Is there life after Kickstarter?

An Empirical and Descriptive analysis of the outcomes of video game crowdfunding campaigns on Kickstarter.com

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ABSTRACT

In this study the influence of successful crowdfunding campaigns on product availability in the context of video game crowdfunding projects was investigated. The dataset contained over 11,000 different video game campaigns containing projects from 2009 to 2017. A sample of 300 was drawn to allow for detailed examination of the outcomes of these projects, specifically what the characteristics were of their products. Are the products available, in what state, and how long did it take for the product to get to that state. The sample incorporated information about video game projects regarding overfunding, time since the deadline of the crowdfunding campaign until product was released to the market, the different states products are in, and the price of the product. The effects of the amount of backers and average amount pledged per backer on crowdfunding success were tested with the entire dataset and used additional variables such as the average amount pledged per backer and duration of the crowdfunding campaign. Logistic regression was employed to test these assumptions. The sample was analyzed with univariate and bivariate descriptive analyses. In this research it was found that the amount of backers increases the chance of a crowdfunding campaign being successful. However, the average amount pledged per backer decreases the chance of a crowdfunding campaign being successful. These results carry important implications for the democratic nature of crowdfunding. Descriptive analyses on the sample showed reasonably low product availability for products of successful video game crowdfunding campaigns, with the segmentation of different product states changing considerably when overfunding increases. Little or no overfunding was the largest category of unavailable products. These findings contain important applications for the future of crowdfunding in the context of video game development and funding.

KEYWORDS: Crowdfunding, Kickstarter, Video Game Projects, New Ventures, Entrepreneurial finance

Preface

When writing my last thesis my primary topic of interest was video games, afterwards I came to appreciate data and numbers. For this thesis I wanted to do a quantitative research related to the realm of video games. Together with my interest for new methods of funding I chose to look at crowdfunding success and video game projects. I am grateful for having had the confidence of Dr. Handke to research a topic of great interest to me. I would like to thank Dr. Handke for his thoughtful comments and feedback. In addition I would like to thank Carolina Dalla Chiesa for discussing the literature on crowdfunding and her valuable comments regarding the direction of my research. I would like to thank my brother Didier for allowing me to transform our apartment into a private library for the last few months. Lastly big thanks to all my comrades from the Master's programme for the mutual support in this laborious time.

I hope you enjoy your reading.

Philippe Geensen

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1. Introduction

The objective of this thesis is to examine how project creators proceed with the development and delivery of their product after funding has been achieved in the context of video game projects on Kickstarter.com. In other words, how does successful crowdfunding influence product availability in the context of video game crowdfunding campaigns?

Buying your own space fighter craft for just $2500 seems like it is too good to be true. But in the online multiplayer PC game Star Citizen this becomes a possibility, although it concerns a digital spacecraft (Woolf, 2014). The developers of Star Citizen managed to destroy all previous crowdfunding records by allowing people to spend money on virtual goods (Woolf, 2014). Now there is nothing new about spending money on virtual goods, but in Star Citizen these are goods that can be used in a game world that does not yet exist (Baker, 2015). In fact this game world might not exist for months, or even years (Baker, 2015). We will take a look at why this story is relevant for this thesis later on; first the significance of crowdfunding and the relevance of this research will be discussed.

An ever-present problem within the cultural industries is the relatively high up-front costs of creation, while at the same time the benefits of most creations are uncertain and only transpire over time (Dalla Chiesa & Handke, 2019). Crowdfunding is a relatively new method, nowadays often assisted by digital information and communication technology, to alleviate such problems (Dalla Chiesa & Handke, 2019). The first online crowdfunding platform was ArtistShare, launched in 2000, which enabled artists to fund their projects by allowing the general public to directly finance their endeavours. While crowdfunding is currently used for a broad range of projects, cultural and creative industries continue to be the most important area for applications of crowdfunding (Mollick, 2014). Crowdfunding is an example of how the cultural sector has created an inventive business idea that can be applied to a broad context. The almost symbiotic relationship between the cultural sector and crowdfunding makes crowdfunding an important topic within the realm of cultural economics. Crowdfunding can be examined to better understand general themes within cultural economics such as public and experience good properties of cultural goods, demand formation, and intrinsic motivation to participate in creative activities. Vice versa these themes may aid us understand the crowdfunding phenomenon. We will take a closer look at these themes in the theoretical framework.

One notable application of crowdfunding is video game projects. Video game projects on Kickstarter.com fall under the Games category, which was responsible for 34% of all money raised on Kickstarter.com in 2018 (Bidaux, 2019). Video games alone were responsible for 10% of all money raised in the Games category, which was nearly $18 million (Bidaux, 2019). Analysis on how the amount of backers and the average amount pledged per backer are related to crowdfunding success are recreated for video game crowdfunding projects, with the aim to answer if similar results occur in this context compared to general crowdfunding contexts.

In addition to being a relevant application of crowdfunding, video games are relevant for cultural economics due their experience good properties (Tschang, 2005). The development of video games is highly influenced by these properties (Tschang, 2005). In the latter half of the 2000s independent production of video games rose to popularity, due to increased digital distribution and widely available video game development tools (Irwin, 2008). The production of independent video games is often independent from financial support of publishers, making crowdfunding an interesting and often necessary alternative for gaining capital (Thompson, 2010). Due to reduced cost of distribution as a result of digital distribution, indie video games are often distributed digitally. Platforms where video games are distributed digitally, and platforms where video games are played on, exert properties of two-sided markets (Davidovici-Nora & Bourreau, 2012).

Star Citizen began crowdfunding in October 2012 with a Kickstarter campaign. It has currently raised over $212 million from more than 2.2 million supporters through Kickstarter.com and through crowdfunding on their own website, making it the most crowdfunded video game in the history of crowdfunding (Webb, 2018). One would imagine this game must be pretty amazing, 7 years of development later and the game is still currently being tested (Webb, 2018). The initial release date for Star Citizen was supposed to be in 2018, but presently it does not even have a set release date. While it might not be foul play, but just plain incompetence, this case raises some important questions about the nature of crowdfunding and the development of video games. Firstly how does a creator of a successful video game crowdfunding campaign proceed after the deadline? How many products of successful video game crowdfunding campaigns actually reach the market? And how long does it generally take for these products to reach the market? Lastly the thesis

will look at how availability is related to the amount of overfunding a campaign received.

This thesis aims to explore and describe the characteristics of successful video game crowdfunding campaigns, focusing on characteristics of the game they promised to develop in their campaign such as the product state, price, and the time it took to develop the video game. By describing what occurs project creators can improve their crowdfunding campaigns and enhance the processes involved in developing and delivering their promised products. Data on the crowdfunding campaigns has been collected from Kaggle.com and contains the amount of backers, the category, the goal of the campaign, and the total amount pledged to the campaign. A sample has been drawn on about 250 successful video game campaigns and additional variables are added using information gathered from Steam.com, Kickstarter.com, and the author's construction. The method of research will be mainly secondary data analysis. A logistic regression is run to test assumptions about the relationship between success of crowdfunding campaigns, the amount of backers, and the average amount pledged per backer. Univariate and bivariate analyses are used to empirically describe product availability, overfunding, and the time it took to release the product since the end of the crowdfunding campaign. Visualizations are used in the form of bar charts depicting these univariate and bivariate analyses.

The following section will provide the theoretical framework to provide information on previous research, explain concepts used in the analysis, and outline the nature of crowdfunding and how Kickstarter.com works. In addition the crowdfunding industry will be reviewed. The third section will discuss the data; its source, and its descriptive statistics. The fourth section will present the research design, the employed methods, and the model. The fourth section will present the analysis and the results. The implications and problems are discussed in the fifth section and linked to theory. A final section will conclude this thesis; summarize the findings, discuss managerial implications, and future research.

2. Theoretical Framework
This section will discuss the theoretical framework that guides this empirical study. The theoretical framework consists of two parts, for the two general analyses of this study, respectively. The first part will discuss the different forms of crowdfunding, motivations to participate, different crowdfunding platforms (CFPs),

discuss the theoretical underpinnings of variables used in the dataset corresponding with the logistic regression employed in the first part of this study, and outline previous research into crowdfunding success factors. The second part of this framework will look at how Kickstarter.com works. This section will also introduce the hypotheses.

2.1. The concept of crowdfunding and its definition

The concept of crowdfunding is closely related to crowdsourcing (Belleflamme et al., 2014) and micro-finance (Morduch, 1999). Crowdfunding is a recent phenomenon and represents its own distinct category. When a firm uses crowdsourcing it involves the 'crowd' to receive feedback, ideas, and solutions to promote corporate endeavours (Kleemann et al., 2008). More specifically this occurs when a commercial company outsources tasks fundamental for producing or selling their product to the general public, herein known as the 'crowd', in the form of an open call on the internet (Kleemann et al., 2008). The company then hopes that the public is willing to make a voluntary contribution to the production process of the company, for free or considerably less than what that contribution is worth to the company (Kleemann et al., 2008). Although closely related to how crowdfunding operates, this definition does not completely apply to crowdfunding. The idea of an open call on the Internet can prove to be problematic for crowdfunding, notably when it involves offering equity to the crowd as many countries limit the amount of private investors a company can have (Schwienbacher & Larralde, 2012). These legal restraints cause most crowdfunding initiatives to offer rewards such as products or memberships, instead of shares (Belleflamme et al., 2014). Furthermore crowdfunding differs severely from open-source practices. In the case of open-source the provided resource or capital belongs to the community, whereas in crowdsourcing and crowdfunding the resource ultimately belongs to the company. Although resources in open-source practices can, in economic sense, be considered public goods, resources in crowdfunding cannot as capital exhibits rivalness and excludability (Belleflamme, et al., 2014). Following Belleflamme et al. (2014) this thesis will define crowdfunding as: "an open call, mostly through the Internet, for the provision of financial resources either in form of donation or in exchange for the future product or some form of reward to support initiatives for specific purposes."

2.2. Motivations for crowdfunding

What motivates people to support crowdfunding endeavours? Firstly, external rewards generally increase the likelihood of desired behaviours (Skinner, 1953). However, in some cases this does not apply (Deci et al., 1999). Investors might invest in a project in hope of receiving future financial gains or extrinsic rewards while donors may be motivated to donate to a project due to psychological gains or intrinsic rewards (Allison et al., 2015). Donors are intrinsically motivated by the process of inventing itself (Andreoni, 1989, 1990). Intrinsically motivated participants engage in the activity because they perceive it to be interesting and can achieve concurrent satisfaction from the activity itself (Gagne & Deci, 2005). On the other hand investors are generally extrinsically motivated by how the donation can grant them financial (e.g., cash payment) or other rewards (e.g., verbal feedback) (Allison et al., 2015).

Intrinsic motivation has been categorized by Deci (1971) and Gagne and Deci (2005) in the cognitive evaluation theory. This theory asserts that the amount of intrinsic motivation that an individual has is determined by their psychological need for competence and autonomy. In addition the effects of a reward on a person's motivation depend on how the recipient interprets the reward regarding his or her own need for competence and autonomy (Deci, 1971; Gagne & Deci, 2005). Consequently, rewards that increase autonomy or indicate ones competence tend to increase intrinsic motivation. Rewards that are perceived to control ones behaviour or that do not provide an indication of competence tend to reduce intrinsic motivation (Deci et al., 1999). Verbal praise is one form of an external cue that can enhance pre-existing intrinsic motivation, and this may be due to the need for relatedness (Ryan & Deci, 2000). Allison et al. (2015) find that this is also the case in a crowdfunded microfinance context, indicating the importance of external cues for funders of crowdfunding projects. However, within the context of crowdfunded microfinance, the effect of intrinsic cues remains stronger than the effect of extrinsic cues (Allison et al., 2015). In addition they found that entrepreneurial narrative language that enhances intrinsic motivation has a stronger effect than language associated with extrinsic rewards, possibly hinting at the importance of a close connection between founders and backers instead of just a connection based on an economical exchange.

Intrinsic motivation to give and extrinsic motivation to lend make crowdfunding relevant for funders. In addition crowdfunding has benefits for founders. Strausz (2017) discusses the benefits stemming from using crowdfunding as

a tool for price discrimination and reducing demand uncertainty. On the other hand crowdfunding suffers from information asymmetries and entrepreneurial moral hazard (Strausz, 2017). Problems especially present for goods with experience good properties (Ward & Ramachandran, 2010). Moral hazard is particularly prevalent in investment-based crowdfunding (Hildebrand et al., 2016), whereas this is less of a problem in reward-based crowdfunding (Mollick, 2014). Interestingly, Mollick and Kuppuswamy (2014) reported that the most agreed-upon reason for entrepreneurs to use crowdfunding was to see demand for a project. Empirical evidence to support the survey-based results from Mollick and Kuppuswamy (2014) has been presented by Da Cruz (2017), confirming that entrepreneurs use reward-based crowdfunding to determine market demand.

2.3. Rewards, different types of crowdfunding and its goals.
      The rewards for funding a project can be either monetary or non-monetary, and this results in different types crowdfunding practices (Belleflamme et al., 2014). Due to the fact that monetary rewards are mainly linked to profit sharing and equity-based crowdfunding, which are previously mentioned to have legal restrictions, this study will focus on crowdfunding with non-monetary rewards.

      Both funders and founders of crowdfunding projects have different aims with their endeavours. Founders of crowdfunded projects generally aim to raise small amounts of capital up to about $1000 for one-time projects, often raised by family and friends (Mollick, 2014). Recently crowdfunding can be employed to raise seed capital for entrepreneurial ventures (Scwienbacher & Larralde, 2010), which allows entrepreneurs to start their new ventures by raising this capital from the crowd. In addition to funding crowdfunding can be utilized by founders to test demand for their prospective product, possibly resulting in funding from more traditional sources (Mollick, 2014). On the contrary this also implies that founders do not have to invest effort or additional capital when they see little to no demand for their proposed product (Mollick, 2014). Furthermore crowdfunding has also been applied as a marketing tool, creating interest in projects still in development, and has been especially relevant in markets where projects benefit from creating a need for complimentary products (Mollick, 2014). Comparable to other forms of venture finance, crowdfunding provides benefits for founders that go beyond mere acquirement of capital.

Crowdfunding distinguishes itself from other methods of start-up funding because of the relationship between founders and funders of crowdfunding projects, which varies by nature of the funding effort and context of the project (Belleflamme, 2014). Mollick (2014) considers four different contexts in which founders attempt to fund their projects. These contexts overlap as founders often pursue multiple goals simultaneously. The first type of crowdfunding is the patronage or donation model, where funders act as philanthropists and do not expect a reward for their donation (Mollick, 2014). The second model is a lending model, where funds are offered as a loan. Overlap with the first model can be seen in the fact that some lenders might be more interested in the social good promoted by the project, instead of returns generated by the loan (Mollick, 2014).

The third and most relevant type for this study is reward-based crowdfunding. In reward-based crowdfunding funders receive a reward for supporting a project (Mollick, 2014). Some examples of such rewards can be: visits to the studio producing the video game from a project, having your name in the credits of a documentary, customized version of the product, being written into a story or film, or early access to the product (Benovic & Orlando, 2015). Frequently funders of reward-based crowdfunding projects are treated as early customers, granting them earlier access to the product, better price, or other unique benefits (Mollick, 2014). Pre-sales of products to early customers is especially prevalent in projects producing novel hardware, software, and other consumer products. The type and amount of rewards are often linked to the amount pledged by a backer. *Figure 2.1* provides an example of how this appears on the Kickstarter website.

Rewards

Comprehensive table showing the packages and rewards you can get with full prices:

	CITIZEN 30€	CHIEF 50€	LORD 60€	SAVANT 250€	SHAMAN 500€	DEITY 1000€
Backer Credit	✓	✓	✓	✓	✓	✓
Game Key	✓	✓	✓	✓	✓	✓
Exclusive Backer DLC	✓	✓	✓	✓	✓	✓
Unlocked Expansions		✓	✓	✓	✓	✓
Vip Forum Access		✓	✓	✓	✓	✓
Artbook Download			✓	✓	✓	✓
OST Download			✓	✓	✓	✓
Closed Beta access			✓	✓	✓	✓
Second game Key				✓	✓	✓
AncientCities Pass				✓	✓	✓
Signed original art					✓	✓
Uncasual Pass						✓

Rewards will be provided when available.

Figure 2.1. Rewards and pledge levels for Ancient Cities. From the Ancient Cities Kickstarter page. https://www.kickstarter.com/projects/uncasualgames/ancient-cities

Lastly there is equity-based crowdfunding, where funders are treated as investors (Mollick, 2014). As discussed earlier there are severe legal limitations when it comes to equity-based crowdfunding and it is subject to a high degree of regulation (Heminway & Hoffman, 2010).

Motivation to fund is highly heterogeneous, even within each different context or type of crowdfunding (Mollick, 2014). However, some principles which crowdfunding are based on are stable across different contexts. Mollick (2014) suggests that for reward-based and patron-based crowdfunding quality signals play a role in project outcomes and so does geography. Agrawal et al. (2011) suggests that motivations of funders who act as customers or patrons are similar to the motivations of investors. Furthermore Mollick (2014) suggests that funders engage in assessment of the potentiality of founders requesting resources through crowdfunding. How funders in crowdfunding signal preparedness, legitimacy, and quality has not been researched much. Another interesting comment by Mollick (2014) is the fact that crowdfunding is useful for a broad entrepreneurial context, as it presents both successful and failed projects. Crowdfunding supplies an empirical setting where many different new ventures can be easily compared, making it possible to test and extend existing theory. More generally crowdfunding research can benefit entrepreneurs greatly. The following aspects are found to be true by Mollick (2014):

project quality is important and founders should find ways to signal preparedness, social network ties are valuable. In addition appropriate goals allow for products to be delivered on time, and achieving significantly more funding that what was requested is rare. To prepare for crowdfunding success and set these goals appropriately founders should plan carefully. Due to the nature of crowdfunding it is expected that it is favourable for the success of the project to have a lot of different backers pledging a relatively small amount, compared to having a few backers pledge a lot. Kuppuswamy & Bayus (2015) found that the margin of success is not dependent on the amount of backers and the average amount pledged, due to the reduced incentive to pledge when a project has reached its funding goal. This effect is called diffusion of responsibility (Kuppuswamy & Bayus, 2015). The following hypothesis summarizes these arguments and will be tested specifically in the context of video game crowdfunding campaigns.

H_1: *The success of crowdfunding campaigns increases when the total amount of backers increases, but not when the average amount pledged per backer increases.*

2.4. Crowdfunding platforms

In general there are two broad classes of CFPs, investment-based CFPs and reward- or donation-based CFPs (Belleflamme et al., 2015). The first class includes lending-based, royalty-based, and equity-based CFPs. In the first class funders are investors in a project and may obtain financial benefits, in the second class funders fund a project because they want to obtain a product or because they support its cause (Belleflamme et al., 2015). In 2014, 40% of all newly created platforms were reward-based, compared to 20% for both lending-based and donation-based platforms (Belleflamme et al., 2015).

In terms of funding volumes lending-based crowdfunding dominates the industry, their share was 11.08 billion US$ raised in 2014 accounting for about 68% of the total amount collected by crowdfunding worldwide (Belleflamme et al., 2015). Donation and reward-based raised about 3.26 billion US$, equity-based about 1.1 billion US$, hybrid-forms about 487 million US$, and royalty-based about 273 million US$ (Belleflamme et al., 2015).

However, funding volume does not imply success rate. The majority of successful campaigns is donation-based (around 60%), while investment-based campaigns are

only a small percentage of all successful campaigns. In addition the average campaign size or funding goal for equity-based projects is 190,000 US$ in 2012, which is more than 100 times larger than the average campaign size of donation-based projects (1400 US$) (Belleflamme et al., 2015). A possible explanation is the higher fixed transaction costs involved in equity-based crowdfunding.

On many platforms a campaign is considered successful if the lower bound of a fixed volume or range is reached, if the lower bound is not reached the campaign is unsuccessful and the founders receive no money from the funders (Belleflamme et al., 2015). This structure is called a threshold-pledge system and more than 50% of all CFPs have implemented such a system (Belleflamme et al., 2015). Once the upper bound is reached some CFPs no longer allow additional funders to join the crowdfunding endeavour, whereas other CFPs allow additional funding until the deadline of the project is reached (Bellflamme et al., 2015). Lastly there are CFPs where founders get to keep any funds raised even if the target is not reached (Belleflamme et al., 2015). Since the focus of this study is on reward-based CFPs and Kickstarter in particular, only these will be discussed in this section.

Funders on reward-based CFPs play mainly the role of prosumers, in contrast to lending-based, equity-based, and royalty based CFPs (Belleflamme et al., 2015). Reward-based crowdfunding platforms allow founders to attract funders who in essence pre-purchase their product, while reducing the risk of losses for the founder (Belleflamme et al., 2015). As mentioned before the funder carries uncertainty when it comes to the outcome of the project he or she is supporting. Belleflamme et al. (2015) support the idea that funding in reward-based crowdfunding is a predictor of future demand. In addition they state that it can also signal for future funding rounds, whether through crowdfunding or more traditional funding channels. Lastly funders can be turned into ambassadors of the crowdfunding project (Belleflamme et al., 2015).

2.5. How does Kickstarter work?

Kickstarter is one of the world's biggest crowdfunding platforms. Kickstarter is a patronage and reward-based crowdfunding website and it is the dominant crowdfunding platform for video games (Bidaux, 2015). Moreover it has been in inspiration for the legalization of equity crowdfunding, as discussed in the JOBS Act

(Franzen, 2012). Kickstarter is thus likely to serve as useful model for examining crowdfunding efforts, in a broad context.

In order to take part in activities on Kickstarter, individuals must join the Kickstarter community (without charge) by selecting an anonymous username (Kuppuswamy & Bayus, 2017). As is customary in most online communities, no information is collected on demographics and personal characteristics of the users. Members of the Kickstarter community can then support projects by financially contributing, propose a project for funding and start a crowdfunding campaign, and/or comment on projects (Kuppuswamy & Bayus, 2017). Residents of the U.S., for tax purposes, are the only individuals allowed to start projects on Kickstarter. Backing a project has no geographical limitations (Kuppuswamy & Bayus, 2017). Entrepreneurs starting projects on Kickstarter are called "creator", as we saw earlier in the literature they are also referred to as founders. To start raising funds creators or founders will have to create a webpage on Kickstarter where they explain the purpose of the project and what exactly they want to deliver with the contributed funds (Kuppuswamy & Bayus, 2017). Moreover this webpage describes the funding goal, i.e., the amount of money required for the creator to complete their project, and the end date or deadline of the project funding cycle (Kuppuswamy & Bayus, 2017). Creators communicate with their supporters by providing updates on the project page that are both private (for supporters who already donated only) and public (for potential contributors).

When visiting a project page as a potential funder (or "backer" on Kickstarter), you are presented with all information provided by the founders of the project. In addition Kickstarter provides various signals about the progress of the project and its funding campaign. The top of the page often features a trailer or teaser of the project. We will look at "Kingdom of Night" (n.d.) as an example. Going from top to bottom, some projects are labelled as a "Project We Love". Kickstarter labels projects who have a "clear description, captivating images or video, a thorough plan for completion, an excited community, and of course, a lot of creativity" as a "Project We love" ("How does my project become a Project We Love?", n.d.). These projects are more prominently featured on the Kickstarter webpage and are sometimes featured in their newsletters. Next to the label the category and location of the project are displayed, below that the title of the project and a short description. Under the title one can see the amount currently pledged and the goal (e.g. $44,929 pledged of $8,957 goal), the amount of backers who already donated, and the time left until the

deadline. The page then has a large green button used for backing the project, a button to save the project page in your Kickstarter account, and several buttons to share the project with others. The first half of the page ends with a small disclaimer stating the project is "all or nothing", meaning the project will receive funding once the goal is reached (and additional funding above the goal). If the goal is not reached by the deadline, then the creator receives no funding and the funding is returned to the backers it came from.

The second half of the project page is divided into 5 pages: Campaign, FAQ, Updates, Comments, and Community. Campaign is an extensive description of the entire project and often also of the creator or team of creators who founded the project. In addition this page displays the different rewards per amount pledged; backers on Kickstarter receive different rewards depending on the amount they pledge with rewards being usually more exclusive and unique the higher the amount pledged. Interestingly the bottom of the campaign page displays the risks and challenges of the project, and a link to a FAQ about accountability on Kickstarter. Finally this page has a button to report the project for malpractices.

The FAQ page has frequently asked questions about the project and its progress. The updates page has a timeline of updates on the project and its progress. The comments page is a space for backers to offer support and feedback. The last page, community, displays novel facts about the backers of the project. It displays what countries the backers come from and how many backers of the projects' backers have never backed a project before as well as backers who had backed a project before.

Projects can be found with the help of a number of search options. When clicking the explore button you are presented with four large categories: Collections, Sections, Categories, and "On Our Radar". The collections category is the most important of the 4. In addition to looking at "Projects We Love", one can see trending projects, projects that are nearly funded, and projects that just launched. The sections, categories, and "On Our Radar" categories feature different types of projects such as music or games. Because the unit of analysis of this thesis is video game projects, the other categories will not be discussed in detail.

Two important facets of Kickstarter differentiate this crowdfunding platform from traditional forms of entrepreneurial finance and other crowdfunding platforms. Firstly the "all or nothing" principle, resulting in over-ambitious projects raising no

funds (Kuppusswamy & Bayus, 2017). Additionally this principle means that popular projects can exceed their original funding goal and raise significantly more funds, the post-funded phase might result in different backer behaviour and motivation (Kuppuswamy & Bayus, 2017). The following hypotheses are related to how crowdfunding success influences product availability.

> **H2:** *Successful video game crowdfunding campaigns have a higher percentage of success, in terms of releasing a product on the market, than the percentage of video game crowdfunding projects reaching their funding goal.*

It is to be expected that, due to accountability on Kickstarter, that campaigns have higher rates of success in delivering a product than the success rates of video game crowdfunding campaigns as a whole. Then related to overfunding (i.e. the margin of success of a crowdfunding campaign) the following is hypothesized.

> **H3:** *Campaigns that have achieved more overfunding deliver products at a higher rate than campaigns with little or no overfunding.*

The second facet is the fact that backers on Kickstarter do not receive equity in the project in return for their funds. More specifically backers do not receive repayment, returns, or financial incentives in return for their contributions. Instead, backers receive rewards depending on the amount of funding they contributed. For video game projects these rewards are the most common: (a) the actual product (e.g., a copy of the video game or access to pre-Alpha, Alpha, or Beta stages of development); (b) in-game bonuses (e.g., premium accounts, unlocking locked characters in the game, or having your own characters created by the founders of the project); (c) personalized rewards (e.g., having items or characters named after you, or seeing your name in the credits of the video game); (d) interaction with the founders (e.g., video chat, behind the scenes, or meeting the team that develops the project you support); and (e) special physical rewards (e.g., figurines of in-game characters, posters, or replicas of in-game items) (Filipovic, n.d.). The actual product on Kickstarter can come in different states; one of these states is Early Access. In addition to being a development state, Early Access is also a funding model. Early access video games are video games that allow consumers to access these video

games, often at a price, to play these video games while they are being developed (Orland, 2014). As we saw in the introduction, large amounts of funding or capital are not guarantees for finishing the product on time. Perhaps Star Citizen can sustain itself by using Early Access as a source of revenue to fuel further development. Early Access is closely related to the emergence of crowdfunding and is seen by some as a competitor for crowdfunding platforms (Prescott, 2014). This introduces the final hypothesis.

H4: *Early Access titles have a larger amount of overfunding.*

3. Data

This section will briefly discuss the data and its characteristics employed in the analysis of this thesis. As an empirical study, the goal of this thesis is to test hypotheses about crowdfunding success in the specific context of video game projects on Kickstarter. In addition as an exploratory empirical study this thesis will develop initial evidence for success of the product after a successful crowdfunding campaign, using a random sample of successful video game projects on Kickstarter. Previous research on crowdfunding has been mostly done on datasets containing all categories of crowdfunding projects (Kuppuswamy & Bayus, 2017; Mollick, 2014). This thesis is novel in the sense that its unit of analysis is only video game crowdfunding projects. In addition little research has been done on what the implications of crowdfunding success are on the actual product of the campaign. This thesis offers a relatively new approach for this question. Although there is some research on the outcomes of crowdfunding, this is either survey-based (Mollick & Kuppuswamy, 2014) or generally qualitative in nature (Mollick, 2015). The variables added in the sample are unique and are all constructed independently.

3.1. Where does the data come from?

To test these hypotheses a dataset consisting of data collected from Kaggle.com, and this collection has been done through secondary analysis. Additional variables are added through authors' construction. A dataset containing data on crowdfunding projects on Kickstarter has been collected from Kaggle.com. Kaggle is an online community where its users can share datasets and exchange ideas with other data scientists and machine learners (Lardinois et al., 2017). Google announced that they were acquiring Kaggle in 2017 (Lardinois et al., 2017). The dataset downloaded

from Kaggle.com contained data on all crowdfunding projects on Kickstarter.com in all categories from May 3rd 2009 to February 4th 2017. The dataset contained all information, categorized into the different variables, available publicly on Kickstarter.com. Projects categorized as being a video game project were extracted from the large dataset. However, projects on Kickstarter are mainly categorized by the theme and not necessarily the outcome or product of the crowdfunding project (e.g., the outcome of projects in the video game category can be a video game related event or posters of a character in a video game).

The variable *SuccessMargin* was added because the state of the project was not always corresponding to an unsuccessful collection of funds (e.g., projects that have achieved their funding goal are still sometimes classified as failed or cancelled) and to give an indication of the rate of success that the project had (e.g., a high and positive success rate means the project raised more money than the funding goal which is also known as overfunding). *SuccessMargin* has been operationalized as the amount pledged minus the funding goal. *CFDuration* has been constructed by calculating the time between when the project was launched and its deadline, Kickstarter projects can last anywhere from 1 to 60 days. A conversion script from Kaggle.com was used to convert all pledges and funding goals to USD. All financial data (*Pledged* and *FundingGoal*) has been transformed using a log-transformation, to make them less skewed. In addition log-transformations have been applied to *Backers*, *AvgAmountPledged*, and *SuccessMargin*. In order to transform these variables a constant of 1 has been added to *AvgAmountPledged* due to the fact that this variable has values of 0. For *SuccessMargin* the preparation for transformation involved squaring the values of *SuccessMargin* because some values were negative. Skewness was reduced due to transformations and the distributions of transformed variables are now more normal. Variable descriptions for the complete dataset can be found in *Table 3.1*; descriptive statistics are in *Table 3.2.*

Table 3.1. *Variable description for the complete dataset*

Variable	Abbreviated Name	Description	Operationalization	**Variable Type**	**Source**
State of success	*SuccessState*	Binary state of success for a crowdfunding campaign	Dummy based on Kickstarter's categorization of success, 1='successful' and 0='unsuccessful'	Dichotomous	Author's construction, Kaggle.com
Margin of success	*SuccessMargin*	The overfunding a campaign received	The amount pledged to a campaign minus the funding goal of a campaign	Ratio	Author's construction, Kaggle.com
Funding goal	*FundingGoal*	The set amount needed for the campaign to be successful	Taken exactly as provided by project creators on the Kickstarter page of their project	Ratio	Kaggle.com
Runtime of the campaign	*CFDuration*	The duration of the crowdfunding campaign in days	Measured by calculating the difference in days between the launch and deadline of the campaign	Interval	Author's construction, Kaggle.com
Amount pledged	*Pledged*	The total amount pledged by backers to the campaign	Taken exactly as provided by Kickstarter on the Kickstarter page of the project	Ratio	Kaggle.com
Backers	*Backers*	The total amount of backers who supported the campaign	Taken exactly from the source of the dataset	Ratio	Kaggle.com
Average amount pledged per backer	*AvgAmountPledged*	Average amount pledged to a campaign by backers	Calculated by dividing the variable *Pledged* by the variable *Backers*	Ratio	Author's construction, Kaggle.com

Table 3.2. *Descriptive statistics for variables used in the logistic regression*

Variable	N	Minimum	Maximum	Mean	Std. Dev.
SuccessMargin	11732	-99999987.00	5045991.70	58269.77	1121178.81
FundingGoal	11732	.75	100000000.00	76675.65	1116894.07
CFDuration	11732	0	91	32.96	10.96
Pledged	11732	0	6333295.77	18405.88	150473.32
Backers	11732	0	87142	376.17	2510.13
AvgAmountPledged	11732	0	5000.50	46.91	112.26
Dummy Variable	**N**	1	%		
SuccessState	11732	2384	20.3		

3.2. The sample

      To analyse the success of the actual video game product of successful crowdfunding video game projects a random sample (n = 300) was drawn. I extracted the successful projects from the dataset and then generated a new variable for each row using the RAND function in Excel. After sorting the data on this new variable containing random values for each row, I took the first 300 rows and extracted them to a new dataset. I looked at the Kickstarter project page to find additional information on the progress of the delivery of the product, however unavailable video games could be due to game not being able to be found or it might have been available for a short duration in the past. The ID and complete name of the project, contained in the original dataset I took the sample from, proved helpful for finding the exact Kickstarter project page that contained the initial crowdfunding campaign. I then manually looked up if the game was available and where, if the game was available on Steam I noted down the review score, steam release date, price, and state of the game on Steam (e.g., early access, alpha, or full version). If a link to the steam page was available on the Kickstarter project page, this gave me insights into name changes and if the game was bundled or separated into different projects. For video games currently on sale the original price was taken, and such I could not account for video games that have been on sale. In addition it was not possible to correct for video game projects released in multiple parts (this could be problematic for the *FundingGoal* variable as the funding was then for multiple video games and not one video game release). Release date was taken as is shown on Steam, but for some video games development has been started before the launch of the crowdfunding campaign. History of game states is not available on Steam.com and thus some video games could have been in different states at some point in their lifetime. Some projects were excluded from the random sample as they were not producing video games, but rather video game related products like events and/or posters. Dummy variables were used for category variables where 1 is the presence of the category that unit belonged to. Availability has also been operationalized as a dummy variable where 1 means the video game is currently available and 0 means the video game is either still in development or no information on the status of the game was available. *SuccessMargin* was recoded into a different variable containing seven values, each corresponding to a different group of *SuccessMargin*. This was done to allow for a

bivariate visualization of different product states related to the value of *SuccessMargin*. The margin of success can also be seen as the amount of overfunding that a crowdfunding campaign achieves. The seven groups are: 0 to 999 USD; 1000 to 1499 USD; 1500 to 4999 USD; 5000 to 9999 USD; 10,000 to 19,999 USD; 20,000 to 49,999 USD; and 50,000 USD and over. The state of the product has been operationalized by looking at what state the product is currently in on the Steam and Kickstarter pages of the video game project. If it was playable and or purchasable the state was "Available"; if there was clear evidence of ongoing development (concrete release dates or development updates) the state was "In development"; if the video game was accessible in the Early Access format the state was "Early Access"; and no sign of development and or cancelled projects were categorized as "Not available". Names of the variables employed in the sample, operationalization, and sources of the variables can be found in *Table 3.3* Descriptive statistics are displayed in *Table 3.4*

Table 3.2 *Variable description for variables used in the sample*

Variable	Abbreviated Name	Description	Operationalization	**Variable Type**	**Source**
Product availability	*ProductAvailability*	Binary variable for availability of the product regardless of the state of the product	Looking at the availability of the product where if it was playable or purchasable; 1='available' and 0='not available'	Dichotomous	Author's construction, Steam.com, Kickstarter.com
Time until product release	*DeliveryMargin*	The time between deadline of the campaign and launch of the product, in days.	Calculated by the distance between deadline of campaign and product release date	Ratio	Author's construction, Kaggle.com, Steam.com
Price	*Price*	Price of the product or price of access to Early Access.	Found by looking at Kickstarter and Steam pages of the product	Ratio	Author's construction, Steam.com, Kickstarter.com
Margin of Success	*SuccessMargin*	The overfunding a campaign received	The amount pledged to a campaign minus the funding goal of a campaign	Ratio	Author's construction, Kaggle.com
State of the product	*ProductState*	The state the product is currently in	Categorized for visualization by; 1='Available'; 2='In development'; 3='Early Access'; 4='Not available' found by looking at Steam pages of the product	Nominal	Author's construction, Steam.com

Table 3.2 *Descriptive statistics for variables used in the univariate and bivariate analysis of the sample*

Variable	N	Minimum	Maximum	Mean	Std. Dev.
SuccessMargin	251	0	1785506.30	39378.97	172627.64
Price	11732	0	45.99	12.18	8.84
DeliveryMargin	140	-1025	2251	645.07	605.78
Dummy Variable	N	1	%		
ProductAvailability	251	147	58.6		
Early Access		18	7.6		
In development		19	7.2		

3.3. Methods

To test the hypotheses concerning the influence of the amount of backers and the average amount backed per backer on the success of crowdfunding campaigns in the context of video games, a logistic regression was run. The effects of control variables similar to Mollick (2014) were tested to see if similar results occurred for just video game crowdfunding projects. A regression model should control for variables that undermine causality (Angrist and Pischke, 2009). In addition the OLS BLUE method combines properties of linearity, unbiasedness, and minimum variance (Gujurati and Porter, 2010).

This regression was modelled in model 1 and has been established by using backers as the dependent variable and *SuccessState* and *SuccessMargin* as independent variables. *FundingGoal*, *CFDuration*, and *Pledged* are variables added as control. Equation 1 contains the first model. Due to a high correlation between *Backers* and *Pledged*, the variable *Pledged* has been removed from Equation 1.

$$Y_{(Backers)} = b_0 + b_1 X_{1\,(FundingGoal)} + b_2 X_{2\,(SuccessState)} + b_3 X_{3\,(CFDuration)} + b_4 X_{4\,(SuccessMargin)} + e$$

$$(1)$$

Another logistic regression was run to see how *AvgAmountPledged* is influenced by the *SuccessState* and *SuccessMargin*. Control variables are again *FundingGoal*, *CFDuration*, and *Pledged.* This model can be seen in Equation 2.

$$Y_{(AvgAmountPledged)} = b_0 + b_1 X_{1\,(FundingGoal)} + b_2 X_{2\,(SuccessState)} + b_3 X_{3\,(CFDuration)} + b_4 X_{4\,(SuccessMargin)} + b_5 X_{5\,(Pledged)} + e$$

$$(2)$$

The analysis on the sample will be descriptive in nature, what are the characteristics of successful products of video game crowdfunding projects? A univariate visualization of availability of the products of successful video game crowdfunding campaigns can be found in the results section. In addition the share of the different state these products are in will be displayed percentually in a second figure. Lastly the different states of the products are categorized by the difference in *SuccessMargin* that the crowdfunding campaigns of these products had, as well as the state of the product categorized by the time it took until the product was released on the market.

4. Results

In this section we will look at multiple analyses of both the complete video game Kickstarter dataset and of the sample that was drawn from this dataset. The first part is an analysis on the amount of backers and their average amount pledged and how this is associated with crowdfunding success and failure (**H₁**). The second part is an empirical description of product availability of successful video game crowdfunding campaigns, visualized by a graph depicting the availability of products on the y-axis set to the success margin of the campaign on the x-axis (**H₂**). The last part will be two bivariate analyses of how product state is related to the margin of success and the time it took for the product to reach a certain state (**H₃** and **H₄**).

4.1. How are the amount of backers and the average amount pledged per backer associated with successful fundraising?

To offer an assessment of the role democratization in crowdfunding an analysis was conducted using two logistic regressions to predict successful funding, operationalized as both a discrete and continuous variable, both from the amount of backers and the average amount backed per backer. The output for both these regressions can be found in Table 4.1. The first regression employs model 1 with *Backers* as the dependent variable, whereas the second regression uses model 2 with *AvgAmountPledged* as the dependent variable. Both models employ the *FundingGoal* and *CFDuration* as control variables and model 2 also includes *Pledged* as a control variable. *SuccessState* and *SuccessMargin* are the independent variables. The variable *Pledged* was removed from the first model, due to the very high R^2 indicating a correlation between *Backers* and another variable employed in the model. Upon further inspection indeed a high correlation between *Backers* and *Pledged* was found, r = 0.934, n = 10841, p < 0.000, and thus *Pledged* was removed from the equation.

To ensure that the variation in the dependent variable is explained by the independent variable, that the regression model fits the data, and that the predictions are accurate, certain assumptions have to be met. Linearity for both models has been assessed by partial regression plots and a plot of studentized residuals against predicted values. Independence of residuals has been assessed by looking the Durbin-Watson statistic. The first model had a Durbin-Watson statistic of 1.362 whereas the second model had a score of 1.739, indicating no issues of autocorrelation. A visual inspection of the scatterplot of residuals indicated a slight problem with

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homoscedasticity for the first model, which is most likely caused by a lack of variance in the *Backers* variable. No problems with homoscedasticity were found for the second model. Multicollinearity has been assessed by looking at VIF-values for both models, no concrete evidence for multicollinearity was found although VIF-values for *FundingGoal and SuccessMargin* were higher than the other independent and control variables. No VIF-values higher than 6 were found and thus we can assume there was no multicollinearity. Lastly the assumption of normality was met, as assessed by a P-P plot for both models.

Regression model 1 of the *Backers* as dependent variable, *SuccessState* and *SuccessMargin* as independent variables, and *FundingGoal* and *CFDuration* as control variables, is significant ($F_{(4, 11702)} = 3144.65$, $p < .001$). Model 1 is thus useful for predicting the amount of backers on Kickstarter. The predictive power of model 1 is about 51.8 percent ($R^2 = 0.518$) with an adjusted R^2 of 51.8 percent, meaning that the model can explain for about 52 percent of the variance in the amount of backers in the large dataset on video game campaigns on Kickstarter. The relationship between *Backers*, the independent variables, and the control variables can be characterized by the following function:

Backers = -0.563 + 1.589(*SuccessState*) + 0.05(*SuccessMargin*) + 0.345(*FundingGoal*) – 0.006(*CFDuration)*

The *SuccessState* and *SuccessMargin* of a crowdfunding video game project increase the amount of backers, implying that attracting more backers increases the chance that a crowdfunding project is successful. Attracting more backers also increases the margin of success (raising more money than the initial funding goal of the project), but to a far lesser degree. There might be other variables affecting this.

Regression model 2 of the *AvgAmountPledged* as dependent variable, *SuccessState* and *SuccessMargin* as independent variables, and *FundingGoal*, *Pledged*, and *CFDuration* as control variables, is significant ($F_{(5, 10810)} = 2708.82$, $p < .001$). Model 2 is again a significant predictor, this time for the average amount pledged per backer on Kickstarter. Model 2 has a predictive power of 55.6 percent ($R^2 = 0.556$) with an adjusted R^2 of 55.6 percent, implying the model can explain for about 56 percent of the variance in the average amount pledged per backer. The relationship described in model 2 can be characterized by the following function:

AvgAmountPledged = 0.674 – 0.375(*SuccessState*) – 0.070(*SuccessMargin*) + 0.106(*FundingGoal*) + 0.002(*CF*) + 0.322(*Pledged*)

Again *SuccessState* and *SuccessMargin* are significant predictors, but the relationship is now negative. This means that a smaller average amount pledged per backer increases the chance of success, both in a binary form (the project reaches its goal or not) and for the margin of success (the amount pledged minus the funding goal). This finding is essential to the benefits of crowdfunding compared to other forms of funding, because it implies that reaching a larger crowd is preferred over having each backer pledge as much as possible. The implications of this democratization of funding and its theoretical underpinnings will be discussed in the next section.

Table 4.1. *Linear Regression Output for Model 1 and Model 2*

Variable	Model 1 Dependent Variable = Log(*Backers*)			Model 2 Dependent Variable = Log(*AvgAmountPledged*+1)		
	B	SE B	β	B	SE B	β
Independent Variables						
SuccessState	1.589	0.017	0.671**	-0.375	0.010	-0.337**
Log(*SuccessMargin*^{2})	0.050	0.008	0.099**	-0.070	0.004	-0.283**
Control Variables						
Log(*FundingGoal*)	0.345	0.016	0.309**	0.106	0.008	0.193**
CFDuration	-0.006	0.001	-0.073**	0.002	0.000	0.038**
Log(*Pledged*)				0.322	0.003	0.868**
N		11706			10815	
R^2		0.518			0.556	
F for change in R^2		3144.65**			2708.82**	

Note: $*p < .05$. $**p < .01$; B = unstandardized regression coefficient; SE_B = Standard error of the coefficient; β = standardized coefficient

4.2. How many successful campaigns spawn products?

       Hypothesis 2 suggests that successful video game crowdfunding campaigns should have a higher percentage of success, in terms of releasing a product on the market, than the percentage of video game crowdfunding projects being fully funded as a share of all video game crowdfunding projects in the dataset. The share of successful video game crowdfunding campaigns in the employed dataset was about 20 percent, whereas almost 80 percent of all video game crowdfunding campaigns were unsuccessful, visualized in *Figure 4.1*. On Kickstarter about 40 percent of campaigns in all categories reach their goal and are thus deemed successful (Etter et al., 2013; Mollick, 2014). Due to the large nature of the dataset containing both successful and unsuccessful video game crowdfunding campaigns, we can compare the success of video game crowdfunding campaigns to other categories on Kickstarter. Video game campaigns are almost half as likely to succeed compared to other categories on Kickstarter.
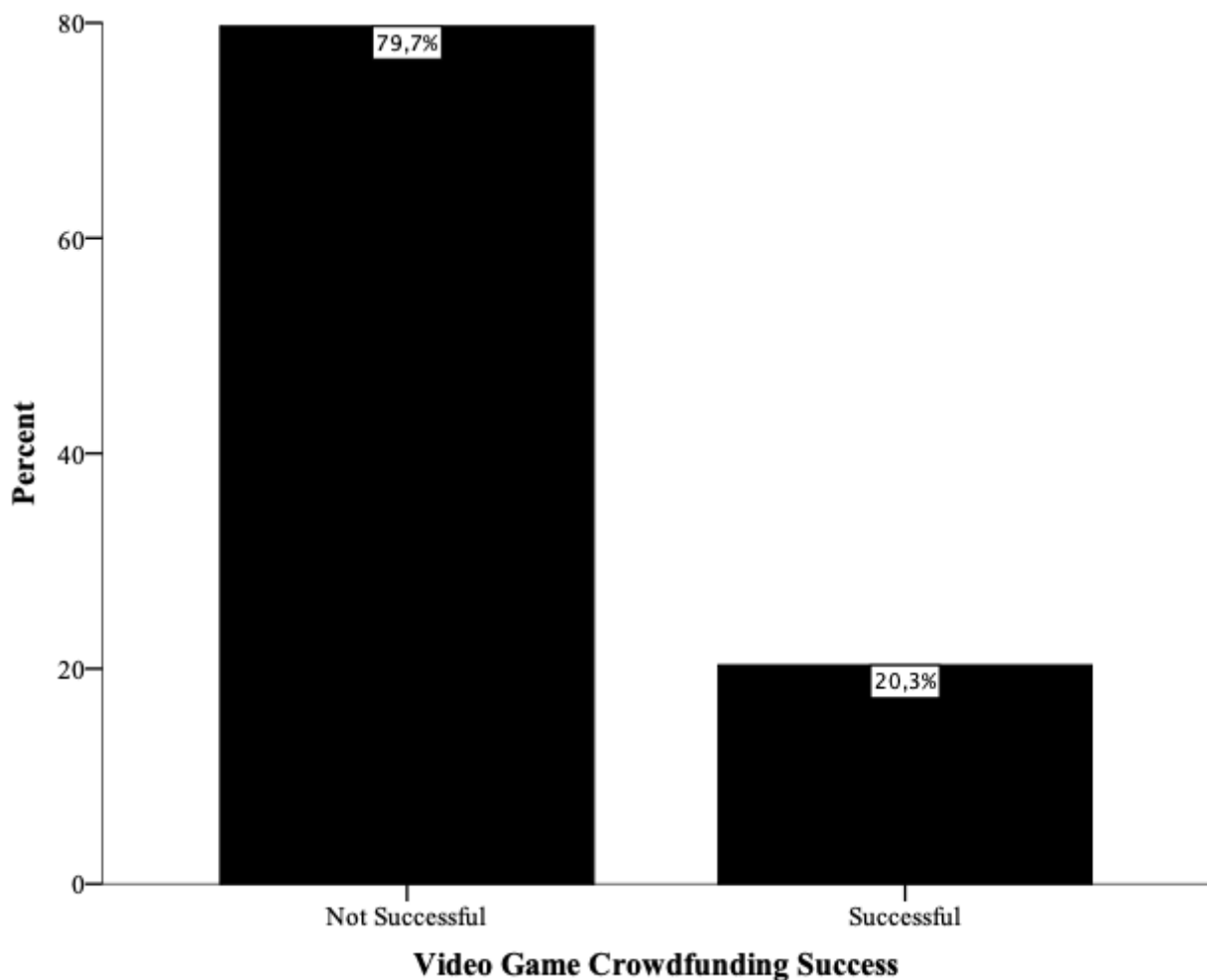

Figure 4.1. Video game crowdfunding campaigns that achieved full funding.

The main aim of this thesis is to examine if successful video game crowdfunding campaigns spawn products, more specifically what share of successful video game crowdfunding campaigns actually release a product on the market. In the sample (n = 251) the percentage of video game crowdfunding campaigns that released a product on the market, including early access titles, is 58.6 percent. 41.4 percent of the video game crowdfunding campaigns did not yet release a product on the market, they are either in development or no information is available on the condition of the project. A visualization of product availability can be seen in *Figure 4.2*. Hypothesis 2 suggested the percentage of video game crowdfunding campaigns to spawn a product to be higher than the success rate of video game crowdfunding campaigns. While the percentage is higher (58.6% of campaigns spawned products compared to a success rate of 20.3% for video game crowdfunding campaigns) there is still a share of 41.4 percent of the successful video game crowdfunding campaigns that were not able to develop or deliver a product. In essence the funding goal of a crowdfunding campaign is the capital required to develop the product and deliver it to backers of the crowdfunding campaign, and to future customers. A share of 58.6 percent of the 20.3 percent successful video game crowdfunding campaigns means that 11.89 percent of all video game crowdfunding campaigns actually released a product after the campaign was finished. This corresponds to about 1395 campaigns (out of 11,732 campaigns) actually spawning a product, extrapolating the results from the sample to the population.
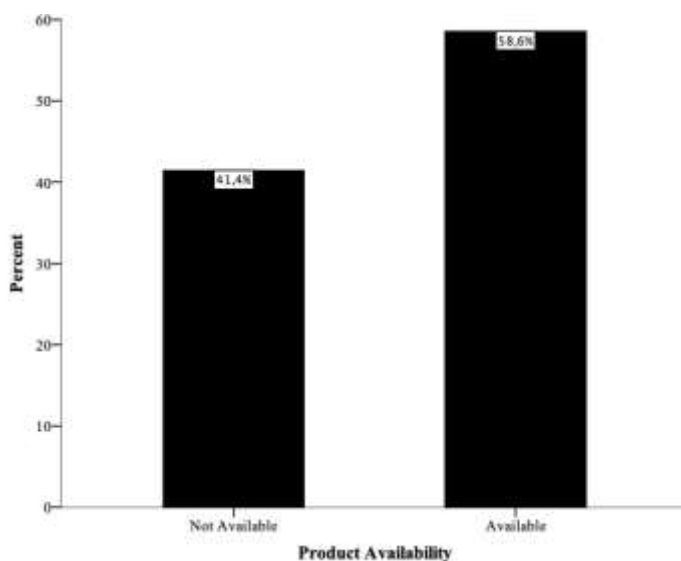

Figure 4.2. Product availability for successful crowdfunding projects in the sample.

A more detailed categorization of availability has been operationalized as the state the product is currently in. A visualization of the shares of different product states can be seen in *Figure 4.3*. The graph displays two auxiliary product states, in addition to available and not available. Products in development are video games currently being realized and are about 7.6 percent of all products, some 'in development' products had release dates but this is often subject to change and thus not quantified further in this thesis. Early Access games are video games that can be purchased and played in various pre-release development conditions. In addition to Early Access being a classification of what state the game is in, it is also a funding model for this type of game as these games often require a fee before one gains access. Next figure will take into account the margin of success that the crowdfunding campaign of video games in different states had. Results of this description can be found in *Figure 4.4*.
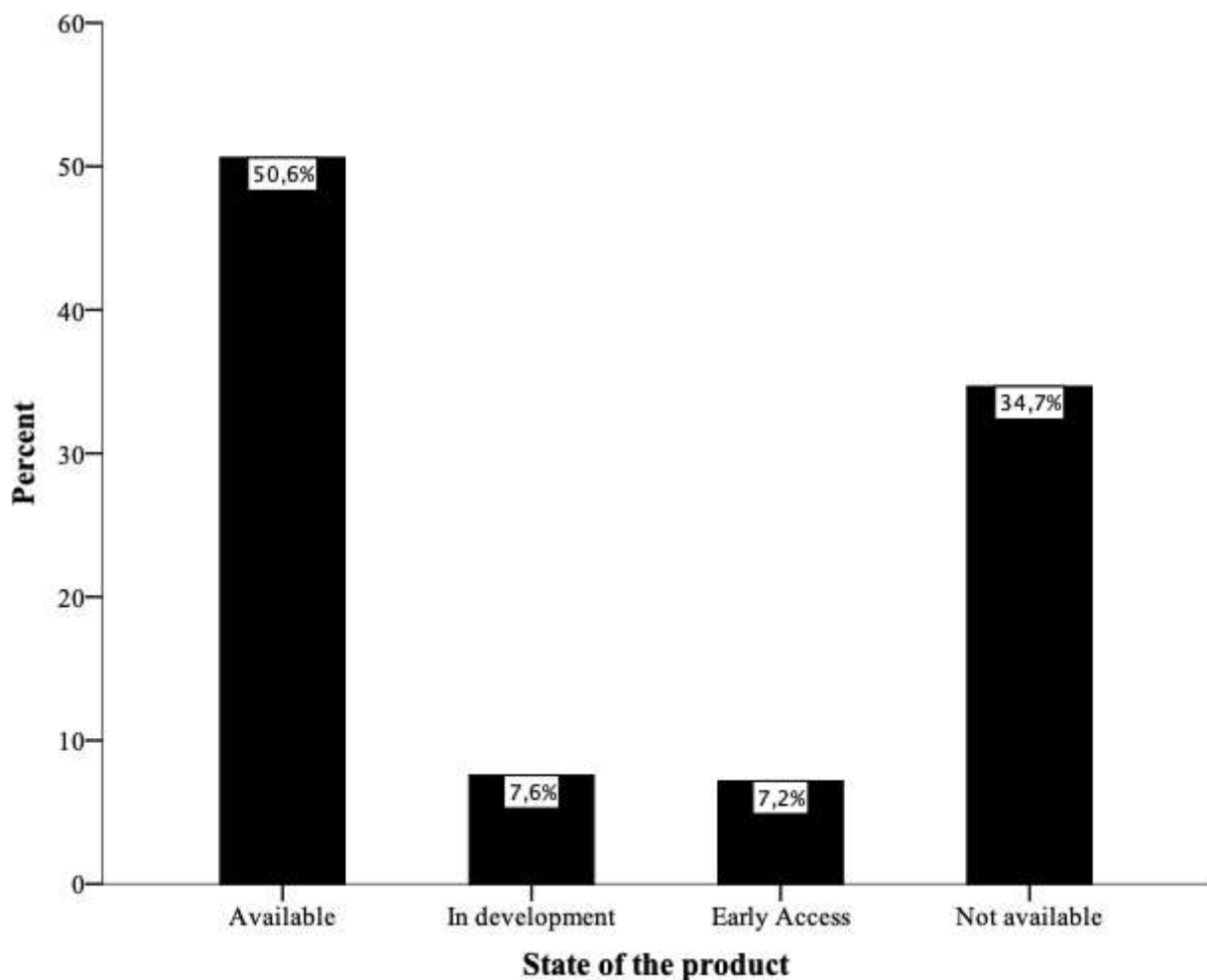

Figure 4.3. State of the product for successful crowdfunding projects in the sample

4.2. Product states among different categories of overfunding and release times

        The first discovery that can be made is the fact that in the smallest category of success margin (campaigns receiving between 0 and 999 USD of overfunding) the not available category has the highest share. It has to be noted that this category of success margin accounts for 34.3 percent of all products in the sample, this could be causing issues for the discussed findings here. This limitation will be discussed further on. As discussed before, ideally the funding goal is enough capital to produce and deliver a product. It is thus surprising that a reasonable amount of products that received just their goal and/or a small amount of overfunding are not available. The next important finding is that the share of Early Access video games is by far the largest share of products in the category that received the most overfunding (more than 50,000 USD). However, this category accounted for only 12 percent (about 30 video games) of the shares of video games in the sample. A possible explanation for this finding is that with more initial capital (higher overfunding reflected in higher success margin) it is relatively easier to develop a playable product, which can then be monetized in the form of an Early Access release to further fund development. When comparing average product prices in the sample of Early Access games to the available video games category this monetization is somewhat reflected, although this result is mainly exploratory. The average price for Early Access games is 17.33 USD (n = 15) whereas the available video games have an average purchase price of 11.91 USD (n = 122).
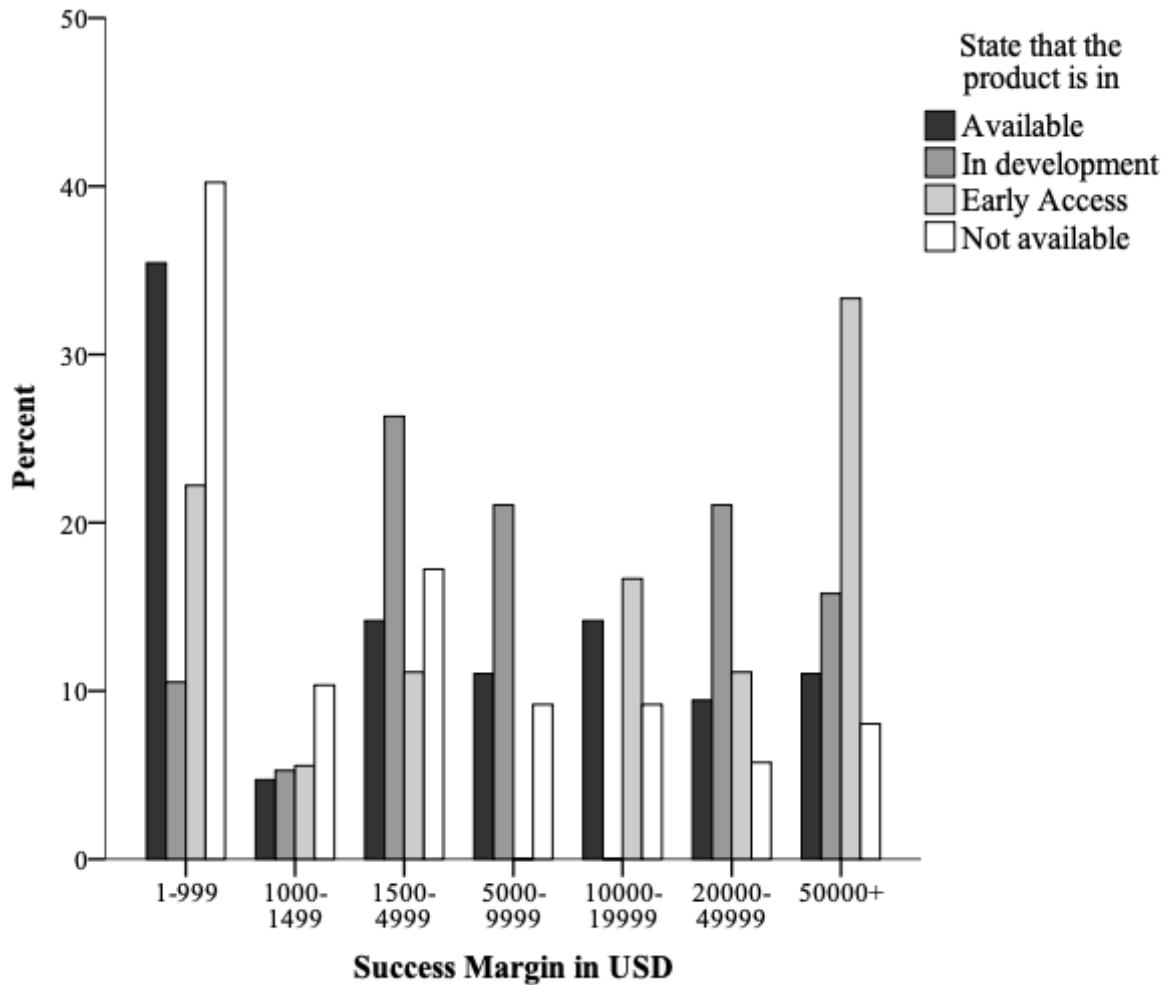
Figure 4.4. State of the product by margin of crowdfunding campaign success

The average time it took for products to reach a certain product state is depicted in *Figure 4.5.* Available games took about 600 days on average to be released, whereas Early Access titles almost took 800 days. Important to keep in mind is the fact that Available games could have been in an Early Access state, prior to being available. In addition games could be removed from the market, but due to the relatively small time period of the dataset (from 2009 to 2017) this is probably not very prevalent but this cannot be stated with certainty.
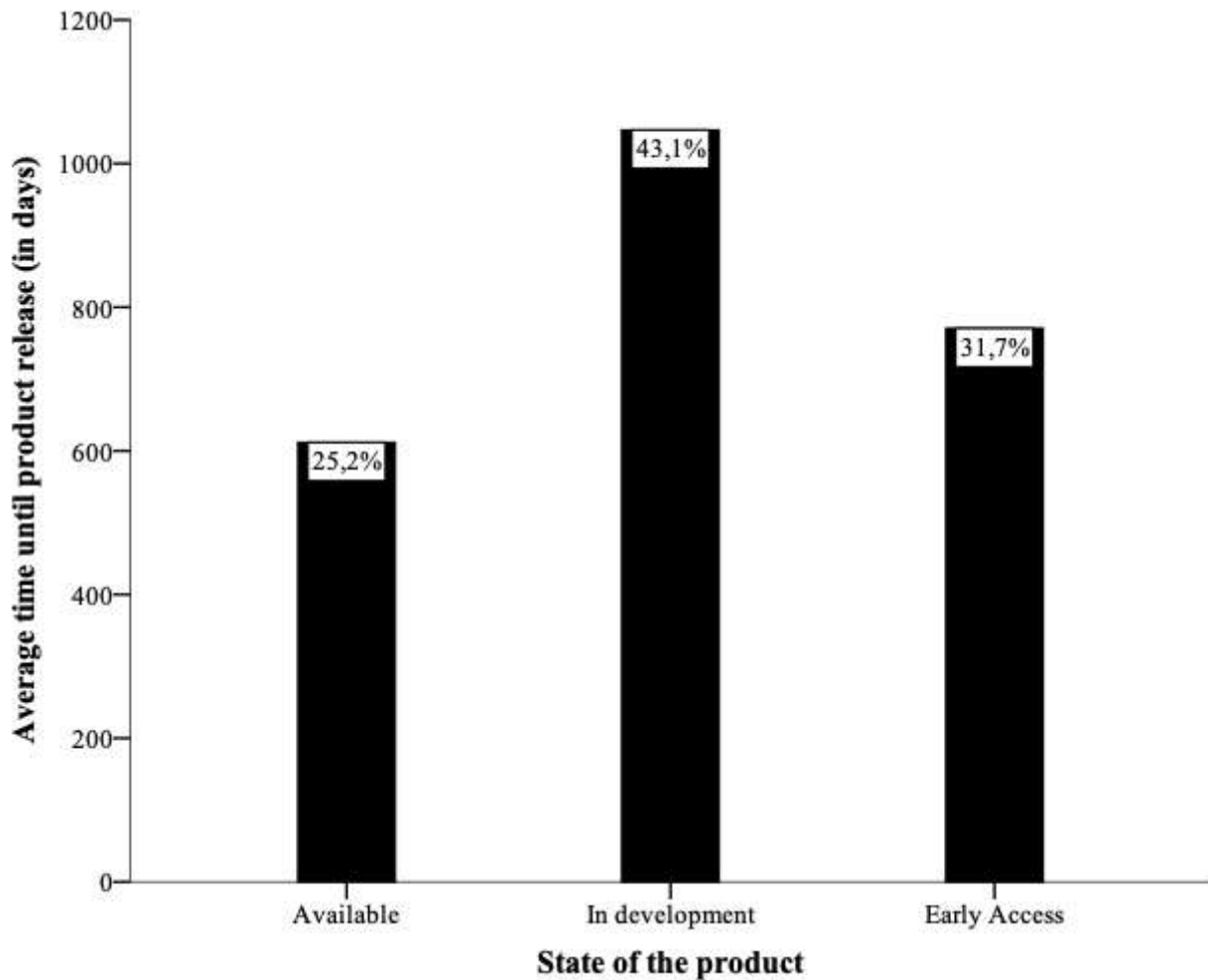
Figure 4.5. State of the product by the average time until release of the product

5. Discussion

The main aim of this thesis is to answer how crowdfunding success influences product availability after a successful campaign. The unit of analysis is video game crowdfunding projects on Kickstarter. Other questions this thesis answered is if backers behave differently from previous research on backer behaviour in crowdfunding (Kuppuswamy & Bayus, 2015) in the context of video game crowdfunding projects, specifically the thesis looked at the difference of the effects of the amount of backers and the average amount pledged per backer on crowdfunding success. Additionally the thesis looked at success rates for video game projects and how they compare to success rates reported by Mollick (2014) and Etter al. (2013) for crowdfunding projects altogether. This section will first discuss these additional questions,

before diving into the sample that was employed to answer the main research question and its related sub-questions. Limitations in the analyses used to answer research questions will be discussed together with the interpretation of the results. More general limitations will be discussed further on.

5.1. The importance of the amount of backers for video game campaigns
          The first regression, with the amount of backers as dependent variable, showed significant predictive power. The variables for the state of success, margin of success, funding goal, and duration of crowdfunding campaign were all significant. The amount of backers is influenced to a larger degree by the state of success than by the margin of success. This implies that when project creators would aim for overfunding (i.e. a larger margin of success) attracting more backers does not necessarily help significantly with this effort. However, as expected, attracting more backers to your campaign increases the chance that the campaign will reach its funding goal, but it does not significantly increase the chance that your campaign will go beyond that. Control variables for the funding goal and duration of the crowdfunding campaign were also significant; this can simply mean that larger funding goals and longer duration of crowdfunding campaigns attract more backers.

          The amount of backers, as a variable, can be made more reliable when taking time effects into account. Kuppuswamy & Bayus (2015) included the time when backers pledged to a campaign and found that campaigns mostly get a lot of pledges in the first and last weeks of their funding period. Although they did not look at how the amount of backers influence the success of crowdfunding campaigns, a more thorough understanding and operationalization of the dynamics of backers could prove useful for the validity of the models employed in this thesis. For example the fact that support (i.e. the amount of backers currently supporting a campaign) for a project is visible to current and future backers. Due to a diffusion of responsibility, this results in popular projects receiving less support from potential backers because they assume others will provide the necessary funding (Kuppuswamy & Bayus, 2015). These effects are especially hurtful for crowdfunding platforms that utilize the "all-or-nothing" principle, where the amount of pledges diminishes after the first few weeks of the campaign. Perhaps this can provide an explanation for the lower success rate of video game crowdfunding campaigns. Video game crowdfunding campaigns are almost half as likely to succeed, as shown in the sample utilized in this thesis, compared to the success rate of crowdfunding campaigns altogether (20

percent compared to 40 percent). This surprising result is reflected in the literature (Colombo et al., 2014). There could be mechanisms in place that increase the diffusion of responsibility in the context of video game crowdfunding campaigns, an interesting topic for future research.

In addition Kuppuswamy & Bayus (2015) provide a possible explanation for a small effect of the margin of success on both the amount of backers and the average amount pledged per backer. They state that, in general, potential backers have less incentive to pledge to a project after it reaches its funding goal (Kuppuswamy & Bayus). Some findings in this thesis are not in line with the research done by Kuppuswamy & Bayus (2015); their statistical analysis confirmed that projects with smaller goals and of shorter duration attract more backers. Whereas in this thesis larger goals and longer during campaigns lead to a larger amount of backers. Due to similarity in size of both researches we can assume this is not a methodological or data related issue. Their model contains more variables, which could have caused this result to be different. It could also imply that for video game crowdfunding projects backers are not afraid to pledge to larger, more ambitious, campaigns. The early supporters of Star Citizen were most certainly not hesitant to purchase non-existent spaceships.

5.2. The relevance of the average amount pledged per backer.

The second regression analysed the relationship between the same independent and control variables and the average amount pledged per backer as the dependent variable. The model was found to be significant and thus also the average amount pledged can be predicted from the state and margin of success. Interestingly this relationship is now negative. In other words the average amount pledged per backer is likely to be lower when the state and margin of success is high. This finding carries an important implication for the nature of crowdfunding; project creators can benefit more from reaching a large audience (a large crowd) than attempting to achieve funding from a niche wealthy group. Stated differently this finding is evidence that crowdfunding, especially made easy by platforms such as Kickstarter.com, can democratize access to capital. This finding is reflected in books on how to crowdfund (Steinberg, 2012). And almost by definition, crowdfunding campaigns are fuelled by relatively small contributions from many people (Kuppuswamy & Bayus, 2015). Access to capital is made easy due to the fact that anyone, regardless of one's networks or connections, can successfully request funding from the crowd. In addition the democratization of access to capital can prove highly beneficial for driving innovation (Mollick & Robb, 2016).

Considering the new ways of interaction between project creators and their backers, crowdfunding is more than just fundraising (Mollick & Robb, 2016). The communities, created by drawing together the crowd, can create communities around products. These communities further drive innovation by improving the existing ideas of project creators through feedback and open dialogue (Mollick & Robb, 2016). An interesting addition to this thesis would be to include variables that operationalize these communities that often already take form during the crowdfunding campaign. Furthermore variables that contain information about the employed networks and activities of project creators related to their campaign outside of Kickstarter can prove to be valuable predictors for crowdfunding success (as seen in Mollick, 2014).

5.3. Interpretation of findings from analyses on the sample

The analysis of the sample, although mostly descriptive in nature, spawned various interesting findings. A univariate analysis of the success rate of video game crowdfunding campaigns showed that only 20.3 percent of all video game crowdfunding campaigns was successful, of these 20.3 percent a sample of 251 cases was drawn. Within the sample only 58.6 percent of all campaigns actually spawned a product. Video game development requires highly specialized knowledge regarding the creation and release of a video game product (Izushi & Aoyama, 2006). The processes involved after the crowdfunding campaign has been finished could be systematically understood, causing the relatively low share of products actually being released to market. As shown in the second univariate analysis, depicting the share of product states among cases is the sample, within the available group 7.2 percent of video game projects are in Early Access. Meaning that this share of available products cannot be considered a finished product. And even worse, a large amount of Early Access titles eventually fail (Bailey, 2015). The question that remains is, can Early Access video games be considered a type of video game in itself, is it a development phase, or merely a new funding model? Perhaps Early Access video games contain characteristics from all three, and we will see more video game titles being in a continuous state of development while receiving revenue in the future.

The following analysis was a bivariate analysis on the share of product states across different categories of overfunding. Overfunded projects have a higher margin of success; they raised more money than the funding goal. Kickstarter states, on their website, that this money is not necessarily extra resources. More funding means more backers, resulting in a greater quantity of rewards to be produced and distributed ("What happens when a project is overfunded", n.d.).

On the other hand more funding also implies that the project generally has more resources to complete something better for the backers. Finally overfunding can even create a profit for the creators of the project, which they can then use to continue the project beyond Kickstarter ("What happens when a project is overfunded", n.d.). Findings in this thesis show that considerate overfunding (more than 50,000 USD) results in a relatively large share of Early Access titles. These findings could prove useful for large-scale video game projects. Star Citizen with its 200+ million USD capital is currently in development, funded by its Early Access state. An interesting aspect of overfunding is that it is also beneficial for Kickstarter, as it could increase revenues on the Kickstarter crowdfunding platform due to more transaction fees and increased traffic (Koch, 2016). Overfunding is especially wanted by project creators who use their campaign for generating publicity, testing demand, or successfully pre-selling their product (Koch, 2016). Testing demand is especially relevant for video game crowdfunding projects, as video games suffer from information asymmetry (Cha, 2017).

The last analysis that has been performed looked at the average delivery time, in days, for video game produced stemming from crowdfunding campaigns to reach a certain state. The most relevant finding would be the fact that Early Access titles take a longer time, on average, to reach the state of Early Access than it takes for video games to reach the 'Available' state. This could mainly be explained by the fact that Early Access titles are often more ambitious projects that take a longer time to develop. However, these results can be skewed due to the fact that there are no time-effects included in the analysis. Panel regression would be a logical step in future research on the delivery and development time of video games.

5.4. General Limitations

This section will first discuss the limitations of the data. Additional variables often used in success studies for crowdfunding would increase the model strength for the models used to explain the relationship between backers and average amount pledged per backer and success (such as a dummy for if the campaign had a video and a variable that operationalizes the networks or social connections of project creators). Since this was not the main research question of this thesis, it is not a severe problem.

When it comes to analyses of the sample some important aspects of crowdfunding campaigns should be taken into account in future, more detailed studies. Firstly the product

availability of a campaign, in this thesis, does not involve the other backer rewards often offered in reward-based crowdfunding. The delivery of the promised product, the main item being created by the crowdfunding project is one part of the campaign. The rewards are an essential part of the campaign that, as discussed previously, cost money to develop and deliver. In addition the product availability has not been controlled for genre or platform effects, perhaps contracts with console platforms could alter the development process.

The time it takes to bring a product to market is not definite in the sense that development could have started before the launch of the crowdfunding campaign. This does not necessarily slant the findings, as we are looking at the effect of the crowdfunding campaign on the state the product is currently in. Overall this thesis fills the gaps in the literature on video game crowdfunding projects in the following ways: testing assumptions about backers in crowdfunding in the context of video games, and furthering the research on how successful crowdfunding influences product availability. Implications mentioned in this discussion could be applied to other fields, probably mostly other crowdfunding contexts with products that contain experience good characteristics such as video games.

6. Conclusion

The introduction discussed the relevance of this thesis, aided by introducing the case of Star Citizen as a successful crowdfunding project but less successful delivery of the product. The thesis continued by discussing relevant theories and introducing relevant concepts in the theoretical framework. This section was employed to guide the data collection, described in the third section. The fourth section presented the results whereas the fifth section interpreted these results and linked them to theory. Furthermore limitations of the data and analyses was discussed, some future research was suggested.

This research employs real-world data to investigate the influence of crowdfunding success on Kickstarter.com on product availability, in the context of video game crowdfunding campaigns. An important contribution is the fact that this thesis used new variables in the sample of the large dataset containing information on campaigns on Kickstarter.com, to offer new insights into the characteristics of video game crowdfunding campaigns and their promised products. Research into what happens after the campaign is relatively new in the context of crowdfunding, and especially in the context of video games. In addition this thesis can help improve the framework employed for research concerned about the development and funding of

video games, independently of crowdfunding. When it comes to the analyses on the amount of backers and average amount pledged the data is unique in the sense that it contains Kickstarter projects until 2017, in addition projects with very low or high goals have not been removed providing a different approach than similar studies.

Most importantly this thesis found that the product availability of video game crowdfunding campaigns is about 10 percent, furthermore Early Access titles take longer to develop and spawn more from campaigns with large amounts of overfunding. The variables operationalizing backers and the average amount pledged per backer behave similar in the context of video game crowdfunding campaigns as in other studies on the success factors of crowdfunding campaigns. However, success rates of video game crowdfunding campaigns are considerably lower than crowdfunding campaigns in general. This could have implications for the accountability of project creators on Kickstarter.com. Furthermore video game project creators can take into account the difficulties in actually getting the product to market and set more reasonable goals for their projects. This thesis opens the door to research aimed at further exploring and explaining how crowdfunding operates for video games and how project creators can develop and distribute their video game products. Moreover knowledge of how funding and development interact can prove beneficial for the development of video games as a whole. Selling the space ship is a small step for project creators, whereas releasing a finished playable game is still one giant leap for project creators as a whole.

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