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Abstract

Crowdfunding, which can be defined as pooling (usually) small amounts of money from a large group of people in order to support a goal, usually via the Internet, has become a widely used instrument for funding startups. It is therefore important to investigate the success factors of these campaigns.

Earlier studies indicate that information signals, specific campaign characteristics, campaign updates and entrepreneur's background affect the success of equity crowdfunding campaigns.

Within this master thesis, a study aimed at identifying success factors of German equity crowdfunding projects and focusing the most on the effect of updates, was conducted. Data used for this study was obtained from the biggest German equity crowdfunding platform specialising in funding businesses.

The results of the study show that the updates increase both the number of investments as well as the invested amount and therefore have a positive impact on the success of a campaign.

Keywords: crowdfunding, equity crowdfunding, updates, success factors

Abstract

Crowdfunding, bei dem (in der Regel) kleine Geldbeträge von einer großen Gruppe von Menschen um ein Ziel zu erreichen zusammengefasst werden, in der Regel über das Internet, hat sich zu einem weit verbreiteten Instrument der Finanzierung von Startups entwickelt. Es ist deshalb wichtig, die Erfolgsfaktoren dieser Kampagnen zu untersuchen.

Frühere Studien haben gezeigt, dass Informationssignale, spezifische Kampagnenmerkmale, Kampagnenaktualisierungen und der Hintergrund des Unternehmers den Erfolg von Crowdfunding-Kampagnen beeinflussen.

Im Rahmen dieser Masterarbeit wurde eine Studie durchgeführt, die darauf abzielte, Erfolgsfaktoren deutscher Equity-Crowdfunding-Projekte zu identifizieren und den Effekt von Updates (Aktualisierungen) in den Vordergrund zu stellen. Die für diese Studie verwendeten Daten stammen von der größten deutschen Equity-Crowdfunding-Plattform, die auf die Finanzierung von Unternehmen spezialisiert ist.

Die Ergebnisse der Studie zeigen, dass die Updates sowohl die Anzahl der Investitionen als auch den investierten Betrag erhöhen und sich somit positiv auf den Erfolg einer Kampagne auswirken.

Schlüsselwörter: Crowdfunding, Equity Crowdfunding, Updates, Erfolgsfaktoren

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List of abbreviations

ACM	Association for Computing Machinery
AG	Stock Corporation (Aktiengesellschaft)
AON	All-or-nothing
ASSOB	Australian Small Scale Offerings Board
B2B	Business-to-business
B2C	Business-to-consumer
BA	Business Angel
E.g.	For example
Et al.	And others
Etc.	And so on
FCA	Financial Conduct Authority
GmbH	Limited Liability Company (Gesellschaft mit beschränkter Haftung)
I.e.	That is
IOSCO	International Organization of Securities Commissions
IP	Intellectual property
IPO	Initial public offering
ISIN	International Securities Identification Number
IWH	Halle Institute for Economic Research
JOBS	Jump-start Our Business Startups
KIA	Keep-it-all
Km	Kilometre
MBA	Master of Business Administration
SEC	Securities and Exchange Commission
SME	Small and medium-sized enterprises
SSRN	Social Science Research Network
TOCHI	Transactions on Computer-Human Interaction
US	United States of America
UK	United Kingdom
VC	Venture Capitalist
WKN	Securities identification number (Wertpapierkennnummer)

1. Introduction

Over the previous few years, equity-based crowdfunding industry has grown quickly and generated a number of success stories, that at the same time raise a number of issues. Equity crowdfunding can be described as a funding technique in which an entrepreneur sells equity or equity-like stocks in a business to a group of (small) investors through an open call for funding on Internet-based platforms. There are regulatory differences in different countries. Germany is one of the countries that has a positive perspective on equity-based crowdfunding and the market for this type of funding is constantly growing.

The research problem of this thesis is what differentiates a successful campaign from an unsuccessful one. The question is framed specifically to analyse the problem from the viewpoint of the successful campaigns. This means that rather than looking at what not to do, the focus is more on what were the good practices and strategies employed.

There are numerous studies focusing on different possible success factors of crowdfunding. As equity crowdfunding is the most recently implemented crowdfunding model, this area is less examined than the other crowdfunding models. The studies that were done specifically about the success factors of equity crowdfunding projects usually analysed only one category of factors (for example information signals, human capital or entrepreneur's background).

The purpose of this thesis is to identify the factors that have an impact on the success of the funded project, launched on a German equity crowdfunding platform. Success is defined in two phases. The first phase is achieving the threshold (€100.000 in 2 months). The second phase is achieving the target amount, which is set by the entrepreneur.

First, there is a theoretical background on this subject, including a literature analysis. As for the empirical part of this thesis, a platform analysis was conducted. This analysis contained all relevant data from 96 equity crowdfunding campaigns that were finished before 31.5.2019. Obtained data was put into several categories – success rate, level of equity participation, target amount, collected amount, number of investors, entrepreneur's background, number of updates, update category, the impact of updates on the number of investments and the invested amount. These categories were later individually examined and any link between a factor and the potential success of the project was looked for. The biggest focus in this study was examining the impact of the updates – if they increased the number of investments and more importantly, if they increased the invested amount.

2. Theoretical background

Crowdfunding has rapidly become a commonly used form of funding for financing start-ups. Growth rates over its brief life span were remarkable (Tomczak and Brem, 2013). It is used to define an “increasingly widespread form of fundraising, typically via the Internet, whereby groups of people pool money, usually (very) small individual contributions, to support a particular goal” (Ahlers et al, 2015).

2.1 Crowdfunding

Scholars define crowdfunding in many distinct respects in separate articles, but the main point is generally the same: an internet campaign is created by a company visionary or private person, who expects to obtain small amounts of money from a lot of people - the group. In any crowdfunding attempt, there are three roles to accomplish. First, there is the intermediary who acts as a matchmaker between the promoters and the funders (Burkett, 2011). The intermediary's (also recognized as the platform) key function is a matchmaker between promoters and funders (Burkett, 2011). Next, there are fundraisers, businessmen and others who raise money through a crowdfunding platform. These fundraisers use crowdfunding to collect immediate market access and economic help from genuinely interested supporters (Ordanini et al., 2011). Finally, there are the investors themselves, also identified as the crowd of the term crowdfunding, who decide to support these initiatives financially, carry a risk and expect some payoff (Ordanini et al., 2011). The campaign's goal changes between which crowdfunding model is used. In addition, crowdfunding can be divided into two main sub-categories: financial and non-financial crowdfunding. The variations will be described in the chapter below.

2.1.1 Financial and non-financial crowdfunding

Financial crowdfunding includes expecting the crowdfunder to make an economic return on his investment, i.e. socially oriented motivation and incentives to invest. This definition includes two crowdfunding models: equity and loan crowdfunding. While there is a chance for the crowdfunder to create a financial return, however, he may also be concerned about non-financial returns, e.g. the beneficial sense of assisting a local corner-stone company by investing in its equity, or helping a student pay for education by lending him cash through a crowdfunding platform (Andersen and Mauritzen, 2016).

Financial crowdfunding also makes it possible for crowdfunders to invest in private debt and private equity. This chance extends the portfolio of the market. Therefore, including

crowdfunding as an investment option provides the investor a greater opportunity for diversification and finding their optimal portfolio. To the extent that the crowdfunding universe's market value is not marginal, one can argue that by adding crowdfunding as an investment alternative, the efficient frontier shifts to the upper left. Therefore, one can claim that inclusion of crowdfunded debt / equity as an investment chance is desirable for investors because they would possibly achieve the same return for less risk or greater returns for the same risk (Andersen and Mauritzen, 2016).

Non-financial crowdfunding is the reverse, as the crowdfunder has no immediate chance of making an economic return on his investment. Examples of non-financial crowdfunding are reward and donation crowdfunding, although the motive of the crowdfunder may vary in each model (Andersen and Mauritzen, 2016).

2.1.2 Crowdfunding Models

There are four distinct crowdfunding models presently available: equity crowdfunding, loan crowdfunding, reward crowdfunding and donation crowdfunding. In the next chapter, these will be clarified. The primary focus throughout the thesis will be on equity crowdfunding.

2.1.2.1 Equity crowdfunding

Equity crowdfunding is the act by private-owned companies providing securities to the general public, generally via the internet. The model enables companies to give a share of their equity at a predetermined cost so that anyone can obtain a share in the privately-owned business (Pierrakis and Collins, 2013). Potential risks of equity crowdfunding – for the entrepreneurs, for the investors and for the platforms will be discussed in chapter 2.3.

2.1.2.2 Loan crowdfunding

Loan crowdfunding is a funding model in which crowdfunders lend cash directly or indirectly to prospective borrowers via crowdfunding platforms (e.g. LendingClub, Zopa). Loan crowdfunding platforms typically allow private individuals as well as companies to apply for loans.

The money-needing borrowers consult the appropriate platform. The crowdfunders obtain a debt instrument by investing, which specifies the conditions of future repayment. Borrowers post credit applications on crowdfunding platforms, but the loan details (e.g. complete amount, interest and length) are determined by the crowdfunding platforms and the borrower's perceived

risk (e.g. loan risk, quantity demanded and economic history). Crowdfunders are lending their money by checking the listings of loans published by prospective borrowers. They can then pick the listings that fulfil their danger, length and return requirements. By taking an administrative fee and/or a proportion of the loan quantity, the platform itself earns its revenue (Massolution, 2015).

Financial return is discovered to be the biggest motive in selecting this model for crowdfunders. In addition, safety (i.e. safe money) and risk rating (given by the crowdfunding platform) are significant considerations (Pierrakis and Collins, 2013). However, some may also consider intrinsic motivation (often referred to as "social lending" or "effect investors").

2.1.2.3 Rewards crowdfunding

Rewards crowdfunding offers non-financial benefits to crowdfunders in exchange for their contribution (Ahlers et al., 2015). The most popular reward crowdfunding model is basically a platform for pre-purchasing. Future clients are encouraged to pre-purchase a product before manufacturing has started, so that sufficient financing is available for the project to be realized. This also offers the funders intangible advantages. Therefore, the incentive to engage in such crowdfunding campaigns is the desire for reward but also internal motivation of crowdfunders (Pierrakis and Collins, 2013).

This funding model also provides the entrepreneur the capacity to distinguish their clients in terms of cost. The entrepreneur can recognize and utilize the readiness of its clients to pay by setting distinct reward rates depending on the size of the promise. When an entrepreneur launches a crowdfunding reward campaign, he/she must decide what kind of model of objective she wants. What occurs if the entrepreneur fails to fulfil his predetermined objective of financing? Does she keep the money anyway and initiate an underfunded project, or is the money returned to the funders? Two models are often called the All-or-Nothing (AON) model and the Keep-it-all (KIA) model (Andersen and Mauritzen, 2016).

Many crowdfunding platforms recognize only AON models, where the entrepreneur takes all the danger of obtaining funding (e.g. Kickstarter, FundedByMe) or not. If the project fails to reach its funding goal, every funder will be reimbursed, and nothing will be given to the entrepreneur. The entrepreneur maintains the cash promised in the KIA model, even if the financing objective is not achieved (Cumming, Leboeuf and Schwienbacher, 2015).

As for an example, lightweight backup footwear "Skinners" was invented by a young law clerk Petr Prochazka, who is a family friend. The idea came from Norway, where in the summer of

2014, he worked as a cook. When his friend wounded his foot and was unable to wear traditional shoes, Prochazka struck the "aha moment". Prochazka, struggling to assist him, took the travel sewing kit and produced the first Skinners prototype. Two years later, he brought the final product to the globe through a successful Kickstarter crowdfunding campaign. It has become the most financed footwear project ever to raise more than 650 000 USD from almost 10.000 investors (Skinners, 2017).

2.1.2.4 Donation crowdfunding

One of the non-financial models is donation crowdfunding. Crowdfunders typically have intrinsic motivation to donate and returns from project support will be intangible (Pierrakis and Collins, 2013). Like all crowdfunding projects, donation projects have a predetermined objective of how much cash they intend to raise. The number of distinct projects that are set to be reached varies greatly in size. One can discover projects that have a target of \$1.000 and projects that have an objective of > \$500.000. Crowdfunding platforms typically practice for some crowdfunding models that a project cannot receive more funding than its initial goal, i.e. it cannot be overfunded. However, only the length of the campaign limits the quantity of cash you can receive for donation crowdfunding. In addition, initiatives of this model generally have a general objective, e.g. to construct a homeless shelter, fund rehabilitation expenses for a newly disabled family member, or fund medical care for a certain number of individuals in a conflict zone (Andersen and Mauritzen, 2016).

Mentioned predetermined objectives are a separate distinction between crowdfunding donations and traditional non-profit charity organizations. Charity organizations (e.g. UNICEF, Red Cross) operate as umbrella organizations for various initiatives and causes where the objective is more abstract. Not necessarily known to the donor, donated money is assigned among many projects. The crowdfunder donates straight to a particular project in donation crowdfunding. With regards to donations to both crowdfunding and non-profit campaigns, the giver is motivated by a number of factors in which sympathy, empathy, guilt, happiness and identity are the strongest determinants (Gerber, Hui and Kuo, 2013).

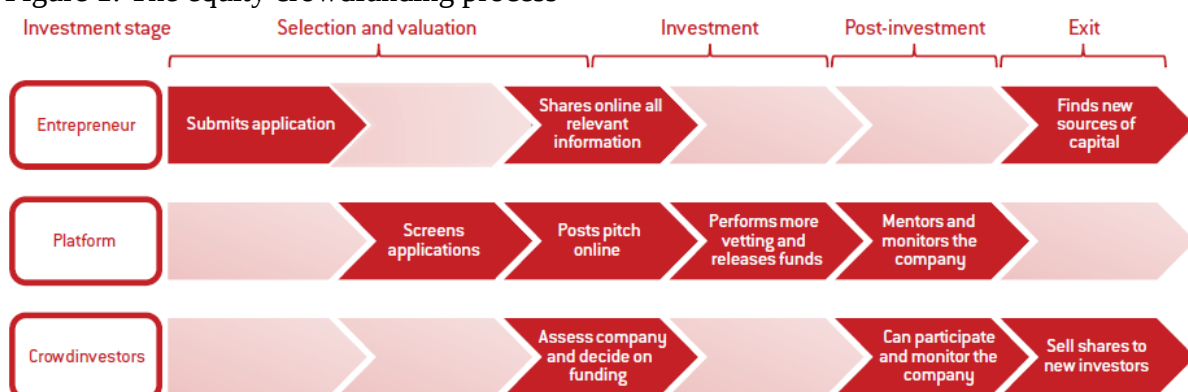
2.2 Equity Crowdfunding

Equity crowdfunding is a comparatively new phenomenon compared to other types of crowdfunding. Bradford (2012) describes equity crowdfunding as a model in which funders receive equity or equity-like agreements (e.g. profit-sharing) interest in the undertakings they finance. Belleflamme et al. (2014) point out that the financing method itself is the central difference between equity crowdfunding and traditional capital raising: Entrepreneurs are making an open call for funding on a crowdfunding platform and investors are making their choices based on the data they provide. In addition, by offering a standardized investment contract and settling payments, the crowdfunding platform promotes the transaction. Belleflamme et al. (2014) also note that investment in start-ups by individual equity crowdfunding is usually much lower than investment in venture capital or angel (Ahlers et al., 2015).

Funders receive equity securities or comparable benefits as compensation for their contribution in this crowdfunding model (Mollick, 2014; Belleflamme et al., 2014). Equity crowdfunding is a type of funding in which entrepreneurs create an open call to sell on the Internet a defined amount of equity or bond-like shares in a business in the hope of attracting a large group of investors. The open call and investment take place on an internet platform (such as Crowdcube, for example) that offers the transaction means (legal groundwork, pre-selection, economic transaction processing capability, etc.) (Ahlers et al., 2015).

The process of an equity crowdfunding project for the entrepreneur, the platform and the crowdfunder is illustrated in Figure 1.

Figure 1: The equity crowdfunding process



Source: Wilson and Testoni, 2014

2.2.1 Financing sources for SMEs and Start-Ups

The next paragraphs will discuss different financing possibilities for SMEs and start-ups, the need of equity crowdfunding investments and the main reasons why this type of crowdfunding is of such high interest. In order to be able to state the hypotheses about the success of the project funded on equity crowdfunding, there is a need to identify the common features between rewards / donations-based crowdfunding and business angels, venture capital.

The way in which entrepreneurs, for example start-ups, would signal (small) investors, is likely to be distinct from the manner they would signal to angels or venture capitalists (Ahlers et al., 2015). Literature on corporate finance describes small investors as those who invest relatively small quantities of cash and obtain relatively small returns from a business (Malmendier and Shanthikumar, 2007). Small investors are likely to lack the economic sophistication and experience of venture capitalists, usually extremely skilled in valuing start-ups and evaluating founding teams (Freear, Sohl and Wetzell, 1994). In addition, the expenses for angel investors and venture capitalists to assess thoughts and teams are relatively low in relation to their investments, but for small investors they would be prohibitively high. For instance, it would not be economically sensible for a prospective investor to spend weeks assessing a venture investment's due diligence that can only produce an amount equivalent to the income of several days (Ahlers et al., 2015).

2.2.1.1 Funding from business angels and venture capitals

According to Preston (2007), a business angel is "a high-net worth individual who in the company's early phases takes a great risk on one or two individuals", by investing their own money. They invest locally and offer consultation, direction, and advice. Business angels are often successful entrepreneurs who "were financed by private equity and liked to vet new technologies and teams" (Lerner et al., 2012). Leach and Melicher (2012) describe angel investors as successful people who operate as unofficial or private investors providing small companies with venture financing. BAs invest in considerably more new projects than venture capitalists (VCs). In the U.S., BAs are projected to finance up to 10 times more enterprises than VCs, and worldwide, BAs are suggested to finance 100 times more seed-stage high-tech enterprises than VCs. There are different reasons why BAs have become a more common source of early-stage financing. One explanation is that the VC industry has undergone important changes in latest years. Global VC has decreased annually by 20 percent since 2009,

affected by the lack of investment exits under worldwide financial uncertainty, which in turn slowed capital flow back to VC investors (Gregson, 2014).

Leach and Melicher (2012) define venture capitalists as "people joining formal, structured companies to raise and distribute capital to new and rapidly expanding enterprises". Venture capitalists are active investors in enterprises that otherwise may not be able to obtain appropriate funding (Jeng and Wells, 2000; Amit et al., 1998; Sahlman, 1990). Because of their knowledge in investing in entrepreneurial projects often in particular sectors, VCs often help businessmen with strategic problems through their regular interaction as well as their position on the board of directors (Timmons and Bygrave, 1986; MacMillan et al., 1989; Fried and Hisrich, 1995). VCs can also act as intermediaries between lenders and businessmen (Daily et al., 2002). The participation of VC can also give validity to the new project and can act as a type of reliable engagement (Williamson, 1996) to those involved in the new venture. In addition, VCs can introduce important buyers and vendors to entrepreneurs and assist them with connecting with higher-reputation underwriters (Megginson and Weiss, 1991).

2.2.1.2 Key characteristics of equity crowdfunding and most similar forms of funding

Wilson and Testoni (2014), Dorff (2014) and Lukkarinen et al. (2016) used the approach of deriving equity crowdfunding features from neighbouring fields. Table 1 provides the shared characteristics (highlighted in grey) between financing sources. From the data given, it can be seen that equity crowdfunders have the most in common with crowdfunders based on reward/donation and angel investors, while there are only a few features shared with venture capitalists. Because equity and reward-based crowdfunding come from the same principle, investors are very comparable in these platforms since most of them have very distinct investment experience or no experience at all. Equity crowdfunders invest their own cash as both reward-based crowdfunders and business angels (Leach and Melicher, 2006; Preston, 2007).

While venture capitalists pool monetary commitments from institutional investors into funds and create investment choices, business angels and equity crowdfunders make individual choices about investment (Wilson and Testoni, 2014). Investors generally receive different products and rewards when investing in reward and donation-based crowdfunding, while equity crowdfunding offers stocks in return for invested resources to the investor. According to Wilson and Testoni (2014), ordinary shares are generally received by equity crowdfunders and business

angels, while preferred shares are obtained by venture capitalists. In addition, venture capitalists require returns from the investors as they operate a fund and have to pay back their lenders.

When looking at the founders' geographic location, the difference between angel investors and equity crowdfunders is noticeable. Angel investors typically invest locally, and venture capitalists invest locally as well as globally, while equity crowdfunders often invest in remote businesses. According to the study by Agrawal et al. (2011), the average distance between the entrepreneur and investor of a revenue-sharing crowdfunding was about 4,828 km and only 13.5% of investors financed businesses located within 50 km. The need for equity crowdfunding as a remedy to fill the financing gap between the pre-seed and seed phases of the life cycle of the company is discussed in the next chapter.

Table 1: Key characteristics of equity crowdfunding and most similar forms of funding

Features	Rewards-based crowdfunding	Equity crowdfunding	Business angels	Venture capital
Typical funder background	Various, many have no investment experience	Various, many have no investment experience	Former entrepreneurs	Finance, consulting, industry
Source of funds	Investing own money	Investing own money	Investing own money	Investing other people's money
Funding instruments	Non-financial	Shares	Shares	Shares
Deal flow	Through web platform	Through web platform	Through social and/or angel networks	Through social networks and proactive outreach
Due diligence	Very limited, may be conducted by individual, if at all	Conducted by individual, if at all	Conducted by individuals based on their own experience	Conducted by staff in VC firm with potential assistance from outside
Geographic proximity of funders	Investments made online: funders often distant from venture	Investments made online: funders often distant from venture	Most investments local	Invest nationally (or internationally with local partners)
Post-funding role of funders	Most remain passive	Most remain passive	Active (hands-on)	Active (strategic)
Return on investment	Financial return not relevant	Financial return important (but not the only reason for investing)	Financial return important (but not the only reason for investing)	Financial return critical

Source: Lukkarinen et al., 2016; Wilson and Testoni, 2014

Equity crowdfunding has some commonalities in data that are more similar to business angel and early stage venture capital than to reward-based crowdfunding, in particular: the average size of the more recent campaigns, the presence of a pre-money valuation, and the fact that there is an express equity-sharing agreement for each commitment. However, crowdfunding is distinctly different from traditional types of funding because the agreements are standardized

and much simpler, the provision of information is less, the number of investors is much bigger, and the fundraising procedure is much shorter. Given the increase in fundraising effectiveness from the view of entrepreneurs, it is not surprising that equity crowdfunding has gained such momentum in latest years (Vulkan et al., 2016).

2.2.2 The importance of equity crowdfunding

To demonstrate the need for equity crowdfunding, we need to identify how the differences from neighbouring sources of financing make equity crowdfunding more appealing to early-stage companies. First, equity crowdfunding can provide an additional channel (platform) through which companies can acquire funding and take full advantage of the internet's potential (Wilson and Testoni, 2014). The crowdfunding project has the chance to achieve visibility online through its development stage and acquire knowledge about prospective market demand (Agrawal et al., 2011; Hornuf and Schwienbacher, 2014). Another advantage of crowdfunding against business angels is that while angel investors depend primarily on word-of-mouth, crowdfunding effectively matches investors with their choice's best company (Wilson and Testoni, 2014). Because equity crowdfunding operates via internet platforms, geographic factors that could adversely influence traditional types of pre-seed and seed funding may be less relevant (Agrawal et al., 2011). According to the authors, in contrast to business angels and venture capital transactions, the internet platform also benefits from the so-called big data paradigm that leaves the data paths on investors, entrepreneurs and company deals. A better matching system between investors and businesses and a maximized correlation between crowd and product demand could be given throughout the time (Wilson and Testoni, 2014).

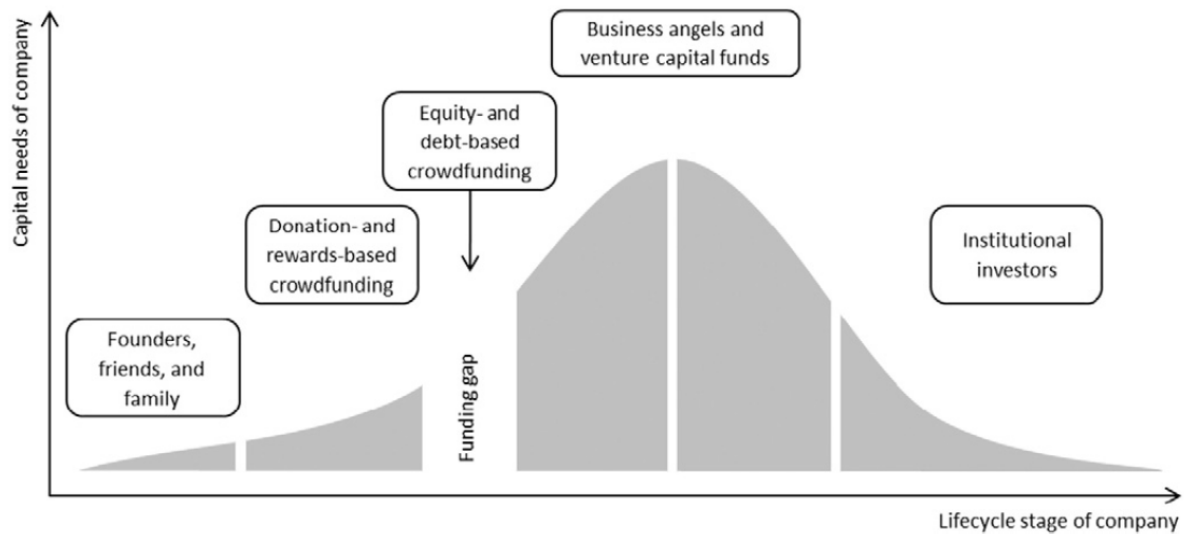
Equity crowdfunding is not always a better solution for small and medium enterprises. One of the biggest crowdfunding problems is that entrepreneurs need to publicly reveal their company concept and strategy (Wilson and Testoni, 2014). For companies with distinctive, creative concepts, it may therefore be harmful if their business model is duplicated by others (Agrawal et al., 2011; Hornuf and Schwienbacher, 2014). According to Wilson and Testoni (2014), equity crowdfunding could be the best solution for non-completely creative businesses or those that can safeguard their intellectual capital.

2.2.3 Firm life cycle and funding gap

Receiving funds from banks or other institutions can be difficult at times. This resulted into the need to identify future financing resources during different life cycles, Capital is usually

obtained from various sources, based on the company's growth phase (Rossi, 2014; World Bank, 2013), as shown in Figure 2.

Figure 2: Funding through company's life cycle



Source: Lukkarinen

Start-ups generally use the founders' money and friends and family funds at first. An external investor is required since these funds are typically limited (Schwienbacher, 2007). Companies can use donation- and rewards-based crowdfunding in the initial concept and seed stages (Rossi, 2014; World Bank, 2013). In the next stage, more regularly used forms of funding become accessible during the expansion phase (World Bank, 2013). Usually businesses turn to business angels or venture capital firms. It may seek financing from institutional investors if the business has an adequate track record (World Bank, 2013).

There is, however, a current funding gap between donation- and reward-based crowdfunding and mainstream types of funding, as the mainstream type of financing may not always be realized (Lukkarinen et al., 2016), due to risk aversion (World Bank, 2013). In order to fill the gap, equity- and debt-based crowdfunding occurs as a possible solution, since the contribution objectives vary from other crowdfunding types. (Lukkarinen et al., 2016).

2.2.4 Legal regulations

A significant factor that needs to be taken into account by providers of crowd-funding platforms, but also by entrepreneurs and investors, are the statutory crowd-investing requirements. Crowd-investing is subject to legal requirements, unlike other crowd-funding subtypes (Belleflamme et al., 2014). The main reason for this is that equity-based crowd-funding enables investors to acquire returns or profit shares, including securities (Bradford,

2012). Following financial crises, particularly the 2008 financial crisis, reporting scandals and corporate governance problems have considerably deepened security market regulations (Ball, 2009; Shleifer, 2002). Accordingly, legislation has been adjusted in many nations to regulate crowd-investment mainly to migrate information asymmetries between investors and entrepreneurs, thereby enhancing investor security (Kappel, 2009; Mollick, 2014; Wardrop et al., 2015). Although crowd-investing has been prohibited in some nations, such as Japan (Kirby and Worner, 2014), other regions have had a more positive perspective of equity-based crowd-funding, such as the US, UK and continental Europe (European Commission, 2014; Hölzner et al., 2014; Kitchens and Torrence, 2012). While some authors argue that regulatory methods make it easier for entrepreneurs to access capital (Klöhn and Hornuf, 2012; Stemler, 2013), others argue that enhanced regulations could hurt businessmen, particularly small businesses (Heminway, 2013; Hornuf and Schwienbacher, 2015). Crowd-investment legislation often impedes financing of entrepreneurial ventures by restricting investments to sophisticated investors, limiting the amount of financiers per project, or imposing constraints on entrepreneurs by regulating the allowable size of businesses interested in implementing equity-based crowd-funding (Griffin, 2013; Kirby and Worner, 2014).

Although Germany followed a *laissez-faire* strategy to crowd-investing legislation, the German Small Investor Protection Act, which came into force in July 2015, introduced legislative modifications (Hornuf and Schwienbacher, 2015). The legislative modifications in Germany guarantee that crowd-investing platforms inform investors during the investment phase about possible risks. These amendments limit private investors to investments up to €10,000, depending on their income, but allow higher amounts to be invested by professional investors and limited companies (Müller-Schmale, 2014). In addition, companies seeking capital can raise up to €2.5 million without the platforms needing to register a prospectus. While this is an improvement since the legislative proposal was to limit the amount to €1.000.000, other European nations such as Austria or Italy have limits of €5.000.000. Further modifications include the application of the right of withdrawal for investors and the electronic processing of investment data sheets to facilitate the handling of processes (Grundy and Ohmer, 2016).

One of the reasons German start-ups are demanding further legislative developments in favor of crowd-investing is the still underdeveloped funding situation in Germany for entrepreneurs. Specifically, access to seed capital remains difficult compared to other nations such as the United States or the United Kingdom, and entrepreneurs are mainly dependent on national funding at this funding point. Therefore, the innovation and development of crowd-investment,

which is also determined by the laws, could have a significant effect on German business culture (Grundy and Ohmer, 2016).

2.2.4.1 Legal Forms and Contract Types Under German Law

German legislation offers the Limited Liability Company (Gesellschaft mit beschränkter Haftung — GmbH) and the Stock Corporation (Aktiengesellschaft - AG) for two primary types of company for business purposes. A corporation may issue equity, debt, or hybrid instruments to raise capital from outside sources (Hornuf et al.,2018).

If a company raises assets through the issuance of equity shares, the funders become the company's shareholders (owners). This membership includes a variety of rights and duties for individuals. In this sense, the most significant way of funding for the GmbH is an ordinary increase in registered share capital and the subscription of new shareholders to the capital contribution. An ordinary capital increase against contributions and the issuance of new shares can also boost the registered share capital of the AG. The business can either receive loans by entering into credit agreements or issue distinct kinds of bonds in the event of debt funding. Finally, there are hybrid instruments that combine debt and equity components and can be organized in different ways (Hornuf et al.,2018).

According to German law, depending on the specific design of the instrument, hybrid instruments can be organized as silent partnerships (stille Gesellschaft), participation rights (Genussrechte) or profit-participating loans (partiarische Darlehen) (Hornuf et al.,2018).

2.2.4.2 Legal and De Facto Restrictions Under German Law

Since not all forms of funding meet crowdfunding requirements, some are legally and de facto less suitable for crowdfunding than others, regardless of economic factors and the company's financing policy (Hornuf et al.,2018).

2.2.4.2.1 Offering of Shares in a Limited Liability Company (GmbH)

Each new shareholder must enter into a subscription agreement with the business to obtain stocks of a private limited liability company within the scope of a capital increase. German law needs the subscriber's statement to be formally certified or notarized by a notary. This requires not only the written form of the declaration, but the subscriber must also sign the declaration in the presence of a notary who must then certify that the paper was signed in his presence by the individual stated. Alternatively, the statement can be notarized, meaning that the notary drafts

the statement, gives guidance on the legal implications, and confirms the identity of the individual willing to purchase a share of the business. A Limited Liability Company's transfer of stocks also needs notarization with the distinction that both sides have to appear personally in front of a notary (Hornuf et al.,2018).

2.2.4.2.2 Offering of Shares in a Stock Corporation (AG)

When the corporation seeking funding is organized as a stock corporation, different rules apply. Most entrepreneurs chose the legal form of the smaller version of the private limited liability company (Unternehmergeellschaft - haftungsbeschränkt) to launch their companies, which needs a minimum share capital of only 1€ or a regular limited liability company with a minimum of €25.000 capital. Thus, from an economic point of perspective, the transition in a Stock Corporation is likely to be a first barrier. The minimum capital requirement of €50.000 could overburden the founders of a start-up company without taking into account the conversion expenses (Hornuf et al.,2018).

On the upside, unlike a Limited Liability Company, a Stock Corporation's sale and transfer of main stocks does not involve a specific form— neither a written form nor a notary's participation. On the contrary, it is an important characteristic of the Stock Corporation that its shares are easily transferable (Hornuf et al.,2018).

2.2.4.2.3 Hybrid Instruments

In addition to equity finance, the issuance of hybrid instruments is another chance of funding. In particular, under German law, there is a high degree of contractual freedom that enables hybrid instruments to be structured in different forms – for example silent partnerships or profit-participating loans (Hornuf et al.,2018).

2.3 Risks

Crowdfunding differs in various aspects from traditional funding. A major distinction is the profile of the funder. Traditional funders such as financial institutions, venture capitalists, and angel investors are experts with investment experience. In comparison, most crowdfunders are often retail investors funding for the first time. In contrast to traditional funders, crowdfunders do not have the resources or knowledge to assess risk and return investment possibilities (Arenas et al., 2015). Furthermore, the geographic separation between creator and funders protects the funders from undertaking a rigorous evaluation process. Founders also lack the incentive to perform due diligence, due to the small amount of money invested per funder (Agrawal et al., 2013). These fundamental distinctions between traditional financing and crowdfunding can lead in differences between traditional financing and crowdfunding risks (Arenas et al., 2015).

Arenas et al. (2015) classify multiple risks under the Work System Risk Framework on equity crowdfunding platforms and create a risk system relevant to entrepreneurs, investors and platforms including, for example, legal risks, information risks and technical risk factors (Mochkabadi and Volkmann, 2018).

Crowdfunding is a multisided platform based on the Internet. It should therefore have comparable hazards to other multisided Internet based platforms (Arenas et al., 2015). For such platforms, researchers have suggested different risk frameworks. Risks were divided into seven areas: physical, social, political, operational, economic, legal and cognitive (Tchankova 2002). Five distinctive risk areas in eCommerce were recognized by Liebermann and Stashevsky (2002): financial, physical, psychological, social and technological. Evangelidis (2005) suggested a five-dimensional eServices risk STEPS framework: societal, technical, economic, political, and security. Kannangara and Uguccioni (2013) recognized 8 significant crowdsourcing risks: complexity of relationships, control / effectiveness, coopetition, independence of keystones / actors, business model replication, loss of know-how, loss of outcomes assurance and risks of intellectual property. The next paragraphs will discuss the risks of entrepreneurs, investors and platforms by combining the different risk models and areas.

2.3.1 Risks of entrepreneurs

The creator distributes the company's equity in equity crowdfunding as a compensation for the funding he / she gets. With this equity, the funders may gain some control over the functioning of the project, which could lead to an agency problem (Agrawal et al., 2013; Wroldsen, 2013).

Arenas et al. (2015) identify a project management control risk to cover the potential risk of decreased control over different elements of the project including resources and milestones. These agency problems are comparable to traditional financing issues (Bergemann and Hege, 1998; Sahlman, 1990). Because of the variations in administration and project vision between entrepreneurs and investors, a venture may neglect to operate effectively or effectively. Some platforms enable for overfunding, which may cause issues. Entrepreneurs may be overwhelmed by the sudden quantity of cash with which they can operate. Also, unexperienced creators may feel too safe and mismanage the project (Arenas et al., 2015).

Managing intellectual property (IP) stays a critical component of the leadership system in all open technology systems (Euchner 2013). Creators reveal in a public environment their private data and IP of their project in crowdfunding. IP loss is defined as one of the risk factors in crowdsourcing by Souza et al. (2009) and Kannangara and Ugucioni (2013). In addition, all the paperwork requested by the platforms, including legal disclosures, SEC filing declaration and financial statements, are not inexpensive and need to be submitted before the business determines whether it will raise capital effectively, including a fixed commission that needs to be paid to the platform (Arenas et al., 2015).

2.3.2 Risks of investors

Arenas et al. (2015) recognized an operational risk indicating the likelihood of periodic activities being burdened by the funding process. For instance, as already mentioned above, when overwhelming funders reaction results in overfunding, creators set unattainable project expectations. This is near to the risk of overfunding prospective enterprises in traditional financing because it separates creators from business reality (Adner, 2006), promotes them to take massive and unnecessary risks (Burke and Hussels, 2013), and leads to a sharp decrease in fund efficiency (Gompers and Lerner, 2003) leading in reducing returns (Achleitner et al., 2013).

A crowdfunder's return is linked to the business they invest in under-equity crowdfunding's future accomplishment. This gives the chance for greater reward because if the business becomes profitable, the equity value could enhance. It also poses a greater risk to the crowdfunder, though. Typically, if the business fails, equity owners are the last to be compensated. Crowdfunding funders are retail investors and are not as sophisticated as traditional financing funders. They may not therefore have the cognitive abilities to evaluate a project's viability (Chandler et al. 2013). There's also the risk that the business won't expand

enough to get the investor back his money. Usually the investment is locked into the business and for a few years cannot be sold or shared. It may also occur that the company will dilute, leading to a decline in the held equity. Smith (2013) lists IP loss as a significant risk while engaging in a business ecosystem.

2.3.3 Risks of platforms

A crowdfunding platform's quality depends on the platform's project quality and the platform's capacity to attract creators and funders. Not all submitted projects are uploaded, they must first be successful in the approval phase. Even the approved projects, however, are not always of the desired quality, which could lead to investors losing trust and interest in the platform. Statistics have shown that on most platforms, most of the projects go unfunded. Kickstarter has a success rate of less than 40%, as one of the most common crowdfunding platforms.

Wolfson and Lease (2011) recognized a series of legal obstacles in crowdsourcing, including problems such as inventorship and patent laws and the privacy of customers. Evangelidis et al. (2002) recognized legal risks as key to the achievement of the eGovernment platform. Like all public platforms, on crowdfunding platforms, danger to IP is also present. While the platforms are attempting to migrate risks to confidential information through privacy policies, they cannot ensure intellectual property confidentiality (Arenas et al., 2015). Online platforms carry legal risks linked to private data confidentiality and platform accessibility for unauthorized users (Mahler and Vraalsen, 2007; Vraalsen et al., 2005).

2.4 Equity crowdfunding Market

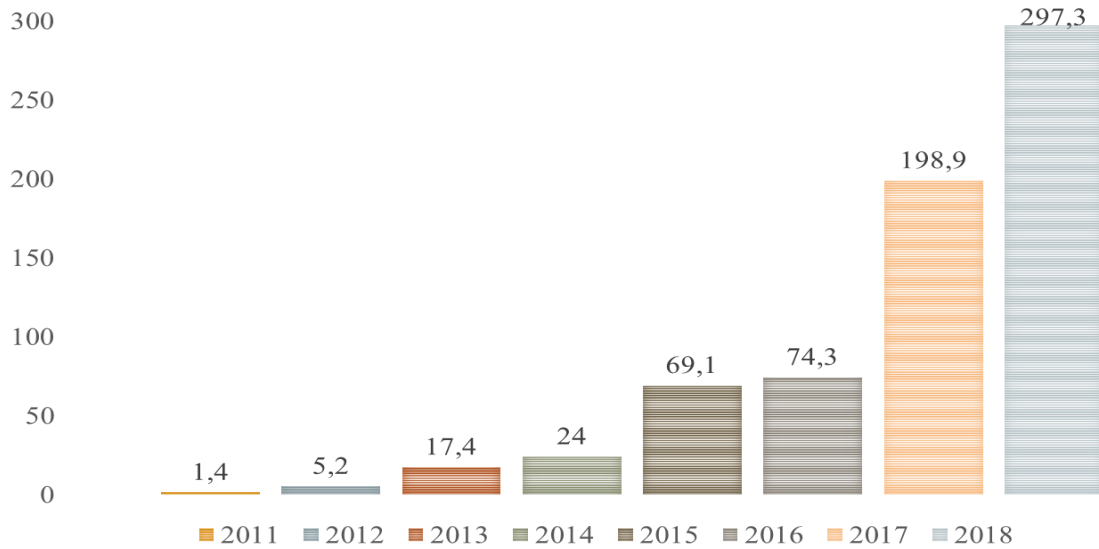
Depending on the nation, there are variations in legislation regarding equity-based crowdfunding (Lukkarinen et al., 2016). Moreover, because it includes the sale of a security (Bradford, 2012) and is therefore subject to multiple regulatory problems (Ahlers et al., 2015). The Securities Exchange Commission approved Title III of the Jump-start Our Business Startups (JOBS) Act in October 2015, which involves legalizing equity-based crowdfunding for unaccredited investors. Outside the US, in the previous decade, equity crowdfunding platforms have been established in a few nations for unaccredited financial experts (Wardrop et al., 2015).

2.4.1 German Crowdfunding Market

Due to its relatively liberal equity crowdfunding legislation, Germany has a major crowdfunding market (Klöhn et al., 2015). The significance of the subject is proved by the reality that by the end of 2014, 64 out of 264 members of the German Startups Federal Association (Bundesverband Deutsche Startups) used crowdfunding (Blaseg and Koetter, 2015).

In Germany, the average annual growth rate of the equity and loan based crowdfunding market is between 2011 and 2018 is at + 114%. As shown in Figure 3, in 2011, only 1.4 million € was invested, finishing at 297.3 million € last year in 2018. The biggest jump was between years 2016 and 2017, when the growth rate was at almost +270% by going up by 124.6 million €. In total, the crowd invested 687.7 million euros in German companies, real estate and energy projects during this period.

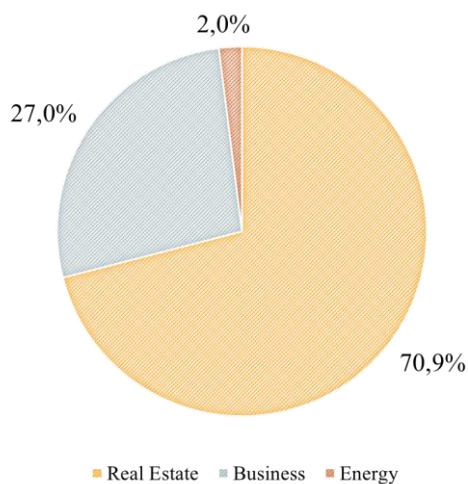
Figure 3: German Equity- and Loan-based Crowdfunding Market Evolution in Million €



Source: Crowdinvest Market Report 2018

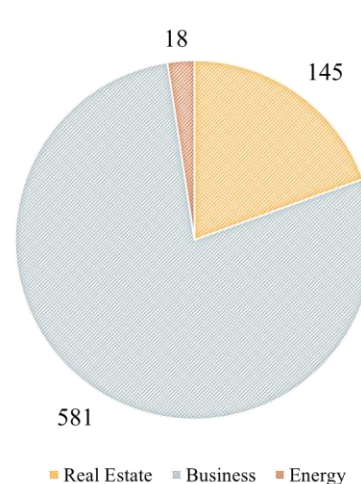
The three main segments of the German equity and loan-based crowdfunding market are real estate, business and energy. Real estate is the biggest segment in 2018, with 70,9% even though, out of a total number of projects in 2018, 744, only 145 were real estate projects, which is less than 20%. However, real estate projects are raising much more than business or energy projects and has therefore the biggest market share. Second biggest market share, 27%, belongs to the business segment. In this segment, 581 projects took place, which is about 78% of all projects in 2018. The last segment is energy with a 2% market share and 18 projects (2%) in 2018.

Figure 4: Market Share of 3 main Segments in 2018



Source: Crowdinvest Market Report 2018

Figure 5: Projects by segments in 2018

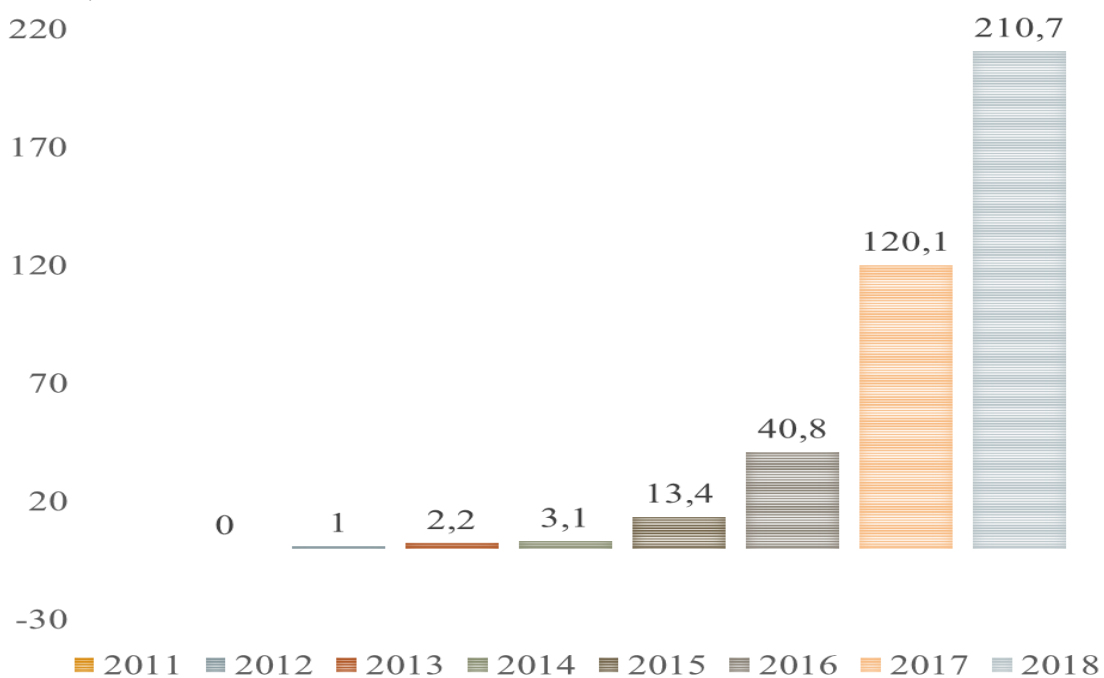


Source: Crowdinvest Market Report 2018

2.4.1 Real Estate

Real estate is the largest crowd investment segment. The German crowdfunding market for real estate has shown strong growth for years. After the market grew by + 216.6% in 2017, the growth rate in 2018 was + 63.2%. However, in equity crowdfunding is not used very often in real estate yet, in contrast to loan-based crowdfunding. The crowdinvestment volume for real estate projects was nearly exclusively subordinated in 2017 with a share of 96.4%. Here is a clear shift. In 2018, the volume of subordinated loans declined to 45.9%, while 32.4% was financed by sales of bank loans and 21.7% by bonds.

Figure 6: German Equity and Loan-based Crowdfunding market evolution over the years, in Million €, Real Estate

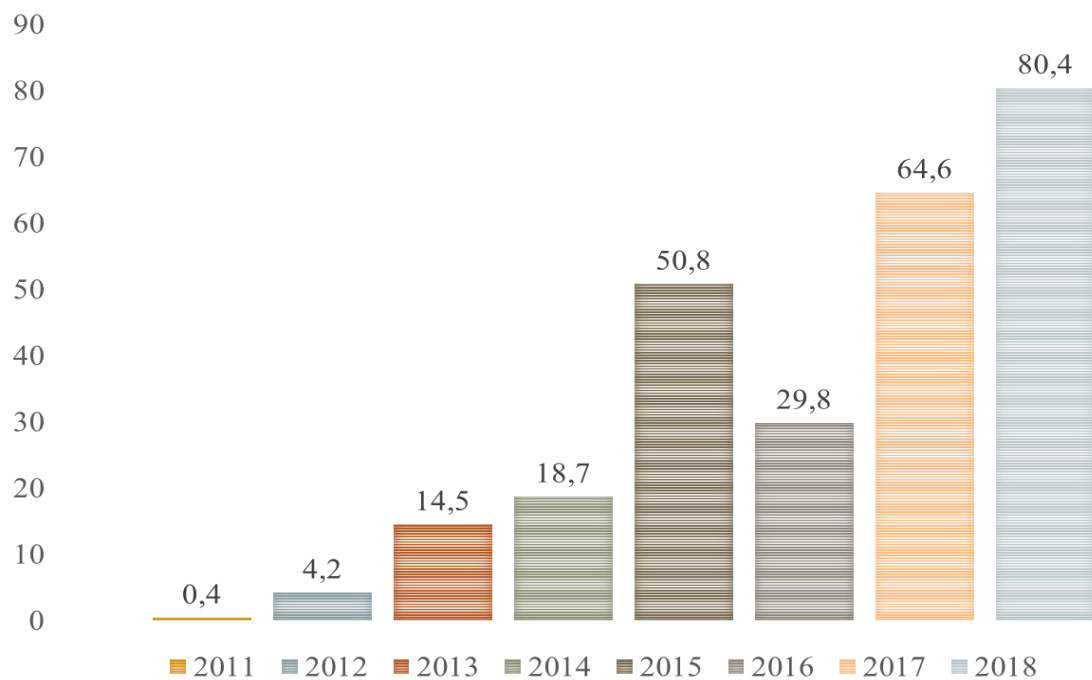


Source: Crowdinvest Market Report 2018

2.4.2 Business

Growth companies are the fastest growing subsegment with + 38.8% in 2018. Here, crowd investors do not receive a profit participation focused on the development of the company performance, as is usual with startup financing, but a relatively high fixed interest rate, usually plus a variable bonus interest rate. Further Development in Startup Crowd Investments In recent years, startup financing on German platforms has almost exclusively been carried out via partiarly subordinated loans. Overall, the whole business segment is growing, even though there was a drop in 2016. At the end of 2018, the Companisto platform realized two equity-based financings with a total volume of 3.8 million euros for the first time.

Figure 7: German Equity and Loan-based Crowdfunding market evolution over the years, in Million €, Business Segment

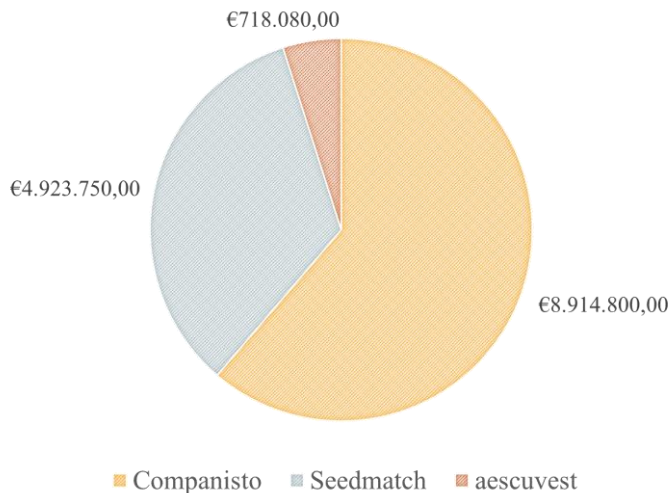


Source: Crowdinvest Market Report 2018

2.4.3 German Equity Crowdfunding Market

In Germany, most platforms that specialise in financing business, are loan-based. At the moment, there are 3 platforms that can be called equity crowdfunding platforms because the majority (if not all) of the crowdfunding projects published there are equity-based. Those 3 platforms are Companisto, Seedmatch and Aescuvest. Companisto was in 2018 the biggest one, with a crowdfunded volume of €8.914.800, owning a market share of 61,2%. Seedmatch, with a market share in 2018 of 33,8% raised €4.923.750. The third platform, aescuvest raised €718.080 in equity crowdfunding projects in 2018 and therefore own a market share of 4,9%.

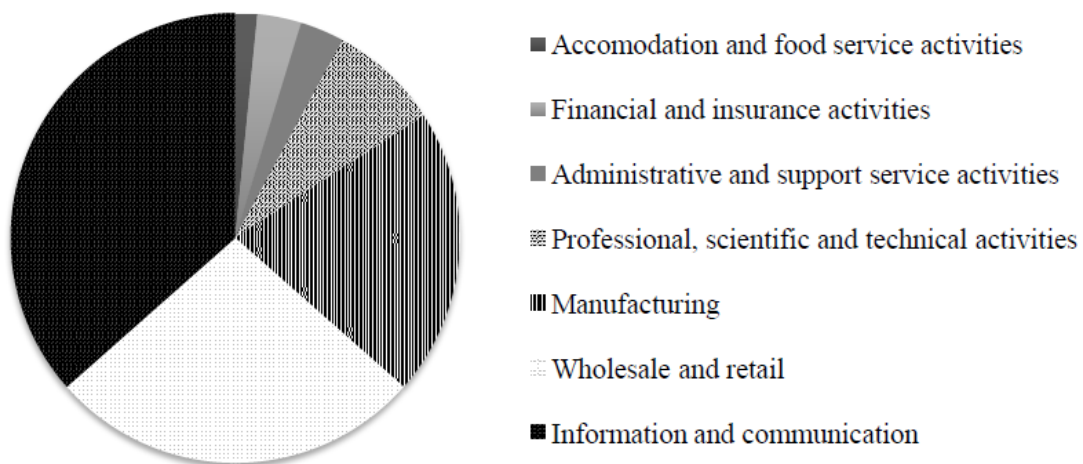
Figure 8: Equity Crowdfunding Business Platforms Volume 2018



Source: Crowdinvest Market Report 2018

As Figure 9 shows, equity crowdfunded start-ups are operating in many sectors. The biggest share of the projects is launched by companies from the information and communication sector, followed by wholesale and retail. The third biggest sector used in equity crowdfunding projects is manufacturing. These three sectors own more than 75% of the total market share. The remaining sectors include professional, scientific and technical activities, administrative and support service activities, financial and insurance activities and accommodation and service activities.

Figure 9: Start-up distribution across sectors



Source: Block et al., 2018

2.5 Equity Crowdfunding platforms

With the rising interest in equity crowdfunding, the interest and number of equity crowdfunding platforms has risen as well. Some of the most famous and used are in the US WeFunder, StartEngine, Indiegogo and Fundable, in the UK Seedrs and Crowdcube, and in Germany Seedrs, Aescuvest and Companisto. Many European countries have their own platform that they use. That is caused mainly by the different legal norms of each country. Usually, it is free to register yourself and to become a member of a platform. However, a small percentage of the invested amount by a crowdfunder is typically labelled as a transaction fee and goes to the platform itself, and not the entrepreneur. The entrepreneurs are subject to a larger cost. Most platforms demand a fixed initial fee when the entrepreneur starts the campaign, and a success fee that incurs if the funding goal is reached. The success fee is a percentage that is typically between 5-10% of the total amount of funds raised.

In some jurisdictions, entrepreneurs give equity shares in a limited liability company to convince the crowd to finance a startup through an equity crowdfunding platform. Common equity shares are available on portals such as Crowdcube or Seedrs in the United Kingdom. In an equity crowdfunding campaign, startups who want to raise capital negotiate the company's valuation with the portal and decide how much money they want to raise. The portal offers a financial boilerplate contract establishing the economic connection between the company and the crowd (Hornuf et al.,2018). It should be mentioned that by using the exemptions from the national prospectus system, most startups that raise capital through equity crowdfunding avoid legal disclosure demands. This is accomplished by raising total amounts in Germany of less than €2.5 million (Hornuf and Schwienbacher, 2017).

Crowdinvesting platforms, however, are far more than just investment brokers and pooling solutions facilitators. They are carrying out three extra tasks. They function as gatekeepers because they decide which start-ups on their platforms can run crowdfunding campaigns. The rejection rates of platforms differ, with some declining to 99% of the businesses that apply to them (Hornuf and Schwienbacher, 2018). However, less prominent platforms can be presumed to have much lower rates of rejection. In addition, these platforms are data intermediaries because they assess start-ups, specify what data they need to provide to investors, and channel communication between investors and companies into a portal for investor-relations. Finally, they are contract drafters because they create agreements between investors and companies that are concluded (Hornuf et al.,2018).

2.5.1 Specifications of the examined platform - Companisto

Companisto, the platform used in the empirical part of this thesis, is financed by a two performance-related commissions. The first commission represents 15 percent of the collected investment sum, is paid by the startup, not the Companists (the crowdfunding investors) and covers all incurred costs - personnel costs, server costs, payment processing costs, and the costs for the accompanying marketing of a financing campaign on Companisto. This commission is only collected if the financing round was successful. The second commission depends on the success of the campaigning company. If a company distributes profits or sales proceeds to the Companists, Companisto participates and gets 10 percent. There is also a fixed administration fee of 0.4 percent of the funding sum to cover all administrative activities carried out by Companisto for the company (Companisto, 2019).

Registration and also the use of the platform is free and any person of legal age and legal capacity can invest in Companisto. The minimum investment sum for equity investments into shares of a company depends on the share price and may vary from investment case to investment case. Shares can only be acquired in their entirety. The lowest invested amount yet was 5 Euro. Companists residing outside Germany can also invest in Companisto. Exceptions are US investors who, for regulatory reasons, cannot invest in Companisto. A number of internationally available payment methods are available, such as instant transfer and bank transfer (prepayment). Therefore, a German bank account is not required. It is also possible to invest as a company. One can choose whether one wants to invest on the investment page as an individual or as a business. Investing as a business can be advantageous. Companies, for example, are exempt from the legal investment cap of €10.000 per company invested in private individuals. Investing as a business can also have tax benefits. However, it is not possible to invest anonymously. One can use an alias for the user profile, though. If one uses an alias, in the case of an investment, this will be the name displayed in a startup's investor list. Only the startup will have access to the Companist's real name. The minimum participation period is eight years (Companisto, 2019).

Each round of start-up funding has an investment threshold and a goal of funding. To proceed with the equity crowdfunding round, the investment threshold must be reached. Usually it is set at €100,000. To reach the investment threshold, the startup has two months. Once the investment threshold is reached, funding runs from the starting point of the funding campaign for a maximum of 12 months until the funding target is reached. If a startup fails to fully reach the planned investment threshold within two months, there will be no funding available. In this

case, full reimbursement is given to the participating Companists for their invested money. The funding goal is the amount the startup would like to accomplish in its funding round. If this goal is achieved, the startup can either terminate its campaign at any time or collect a sum that exceeds the goal. A financing round is completed once the maximum duration of 12 months has been reached, the financing goal has been reached and therefore the start-up has finished the campaign. Startups operating as limited liability companies (GmbHs) can collect up to €2.500.000 via Companisto in accordance with existing laws. Stock corporations (AGs) have been able to raise up to €8.000.000 annually via Companisto without a prospectus since June 27, 2018 (Companisto, 2019).

The Companisto share model enables investors to invest in public companies, before they go public. They obtain shares that can be deposited with a securities identification number (WKN) and an international securities identification number (ISIN). The shares are connected to Clearstream and can be traded on the relevant secondary markets. Clearstream is a post-trade service provider owned by Deutsche Börse AG. It offers all asset classes with securities settlement and custody as well as other associated services. It is one of two Central Securities Depositories of the European International. Investors obtain stocks that can be deposited with the Companisto share model and thus become the company's shareholders. They obtain all of a shareholder's related rights, e.g. voting rights at the stock company's annual general meeting, as well as profit subscription rights and a proportionate claim to proceeds from a company's sale.

Companists benefit from participating in a startup in several ways: on one hand, Companists participate in the startup's current profits. Once a year, these are distributed (on 31.07.). Because startups frequently reinvest their profits in favor of rapid company growth in the first few years, they also participate in exit proceeds. The term exit refers to the sale or listing on the stock exchange of a startup to a major investor or competitor. When the exit happens, according to their participation quota, the Companists participate in the proceeds. If a startup is not sold during the participation period, the startup will be valued at the end of the participation period and the Companists can be paid out according to their share in the startup. However, if the Companist wants to remain invested, the lifetime participation included in the contracts gives them the opportunity to take advantage of profits and potential sales proceeds for life. In case of a bankruptcy of the startup, no additional contributions are obligated from the Companists, they only lose their investment (Companisto, 2019).

Each Companist is free to independently and in its entirety transfer his / her involvement to third parties. The startup and Companisto have to be informed of the transfer and the buyer has to verify that the involvement will be taken over. There is no secondary market that is governed. This implies that when a buyer is discovered, the shares can be sold privately. Companies and startups conclude the participation agreements directly. Accordingly, Companisto's insolvency would not affect the investments. Therefore, the holdings of the Companists in the startups would continue to exist even in the case of the insolvency of Companisto (Companisto, 2019).

Startups apply through the website, starting with an application form. In the seed and early stage phases, Companisto finances start-ups and growth firms with a capital requirement of between €350.000 and €2.500.000. They also offer a growth company equity financing model with a capital requirement of €3.000.000 or more. Companisto's selection process is faster than that of venture capital companies. It often only takes about eight weeks from the application for financing to the review of the application and the start of the campaign (Companisto, 2019).

Start-up investment offers great opportunities but is also associated with high risks. In the worst case, the entire investment is at risk of total loss. However, there is no obligation to make additional contributions beyond this. By spreading investments across multiple startups, companies can minimize risks. In addition, start-up investments should not be used for retirement provision. It is advisable not to invest in venture capital more than 10% of one's available assets (Companisto, 2019).

2.5.2 Rules for the platforms

It is hard to drawing the line and determining how much due diligence a platform should conduct and how much investment firm should reveal, while risk-bearing investors should end up being equally and proportionally accountable for their actions and balancing the system. Since no country has the same strategy, dealing with the new and rising industry can be frustrating at the start.

For instance, the FCA can request records in the surveillance processes in Europe, UK, and businesses in other countries are required to send any records to local economic officials in case they fall under the regulation as intermediaries in any manner. The issue is, when there is no platform regulation. For example, platforms are mostly exempt from the regulation in Italy and Switzerland. This is harmful to investor protection as investors can only relay the platform's circumstances.

Regulators should ensure certain ground rules and investor protection restrictions. There are obviously both negative effects - of too little regulation and too much regulation.

2.6 Literature Analysis on Previous Studies about Success Factors of Equity Crowdfunding Projects

In different countries, equity crowdfunding has a significant impact on early stage venture funding (Vulkan et al. 2016). Therefore, it is crucial to identify the potential factors that determine the success of equity crowdfunding campaigns in order to extend the significance and make the best use of it. Success in equity crowdfunding can be described as the capacity of the venture to attract the minimum amount of financing requested (Mamonov et al, 2017). Capital-seeking company visionaries need to minimize information asymmetries to enable successful campaigns (Vismara, 2018). That is why it is vital for entrepreneurs to find ways of signalling quality and credibility to prospective investors (Mochkabadi and Volkmann, 2018).

There are numerous studies that examined the potential determinants of campaign success in the past. This chapter presents seven of these studies. The overview is shown in Table 2, showing the author(s), the research issue, the research design, data used for the research, the depended variable – usually campaign success and independent variable, which were the factors the authors thought are the potential determinants of campaign success. The following subchapters describe the success determinants empirically tested in the studies. Every study, of course, is special and is trying to come up with something original. Some studies, however, favour each other or, on the contrary, disagree with another study, which also appears in the subsequent subchapters.

Table 2: Various studies on equity crowdfunding success campaigns

Author(s)	Research issue	Research design	Data	Depended variable	Independent variable
Ahlers et al. (2015)	Investigation of the effectiveness of start-up signals (financial roadmaps, certificates, internal governance, risk factors) on funding success	Quantitative; regression analysis	104 offerings of ASSOB (Australia)	Funding success	Human, social, intellectual capital
Vismara (2016)	Analysis of the impact of signals (equity retention and social capital) on funding success	Quantitative; regression analysis	271 project from Crowdcube and Seedrs	Campaign success	Equity offered, social capital
Vulkan et al. (2016)	Analysis of which factors in the early stage of a campaign affect the probability of funding success.	Quantitative; regression analysis	636 campaigns of Seedrs	Campaign success	Campaign characteristics (e.g., funding goal, # of entrepreneurs, etc.)
Lukkarinen et al. (2016)	Analysis of campaign characteristics as success drivers for campaigns	Quantitative; regression analysis	60 campaigns from Invesdor	Campaign success	Success drivers (human capital, growth potential, etc.); campaign characteristics; networks; understandability
Block et al. (2018)	Investigation of the effects of posting updates on funding success	Mixed-Method; qualitative coding; regression analysis	71 campaigns from Seedmatch and Companisto	Campaign success	Team; business model; external certification; product development; cooperation projects; campaign development; new funding; business development; promotions
Piva and Rossi-Lamastra (2017)	Examines the influence of human capital signals on campaign success	Quantitative; regression analysis	284 entrepreneurs launching 129 campaigns on SiamoSoci	Success (funded, target capital share, investor number)	Human capital signals (business education, industry-related education, entrepreneurial experience, industry-specific work experience, other work experience)
Giga (2017)	Analysis of the relative importance of human capital signals compared to business information on campaign performance	Quantitative; regression	1487 campaigns from EquityNet	Funds raised	Years of industry experience, management experience (# of previous start ups founded, years in management), management size, graduate, undergraduate, revenue, a product available, patents, TM, copyright

Source: Mochkabadi and Volkmann, 2018

2.6.1 Information Signals

Ahlers et al. (2015) carried out the first study examining this field. Authors investigate the meaning of signals in equity crowdfunding in this research. There was concern about information asymmetries between investors and entrepreneurs as it is typically presumed that an entrepreneur knows more about the true value of the venture than a prospective investor. This can be of greater importance in the context of equity crowdfunding, as small investors generally have no experience in assessing investment possibilities. That could lead to a lack of funding for even possibly high-performing projects. Between October 2006 and October 2011,

the authors examine 104 offers based on information from the Australian Small Scale Offerings Board (ASSOB), one of the biggest equity crowdfunding platforms. This platform was chosen because of its size and its location in Australia, a country that permits equity crowdfunding. All of these offers were either listed on ASSOB for about 1 year — the most popular offering period — or completely financed in advance. The writers gathered seven types of data for their sample of 104 offers: (1) human capital, (2) social (alliance) capital, (3) intellectual capital, (4) equity, (5) financial projections, (6) further control variables, and (7) information on the speed of investment.

Ahlers et al. (2015) provide theory and supporting proof in their study that distinct kinds of signals are of comparative significance in the context of equity crowdfunding. They examine the effect on fundraising achievement of venture quality (human capital, social capital and intellectual capital) as well as the amount of uncertainty. As a result of the study, the data highlights how crucial is the point of uncertainty to prospective investors, such as the quantity of equity offered and whether financial estimates are provided. It also shows the significance of human capital (as measured by the proportion of MBA board members).

The data emphasizes that retaining equity and offering more comprehensive risk information can be interpreted as effective signals and can therefore have a strong effect on the likelihood of successful funding. On the other hand, social (alliance) capital and intellectual capital have little or no effect on the success of funding. Another finding is, somewhat surprisingly, that intellectual capital (as measured by patents) and social (alliance) capital had little or no significant effect on financing achievement. The results have interesting consequences for practitioners as well as policy makers. The data indicates that retaining equity and offering more comprehensive information about risks can be interpreted as effective signals for entrepreneurs using equity crowdfunding that can improve the probability of funding success. In addition, internal governance, such as adequate board structure and more highly skilled board members, can improve both the probability of attracting investors and the pace of capital raising. As far as policy implications are concerned, the data also shows the fact that the respondents on the equity crowdfunding platforms studied by the authors seem to differentiate between characteristics of venture quality and highly value reliable signals. Crowdfunding investors seem to pay a lot of attention to the level of uncertainty and the governance material that companies provide (Ahlers et al., 2015).

Vismara (2016) wrote a study based on 271 projects listed on the Crowdcube and Seedrs platforms in the UK, confirming empirically that the amount of equity retained is related to campaign achievement. However, unlike Ahlers et al. (2015), the findings of this research indicate that there is no important impact on information about planned exit strategies. Investor information cascades play a key role in business finance (Welch, 1992). For example, late investors change their own valuations by observing early investor behavior in initial public offerings (IPOs) (Aggarwal, Prabhala, and Puri, 2002; Amihud, Hauser, and Kirsh, 2003). In the first days of book building, IPOs with high institutional demand also see great bids from retail investors in the subsequent days (Khurshed, Paleari, Pande and Vismara, 2014).

The author discovered that the likelihood of success was greater for campaigns launched by entrepreneurs who sold smaller fractions of their listed companies and had more social capital. Confirming the hypotheses, the author shows that (1) early offering contributions are essential to attracting other investors, thereby increasing the likelihood of campaign success, and (2) public profile investors play a vital part in attracting other investors during the initial campaign days. These findings are attributable to cascades of information, but do not rule out alternative hypotheses that are not based on information asymmetry decrease. For example, early investors advertise the project they pledged to, by "tweeting" or posting links on social networks (Vismara, 2016).

Although the understanding of the outcomes is that early backers are a favourable signal for undecided investors, alternative explanations are feasible. However, it is a challenging task to check for validity and disentangle the fundamental processes that drive the outcomes. First, a supplementary explanation has to do with positive externalities of payoff. Like most platforms, Crowdcube campaigns are financed only if they reach their target amount. Observing that a project has attracted many early contributions reassures prospective backers that the project has excellent prospects of achieving its target capital and that it will not waste the time and money invested in the promise. Second, big initial investments may not only decrease uncertainty, but also add to the campaign's accumulated capital stock. The more early investors take part in a campaign, the more early funding the project gets, which improves the likelihood of success mechanically. Third, recognizable early investors can expand the pool of prospective backers familiar with the offer, attracting late investors from outside the (word-of-mouth) platform. Fourth, investors may be conscious of the campaigns before their launch, but they may prefer to wait and see how the campaign evolves before investing. Alternatively, proponents who attain early success may be those who direct more effort to find investors even before the

campaign's official beginning. Finally, owing to behavioural triggers such as procrastination or conformity, late bidding may also be due. Investors could simply ignore their personal information and select the project with the largest amount of investments. Irrational herding means the same result: late investors are conditioned by early backers (Vismara, 2016).

2.6.2 Specific campaign characteristics

Some studies (Vulkan et al., 2016; Lukkarinen et al., 2016) concentrate on the impact of specific campaign characteristics on financing performance.

Vulkan et al. (2016) reviews 636 ventures including 17,188 investors and 64,831 investments from one of Europe's leading crowdfunding equity platforms between 2012 and 2015, listed on the Seedrs, a platform in the UK. Using the regression analysis, the authors demonstrate that the amount of money collected during the first week, the largest single investment and a big number of investments have a beneficial impact on the overall success of funding.

The writers discover that equity crowdfunding varies in a number of significant ways from the typical rewards-based crowdfunding: (a) a much greater average amount invested ; (b) a much greater average campaign target, continuously rising over time and recently approaching the size of first-round VC investments ; (c) the presence of (pre-money) valuation of each project and (d) the investors' clear objective of achieving a favourable financial return on their investment. Their results indicate that a big number of successful campaigns are being overfunded –sometimes by more than twice the amount initially requested. The authors find that, in order to achieve the goal of the project on time, it is particularly important to start strong, to have a lot of supporters, and in particular to have (at least) one supporter who makes a big contribution (Vulkan et al., 2016).

Lukkarinen et al. (2016) support the importance of different campaign characteristics in the Finnish setting. The findings indicate that investors base their investment choices on readily observable characteristics by examining 60 campaigns listed on a Finnish platform Invesdor. These include the quantity already funded from private networks of entrepreneurs, social media networks, minimum investment amount, campaign duration and a venture orientation B2B.

Using data from Northern Europe's leading equity crowdfunding platform, the authors investigate factors driving the number of investors and the quantity of funding attracted through equity crowdfunding campaigns. The findings indicate that the investment decision criteria traditionally used in equity crowdfunding by VCs or company angels are not of prime significance. Instead, success is associated with the features of pre-selected crowdfunding

campaigns and the use of private and public networks. The results are important to entrepreneurs' decision-making and crowdfunding platforms as both sides profit from the success of the campaign.

Surprisingly, none of the traditionally appropriate investment criteria for VC or angel investors turned out to be important in predicting sample success. There is therefore no proof that investment criteria traditionally used by VC and angel investors would be applicable to anticipating the success of the equity crowdfunding campaign. A possible explanation for this outcome is the distinction in the expertise level of unaccredited investors in crowdfunding equity and VC or angel investors. Although not heavily, the financing goal is positively associated with the number of investors. It is not significantly linked to the amount raised. Equity investors may be somewhat more interested in campaigns with greater targets, as bigger amounts of funds gathered allow businesses to take significant development and value-enhancing measures. The minimum investment has a strong negative relation to the number of investors and the amount collected. Large minimum investments can boost the threshold of many investors to make an investment decision. The length of the campaign is negatively related to the amount of investors. Shorter campaigns may transmit a message of determination and deliverability. Financial availability in the pitch is positively associated with the amount of investors, although not very strongly. It does not, however, relate substantially to the amount collected. During the hidden stage, the part of the minimum target raised is heavily correlated with the number of investors and the amount raised. A big base of already collected assets can transmit credibility and offer trust in the campaign to potential investors. The findings indicate that a company's capacity to leverage social media networks is a powerful predictor of both the amount of investors and the amount collected. Obviously, posting the campaign on social media can have a direct impact on investment, as supporters can follow the link and invest. The findings indicate a favourable connection between a start-up orientation and campaign achievement of the business-to-consumer (B2C) orientation. For businesses offering consumer products, equity crowdfunding campaigns can therefore be more effective than for B2B businesses. Consumers can invest in products they know or comprehend more comfortably. B2C businesses may also have a wider base of current clients and supporters, hence a bigger pool of prospective investors in crowdfunding.

2.6.3 Campaign Updates

Following these studies, the impact of updates on the success of equity crowdfunding campaigns posted by 71 German equity crowdfunding ventures is examined by Block et al. (2018). Using hand-collected data from 71 funding campaigns and 39,399 investment decisions on two German equity crowdfunding portals over the period from June 7, 2012, to April 27, 2015, the authors explore the impact of updates published by start-ups during an equity crowdfunding campaign. The two portals used are Seedmatch and Companisto, which are (still) important players in the German equity crowdfunding market. During the observation period, these two portals represented about 75% of the overall crowdfunding capital raised. The final coding system consists of nine categories of updates: Team, Business Model, External Certification, Product Development, Cooperation Projects, Campaign Development, New Funding, Business Development, and Promotions (Block et al., 2018).

Using a combination of qualitative and quantitative empirical research methods, the authors discovered a favourable general impact of publishing an update on the crowd's number of investments and the amount of investment the start-up collects. This beneficial impact, however, does not happen in its entirety instantly, rather, it lags a few days later. It rises with the number of words of the update and reduces with the quantity of updates already published during the campaign for equity crowdfunding. Overall, 234 updates were published by the start-ups operating these campaigns, with an average of 3.30 updates per crowdfunding campaign. Although some start-ups have not posted a single update, others have used this tool widely to inform the audience and promote investor participation. When differentiating updates based on their content, there are large variations. Updates about the start-up team, business model, cooperation projects, and product developments have no significant impact on financing success. Instead, the beneficial impacts of updates on financing success can be linked primarily to updates on new funding and business developments and updates on start-up-run promotional campaigns (Block et al., 2018).

2.6.4 Human capital

Regarding human capital, a study by Piva and Rossi-Lamastra (2017) demonstrates that the education and experiences of entrepreneurs have a positive impact on the success of the campaign, examining 284 entrepreneurs starting 129 campaigns on the SiamoSoci platform in Italy. A general argument in the literature on entrepreneurial finance is that entrepreneurs find it difficult to raise equity financing for their start-ups because the quality of these start-ups

cannot be immediately observed by external investors. As a result, investors create their investment choices based on both the entrepreneurs and the start-ups' observable characteristics that signal unattended start-up quality (Piva and Rossi-Lamastra, 2017). According to the authors, business education and prior entrepreneurial experience have a beneficial and significant effect on the likelihood of a successful entrepreneur in equity crowdfunding.

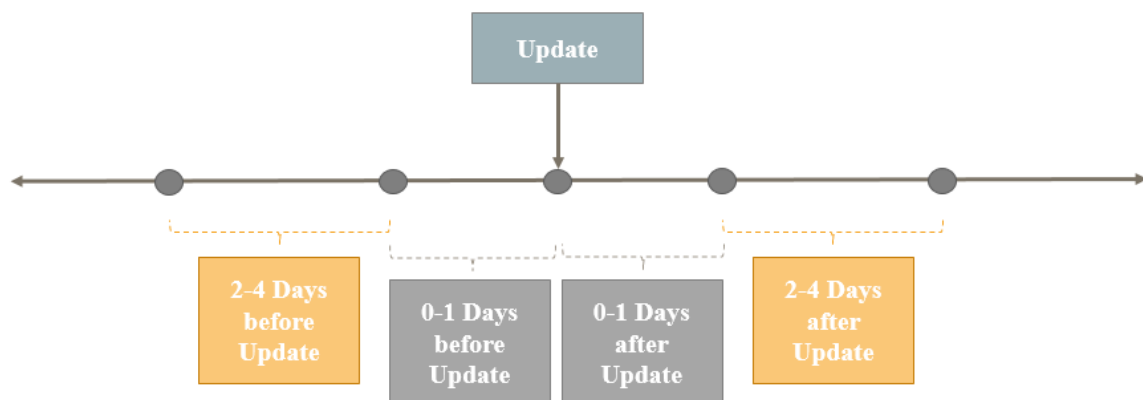
Giga (2017) promotes the significance of human capital signals on campaign results in a US context, with a dataset composed of 1487 campaigns published on EquityNet. Compared to business characteristics, the author examines the relative significance of human capital signals. As already shown by Piva and Rossi-Lamastra (2017), the results also indicate a positive relationship to capital raising as an element of leadership experience with prior entrepreneurial experiences.

3 Method and Data

Academic research is an activity that defines issues, raises questions, and provides answers and solutions. This activity includes the collection of data, its assessment and the proposal for implications. It is necessary to answer the research questions by applying the theoretical implications to empirical analysis, providing the author's findings and feedback (Kothari, 2004).

The empirical part of this master thesis is based on a platform analysis by individually analysing hand collected data from all 96 available equity crowdfunding campaigns on one German equity crowdfunding platform, which were finished before 31.5.2019. The platform used is Companisto, which is an important player in the German equity crowdfunding market. Total number of campaigns published on this platform is 106. However, 6 of those were not equity based but loan-based campaigns and for 4 projects, no information could be obtained. These campaigns were therefore excluded from the dataset. The data observed were target amount and collected amount, equity offered, number of investors, highest investment, number of updates, update category, number and amount of investments 0-1 days before the update, number and amount of investments 0-1 days after the update, number and amount of investments 2 to 4 days before the update, number and amount of investments 2 to 4 days after the update and the background of the entrepreneur, as shown in Figure 10. This data was collected in the time frame 1.4.2019-31.5.2019.

Figure 10: Timeframe for the analysis of the effect of an update



Source: Author's own work

Following the example of the study of Block et al. (2018), there were 9 update categories available: Team, Business Model, External Certification, Product Development, Cooperation Projects, Campaign Development, New Funding, Business Development, and Promotions. The Team category includes all information about the founders and employees of the company, such as their education, age and personal interests. Updates on the business model, market, business idea, future business orientation and expansion aspirations of the firm were coded in the category Business Model. External Certification includes updates in which start-ups informed investors about external certification through expert opinions, recommendations, start-up awards, patent applications, press coverage, and trade tariff participation, conferences, or organized talks. The Product Development category includes product information, target customers, new product innovations, and prototype introduction. In the category Cooperation Projects, information about new cooperation projects by the start-up is coded. Campaign Development contains information about crowdfunding campaign developments, such as current investor numbers, funding amount, and announcements about funding limit increases. Financing provided by other market participants, such as business angels, venture capitalist or government (i.e., public grants or subsidies), is included in the New Funding category. The Business Development category includes information about the start-up's financial development (e.g., sales and turnover) as well as customer updates (e.g. number of customers or new customers). Finally, the Promotion category includes information on promotions, social media networking, current events to meet crowd investors and appeals to investors to support the business with marketing activities or recommendations (Block et al., 2018).

The goal of this master thesis is to determine, based on analysing the platform, if there are some factors that could influence the success of a projects. Based on previous studies, possible success factors could be: equity participation, number of participations, entrepreneur's background, number of updates and the updates themselves.

3.1 Equity participation

At the beginning of the campaign, the entrepreneur defines the offered equity of a project. According to Ralcheva and Roosenboom (2016), a higher equity participation offered to investors can negatively affect the project financing success. The reason for this is that entrepreneurs who believe in the economic success of their businesses are more likely to have a higher retained equity as they want a greater future wealth. Therefore, entrepreneurs offering greater equity involvement may not be as committed to their projects and could signal the company's reduced value. This opinion is supported by Ahlers et al. (2015), who state that

by keeping equity shares, entrepreneurs signal the high quality of their venture, because they believe in future success of the company and want to receive the possibly biggest future earnings.

3.2 Number of Investors

The study by Vulkan et al. (2016) shows that on average, success campaigns have been invested in by more investors than unsuccessful campaigns. A reason for that could be that an increase in the number of investors leads to a higher number of investments and therefore should increase the probability of project's success. Since the possible future earnings depend on the how much an investor invests because that is how the investor decides how many shares he wants to own in the company, a big number of investors should not act as a discouragement.

3.3 Entrepreneur's Background

While professional investors can evaluate an entire entrepreneurial team and assess the complementarities of the human capital of their members (Kaplan and Strömberg, 2004), crowdfunding investors lack the investment experience needed to make such a holistic assessment (Piva and Rossi-Lamastra, 2017). Therefore, the investors might try to individually evaluate each team member. However, this step might be skipped, in case of a well-known serial entrepreneur with a portfolio including several successful startups. Crowdfunding investors may think that if this entrepreneur searches for online equity financing for a new venture, the quality of this start-up needs to be high, because the skills and competencies that it has accumulated in its long-lasting entrepreneurial activity should enable it to identify and subsequently exploit valuable business opportunities and the whole team is considered as a part of this successful, experienced entrepreneur (Piva and Rossi-Lamastra, 2017).

Uninformed crowdfunding investors are expected to value the formal education of entrepreneurs in economics and management (i.e. business education) and in industry-related areas where their start-ups operate (i.e. industry-related education) as signals that fit well with the quality of the start-ups run by the entrepreneurs (Piva and Rossi-Lamastra, 2017).

3.4 Number and Effect of Updates

Start-ups can actively affect the likelihood of successfully completing their equity crowdfunding campaigns effectively by publishing updates. In order to design an effective and successful equity crowdfunding campaign, knowing which updates drive funding success is crucial for start-ups (Block et al., 2018). Therefore, this study examines if the number of updates

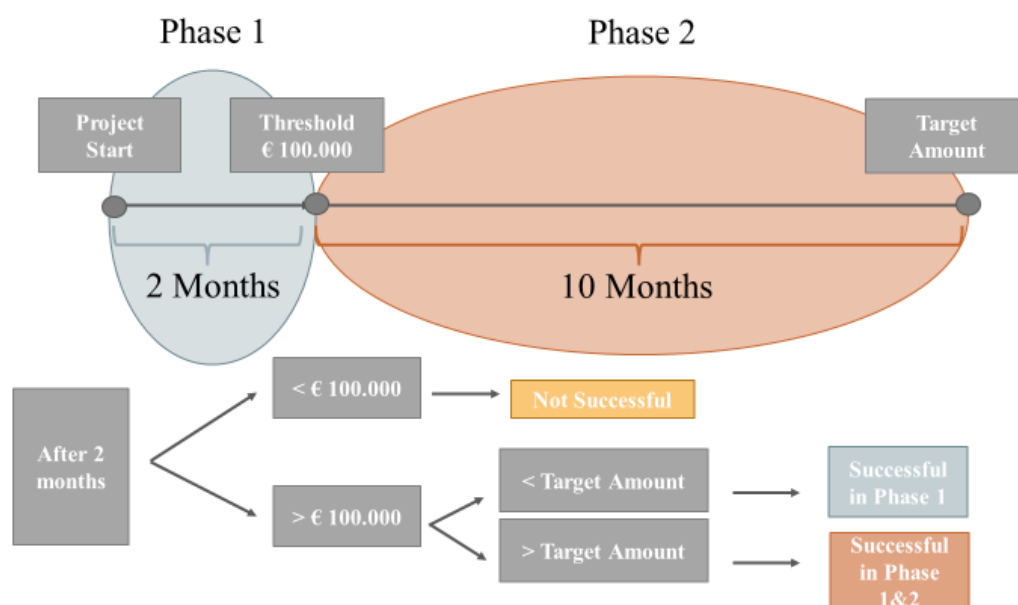
has any effect on the success of the campaign, since it is predicted that campaigns that published more updates, have a higher probability of success.

The biggest focus of this study is examining the actual effect of the updates. It is being analysed if the updates do increase the number of investments as well as the invested amount. Simultaneously, since there are 9 update categories defined (Team, Business Model, External Certification, Product Development, Cooperation Projects, Campaign Development, New Funding, Business Development, and Promotions), it is analysed, if some update categories have a bigger impact on the change in the number of investments as well as the invested amount than others.

4 Empirical results

After collecting all data, the analysis has begun. The outcomes of the empirical assessment of the success variables of the equity crowdfunding campaign are presented in this section. First, it is important to define the term “successful campaign”. Usually, a successful campaign means that the collected amount is higher than the target amount and in case that the collected amount is lower than the target amount, the entrepreneur does not get any money because it is returned to the investors. However, Companisto defines successful campaign a little different. In their eyes, a campaign is successful once it passes the first financial round and collects the threshold of €100.000 within 2 months. After that, the entrepreneur can set his target amount freely and, no matter how much he/she raises, does receive the collected amount, even if it does not exceed the target amount. Therefore, there are two approaches I used. In the first approach, campaigns that successfully passed their first financing round (later referred to as Phase 1) and collected €100.000 within two months, are successful. In the second approach, only those campaigns, that not only passed Phase 1, but also collected more than their target amount (later referred to as Phase 2) are considered successful. The process is graphically shown in Figure 11.

Figure 11: Determination of success in Phase 1 and Phase 2

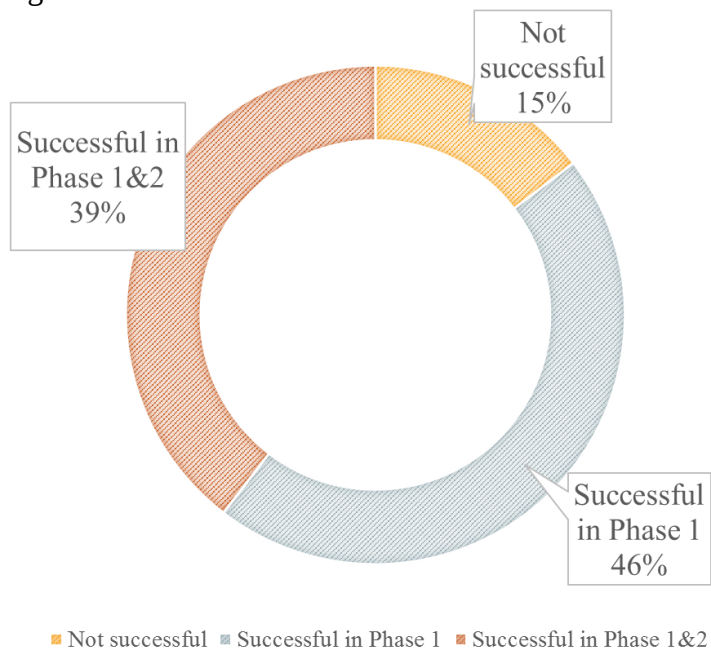


Source: Author's own work

4.1 Success ratio

As shown in the following Figure 12, out of the analysed 96 projects, 82 did successfully pass Phase 1, leading to a success ratio of 85%. Out of those 82 successful projects, only 38 also passed Phase 2, meaning that the success ratio of this approach is 39% and the remaining 44 projects were successful only in Phase 1, 46%. The reason for that can be the entrepreneur's unexperienced background in money raising and therefore not being able to realistically evaluate and decide the target amount which was set too high and could not be achieved in Phase 2.

Figure 12: Success ratio

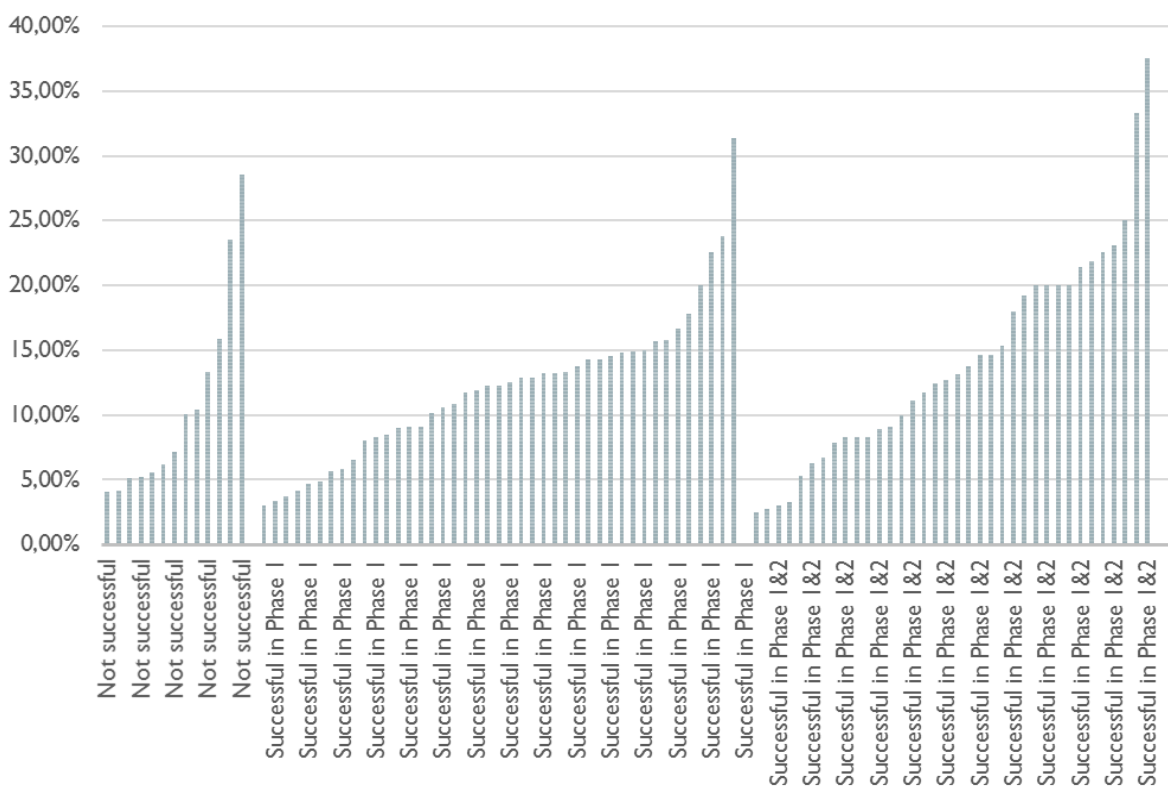


Source: Author's own work

4.2 Level of equity participation

Figure 13 represents the individual levels of equity offered, ranked by success. Interesting results can be seen when analysing the average levels of offered equity. The average equity level of not successful projects is 10,71%, of those that were successful in Phase 1 12,02% and of those that were successful in both Phase 1 and Phase 2, 14,22%. The total average equity is 12,69%. The lowest equity offered was 2,44% (Project was successful in both Phase 1 and Phase 2) and the highest equity offered was 37,50% (also successful in both Phase 1 and Phase 2). Based on these results, the level of equity offered could potentially be one of success determinants and a higher equity participation offered to the investors might have a positive impact on the success of a project financing. These results contradict the statements of Alhers et al. (2015) and Ralcheva and Roosenboom (2016), since both these studies argue that a low level of equity offered signals quality of the campaign, because the entrepreneurs believe in the projects and want to keep as much equity as possible. However, a higher level of equity offered might attract more investors, especially inexperienced investors, which could increase the probability of project's success and that can be the reason behind the results.

Figure 13: Equity level of all projects

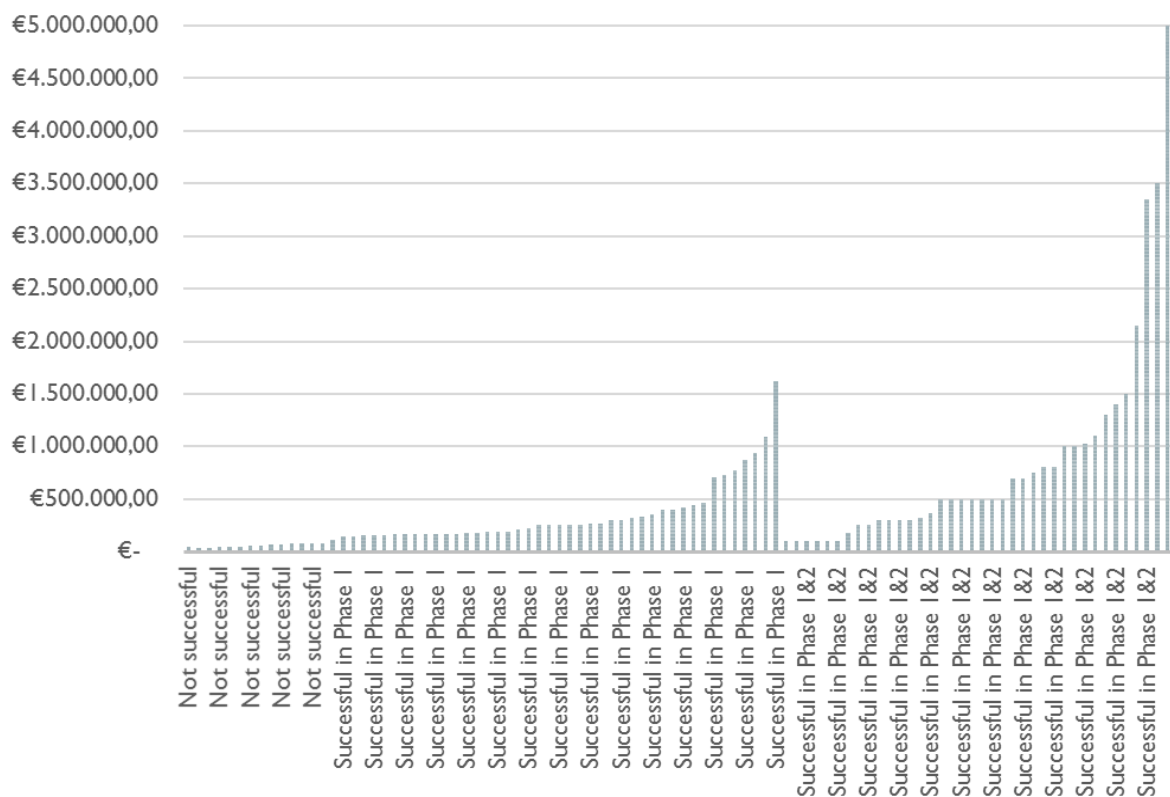


Source: Author's own work

4.4 Collected Amount

The average collected amount of unsuccessful projects is €57.717. Projects successful in Phase 1 on average collected €356.289 which is roughly only a half of the average target amount. As previously already mentioned, inadequate expectations could be the causing that, by setting the target amount too high. Projects that were also successful in Phase 2 were able to collect on average €861.596, which is around 23% more than the average target amount of these projects. Potentially, they could have asked for even more but is also highly likely that they would belong to the group of projects that were successful only in Phase 1.

Figure 15: Collected amount

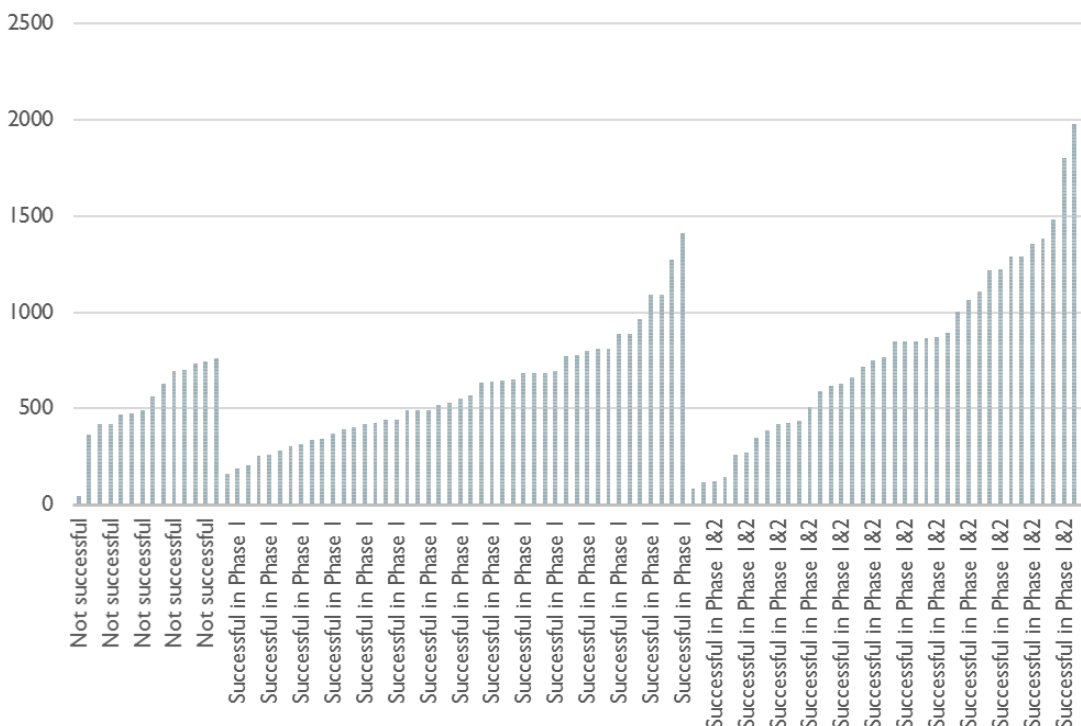


Source: Author's own work

4.5 Number of Investors

Next was examined, if the number of investors does have an impact on the potential success of project. A higher number of investors does automatically mean that more investments are being made, which could mean that more money will be collected, which increases the probability of exceeding the target. According to the results of this empirical study, the average number of investors of unsuccessful projects is 536, of projects successful in Phase 1 is 592 and the average number of investors of projects successful in both Phase 1 and Phase 2 is 839. However, it cannot be said that there needs to be a specific number of investors for the project to be successful. In this dataset, there are numerous projects with a number of investors which is well below the average number of investors of unsuccessful projects and are successful in both phases. There can be a project with a lot of investors, but the value of the individual investments is low, and the project is therefore unsuccessful. On the contrary, there can be a project with a few investors but if these investors individually invest big amounts, the project can still be successful. Therefore, the number of investors is closely related to the average investment when discussing funding success of a project. That is supported also by the results of study, the average investment is €108, of projects successful in Phase €1.602 and projects successful in both Phase 1 and Phase 2 have an average investment of €1.027.

Figure 16: Number of investors

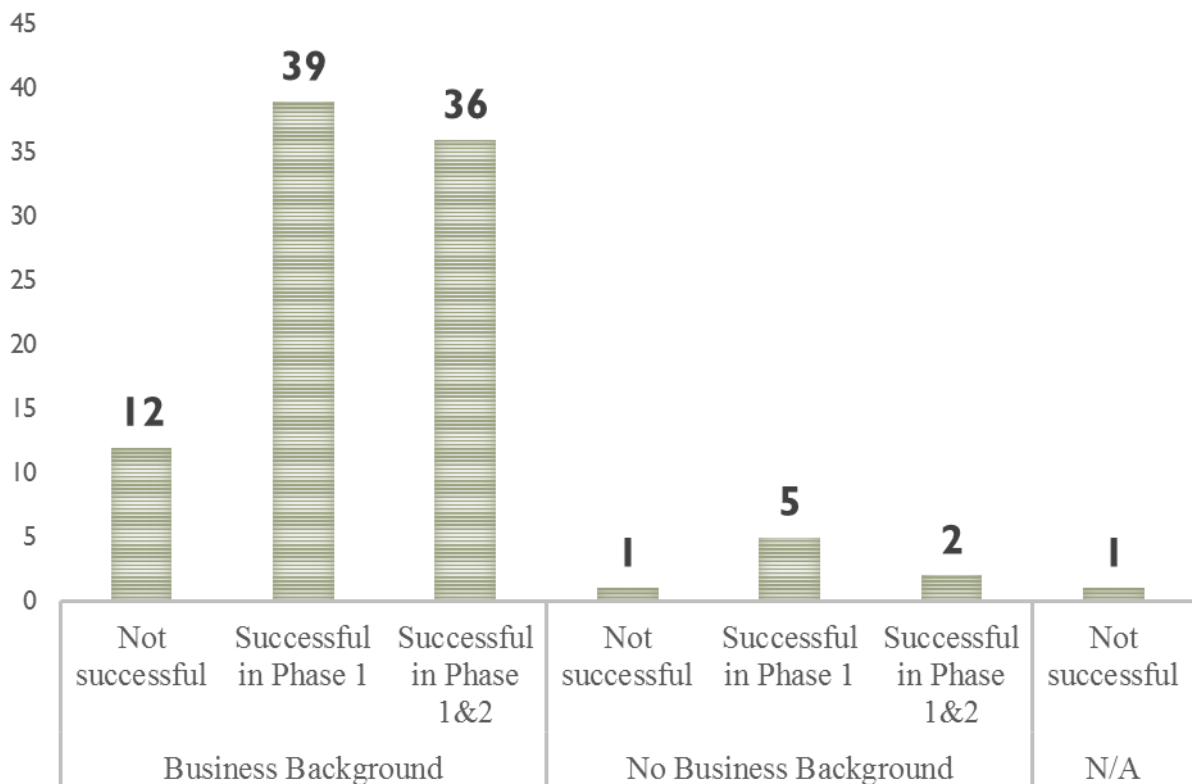


Source: Author's own work

4.6 Entrepreneur's Background

Since the platform allows to collect many details not only about the project itself but also about the entrepreneurs, it was possible to examine if the entrepreneur's background – his education and work experience, has an impact on the success of the project. In this dataset, majority of the entrepreneurs (87 out of 96, 91%) does have a business background – they graduated a business school and did have relevant experience in working in a firm (usually at a higher position) or already successfully founded a firm before launching the campaign for their current start-up. Out of the 87 of them, 39 were successful in Phase 1, 36 were successful in Phase 1 and Phase 2 and 12 were not successful. 8 Projects have entrepreneurs that do not have a business background. However, out of the 8, only 1 was unsuccessful. 5 were successful in Phase 1 and the remaining 2 were successful in Phase 1 and Phase 2. One project did not release information about the entrepreneur's background and was in the end not successful.

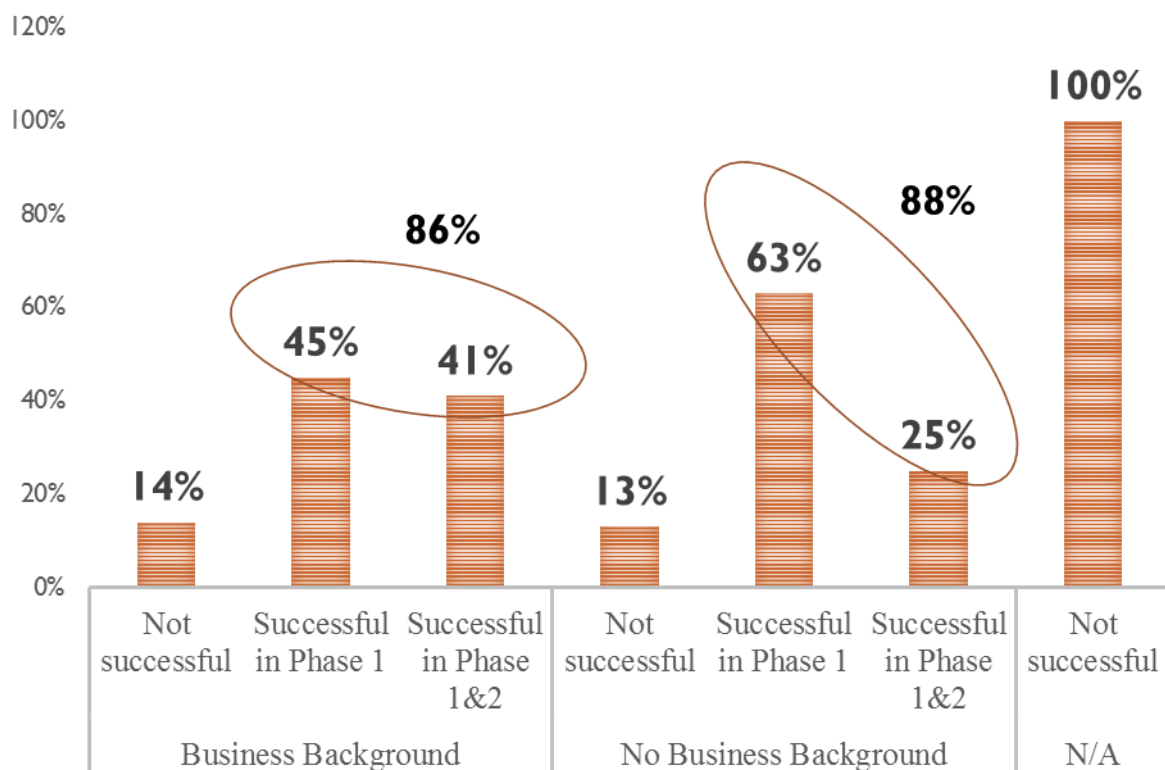
Figure 17: Distribution of Entrepreneurs based on their Background



Source: Author's own work

Overall, entrepreneurs that had a business background had a 45% success rate at passing Phase 1 and a 41% success rate at passing Phase 1 and Phase 2, which sums up to a success rate of 86%. Entrepreneurs without a business background had a 63% success rate at passing Phase 1 and a 25% success rate at passing Phase 1 and Phase 2 and do so have a success rate of 88%. Even though these results suggest that entrepreneurs without a business background have a higher probability of funding success, some of the teams published information containing more of personal than professional life of the team members and even those might have otherwise been classified as entrepreneurs with a business background. Also, there were teams in which the founder was for example a doctor and in his team, there was a manager with business experience. That person is always needed but the entrepreneur needs to know the field where the startup operates and even a doctor, who has no business background, can be a successful founder of a medical services startup.

Figure 18: Percentual distribution of Success of Entrepreneurs based on their Background

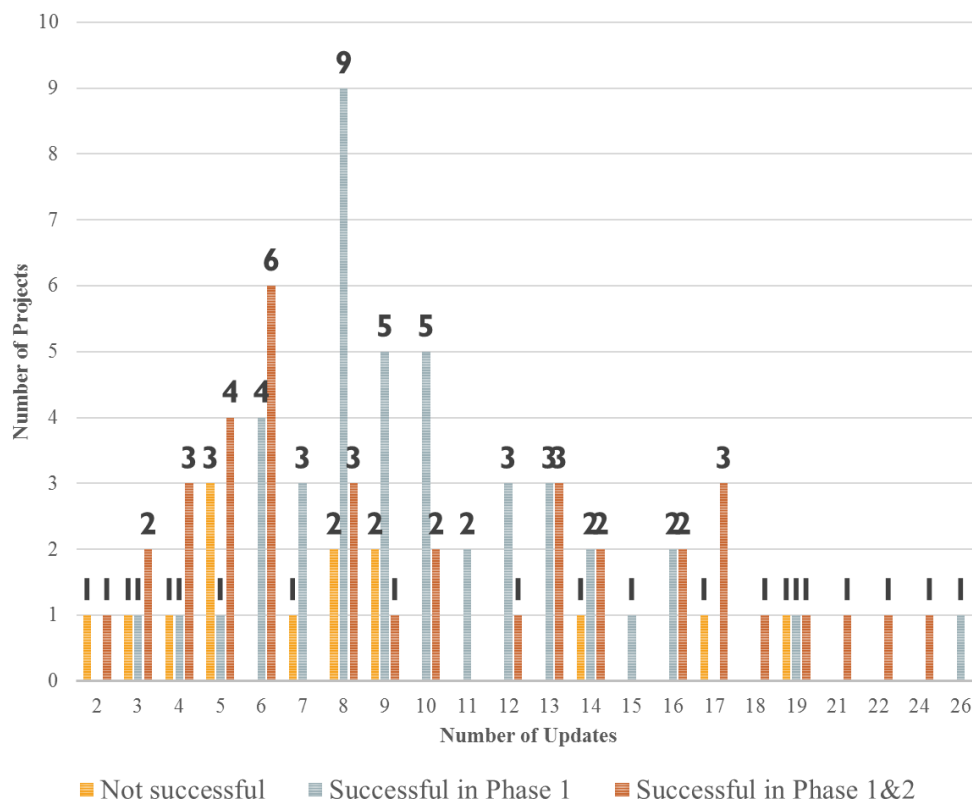


Source: Author's own work

4.7 Number of Updates

Another factor that was looked at was the number of updates per project. According to the results, the higher the number of updates, the higher the probability of the project being successful. The average number of updates of not successful projects is 8,2, of projects successful in Phase 1 10 and of the projects successful in Phase 1 and Phase 2 10,4. However, as shown in Figure 19, a high number of updates does not automatically mean that the project will be successful. In this dataset, there is a project that had 19 updates, which is almost double the average number of updates of projects successful in Phase 1 and Phase 2, and was not successful. But, there is also a project with only 2 updates, which was successful in both Phase 1 and Phase 2. Another interesting result is that 8 updates has the highest number of projects successful in Phase 1 – 9 projects and 6 updates has the highest number of projects successful in Phase 1 and Phase 2 – 6 Projects. The reason why the not successful projects did not post as many updates as the successful ones could also be that since their campaign only lasted for around 2 months, they did not have as much time as those that passed Phase 1 and could have continued their campaign for 10 more months.

Figure 19: Number of Updates

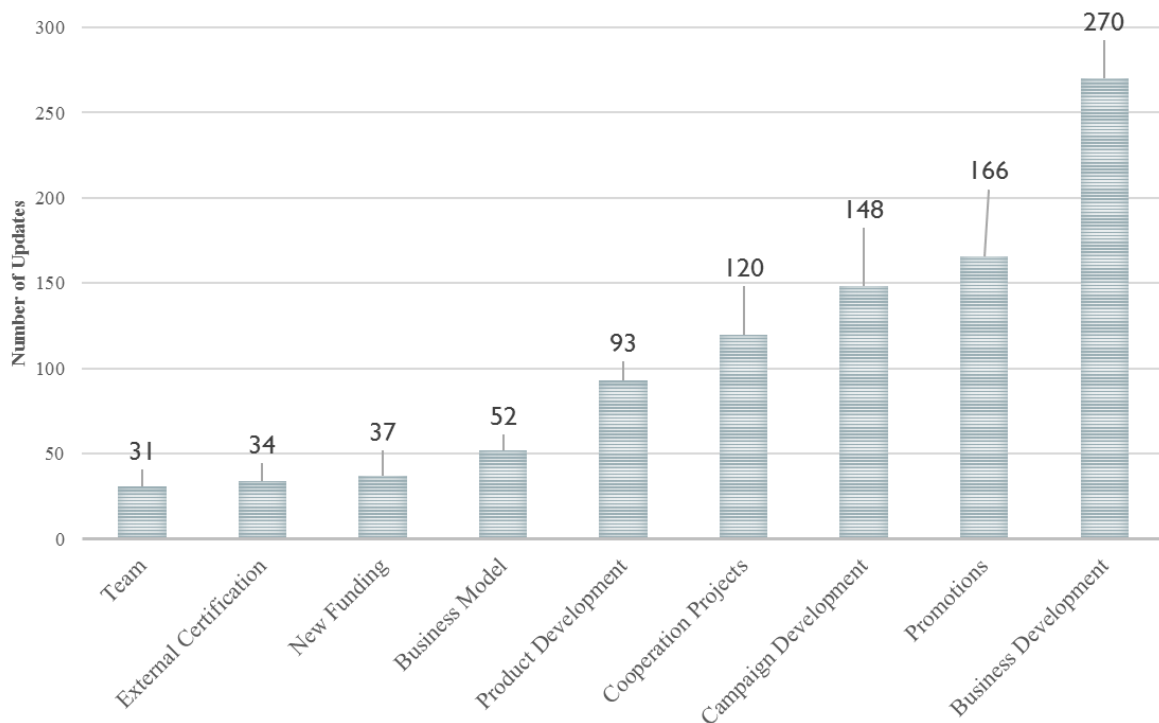


Source: Author's own work

4.8 Update Category

As previously already mentioned, 9 categories were chosen: Team, Business Model, External Certification, Product Development, Cooperation Projects, Campaign Development, New Funding, Business Development, and Promotions. Figure 20 shows that the update category most often used was Business development, which focuses on information about the start-up's financial development (e.g., sales and turnover) as well as customer updates (e.g. number of customers or new customers). Out of a total of 951 updates, 270 were updates about Business development, which is 29%. The second favourite update category was Promotions (166, 17%) and the third favourite update category was Campaign Development (148, 16%).

Figure 20: Update Category



Source: Author's own work

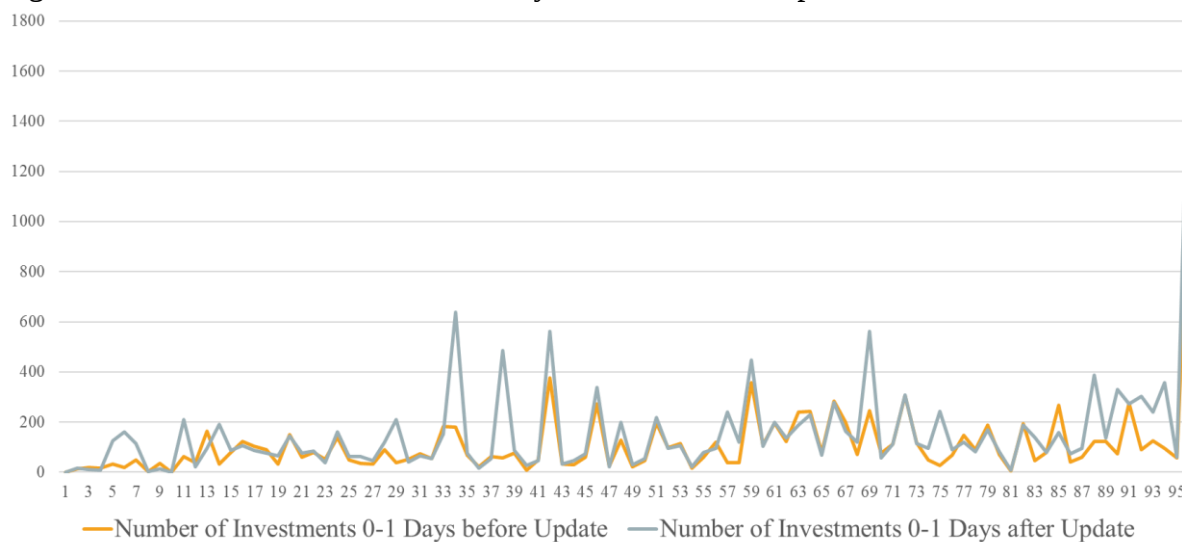
4.9 The Impact of Updates on the Number of Investments and the Invested Amount

The biggest part of this empirical study was examining the impact of updates on the number of investments and the invested amount. In order to get the results, the update date was set as a timepoint. Investments that happened 2 days before the update date were summed up – both the number of investments and the total invested amount during these days. Next category were the investments that happened on the day of the update and the day after and again, summed up were the investments and the total invested amount during these two days. The same logic was used to get the number of investments and the total invested amounts from 2 to 4 days before and after the update.

4.9.1 Number of Investments 0-1 days before/after the Update

Figure 21 shows the number of investments that happened 0-1 days before and after the update was published. When looking at Figure 21, it can be clearly seen that the number of investments was very similar before and after the update was published and sometimes, the number of investments that happened after the update was higher than the one that happened before the update.

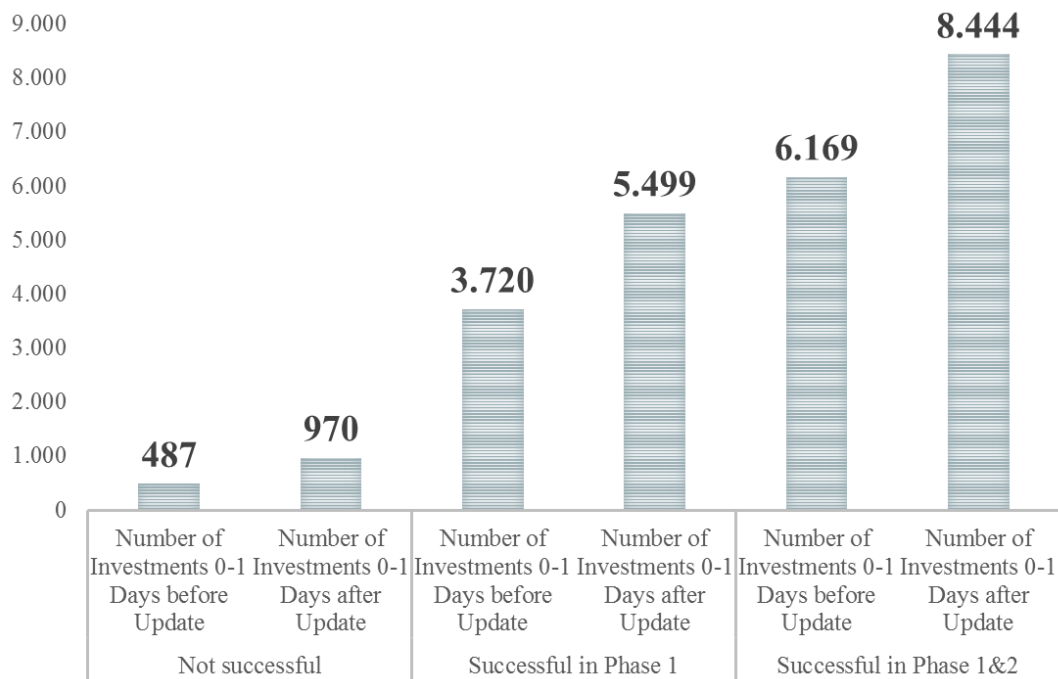
Figure 21: Number of Investments 0-1 days before/after the Update



Source: Author's own work

The positive effect of the update can be seen even better in Figure 22. For the unsuccessful projects, the number of investments after the update has risen by 483 which was an increase of 99%. For projects that were successful in Phase 1, the number of investments after the update increased by 1.779, 48%. The number of investments after the update for projects that were successful in Phase 1 and Phase 2 has risen by 2.275, which was a percentual increase of 37%.

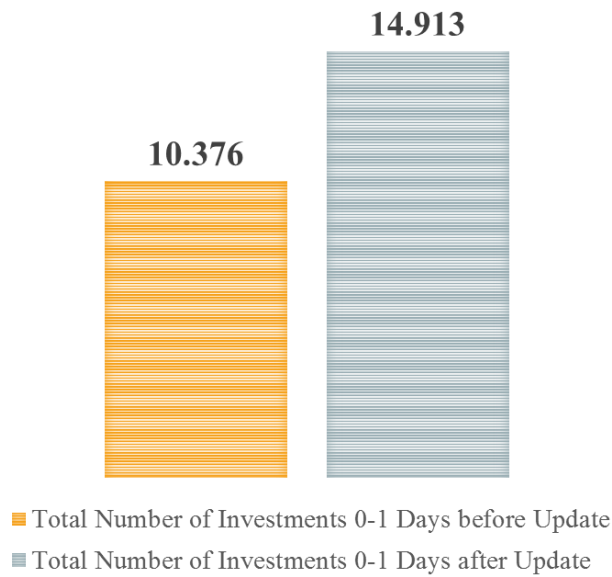
Figure 22: Number of Investments 0-1 before/after Update by status



Source: Author's own work

In total, there were 14.913 investments that happened after the updates and 10.376 investments that happened before the updates. The updates have contributed to an increase of 44% in the investments.

Figure 23: Total Number of Investments 0-1 days before/after Update

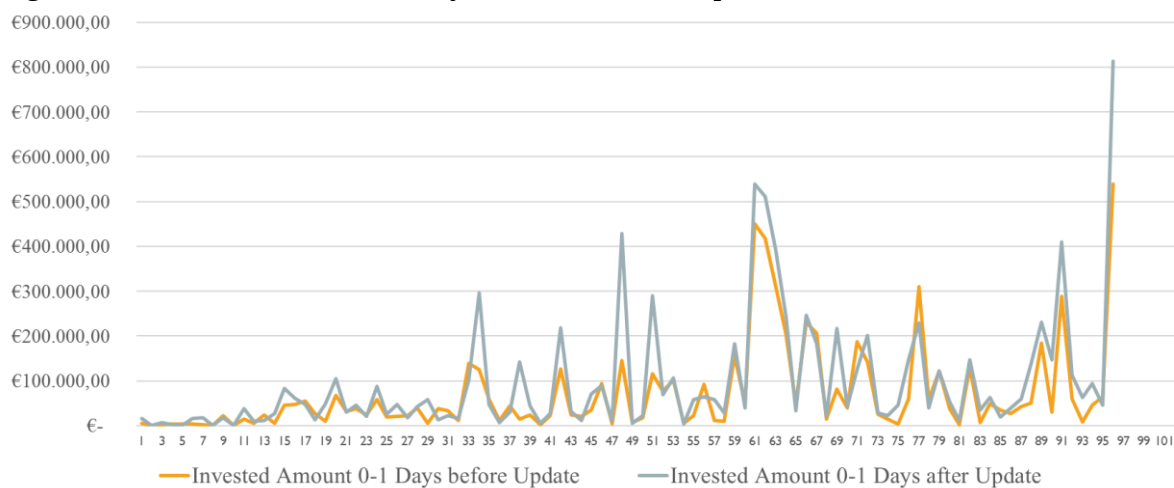


Source: Author's own work

4.9.2 Invested Amount 0-1 days before/after the Update

For the same time period – 0-1 days before and after the update, the invested amount was examined as well since that is the most important part of a campaign – collecting as much money as possible. Figure 24 shows that almost for all projects, the invested amount after the update was higher than the invested amount before the update.

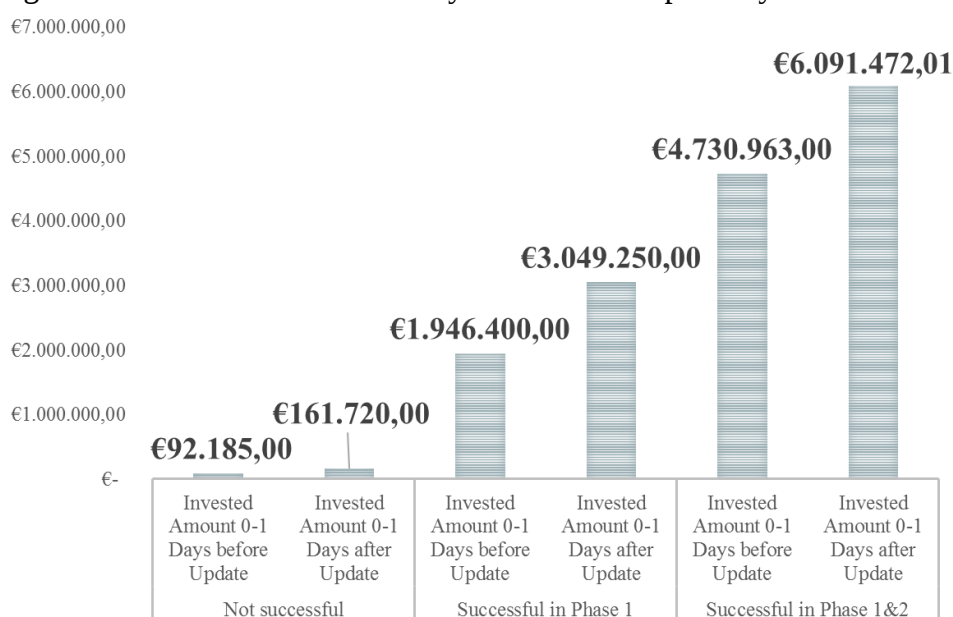
Figure 24: Invested Amount 0-1 days before/after the Update



Source: Author's own work

For the unsuccessful projects, the invested amount after the update has risen by €69.535 which was an increase of 75%. For projects that were successful in Phase 1, the invested amount after the update increased by €1.102.850, 57%. The number of investments after the update for projects that were successful in Phase 1 and Phase 2 has risen by €1.360.509, which was a percentual increase of 29%.

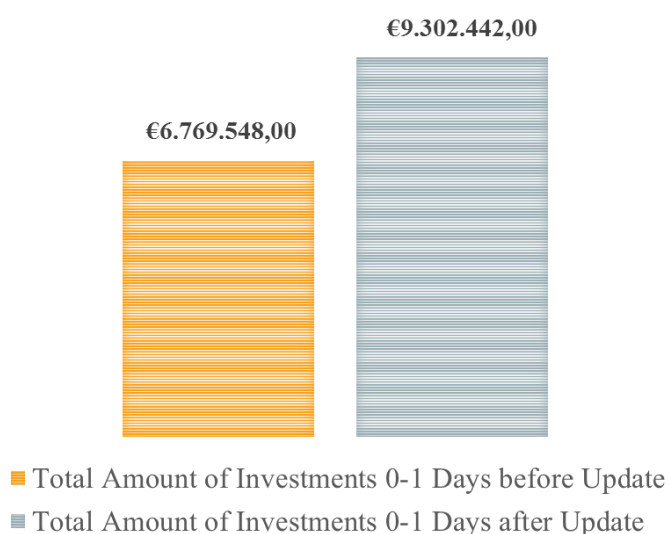
Figure 25: Invested Amount 0-1 days before/after Update by status



Source: Author's own work

In total, the invested amount has risen from €6.769.648 to €9.302.442. The invested amount after the update was 37% higher than the invested amount before the update.

Figure 26: Total Invested Amount 0-1 Days before/after Update

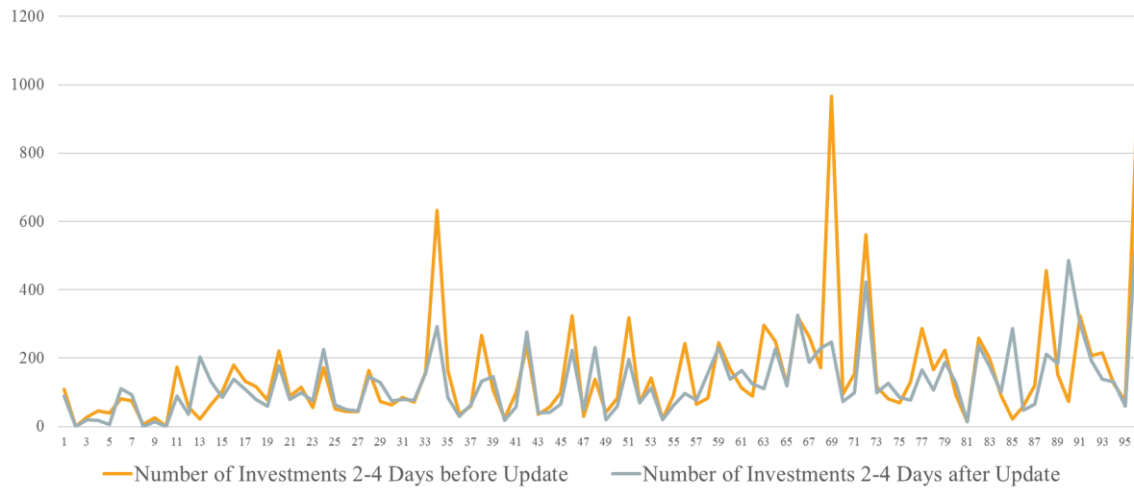


Source: Author's own work

4.9.3 Number of Investments 2-4 days before/after the Update

In order to document a larger time-frame, 2-4 days before and after the update were examined the same way as 0-1 days before and after the update. Figure 27 shows a negative effect of the update, for the first time. The number of investments that happened 2-4 days before the update were for the most cases higher than the number of investments 2-4 days after the update.

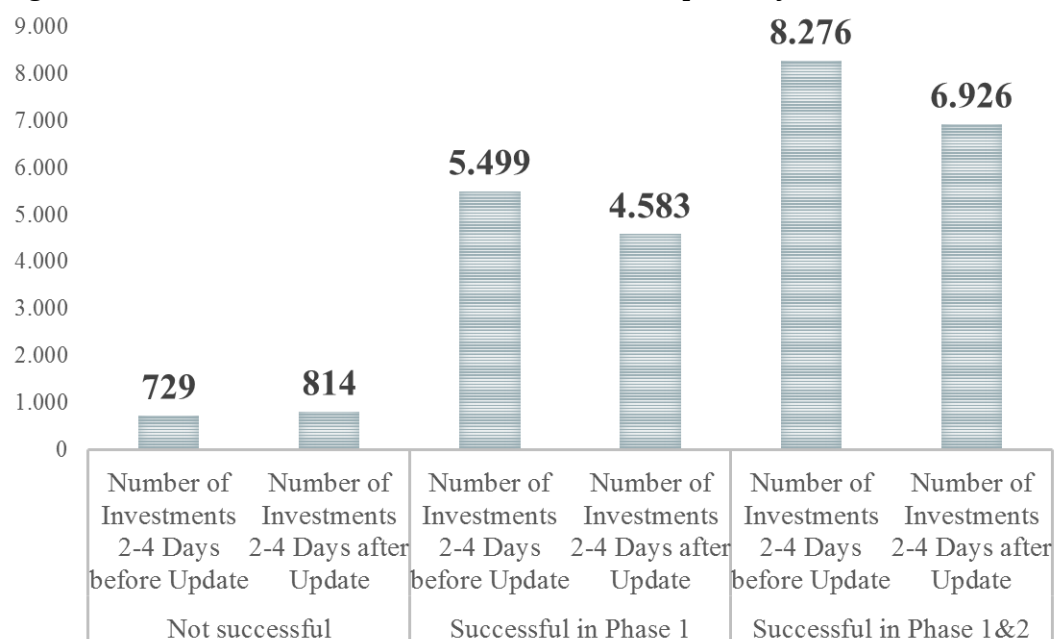
Figure 27: Number of Investments 2-4 days before/after the Update



Source: Author's own work

Only in the case of unsuccessful projects, the number of investments after the update was increased – by 85, 12%. The number of investments for projects successful in Phase 1 has dropped by 916 and therefore by almost 17%. In case of the projects successful in Phase 1 and Phase 2, the number of investments decreased by 1.350, 16%.

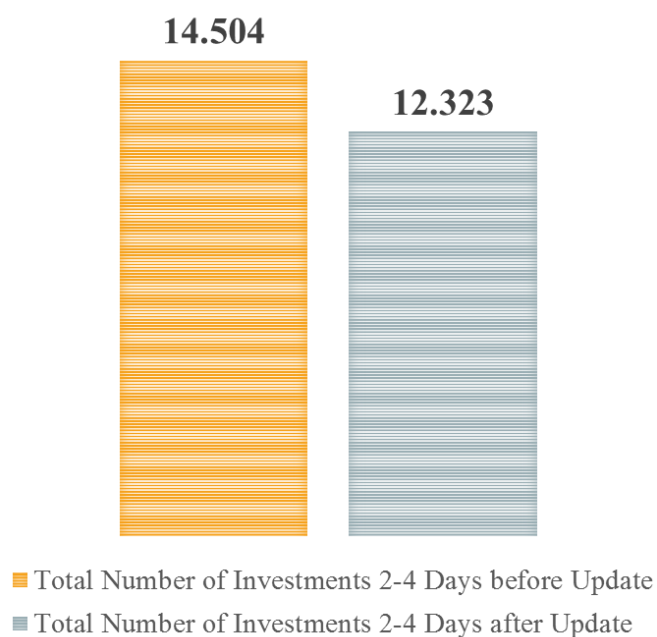
Figure 28: Number of Investments 0-1 before/after Update by status



Source: Author's own work

In total, the total number of investments has decreased after the update by 2.818 investments, which is an equivalent of 15%. This is the only time, that publishing an update has a negative impact on the investments.

Figure 29: Total Number of Investments 2-4 days before/after Update

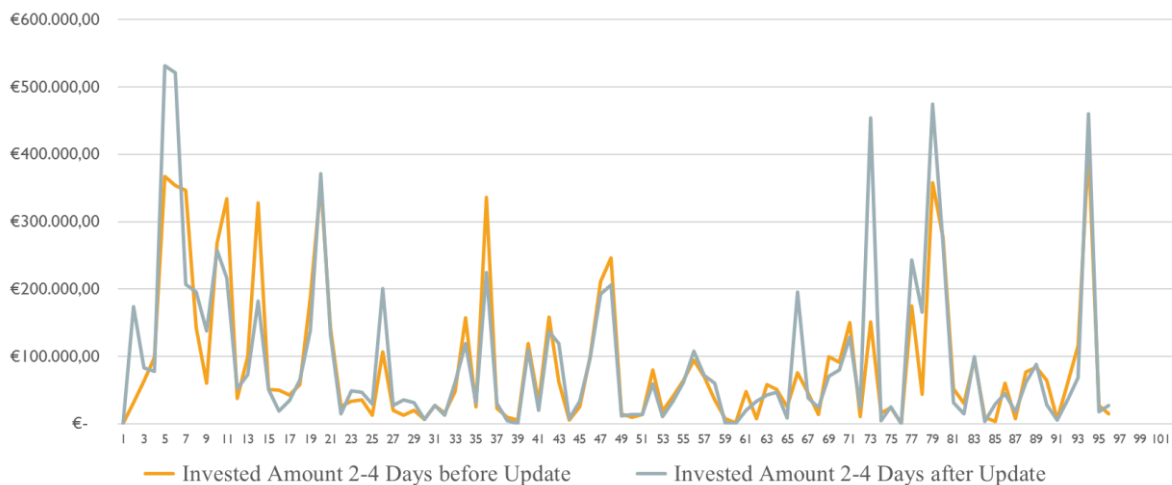


Source: Author's own work

4.9.4 Invested Amount 2-4 days before/after the Update

The last examined section was the invested amount 2-4 days before and after the update. As Figure 30 shows, every project was very different, in some cases the invested amount before the update was much lower than after the update, sometimes similar and sometimes higher than the invested amount after the update.

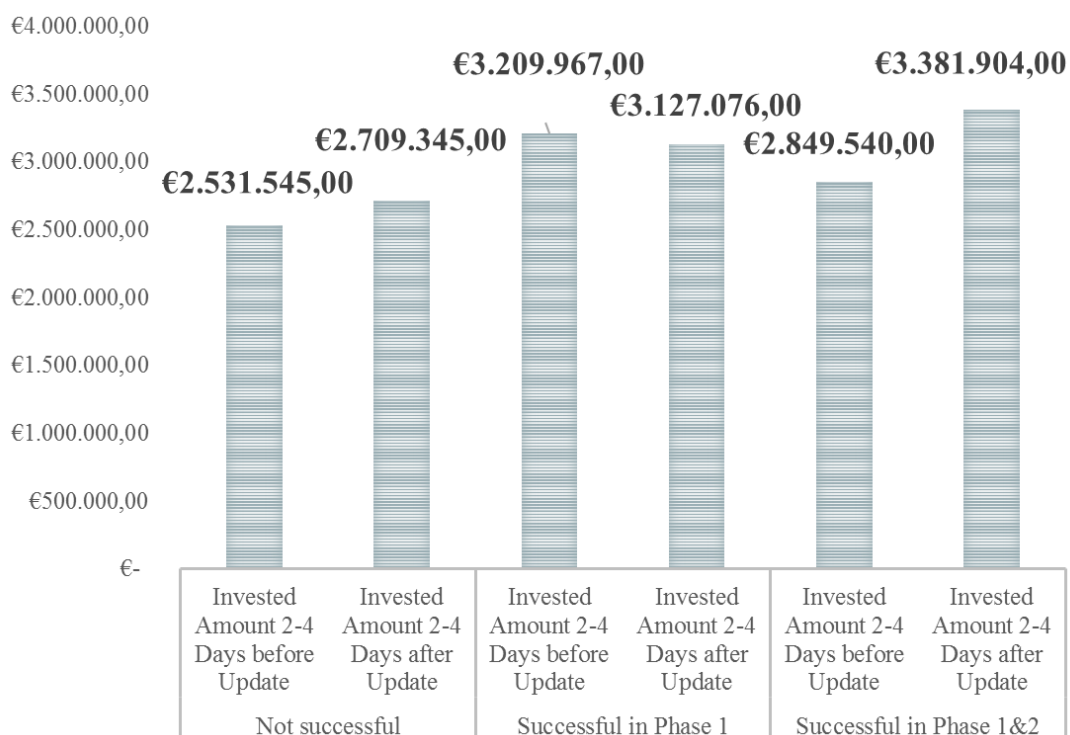
Figure 30: Invested Amount 0-1 days before/after the Update



Source: Author's own work

As predicted by looking at Figure 30, Figure 31 only supports that the differences between the invested amounts before and after the update are very small. In case of not successful projects, the invested amount increased with the update by €177.800, which is an increase of 7%. Projects successful in Phase 1 have recorded a decrease of €82.891, 3%. Projects successful in Phase 1 and Phase 2 have observed the biggest increase of the invested amount after the update was published. This invested amount was raised by €532.364, which is 19%.

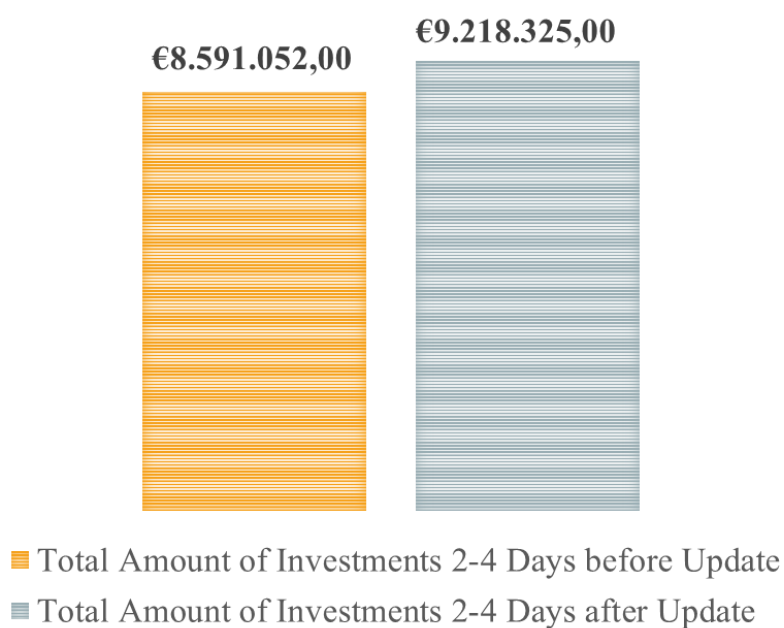
Figure 31: Invested Amount 2-4 days before/after Update by status



Source: Author's own work

Summed up, the invested amount after the update is a little higher than the invested amount before the update – by €627.273, which is an increase of 7%.

Figure 32: Total Invested Amount 2-4 Days before/after Update

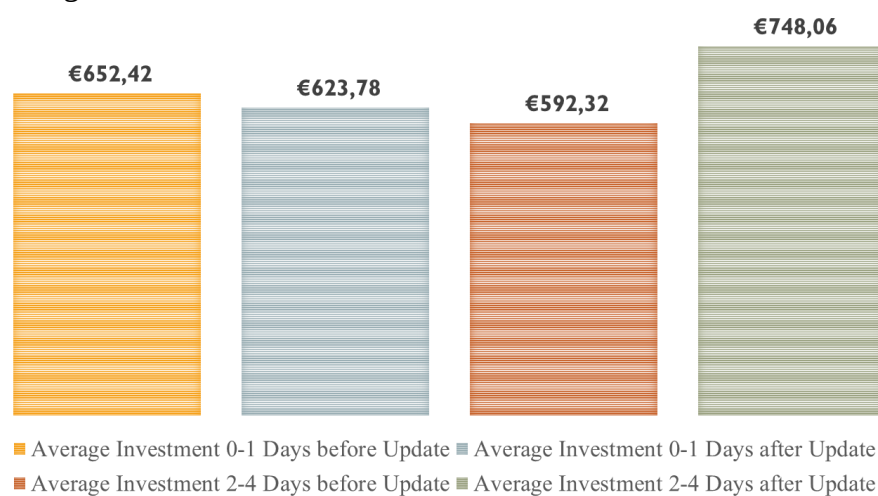


Source: Author's own work

4.9.5 Average Investments

The average investment, calculated by dividing the total investment amount 0-1/2-4 days before/after the update by the total number of investments 0-1/2-4 days before/after the update, shows a different viewpoint on how the update has changed the behaviour of the investors. Figure 33 shows that the average investment 0-1 days after the update has slightly dropped in comparison to the average investment 0-1 days before the update, but the average investment 2-4 days after the update has increased significantly when compared to the average investment 2-4 days before the update.

Figure 33: Average Investments

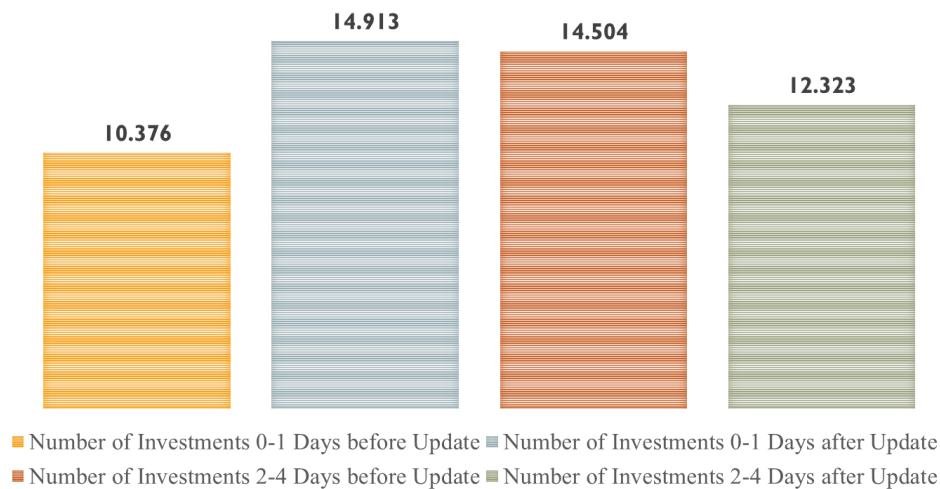


Source: Author's own work

4.9.6 Overall Effect of the Updates

In order to see the whole picture and the whole effect of the updates, following figures were constructed. Figure 34 shows a significant increase in the number of investments 0-1 days after the update. Nevertheless, there is also a big decrease in the number of investments 2-4 days after the update. Overall, the number of investments after the update (27.236) is much higher than the number of investments before the update (24.880). Therefore, it can be concluded from the results that posting updates has a positive impact on the number of investments made.

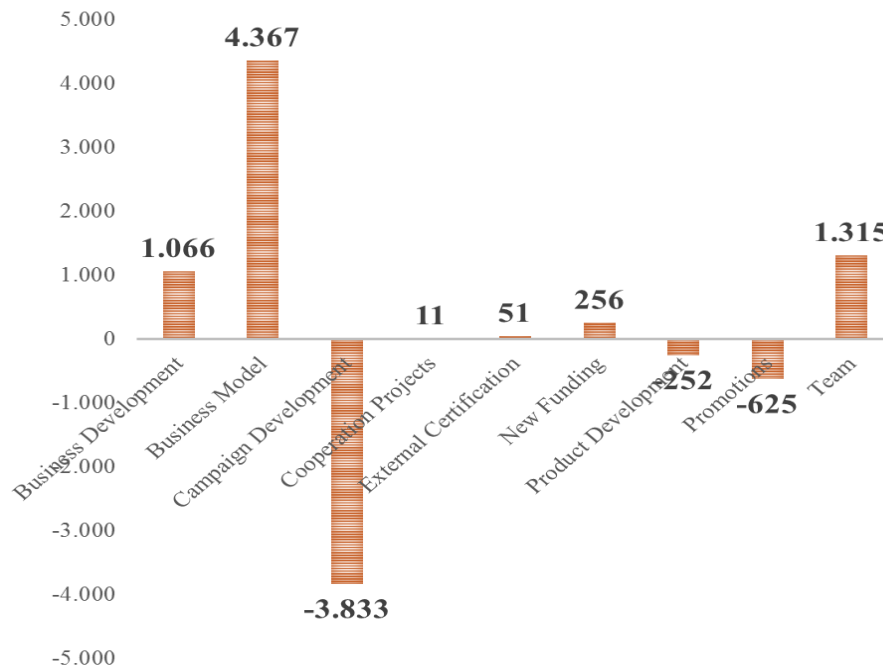
Figure 34: Total Number of Investments



Source: Author's own work

Figure 35 shows the effect of specific update categories – which category led to an increase of the number of investments and which category led to a decrease in the number of investments. Based on the results, the investors reacted best to updates about the business model, the team and the business development, since much more investments were made after such an update than before the update. Updates about the promotions, the product development and especially updates about the campaign development had a negative influence on the number of investments, since this number has decreased after publishing such an update.

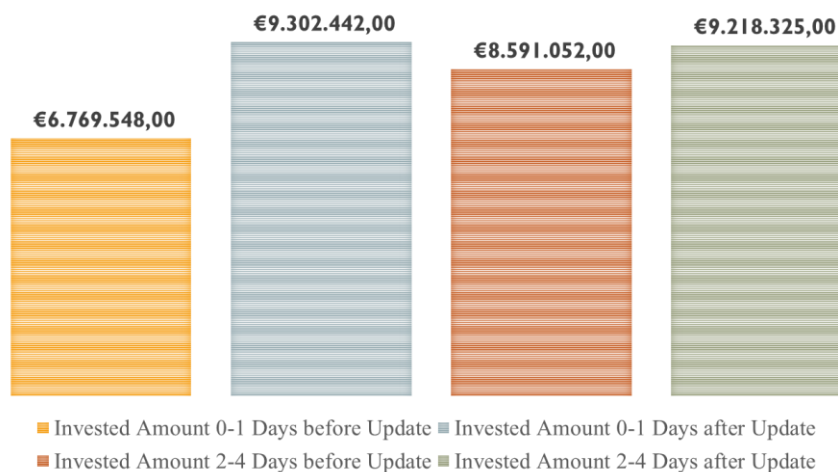
Figure 35: Effect of an Update Category on the Number of Investments



Source: Author's own work

The following figure is the most important one since the goal of every campaign is to collect as much money as possible. Figure 36 shows that the total invested amount has increased in both 0-1 days after the update and also 2-4 days after the update. Even though the number of investments as previously discussed has dropped for the 2-4 days after the update period, the big average investment (as discussed in chapter 4.9.5) has fully compensated that decrease. In total, €18.520.767 were invested after the updates and €15.360.600 were invested before the update, which implies that posting updates has a positive impact on the increase of the invested amount.

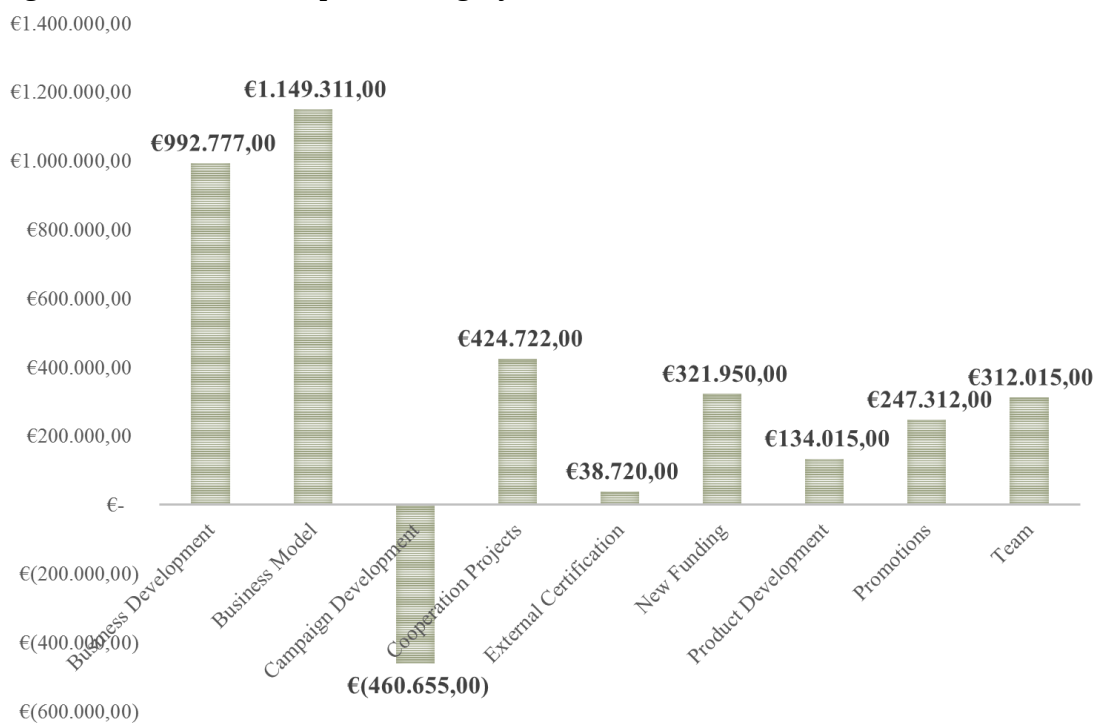
Figure 36: Total Invested Amount



Source: Author's own work

The effect of different update categories on the invested amount was examined for this section as well. The results, interestingly, show that only updates about the campaign development caused a decrease in the invested amount after an update. The reason for this could be, since most updates regarding the campaign updates were about exceeding a specific funding goal and increasing the funding goal, the investors might have lost interest in this project because suddenly, the value if a share has dropped. The update categories that caused the biggest increase were business model and business development.

Figure 37: Effect of an Update Category on the Invested Amount



Source: Author's own work

5. Discussion

Crowdfunding has rapidly become a widely used form of funding of financing start-ups. There were notable growth rates over its short life span (Tomczak and Brem, 2013). It is used to describe an increasingly widespread form of fundraising, usually via the Internet, whereby a group of individuals pools (usually) very small individual money donations to support a particular goal (Ahlers et al, 2015). There are four crowdfunding models – equity, loan, rewards and donation crowdfunding. This study is based on equity crowdfunding in which the investors get equity shares as a compensation for their contribution.

The focus of this study was identifying success factors of German equity crowdfunding projects and focusing the most on the effect of updates. Data used for this study was obtained from the biggest German equity crowdfunding platform specialising in funding businesses – Companisto, containing of 96 equity crowdfunding projects that were finished before 31.5.2019.

5.1 Findings from the Study

All results were conducted based on the assumption that projects were not successful if they did not manage to collect €100.000 in the first two months. Projects that did reach the threshold within two months but were not able to reach their funding goal, were categorised as projects successful in Phase 1. Projects that were successful in Phase 1 and also exceeded their funding goal were categorised as projects successful in Phase 1 and Phase 2.

The success ratio of the chosen platform was 85%, because the projects that reached the threshold within 2 months, were able to get all additional collected money, even without reaching the target goal. This ratio would be different, if the set threshold of €100.000 was different. In case the threshold was €50.000, almost 96% of the projects would be labelled as successful because only 4 projects collected a smaller amount. However, if the threshold was €200.000 or €500.000, the success rate would be much smaller since the average collected amount is €356.288,75 for projects successful in Phase 1, keeping in mind that the projects had 12 months to collect the investments. Projects successful in Phase 1 and Phase 2 had on average collected €861.596,05 but even within these projects are campaigns that collected much less than the hypothetically higher threshold and would be classified as not successful. Therefore, the platform has a lot of power when deciding the threshold – and influencing the success rate. The average target amount of projects successful in Phase 1 is almost double as the average collected amount of these projects. This could be caused by the lack of experience of some

entrepreneurs and unrealistic expectations. If the target amount was set lower, there could have been many more projects categorised as projects successful in Phase 1 and Phase 2.

Level of equity participation was based on the previous studies by Ahlers et al. (2015) and Ralcheva and Roosenboom (2016) expected to have a negative impact on the success of the project because a high level of equity offered is supposed to signal that the entrepreneur does not want to keep as much equity possible because he doesn't believe in the future earnings. However, results of this study have shown that the average level of equity offered of successful projects is much higher than of unsuccessful projects. The explanation for that could be that a high level of equity offered could attract investors, since they are often inexperienced and getting a big equity share in a company might be motivational enough for them to invest, maybe even to invest big amounts, in order to get an even bigger equity share.

A high number of investors, and therefore a high number of investments, has appeared to have a positive impact on the success of a project, since the average number of investors of successful projects is higher than the average number of investors of unsuccessful projects. However, there are projects that were successful in both phases and have been invested into by less investors than most of unsuccessful projects. That suggests that a high number of investors is not always needed, especially if the individual investments are high enough. Analysing the collected data shows that indeed, successful projects did have on average much higher investments than the unsuccessful projects.

Studies by Piva and Rossi-Lamastra (2017) and Giga (2017) suggested that entrepreneurs that have a business background are more likely to attract more investors than entrepreneurs without a business background because, especially for inexperienced investors, a business education and, even strongly, work experience and already successfully starting a business signals quality of the current startup. This study nevertheless proposes that entrepreneurs without a business background have a higher success rate than entrepreneurs with a business background. These results could be however caused by not all entrepreneurs are providing all information – and are not considering the background as a relevant information, or because investors prefer the entrepreneur to be rather a specialist in the field in which the startup operates and have a business team.

The number of updates seems to not have a significant impact on the success of the project, even though successful projects do have on average a higher number of posted updates than unsuccessful projects. This result can be easily explained by the unsuccessful projects only

having two months to post, which is ten months less than the successful projects had. However, there was a project in the dataset with a relatively big number of updates, which was unsuccessful, but there was also a project with only 2 updates, which is the lowest number of updates of the whole dataset, which was successful in both Phases.

The biggest focus of the study was on determining if the updates had a positive impact on the number of investments and the invested amount. Block et al. (2018) stated in their study that the effect of updates is positive, but doesn't happen immediately after the update is posted, but after a couple of days. Those results slightly argue with the results of this study because the number of investments has significantly increased in the first two days, and there was actually a drop of the number of investments 2-4 days after the update was posted, compared to the number at the same time before the update. The categories of the updates which were followed with a decrease in the number of investments were promotions, product development and especially updates about the campaign development. Updates about the business model, team and business development were followed by the biggest increase in the number of investments. But, more importantly, the total invested amount has risen after the updates. The biggest increase happened after an update about the business model or business development. Only one update category led to a decrease in the invested amount and that was campaign development. The reason for this could be, since most updates regarding the campaign updates were about exceeding a specific funding goal and increasing the funding goal, the investors might have lost interest in this project because suddenly, the price of a share has increased.

5.2 Limitations of the Study and Future Research

There are a couple of limitations in this study that need to be mentioned. Firstly, only one platform was being analysed. Originally, the plan was to examine two platforms – Companisto and Seedmatch. Unfortunately, the Seedmatch platform did not provide almost any information about already finished projects and there were only 2 projects currently running. Therefore, this platform was excluded, and this does not allow very generalizable conclusions to be achieved.

Secondly, the results were conducted for German projects. This also limits the results' generalizability. Germany represents only one equity crowdfunding region, with its own distinctive laws. Because of, for instance, legal regulations, success factors in Germany could be different than in other countries.

Thirdly, all data was collected and analysed by only one researcher. This implies that the interpretation of the outcomes may be biased and may be influenced by the interpreter's opinions. Multiple researchers would provide more points of view.

Fourthly, some startups posted their updates in very short intervals which could have caused the effect of one update not be able to truly show itself, because it was influenced by a different update posted very shortly before or after. Unfortunately, it was not possible to separate the effects completely.

Lastly, the results of this study are based on the information that was provided by the chosen platform. Information asymmetry is a big problem of all investments, because one party knows more than the other. There is no guarantee, that the information published on the platform is 100% true, complete and relevant.

Equity crowdfunding is constantly developing and there are numerous aspects that could be researched. Since legal requirements are different in most countries, it would be interesting to see a comparison of those in a relatively small region like central Europe, which could lead to unified regulations and allow international campaigns.

6 Conclusion

Equity crowdfunding became in the last years a commonly used tool for new ventures funding because it can fill the gap between the startup only starting and being able to use own resources or get funding from family and friends, and getting funded using more traditional funding forms, like for example business angels or venture capitalists.

Germany's regulations allow equity crowdfunding as a form of financing and the German equity crowdfunding market has grown rapidly over the course of last couple of years. There are three main segments – real estate, business and energy. The business segment includes many different sectors, the biggest being information and communication, wholesale and retail and manufacturing.

This study used data from the biggest German equity crowdfunding platform for business startups. The most important findings are presented in Table 3. Analysing all 96 available equity crowdfunding projects that finished before 31.5.2019, the results show that 85% campaigns were successful and received funding, starting at €100.000. When examining the level of equity participation, these results argue with previous findings because on average, successful projects offered more equity shares than unsuccessful projects. There is a positive impact of a higher number of investors on the success of the project. However, depending on the average investment, even a low number of investors could lead to a successful project. Based on the information provided, entrepreneurs without a business background do not have a disadvantage against the entrepreneurs with a business background. Updates have shown to be a potential factor because on average, successful projects have posted more updates than the unsuccessful projects, although a reason for this could be that the unsuccessful projects had less time available. More importantly, based on the results, updates have increased the number of investments and also the invested amount. The only update category that has led to a decrease in the invested amount was campaign development. The biggest increase in the invested amount was noted after posting an update concerning the business model.

Table 3: Key findings of this study

	Not successful	Successful in Phase 1	Successful in Phase 1 & 2
Number of Projects	14	44	38
Average Equity level	10,71%	12,02%	14,22%
Average Target Amount	€ 219.286	€ 697.727	€ 701.974
Average Collected Amount	€ 57.717	€ 356.289	€ 861.596
Average Number of Investors	536	592	839
Average Investment	108 €	602 €	1.027 €
Business Background	14%	45%	41%
No Business Background	13%	63%	25%
Average Number of Updates	8,2	10	10,40
Number of Investments 0-1 Days before Update	487	3.720	6.169
Number of Investments 0-1 Days after Update	970	5.499	8.444
Invested Amount 0-1 Days before Update	€ 92.185	€ 1.946.400	€ 4.730.963
Invested Amount 0-1 Days after Update	€ 161.720	€ 3.049.250	€ 6.091.472
Average Invested Amount 0-1 days before Update	€ 189	€ 523	€ 767
Average Invested Amount 0-1 days after Update	€ 167	€ 555	€ 721
Number of Investments 2-4 Days before Update	729	5.499	8.276
Number of Investments 2-4 Days after Update	814	4.583	6.926
Invested Amount 2-4 Days before Update	€ 2.531.545	€ 3.209.967	€ 2.849.540
Invested Amount 2-4 Days after Update	€ 2.709.345	€ 3.127.076	€ 3.381.904
Average Invested Amount 2-4 days before Update	€ 3.473	€ 584	€ 344
Average Invested Amount 2-4 days after Update	€ 3.328	€ 682	€ 488

Source: Author's own work

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Attachments

Equity Crowdfunding hat sich in den letzten Jahren zu einem üblichen Instrument für die Finanzierung neuer Unternehmen entwickelt, da es die Lücke zwischen dem Start des Startups und dem Einsatz eigener Ressourcen oder der Finanzierung durch Familienmitglieder und Freunde sowie der Finanzierung mit traditionelleren Finanzierungsformen wie zum Beispiel Business Angels oder Venture Capitalists, schließen kann.

Die deutschen Vorschriften erlauben Equity Crowdfunding als Finanzierungsform, und der deutsche Markt für Equity Crowdfunding ist in den letzten Jahren rasant gewachsen. Es gibt drei Hauptsegmente - Immobilien, Geschäft und Energie. Das Geschäftsfeld umfasst viele verschiedene Branchen, die größten sind Information und Kommunikation, Großhandel und Einzelhandel sowie Herstellung.

In dieser Studie wurden Daten der größten deutschen Equity Crowdfunding-Plattform für Unternehmensgründungen herangezogen. Die wichtigsten Ergebnisse sind in Tabelle x dargestellt. Die Analyse aller 96 verfügbaren Equity-Crowdfunding-Projekte, die vor dem 31.5.2019 abgeschlossen wurden, zeigt, dass 85% der Kampagnen erfolgreich waren und eine Finanzierung ab €100.000 erhielten. Bei der Prüfung der Höhe der Eigenkapitalbeteiligung stimmen diese Ergebnisse mit früheren Ergebnissen überein, da erfolgreiche Projekte im Durchschnitt mehr Eigenkapitalanteile boten als erfolglose Projekte. Eine höhere Anzahl von Investoren wirkt sich positiv auf den Projekterfolg aus. Je nach durchschnittlicher Investition kann jedoch auch eine geringe Anzahl von Investoren zu einem erfolgreichen Projekt führen. Nach den zur Verfügung gestellten Informationen haben Unternehmer ohne betriebswirtschaftlichen Hintergrund keinen Nachteil gegenüber Unternehmern mit betriebswirtschaftlichem Hintergrund. Aktualisierungen haben sich als potenzieller Faktor erwiesen, da bei erfolgreichen Projekten im Durchschnitt mehr Aktualisierungen als bei nicht erfolgreichen Projekten veröffentlicht wurden. Ein Grund hierfür könnte sein, dass den nicht erfolgreichen Projekten weniger Zeit zur Verfügung stand. Was noch wichtiger ist: laut der Ergebnisse haben Aktualisierungen die Anzahl der Investitionen und auch den investierten Betrag erhöht. Die einzige Aktualisierungskategorie, die zu einem Rückgang des investierten Betrags geführt hat, war die Kampagnenentwicklung. Der größte Anstieg des investierten Betrags wurde nach der Veröffentlichung einer Aktualisierung in Bezug auf das Geschäftsmodell verzeichnet.