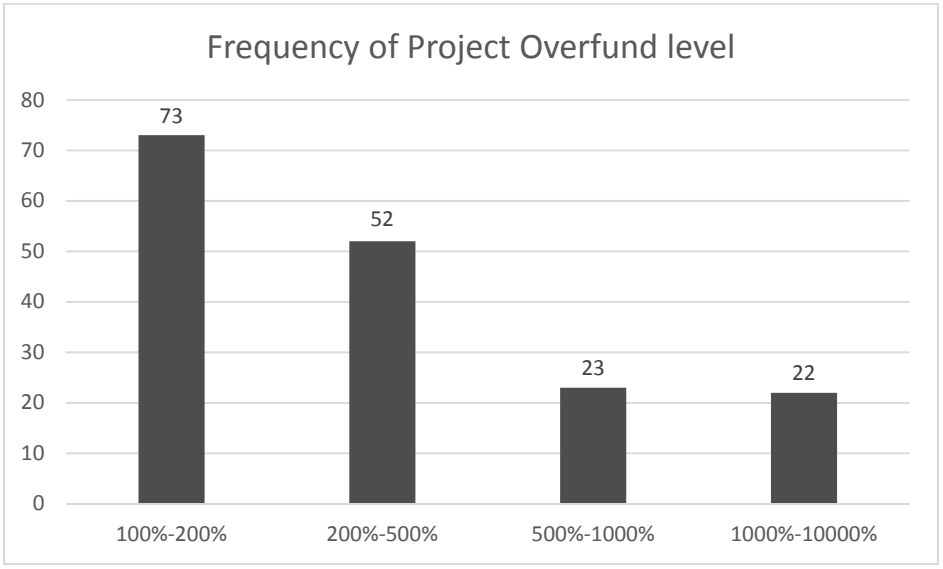
As a general findings from the time range of 2010-2012 using simple linear regression, we can conclude that the Technology related crowdfunding projects on Kickstarter have a negative personal projects per successful projects rate.

Diagram 3. Technology related crowdfunding projects tangible product per successful projects



As a general findings from the time range of 2010-2012 using simple linear regression, we can conclude that the Technology related crowdfunding projects on Kickstarter have an increased ratio within successful projects.

Diagram 4. Frequency of Project Overfund level



From our final sample (contains 170 projects) within the Technology related successfully crowd-funded projects we found 97 projects (57% of our sample), which pledged more than twice the amount of their initial project goal.

4.2. Hypotheses Correlation Matrix

Bivariate analyses are useful for analyzing whether two variables are related or not. The goal is to discover whether there are any significant relationships between the dependent variables and the independent variables. The significance of the correlations is tested two-tailed, since the directionality of the relationship has not yet been established (Keller, 2005). An overview of the descriptive statistics regarding to the hypotheses variables can be found in Appendix 6.

Table 2. Pearson's correlation test on variables of hypotheses test

	Correlations							
	Variables			Project Goal	Project Pledged	Sum of backers from pre-sale price	Total number of Backers	Webshop Availability	Amazon Presence
H1	Project Goal	Pearson Correlation		1	,497**	,354**	,390**	**,162***	**0.114**
		Sig. (2-tailed)			0	0	0	**0.035**	**0.137**
H2	Project Pledged	Pearson Correlation		,497**	1	,552**	,609**	**,218****	**,291****
		Sig. (2-tailed)		0		0	0	**0.004**	**0**
H3	Sum of backers from pre-sale price	Pearson Correlation		,354**	,552**	1	,993**	**,215****	**,384****
		Sig. (2-tailed)		0	0		0	**0.005**	**0**
H4	Total number of Backers	Pearson Correlation		,390**	,609**	,993**	1	**,230****	**,384****
		Sig. (2-tailed)		0	0	0		**0.003**	**0**
Post online market presence	Webshop Availability	Pearson Correlation		,162*	,218**	,215**	,230**	1	,373**
		Sig. (2-tailed)		0.035	0.004	0.005	0.003		0
	Amazon Presence	Pearson Correlation		0.114	,291**	,384**	,384**	,373**	1
		Sig. (2-tailed)		0.137	0	0	0	0	

**. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed).

The significant correlation coefficients (p=0.01 and p=0.05) that are obtained through Pearson's correlation test represents the relationship between the variables. However, it is important to state that, just because there is a relationship between the two variables there is no guarantee that changes in one variable are a direct cause of changes in the other. There may have been another invisible variables. In summary, there may be cause-and-effect between the variables, but the correlation level does that prove cause.

5. Discussion

Crowdfunding became a mixture of entrepreneurial finance and entrepreneurial marketing scene. This paper offers some exploratory insights into the upcoming trends in technology related crowdfunding projects. First evaluated the connection between the crowdfunding project's financial goal, in order to manufacture and deliver the product and the product's afterlife. Secondly, the connection between the total amounts of money pledged by the project, which can be three or four times more than the project goal and the product's afterlife. Thirdly, the connection between more people are interested in the actual product pre-sale and the product's afterlife and lastly the connection between the total number of backers and the product's afterlife. The above mentioned tests showed that there is a significant correlation between the different variables and the product's post online market presence.

Many factors could influence the product's project goal, however there is a strong incentive for individuals to set up realistic project goals. Raising too little capital could risk a non-delivery for the product, and high project goals could make the project less likely to be successful (Mollick, 2014). Mollick in his paper (2014) filtered the projects within a specific range, under the category of Design and Technology, hence he used both successful and unsuccessful projects for his analysis. Because of the wide variety of project goals, this filter was only the projects above $5000, hence this is "closer to formal funding through angels or financial institutions, and therefore gives more analytical purchase on the factors that might lead to success for crowd-funded entrepreneurial ventures" (p. 8). However, we would argue that, the due diligence process from a formal, experienced actor has differences with crowdfunding phenomena, build upon the high number of contributors, rather than experts in the project's own field. Therefore in this paper we have not excluded projects because of lower project goal.

According to the results, there is no or negligible relationship between higher project goal and the product's Amazon Presence. However, there is a relationship between higher project goal and the product's Website Availability. Although, we found a significant relationship between the higher amounts of money pledged during the crowdfunding campaign and the product's post online market presence.

This indicates that, the project goal set up by the entrepreneur has lower influence on the project's afterlife, comparing to the project pledged, which is contributed by the crowd. As the project receives more attraction and financial support during the crowdfunding campaign, the project creator possibly feels real customer validity by the crowd, which affects the product's post online market presence. This findings is aligned with a general belief, that if a product has more market attraction, then it is more likely to stay in the market.

Kuppuswamy (2013) argued that projects with smaller project goals, shorter campaign duration and having a promotional video are more likely to receive additional backer contributions. They analyzed 25,058 successful and unsuccessful Kickstarter projects from 2010 and 2011 that potential backers are much less interested in contributing to a project after it reaches its project goal. Controversially to this findings, in our sample (n=170) from 2012 only pursuing data within the successfully crowd-funded technology category (Diagram 4.), we found 97 projects (57% of our sample), which pledged more than twice the amount of their initial project goal. The possible explanation for this can be argued with the difference between pursuing only technology related projects (our sample) comparing to a generalized and more extensive sampling (their sample). Our samples by its nature differs from the general creative projects, like Film & Video or Music which is the most popular category in crowdfunding (Appendix 4). The "pre-ordering" option is a commonly used method for consumer products within reward-based crowdfunding, while this option is not valid for artistic projects. This is one of the possible reasons regarding the two different findings, hence the pre-ordering has a relevant importance on the total amount of funds received by the project.

As a result, we found a significant relationship between the higher numbers of pre-order sales the product's post online market presence. This means that if more people showing their interest through pre-buying the product, then more likely will be available through webshop and/or online stores. Mollick (2014) argued that, the pre-ordering option in reward-based crowdfunding treats the backers as early customers. Through "pre-selling" the funders have the possibility to access the products at an earlier stage for a better price or with other special benefits. This finding is also align with our previous finding, regarding the higher amount of funds received by the project. Therefore both the higher amount of funds received and higher numbers of pre-order sales are enhances the availability on the online market.

There is a significant relationship between the higher total number of backers and the product's post online market presence. Mollick (2014) categorized the projects based on crowdfunding campaign's quality, which relates to the creators marketing activity. This activity was measured by the frequency of updates on the crowdfunding campaign webpage, video updates and the number of Facebook friends of the project creators. Based on this quality measurement, he argued that, from this perspective the backers act similarly as venture capitalists, business angels or other traditional sources of capital, because they evaluate the projects based on product quality, team, probability of success and marketing strategy. From our general dataset (n=3169) we found 1129 projects (35% of our sample), which reached their project goals. This can caused by the differences between the higher and lower-quality projects. These quality signals in crowdfunding are magnified through Matthew Effect (Merton, 1957), which multiplies the impact of project quality. This means that the projects with higher quality attract more backers, who could promote this project to other potential funders through social media. This would increase the project's marketing presence, which probably correlates to more backers in total. In our paper we found a significant relationship between the higher number of total backers and the product's post online market presence. Therefore we may conclude that, projects with higher quality have a relationship with its post online market presence as well.

The regression analysis shows from the last five years (Diagram 1.) that the technology related crowdfunding projects on Kickstarter have a positive increasing success rate. This indicates that there is an ongoing trend towards more projects reach its project goal. Interestingly, from the time range of 2010-2012 (Diagram 2.) there is a decreasing trend towards personal projects. In line with our main focus on tangible products, these projects have an increasing rate (Diagram 3.) within the successfully funded crowdfunding projects.

6. Conclusion and Implications

Our general findings showed that crowdfunding by its nature is capable to become a new intermediary ground for technology related product development. Our hypotheses' results showed that the project goals requested by the entrepreneur, has no significant relationship with the product's post online market presence. However, the actual money raised during the crowdfunding campaign, which can be multiple times higher the project goal, has a significant relationship with the product's post online market presence. The total number of backers and the number of backers from the product's pre-sale price also has a significant relationship with their post online market presence.

It is important to note that when conducting the data collection, there were number of limitations, both in terms of data sampling and labeling. During the data sampling there were projects, which seemed to be the first product of the entrepreneurs, while in other cases it was unquestionably not a first product. This could lead to different motives from the entrepreneur, hence in the first case, the primarily drive preferably to cover the costs of product development and secondarily the entrepreneurial marketing perspective. In contrast to an entrepreneur who has several products, already able to finance product development, crowdfunding could be a social marketing channel with no costs. Raising awareness through a crowdfunding campaign probably affects the other product sales (develop by the project creator) as well through webshop or online shopping platforms like Amazon. A future research could identify these different motives to explore the main drive of using crowdfunding from the entrepreneur's perspective.

Also for this paper a new tool was developed to analyze the crowdfunding projects, which can be used real-time, therefore capable to parse data at any time for future research and not just for technology related projects. Entrepreneurship research can use this extensive database from Kickstarter's initial start till the end of 2013 in the future.

The implications of the paper have a wide variety of possibilities, not because of the depth of the paper, more of the lack of research in this area. As crowdfunding becomes a new intermediate between business angels and venture capitals (Collins et al., 2012), and a shift from individual single-events towards more product development requires more research in the future.

For entrepreneurs who are interested in crowdfunding as a new way of entrepreneurial finance, could relate to the general trends towards tangible products within technology related projects' appearance on these platforms. Also, we can conclude that we have an increased ratio for successful projects overall within technology related projects.

Regarding the hypotheses and the general patterns presented in the second chapter, a number of interesting conclusions can be drawn in regards to the different actors in crowdfunding. More specifically, the findings confirm that: there is an ongoing trend towards strict project selection processes from the crowdfunding platforms, and a deeper understanding of the crowdfunding phenomena from both crowdfunding project founders and funders. The crowdfunding platform understands more the market needs over the last 5 years, therefore the project selection process is more mature. Interpreting the trends from the general findings, Kickstarter has a decreasing trend towards personal projects (Diagram 2.), which are less likely to be successful. The comparison between platforms are mainly based on the total money raised through the crowdfunding platform and the successfulness of projects (Appendix 1.). Therefore this direction from Kickstarter would be reasonable in order to maintain their rank between crowdfunding platforms. According to our findings, Kickstarter may select more tangible technology related projects based on statistics from previous years (Diagram 3.), which are more likely to be successful due its pre-ordering nature to attract more backers. The recent rise of the crowdfunding phenomena attracts more project founders to establish it as a new entrepreneurial finance method, between bootstrapping and traditional way of finance. This confirms the trend that the project founders prefer to submit more tangible products over personal projects, which is generally a high-cost product development. The above mentioned two factors, the selection process by the platform and the popularity of crowdfunding projects indicate an increased level of quality with the projects presented in the crowdfunding. This raise of quality attracts more backers, which also facilitates the future success of this new entrepreneurial finance method as a viable option for financing product development.

However, it is important to state that, just because the regression analysis show these patterns, there is no guarantee that the above mentioned implications are a direct cause of the changes. In our understanding the three main actor, the crowdfunding platform and the crowdfunding project founders and funders are equally the cause of these changes altogether. There may have

been another invisible variables outside the identified actors.

Crowdfunding serves as a potential new ground for early stage entrepreneurial finance. Further research could compare the findings from this paper with traditionally financed entrepreneurial ventures in order to evaluate the two different phenomena. This study provides basic evidence that the outcome of crowdfunding projects during the campaign has significant influence on the technology related tangible product's afterlife, which could be important for the long-term entrepreneurial venture context.

7. References

Adams, C. and Ramos, I. (2010): "*The Past, Present and Future of Social Networking and Outsourcing: Impact on Theory and Practice*". UK Academy for Information Systems Conference Proceedings 2010. Paper 3. http://aisel.aisnet.org/ukais2010/3

Agrawal, A., C. Catalini, and A. Goldfarb (2011): "*The Geography of Crowdfunding*,"NBER Working Paper No. 16820, http://www.nber.org/papers/w16820.

Agrawal, A K. (2013): "*Some Simple Economics of Crowdfunding*" Working paper: http://www.nber.org/papers/w19133

Ahlers, G.K.C, Cumming, D., Günther, C. & Schweizer, D. (2012): „*Signaling in Equity Crowdfunding*"Working Paper: http://ssrn.com/abstract=2161587

Ariely, D. and I. Simonson (2003): "*Buying, Bidding, Playing, or Competing? Value Assessment and Decision Dynamics in Online Auctions*," Journal of Consumer Psychology, 13(1&2), pp. 113-123

Audretsch, D. B., and J. Mata (1995): "*The Post-Entry Performance of Firms: Introduction*",International Journal of Industrial Organization, 14, pp. 413–419

Bayus, B., (2013): "*Crowdsourcing new product ideas over time: an analysis of the Dell IdeaStorm community*". Manag. Sci. 59, pp. 226–244.

Belleflamme, P.,Lambert, T. & Schwienbacher, A. (2013): "*Crowdfunding: Tapping the right crowd*", J. Bus. Venturing (2013), http://dx.doi.org/10.1016/j.jbusvent.2013.07.003

Bennett, R. (1997): "*Export marketing and the internet: experiences of web site use and perceptions of export barriers among UK businesses*", International Marketing Review, Vol. 14 No. 5, pp. 324-344.

Bensinger, G. (2012): "*Competing with Amazon on Amazon*", Online newspaper article, Avaliable at: http://online.wsj.com/news/articles/SB10001424052702304441404577482902055882264 (Accessed. 19.04.2014)

Brabham, D. C. (2008a): "*Crowdsourcing as a Model for Problem Solving: An Introduction and Cases*" *Convergence: The International Journal of Research into New Media Technologies, 14*(1), 75-90. doi: 10.1177/1354856507084420.

Brabham, Daren C. 2008b: "*Moving the Crowd at iStockphoto: The Composition of the Crowd and Motivations for Participation in a Crowdsourcing Application*." Working paper.

Braet, O. and Spek, S. (2010): *Crowdfunding the Movies: A Business Analysis to Support Moviemaking in Small Markets. Proceedings of the 8th international interactive conference on Interactive"* TV & Video. New York: ACM, pp. 221-228.

Burtch, G., Ghose, A., Wattal, S., (2011): "*An empirical examination of the antecedents and consequences of investment patterns in crowd-funded markets*." SSRN Electronic Journal.

Collins L. & Pierrakis Y. (2012): "*The Venture Crowd: Crowdfunding Equity Investment into Business"*, Industry Report, Available from: <http://www.nesta.org.uk/sites/default/files/the_venture_crowd.pdf> [6 May 2014]

Cooper, D. R., & Schindler, P. S. (2006): „*Business Research Methods*", 9th ed.. USA: McGraw-Hill

Cosh, A., D. Cumming, and A. Hughes (2009): "*Outside Entrepreneurial Capital*," The Economic Journal, 119(540), pp. 1494-1533.

Davidsson, P. (2004): "*Researching Entrepreneurship*". New York: Springer

Drover, W. & Zacharakis, A. (2013): *„CROWDFUNDING'S IMPACT ON THE ENTREPRENEURIAL EQUITY FOOD CHAIN"*, Online newspaper article, Available at: http://iveybusinessjournal.com/topics/strategy/crowdfundings-impact-on-the-entrepreneurial-equity-food-chain-2 (Accessed: 10.03.2014)

Ebben, J. & Johnson, A. (2006): "*Bootstrapping in small firms: An empirical analysis of change over time*", Journal of Business Venturing 21, pp. 851 – 865

Gerber, E.M. & Hui, J. (2013): "*Crowdfunding: Motivations and deterrents for participation."* ACM Trans. Comput.-Hum. Interact. 20, 6, Article 34

Giudici, G. and Guerini, M. and Rossi Lamastra, C. (2013): "*Why Crowdfunding Projects Can Succeed: The Role of Proponents' Individual and Territorial Social Capital"*, Working Paper, Available at SSRN: http://ssrn.com/abstract=2255944

Harms, M. (2007): "*What Drives Motivation to Participate Financially in a Crowdfunding Community?",* Master Thesis, Available at:http://www.grin.com/en/e-book/181293/what-drives-motivation-to-participate-financially-in-a-crowdfunding-community

Harrison, R. (2013): "*Crowdfunding and the revitalisation of the earlystage risk capital market: catalyst or chimera?",* Venture Capital: An International Journal of Entrepreneurial Finance, 15:4, 283-287, DOI: 10.1080/13691066.2013.852331

Hemer, J. (2011): "*A snapshot on crowdfunding.*" Working papers firms and region, No. R2/2011. http://www.econstor.eu/handle/10419/52302

Hsu, D. (2004): "*What Do Entrepreneurs Pay for Venture Capital A_liation?,"* Journal of Finance, 59, pp. 1805 - 1844.

Howe, J. (2006): "*The Rise of Crowdsourcing*", Online newspaper article, Available at: http://www.wired.com/wired/archive/14.06/crowds.html (Accessed: 11.03.2014)

Hung, S-C & Chu, Y-Y (2006): "*Stimulating new industries from emerging technologies: Challenges for the public sector*", Technovation, 26, 2006, pp. 104-110

Kappel, T. (2008): "*Ex Ante Crowdfunding and the Recording Industry: A Model for the US."* Loyola of Los Angeles Entertainment Law Review, 29, 375.

Keller, G. (2005): "*Statistics for Management and Economics"*, 7th Edition. Belmont: Thompson Brooks/Cole

Kleemann, F., Voß, G.G., Rieder, K., (2008): "*Un(der)paid innovators: the commercial utilization of consumer work through crowdsourcing."* Sci. Technol. Innov. Stud. 4, pp. 5–26

Kuppuswamy, V. & Bayus, B. (2013): "*Crowdfunding creative ideas: The Dynamics of Project Backers in Kickstarter*", http://business.illinois.edu/ba/seminars/2013/Spring/bayus_paper.pdf

Leach, J.C. & Melicher, R.W. (2008): "*Entrepreneurial Finance*", 3rd ed., Stamford:Cengage Learning

Lee, Sang-Heui, David DeWester and So Ra Park. (2008): "*Web 2.0 and Opportunities for Small Businesses*." Service Business 2:4, pp. 335-345.

Merton, R., (1957): "*Priorities in scientific discovery: a chapter in the sociology of science*." American Sociological Review 22 (6), pp. 635 - 659

Miller, D. & Garnsey, E. (2000): "*Entrepreneurs and technology diffusion How diffusion research can benefit from a greater understanding of entrepreneurship*" Technology in Society 22, pp. 445 - 465

Mitsuhiko (2014): "*Scrapes kickstarter for some stats."* , Analyzing tool, Available from: <https://github.com/mitsuhiko/kickstarter-scraper>. [6 May 2014]

Mollick, E., (2014): "*The dynamics of crowdfunding: determinants of success and failures*." Journal of Business Venture, 29, pp 1-16

Nagy. D. (2014): "*Kickscraper - Tool to automatically extract project related information from Kickstarter*". Available from: <https://github.com/Devids/kickscraper>. [6 May 2014]

Neight-Allen (2014): "*Scrapes kickstarter and stores to a mySQL database using django."*, Analyzing tool, Available from: <https://github.com/neight-allen/django-kickstarter-scraper>. [6 May 2014]

Ordanini, A., Miceli, L. and Pizetti, M. (2011): "*Crowd-funding: transforming customers into investors through innovative service platforms*", Journal of Service Management, 22(4), pp. 443 - 470

Politis, D., Gabrielsson, J. & Shveykina, O. (2012): "*Early-stage finance and the role of external entrepreneurs in the commercialization of university-generated knowledge*", Venture Capital, 14(2-3), pp. 175 - 198

Rao H & Giorgi S. (2006): "*Code breaking: how entrepreneurs exploit cultural logics to generate institutional change*". In Research in Organizational Behavior, ed. BM Staw, pp. 269-304. New York: Elsevier/JAI

Robertson, T. and Gatignon, H. (1986):"*Competitive Effects on Technology Diffusion*", Journal of Marketing, July, 50, pp. 1-12

Rubinton, B.J. (2011): "*Crowdfunding: disintermediated investment banking*" Working paper: http://mpra.ub.uni-muenchen.de/31649/

Schenk, E. (2009): "*Crowdsourcing: What can be Outsourced to the Crowd, and Why?"*, Conference Paper, Available at: http://raptor1.bizlab.mtsu.edu/s-drive/DMORRELL/Mgmt%204990/Crowdsourcing/Schenk%20and%20Guittard.pdf, (Accessed 29.04.2014)

Schwienbacher, A. and B. Larralde (2012): "*Crowdfunding of Entrepreneurial Ventures,*" in D. Cumming (ed.), The Oxford Handbook of Entrepreneurial Finance, Oxford, UK: Oxford University Press.

Shane, S. & Cable, D. (2002): "*Network Ties, Reputation, and the Financing of New Ventures.*" *Manage. Sci.* 48, 3 (March 2002), pp. 364-381

Shane, S., Stuart, T., (2002): "*Organizational endowments and the performance of university start-ups*" Management Science 48 (1), pp.154–171.

Sinkovics, R. and Penz, E. (2005): "*Empowerment of SME websites: development of a web empowerment scale and preliminary evidence*", Journal of International Entrepreneurship, Vol. 3 No. 4, pp. 303-315.

Sinkovics, N., Sinkovics, R. & Jean, R. (2012): "*The internet as an alternative path to internationalization?*", International Marketing Review, 30(2), pp. 130 - 155

Steinberg, D. (2012), The Kickstarter Handbook, Philadelphia, PA: Quirk Books

Tucker,J. & Lean, J., (2003): "*Small firm finance and public policy*", Journal of Small Business and Enterprise Development, Vol. 10 Iss: 1, pp.50 – 61

Winborg, J. & Landström, H. (2001): "*Financial Bootstrapping in Small Businesses: Examining small Business Managers' Resource Acquisition Behaviours*", Journal of Business Venturing 16, pp.235-254

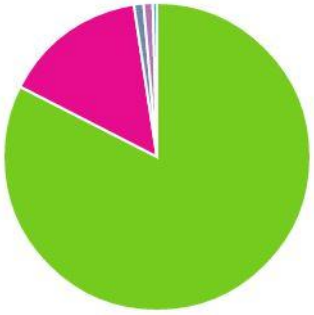
Zhang, J., and P. Liu (2012): "*Rational Herding in Microloan Markets*," Management Science, 58(5), pp. 892 - 912.

8. Appendixes

Appendix 1.

CrowdFundFusion Stats (2014.03.22)

Summary Stats



	$Money		Projects	
	Raised to Date	Currently Pledged	Funded	Seeking Funding
Kickstarter	$872,042,537.20	$31,252,735.51	58,838	5,030
Indiegogo	$159,291,797.00	$12,698,308.00	17,289	15,935
Fundrazr	$10,646,233.00	$1,900,707.00	5,531	1,619
Fundly	$10,207,915.00	$4,859,382.00	709	6,207
Rockethub	$4,590,385.00	$425,525.00	593	807
Totals	$1,056,778,867.2	$51,136,657.51	82,960	29,598

Appendix 2.

Kickstarter has the following categories:

1. Games, 2. Film & Video, 3. Design, 4. Technology, 5. Music, 6. Publishing, 7. Food, 8. Art, 9. Fashion, 10. Comics, 11. Theater, 12. Photography, 13. Dance

Appendix 3.

1. Name – Name of the Project
2. Blurb – Short description of the Project
3. Project Goal
4. Project Pledged
5. State – Status of the Project (successful, live, failed, suspended, canceled)
6. Country
7. Currency
8. Deadline – Deadline of the project's crowdfunding campaign
9. Created at – Project creation date on the crowdfunding platform
10. Launched at – Start of the project's crowdfunding campaign
11. State Changed At – Usually equals with the Deadline in successful projects, but in case of failed, suspended or canceled it differs from the original deadline
12. Creator name – Name of the Project owner, which can be an individual person or an existing company
13. Creator url – The project creators public profile on the crowdfunding platform (requirement)
14. Category – In this paper we were working with Technology related projects, which is under the Technology category.
15. Url – Project website url, which is the unique link for the project page on the crowdfunding platform
16. Website - If the individual person or the company has a website, it can be visible on the project's page

Appendix 4.

Time of data gathering (2014.05.16.)

Projects and Dollars

Category	Launched Projects	Total Dollars	Successful Dollars	Unsuccessful Dollars	Live Dollars	Live Projects	Success Rate
All	**146,842**	**$1 B**	**$958 M**	**$130 M**	**$28 M**	**4,744**	**43.49%**
Games	9,919	$242.63 M	$214.74 M	$24.54 M	$3.36 M	447	35.52%
Film & Video	35,659	$214.71 M	$177.24 M	$33.12 M	$4.35 M	885	40.29%
Design	7,847	$159.46 M	$137.70 M	$17.01 M	$4.76 M	403	38.49%
Technology	4,555	$146.28 M	$123.29 M	$15.41 M	$7.58 M	346	34.81%
Music	29,444	$111.53 M	$100.80 M	$9.30 M	$1.42 M	668	55.22%
Publishing	17,685	$53.19 M	$44.30 M	$7.78 M	$1.11 M	514	32.43%
Food	6,142	$43.13 M	$34.18 M	$6.83 M	$2.12 M	307	39.76%
Art	13,047	$39.86 M	$34.20 M	$4.87 M	$784.69 K	399	47.56%
Fashion	6,071	$34.06 M	$28.28 M	$4.16 M	$1.62 M	267	29.36%
Comics	4,018	$28.19 M	$25.68 M	$2.14 M	$373.29 K	116	49.79%
Theater	6,090	$24.21 M	$21.05 M	$2.75 M	$418.31 K	197	64.26%
Photography	4,468	$13.21 M	$10.82 M	$1.97 M	$416.93 K	143	36.23%
Dance	1,897	$6.42 M	$5.91 M	$428.67 K	$81.79 K	52	70.62%

Source: https://www.kickstarter.com/help/stats

Our sample used the data from 2014.03.17. and we excluded the project from 2014, which was 1386. Therefore from 4555 projects excluding the 1386 projects, we ended up with 3169 projects. This was the general dataset, from which we used 170 as a final sample.

Appendix 5.

General Statistics from Kickstarter under the category called Technology

Year	All	Successful	Failed	Suspended	Canceled
2009	42	12	22	0	8
2010	199	63	110	1	25
2011	415	122	234	3	56
2012	**813**	**310**	**432**	**8**	**63**
2013	1700	622	886	10	182
Sum:	3169	1129	1684	22	385

As the table shows, in overall till the day of gathering 3169 projects were presented on Kickstarter under the category called Technology. The crowdfunding platform itself categorizes the projects based on its status.

Project Status	Description
Successful	The project reached its project goal during the crowdfunding campaign.
Failed	The project failed to reach its project goal during the crowdfunding campaign.
Suspended	The project was suspended during the crowdfunding campaign.
Canceled	The project was canceled during the crowdfunding campaign.

General Statistics from Kickstarter after the data filtering

Year	Successful	Personal project	not commercial product	software	application	video tutorial	web applications	universal name	**Tangible Product**
2009	12	2	1	9	0	0	0	0	**0**
2010	63	24	2	29	0	0	0	0	**8**
2011	122	34	13	19	4	1	1	8	**42**
2012	**310**	61	3	43	16	7	5	5	**170**
Sum:	**507**	**121**	**19**	**100**	**20**	**8**	**6**	**13**	**220**

As the table shows, 507 projects met with their project goals till the end of 2012 and 310 projects were successfully funded. In our sample 170 projects met with our filtering criteria, which was described under the subsection 3.4. Data sampling.

Appendix 6.

Descriptive statistics on variables of hypotheses test

Descriptive Statistics			
Variables	Mean	Std. Deviation	N
Project Goal	32288.34	67509.997	170
Project Pledged	131716.2	335400.998	170
Sum of backers from pre-sale price	780.28	1657.717	170
Total number of Backers	896.93	1727.391	170
Webshop Availability	0.58	0.495	170
Amazon Presence	0.26	0.442	170