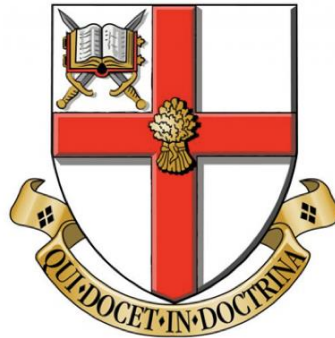


Understanding UK Rewards-based Crowdfunding as an
Alternative Source of Entrepreneurial Finance



University of
Chester

*Thesis submitted in accordance with the requirements of the University of Chester
for the degree of Doctor of Philosophy by Ying Zhao*

June 2019

Declaration

The material being presented for examination is my own work and has not been submitted for an award of this or another HEI except in minor particulars which are explicitly noted in the body of the thesis. Where research pertaining to the thesis was undertaken collaboratively, the nature and extent of my individual contribution has been made explicit.

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Understanding UK Rewards-based Crowdfunding as an Alternative Source of Entrepreneurial Finance

Ying Zhao

Abstract

Entrepreneurial financing plays a vital role in the survival and viability of businesses (Crosetto & Regner, 2018; Mason & Harrison, 1991; Signori & Vismara, 2017; Zhao et al., 2019). Research studies and financial commentators have suggested that reward-based crowdfunding (RBC) plays an increasingly important role in the process of business start-ups (Baeck et al., 2014; Bilau & Pires, 2018; Lelo de Larrea et al., 2019; Mollick, 2014). However, a review of literature indicates that little is known about the field of RBC from a theoretical perspective. Therefore, the main aim of the thesis is to address the knowledge gap by developing a conceptual framework to advance understanding of the RBC funding process through using a signalling theory lens.

The author adopted a pragmatist epistemological stance. This study collected publicly available data of 636 UK start-up projects on a RBC platform, Kickstarter, from September to December in 2017 and repeated this for the same period in 2018. It was found that signal observability (the size and quality of the fundraiser's network) play a significant role in crowdfunding success across all projects. Whereas, prosocial intention (charitable purpose) plays a stronger role in predicting the likelihood of the success of projects with a medium goal. This study identifies and evaluates how the key factors (project quality, project intention and signal observability) impact on crowdfunding's success, as well as investigates the interplay between different actors (signallers, receivers and signals) in the RBC market. A further important contribution of this work arises from the use of rich qualitative data in addition to the quantitative research approaches previously utilised by others (Bi, Liu and Usman, 2017; Kunz *et al.*, 2017).

The thesis makes contributions to both theory and practice. The findings have major implications for different parties including: policy makers, practitioners, researchers and educators. It provides an insight for practitioners considering the adoption of a crowdfunding approach and the knowledge and recommendations in running a successful RBC campaign. It also helps nascent entrepreneurs to reconstruct their financing strategy through the better understanding of the position of RBC in entrepreneurial financing.

An important implication is that this study can help policy makers to better understand the RBC industry, which is essential in developing relevant policies in this under-governed area. Finally, this research contributes to growing knowledge and interest in entrepreneurial finance, especially in the online alternative finance market, which is beneficial for both researchers and educators.

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List of Abbreviations

BANs: Business Angel Networks

DBC: Debt-Based Crowdfunding

DBS: Debt-Based Securities

BEIS: Department For Business, Energy & Industrial Strategy

EIS: Enterprise Investment Scheme

eWOM: Electronic Word-Of-Mouth

EBC: Equity-Based Crowdfunding

FCA: Financial Conduct Authority

NPP: New Product Preannouncement

P2P: Peer-To-Peer

RBC: Reward-Based Crowdfunding

ONS: Office of National Statistics

SEIS: Seed Enterprise Investment Scheme

SMEs: Small and Medium-sized Enterprises

SNSs: Social Network Sites

TEA: Total Early-stage Entrepreneurial Activity

UKRI: UK Research and Innovation

VC: Venture Capital

Chapter 1 Research topic and Rationale

1.1 Introduction

Entrepreneurial financing plays a vital role in the survival and viability of the businesses (Crosetto & Regner, 2018; Mason & Harrison, 1991; Pettit & Singer, 1985; Petty & Bygrave, 1993; Scherr et al., 1993; Signori & Vismara, 2017; Walker, 1989). A company's viability and success will be threatened without the necessary level and composition of initial capital, as “the impact of a weak initial financial structure can result in poor operating performance and, ultimately, failure” (Van Auken & Neeley, 1996, p235). Given the lack of collateral and sufficient cash flows and the presence of significant information asymmetry with investors (Cosh, Cumming and Hughes, 2009), access to finance has been a key barrier for business startup across countries (Verheul and Thurik, 2001; Cassar, 2004; Atherton, 2012; Kuppuswamy and Bayus, 2015). This inherent problem is worse since the economic crisis occurred in 2008. Big banks have begun to cut back small business lending (Crotty, 2009).

While different investors exist for larger amounts of capital such as Venture Capital (VC) funds and banks, entrepreneurial initiatives that require much smaller amounts to start with need to rely on friends and family or their own savings. They then also make extensive use of bootstrapping techniques to mitigate their financial constraints (Bhide, 1992; Ebben & Johnson, 2006; Winborg & Landström, 2001) by boosting their short-term profits (Schwienbacher and Larralde, 2010). However, startups, defined as “newly founded companies or entrepreneurial ventures in the phase of development and market research” (Čalopa et al., 2014, p.19), may find it increasingly challenging to attract financing from angel investors, banks and venture capital funds. As a result of this, in recent years many entrepreneurs are directly tapping into large, online communities of consumer-investors (Agrawal et al., 2013; Kuppuswamy & L.Bayus, 2015; Schwienbacher & Larralde, 2010), in which reward-based crowdfunding (RBC) is one of the key players in this area.

RBC is a relatively new finance option which has been less researched compared to traditional forms of bank credit, venture capital investments, and even some other

forms of crowdfunding. Both business angels and RBC present a mechanism to fill in finance gaps for seed ventures. The former one has attracted much interest from researchers for two decades (Mason & Harrison, 2002; Maxwell et al., 2011; Moghaddam et al., 2017; Sorheim & Landstrom, 2001) while the latter has received limited attention, despite the fact that it is one of the most common types (Guan, 2016) and one of the oldest models (Zhang et al., 2016) in the online alternative finance market. Research to date is mostly limited to descriptive analysis that does not account for the effectiveness of RBC from a theoretical perspective (Bock & Frydrych, 2017; Mollick, 2014; Rakesh et al., 2016). This is the area where this thesis aims to contribute.

In addition, most RBC studies focus on the markets in the US and China due to their maturity or the population size. From 2012 (taking Kickstarter as an example), RBC in the UK has developed rapidly and is increasingly recognized by relevant parties (Zhang *et al.*, 2016; Ziegler *et al.*, 2019). However, the UK RBC market is severely under-researched. Now in the 'Brexit-era', which causing the world's financial centre to switch from London to New York (Independent, 2018), there is a need to explore the potential of entrepreneurship especially UK RBC as a source of entrepreneurial finance. In light of this, this thesis is focused on the UK RBC market.

1.2 The context of the research

Long-standing finance gaps have existed in early stage financing, and this has been exacerbated since the global financial crisis in 2008. For instance, it was discovered that a retreat trend of private finance from the early-stage investment was discovered – especially bank lending and VC (North, Baldock and Ullah, 2013). Even worse, in the UK the result of the Brexit referendum in June 2016 brought uncertainties over future government funding scheme and funding options on both the supply and demand side. This has resulted in the retreat and shortages of patient capital, notably for larger capital expenditure at early stages (BEIS, 2017b). The insufficiency of this long term, patient finance puts up substantial challenges to both new venture creation and startups seeking to scale up.

Furthermore, the persistence of discouraged borrowers (Enterprise Research Centre, 2018), in the UK SMEs decline in the use of bank finance (LSBS, 2015) and significant lower success rates of bank appliances (Owen and Mason, 2017) leads to substitution by alternative finance. In the UK alternative finance industry, transaction volume is driven by debt-based and equity-based models, which can generate financial returns for lenders and investors (Zhang et al., 2018). Peer-to-peer (P2P) Business Lending, for example, was the largest alternative finance model in volume, accounting for 48.6% of the overall industry. On the other hand, the models that do not generate a financial return such as donation-based and reward-based crowdfunding models account for a relatively small proportion. By the same token, a range of studies emerged demonstrating the use of debt-based and equity-based models, while non-financial return models tended to be neglected. However, due to the nature of startup financing, the latter models might actually be the more efficient models for nascent entrepreneurs.

In the following subsections, the financing dilemma faced by nascent entrepreneurs or startups is discussed in detail from the social, political and legal context.

1.2.1 Social context

There is a sizeable entrepreneurial population in the UK. In 2017, one fifth of working age individuals were either engaged in entrepreneurial activity or intended to start a business within the next three years. Amongst non-entrepreneurs, there are mostly favourable attitudes towards those starting a business. 77% of the non-entrepreneurial population consider starting a business as a good career choice, and 55% think successful business founders have a high status in society. In terms of start-ups, Total Early-stage Entrepreneurial Activity (TEA), the sum of the nascent entrepreneurship rate and the new business owner/manager rate, shows continuous growth since 2010. The 25-34 age group makes up the highest ratio of TEA rate, about 11.8% of the working-age population (GEM, 2017).

However, people in the 25-34 age group commonly lack human and financial capital (Burke *et al.*, 2014), while 35-49 are usually the peak earning years (Bernheim, Garrett and Maki, 2001). Young founders or people who intended to start a business would need external support on both social and financial capital. In the following, the potential support for start-ups from government or related bodies in the local region is discussed.

1.2.2 Political and Legal Context

Regulation support for start-ups can be categorised into four types - loan, grant, tax incentives, and soft support such as free mentoring and training.

The StartUp Loans scheme set up by the StartUp Britain campaign allows successful applicants to get a loan between £500 and £25,000 with 6% p.a. fixed interest rate and a payback period of 1 to 5 years. Soft support, such as guidance on the business plan and free mentoring are also provided to successful applicants. Set up in 2012, the scheme has provided more than £300m of loans to more than 46,000 start-ups through the British Business Bank (Gov.uk, 2011).

Nascent entrepreneurs can also apply for a range of government grants run by the Department for Business, Energy & Industrial Strategy (BEIS) and Innovate the UK, which is a national funding agency, part of UK Research and Innovation (UKRI). Since 2007, Innovate UK has invested around £2.5 billion to help innovative businesses across the country, with match funding from industry taking the total value of projects above £4.3 billion (Gov.uk, 2019).

Tax incentives support is provided by the Enterprise Investment Scheme (EIS), and the Seed Enterprise Investment Scheme (SEIS), so that individual investors can claim tax relief investing in small, early-stage companies. The companies can also claim back R&D costs using Research and Development tax credits. The two schemes have provided funding of around £15bn to 30,000 businesses since 1994 (Bounds, 2017).

The support schemes mentioned above are mostly backed by StartUp Britain, a business-led campaign launched in 2011. The campaign aims to inspire and support new businesses in the UK. It supports schools to run their own business through the Enterprise Champions Programme and for universities and colleges to create enterprise societies. The campaign also inspired local region schemes. For instance, the Access to finance scheme in Greater Manchester and Lancashire provides free coaching and mentoring, introductions to suitable finance providers and opportunities to meet them (Gov.uk, 2011). By the same token, London Co-Investment Fund scheme aims to support business setting up high-tech start-ups in London. They can get between £250,000 to £1m in several seed rounds (London Co-Investment Fund, 2019).

In addition, from a legal perspective, from March 2019 the government opened a 'start-up visa' for people outside the UK who want to set up a business in the UK. The policy provides opportunities for immigrant entrepreneurs.

In general, it can be seen that government policies provide a lot of support to entrepreneurship from finance to the education system. However, compared to the average cost of starting a new business in the UK, which is over £12,000 (Lloyds Bank, 2016), the average amount of £7,200 from a Start-up loan is relatively small, not to mention the risk of inability to pay it back. Studies also raised concern about the probability of attracting low-quality start-ups due to the less stringent entry criteria of these publicly funded schemes (Brown, Mawson, et al., 2019; Wright, 2017). Private finance providers usually require higher returns from smaller firms (Scherr, Sugrue and Ward, 1993), so these low-quality start-ups may find it difficult to obtain private sector funding elsewhere. This, in turn, may affect the seed investors' confidence in these start-ups. Moreover, the result of Brexit referendum in June 2016 brought related concerns from SMEs. Many firms are scaling back on investment and innovation (Brown et al., 2019).

Therefore, it is clear that traditional finance (bank lending and government grants) is not sufficient to meet the needs of a large number of nascent entrepreneurs. Rather

than equity and debt financing method in the alternative finance market, RBC could be an efficient way for them to acquire financial capital.

1.2.3 Technological context

The development of technology also provides more opportunities for start-up financing especially the online alternative finance.

People's reliance on the Internet has undoubtedly created a growing market for the online alternative finance industry. Sholoiko (2017) used the most readily available speed of mobile connectivity (2G, 3G or 4G) as a factor to assess a country's readiness for crowdfunding and verified their positive relationship as expected. For RBC, the ease of using the platform/websites could increase the frequency of browsing and in turn, encourage the activeness of interplay between fundraisers and backers. Smartphone and mobile apps have also made this possible.

The fourth generation of mobile technology (4G) or Long Term Evolution (LTE) was considered as an evolution of mobile network technology when it was first rolled out in the UK (Swantee, 2012). It was believed to handle mobile internet and data more efficiently, allowing faster and more reliable mobile connectivity in the world (Khan *et al.*, 2009). The fast and reliable mobile internet has hugely changed our lives. People rely more on their mobile phone and the Internet. According to a report of Internet users by Office for National Statistics in 2018, almost all adults aged 16 to 34 years (99%) were recent internet users. The generation gap was narrowing in recent internet use as well, as recent internet use in the 65 to 74 age group increased from 52% in 2011 to 80% in 2018 (ONS, 2018).

Among the well-known RBC platforms worldwide, so far only Kickstarter has a mature mobile app (although most of the large crowdfunding platforms have their own mobile app). It is believed that an increasing number of platforms will recognise the necessity of it and the possibilities it offers. Now is the era to reap the benefits of 5G mobile networks.

This may have a far-reaching influence on the growth of RBC and other online alternative finance models.

1.3 Rationale and research questions

As discussed above, there is a necessity to study whether RBC is an efficient financial method for nascent entrepreneurs to acquire financial support. Social capital is another critical element for a successful business; whether RBC could provide support in this area is the other aspect for evaluating its efficiency. However, a review of literature indicates that little is known about the field of RBC from an academic perspective (Brown et al., 2015; Mollick, 2014). So far, the majority of studies in this domain focus on exploring the “key success factors” (Hou et al., 2015; Li & Martin, 2016; Thurridl & Kamleitner, 2016). For example, research shows that crowdfunding success is positively related to project quality signals (Mollick, 2014; Hou et al., 2015), the influence of online information (Bi, Liu and Usman, 2017), emotional relationship or friendship identification with the project initiators (Bretschneider, Knaub and Wieck, 2014), entrepreneur reputation (Li & Martin, 2016) and even the level of rewards (Lin et al., 2016). These studies tend to be exploratory in nature, they tend to identify factors that are believed to influence the success (or failure) of RBC projects, yet there is a lack of a conceptual framework that has the potential to incorporate the different factors to advance understanding of the complex process of RBC. Most importantly, there is a lack of convincing explanation of why these factors give rise to the success or failure of certain projects. In particular, the interplay between these factors and the institutional context is not addressed in the extant literature.

Therefore, the main aim of the thesis is to shed light on the effectiveness of RBC as a source of startup financing. This project is aimed to addressing this knowledge gap by developing a conceptual framework to advance understanding RBC and to investigate the factors related to the projects’ success by taking into account the project quality, project intention, and the size and quality of creators’ social network.

Furthermore, how these factors influencing the funding ability of successful RBC projects will be explored.

Therefore, this thesis aims to contribute to the following research question:

What gives rise to the success/ failure of RBC projects for business startups?

Building upon this, the aims and objectives of this thesis are:

RO1 - To identify the key project characteristics related to the success (or failure) of RBC projects

RO2 - To identify the key external factors that contribute to the success/failure of RBC projects

RO3 - To investigate the reasons that give rise to the factors identified and in particular to explore the interrelationship between the key factors.

RO4 – To evaluate how the factors identified influence the funding ability of RBC projects

1.4 Potential theoretical contribution

Theoretically, the focus of the thesis is to fill the gap given the nascent stage of the RBC literature. Especially, for nascent entrepreneurs, such research is required to advance understanding about what opportunities and challenges RBC may bring. So far, most RBC research analysed data from projects in a certain period or on a certain industry. However, by browsing the projects on RBC platforms, the author found that the aim of RBC projects varies, not all of them aim to create a new venture, and some of the projects are even merely pre-order/pre-sell products from international large businesses. Therefore, one key potential contribution is that the author aims to focus on campaigns specifically related to start-ups on reward-based platforms, thus directly relevant to entrepreneurial finance.

The second potential contribution is that the thesis is to explore and evaluate connections between the different perspectives. As discussed above, the studies in RBC tend to be exploratory in nature. Studies tend to focus on one perspective but overlook the relationship between the perspectives, for instance, backers'

motivation and projects' information. Also, how these perspectives together affect the success/failure of RBC projects are kept unknown. Through a pilot literature review and browsing backers' comments, the author found that the fundamental concern of RBC is information asymmetry, which extant RBC studies have rarely mentioned. Although signalling theory is widely used to deal with information asymmetry, it has not been applied in RBC studies. Moreover, existing genres of signalling theory focused on different perspectives. For instance, Spence (1973) formed the signalling theory to reduce information asymmetry, while Connelly et al. (2011) focuses primarily on that one deliberately communicates positive information, to convey positive attributes. His signaling timeline tried to illustrate the relationship between the signaller and receivers, but the types of signals are not fully addressed. Therefore, the author aims to explore how to justify existing signalling theory models and apply to reduce information asymmetry in RBC funding process. Hence, one of the key potential contributions is to using signalling theory as a corner stone, a conceptual framework could be developed to advance understanding of RBC studies from different perspectives of RBC, their connections and influences on the RBC funding process as a whole.

In addition to the above calls for research, there is a need to enhance understanding on several perspectives. First, backers' prosocial motivation and how the motivation is evoked. Most early stage studies focus on backers' egoistical motivation or exploring their motivation using surveys (Gerber, Hui and Kuo, 2012; Ryu and Kim, 2016). Although Bretschneider and Leimeister's (2017) research tried to fill the gap by using a motivation model to explore the link between different motivations and the behaviour of investment, relationship between fundraisers' intention and backers' prosocial motivation especially how these types of motivation affect their behaviours are overlooked. Therefore, one potential contribution is to fill the gap by examining the role of fundraisers' intention in a crowdfunding context and its interplay with other factors in a dynamic funding process. Second, there is a need to evaluate how the factors identified could influence the funding ability. Existing relevant studies focus on how different factors may affect the success/failure of the RBC projects. However, for the RBC projects that reached the targets, these factors

may not necessarily have had the same impact to the projects' funding ability. One of the potential contributions is to address the gap by looking at the dynamic of backers' feedback before and after the project reaching its goal.

1.5 Terms clarification

The definitions of RBC from various researchers have nuanced differences. In general, it is an exchange of a monetary contribution from a relatively large crowd for some non-monetary reward from the project creators (Lelo de Larrea et al., 2019; Lin et al., 2016). As a relatively new research area, the terms of the two sides on a RBC project are called differently. In Molloick's (2014) paper, as one of the most cited paper in crowdfunding, he referred the group proposing projects as *founders*, and the group backing or investing in the projects as *funders*. Some researchers also referred the former group as '*project creators*' or '*project initiators*' (Beier and Wagner, 2016; Simons et al., 2017). In the series of alternative finance industry report produced together by University of Cambridge and Nesta (Baeck et al., 2014; Wardrop et al., 2015; Zhang et al., 2016, 2018), to reduce the confusion, the two sides were referred as '*fundraisers and funders*'.

On the practical side, the two main RBC platform - Kickstarter and Indiegogo, referred the two sides as '*creator and backers*', and '*entrepreneur and backers*' respectively (Indiegogo, 2019b; Kickstarter, 2019a). This may have been due to their different corporate goals. For instance, the mission of Kickstarter is 'to help bring creative projects to life', so the creative side is highlighted. While the mission of Indiegogo is 'to empower people to unite around ideas that matter to them and together make those ideas come to life', so the entrepreneurial side is focused.

In this thesis, the author will refer the two groups as '*campaigners and backers*'. The '*campaigners*' reflect the feature of crowdfunding – to raise fund through proposing campaigns, not merely founders or fundraisers that can be used in other financing context. On the other hand, the '*backers*' highlighted the characteristics of the people who support the campaign, not as '*investors*' who are after monetary return such as

in equity-based crowdfunding, but to back and support the campaigns. The terms are also adopted and used in some literatures, such as Freedman & Nutting (2015).

Furthermore, for the purpose of analysing the RBC funding process from a perspective of signalling theory (which will be discussed in detail in Chapter 3), the campaigners and backers will be sometimes referred as '*signallers and receivers*'.

1.6 Research ethics

The thesis complies with the research ethics policy and guidelines formulated by the University of Chester. Prior to undertaking the research, the author has carefully read the ethical standards and framework of the University of Chester Faculty of Business Research Institute and audited the research project by utilising its 'Research Ethics Checklist' to make sure that the research follows the ethical standards.

As stated, the research utilises two key data sources, quantitative and qualitative data sources. Both sources of data are collected from the online RBC platform Kickstarter. The data is publicly available information and does not require a registration or membership to access to the data. The 'Terms of Use' section on Kickstarter about intellectual property is as follows:

"Kickstarter grants you a license to reproduce content from the Services for personal use only. This license covers both Kickstarter's own protected content and user-generated content on the Site. (This license is worldwide, non-exclusive, non-sublicensable, and non-transferable.) If you want to use, reproduce, modify, distribute, or store any of this content for a commercial purpose, you need prior written permission from Kickstarter or the relevant copyright holder. A "commercial purpose" means you intend to use, sell, license, rent, or otherwise exploit content for commercial use, in any way." (Kickstarter, 2019b).

The data has been collected and stored purely for research purposes. The large-scale data set for is for statistical analysis and cannot be traced back to individual projects;

thus, anonymity is guaranteed. The research is to fulfil the requirement of the author's doctoral study, and no external interest is involved.

1.7 Thesis structure overview

Figure 1.1 The structure of the thesis



The thesis comprises seven chapters. Chapter 1 outlines the background, the context of this research and the objectives. Chapter 2 reviews studies of different methods of entrepreneurial financing. The conceptual framework is outlined across the three levels of analysis in Chapter 3. First, the signalling theory is adopted in order to overcome the problems of information asymmetry. Three key actors are recognised in the RBC context, signalers (fundraisers and platforms, signals (information of the project) and receivers (interested audience and backers). Second, adopting a signaling timeline model (Connelly *et al.*, 2011), the research recognised different

themes of the signals as well as the mechanism to enhance the observability of signals to receivers, that is the two types of information (signals of project quality and signals of intention), and the key characteristics of the signal – signal observability. Third, signals and their characteristics under RBC context are identified, signals of project quality (introduction word counts, video counts, campaign duration, delivery duration and the median of pledge cost), signals of intention (creators' charitable purposes, and expression of in need of help), and the level of signal observability (number of comments, number of projects backed or created, presence of Facebook link, and the team size). Also, the influence of these factors on the likelihood of a projects' success are investigated from a perspective of motivation theories (liking motivation, reward and lobbying motivation, prosocial motivation, altruism), emphasis – altruism hypothesis, reciprocity mechanism and social network theory. Consequently, different signals through intrigue motivations will have an effect on receivers' decision-making on their backing behaviour. Pragmatist epistemology forms the philosophic foundation of the research methodology in Chapter 4. This discussion is followed up by the justification of the mixed method research design, data collection methods, and the means of their analysis, where a range of hypotheses are developed in conjunction with the conceptual framework outlined earlier. Chapter 5 tests the relationship between different variables using different analysis methods such as Content Analysis, Chi-square Test and Logistic Regression Analysis, and outlines the results of the quantitative analysis. In Chapter 6, the hypotheses developed in chapter 3 and research objectives are reviewed together using the output from the findings of data analyses in Chapter 5. It brings the results together, proposing a novel conceptual framework of the RBC investing process. The key implications of this model are highlighted in chapter 7, including implications policy makers, practitioners and academics (implication from both theory and methodology, as well as on teaching). On a final note, limitations are considered mainly from the data collection side. Future research is signposted, which would further test the proposed conceptual model (using surveys and to test the model in different context/countries), and establish its connection with the online alternative financing options available in the market.

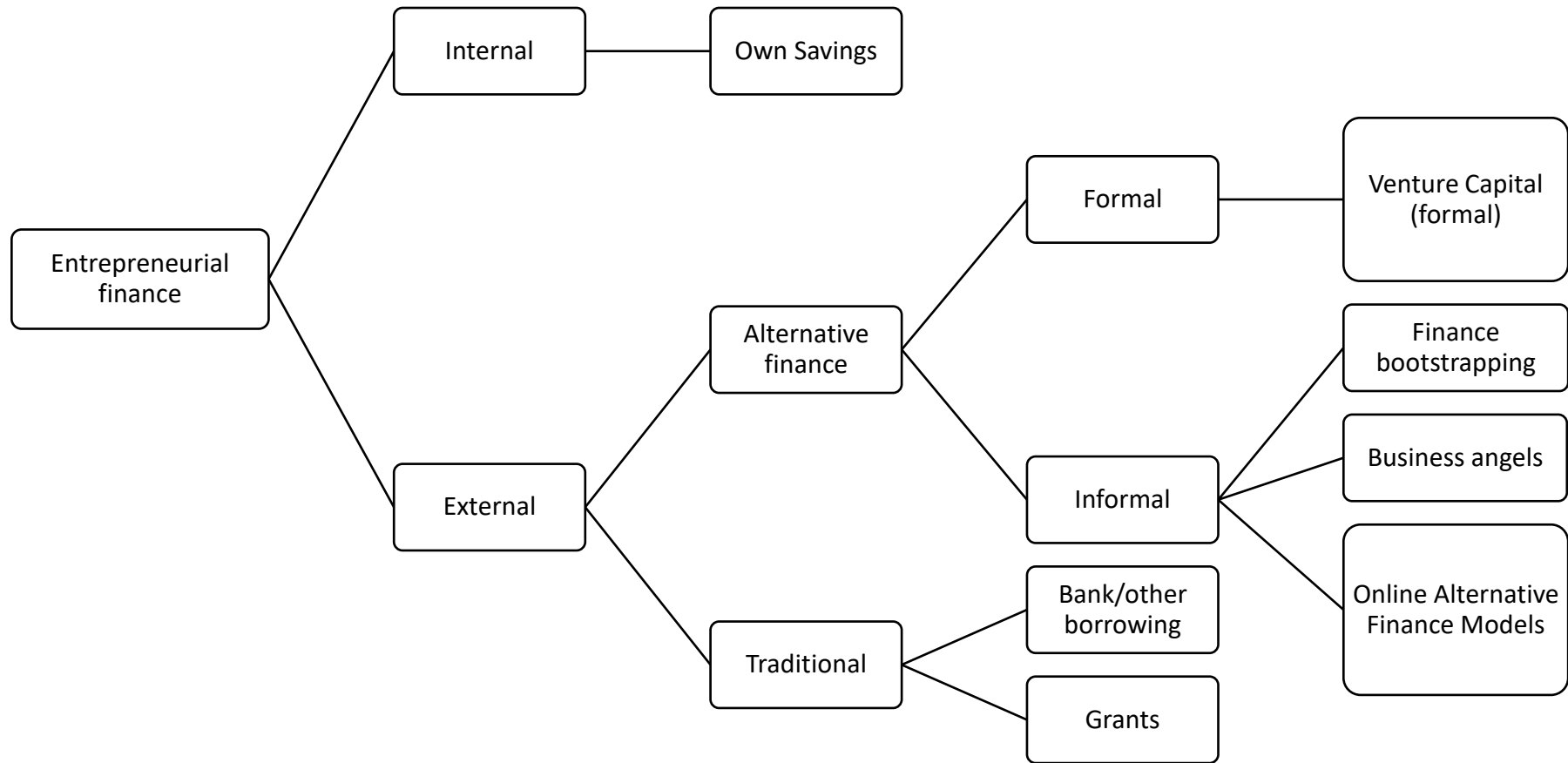
Chapter 2 Literature Review – Sources of Start-up Capital

2.1 Introduction

In corporate finance, sources of finance can be divided into external finance and internal finance (Watson, D., & Head, 2013). While for start-ups, firms' financial capital can be classified regarding funding source and type – internal fund, informal fund and formal fund (Lee and Zhang, 2011). Start-up or infant stage firms are well known for the lack of access to traditional sources of capital (Borello et al., 2015; Carter & Van Auken, 2005; Ingram et al., 2014; Lehner et al., 2015; Mollick & Robb, 2016; Van Auken & Neeley, 1996). Traditionally, nascent entrepreneurs usually start with an internal fund such as their own savings and borrowing from family and friends, followed by collateral-based bank debt (Oakey, 1984; Westhead and Storey, 1997; Murray and Marriott, 1998). Data from Barclays Bank suggests that around 65% of small businesses sought finance from the bank and institutional investors in the 1987-90 period (Barclays Bank, 1999). The figure has been dropping since then, as there was an increase in business owners not applying for loans because they believed they would be rejected (discouraged borrowers) (Fraser, 2008). Nowadays, the availability of financial resources 'equity and debt' for small and medium enterprises (SMEs) (including grants and subsidies) is even lower than a few decades ago; the figure decreases from 3.25% in 2015 to 2.67% in 2016 in the UK (GEM, 2016).

Either insufficient amounts of capital or high levels of debt can result in a start-up firm's inability to remain viable and capture market opportunities (Van Auken and Neeley, 1996). Therefore, whether these sources of finance are sufficient and appropriate to support a start-up or exploit its rapid growth potential fully will be discussed in the chapter in order, as shown in Figure 2.1.

Figure 2.1 Sources of entrepreneurial finance



2.2 Internal finance

In corporate finance, internal finance comprises retained earnings, usually referred to its “internally generated funds” which can be distributed to owners or reinvested to support growth (Leach & Melicher, Ronald, 2015, p329). While focused on start-ups, the internal financing in this paper mainly means funding by the entrepreneurs (Lee & Zhang, 2011).

According to the British Business Bank’s business finance survey report based on 1,608 interviews with SMEs in the UK (2016), in 2015, 57% of the SMEs with no employees used external finance whilst 70% of the micro enterprises with 1-9 employees used external finance. This figure goes up to 89% for the medium enterprises. It is clear that large companies are more likely to succeed in seeking external finance. Not only because they have higher demand, but they are also more likely to be funded (British Business Bank, 2016). Internal fund, on the other hand, is seen as a ready source of finance (Watson & Head, 2013). It is, however, limited either from the entrepreneurs' personal savings or the cash flow from business operations. Unsurprisingly, studies found that internal fund does not have a significant impact on start-up survival (Lee and Zhang, 2011). Others found that the growth of most firms is constrained by internal finance. (Carpenter and Petersen, 2016). In light of this, entrepreneurs will need to seek external finance as a mean to increase start-up capital, which is essential to working capital.

2.3 External finance - traditional finance

Van Auken and Neeley (1996) defined the traditional sources of start-up capital as “funds from personal savings and borrowing from financial institutions”. As much of the traditional finance theory is based on the assumptions of capital market theory, a large part of finance theory has focused on capital structure and valuation of the firm (Van Auken and Neeley, 1996). Therefore, entrepreneurship is mostly viewed as entirely separate from the field of corporate finance (Denis, 2004). However, entrepreneurs still share the same fundamental problems as corporations - agency problems and information asymmetries (Denis, 2004).

In other words, the nature of new ventures presents difficulties for entrepreneurs to obtain financing from traditional bank and debt financing (Berger and Udell, 1998). Ho and Wong (2007) both theoretically and statistically proved that information asymmetries presenting a moral hazard and adverse selection problems would limit the access of entrepreneurs to financing from financial lending institutions. In reality, as new firms lack tangible assets that may be pledged as collateral, bank financing might not be available to them. Even bank loans could be an option; most start-up companies seek to avoid them as they are usually related to complex procedures and very much depend on individual's credit history and assets (Čalopa, Horvat and Lalic, 2014), which is particularly difficult for business start-ups. Moreover, acquisition of banks loans does not necessarily guarantee the success of the business. Åstebro and Bernhardt (2003) found a negative correlation between having a bank loan and business survival. In their findings, a substantial number of start-ups with high survival rates did not receive bank loans due to owners' self-selection against commercial bank loans.

The Grant as another traditional source of finance also has its limitations. The government's Department for Business, Energy and Industrial Strategy (BEIS), National Apprenticeship Service, Department for International Trade (DIT) and some local councils can all provide grants respectively. Nevertheless, these grants are more suitable for start-ups in the 'green economy' or high-tech industry, or a business with a low budget or targeting foreign markets.

Even so, grants can rarely finance a project's entire cost, usually covering 15-60 percent (IoD, 2016). Applicants are usually recommended to adopt a flexible approach to funding (loans and grants). A relatively large amount of grant or loan typically comes with a 2% arrangement fee (BEIS, 2017a), and the application process could take a long time to complete. Besides, the success rate of a grant application is never very high (IoD, 2016). These features have pushed entrepreneurs to seek finance away from traditional bank and government, that is alternative finance.

2.4 Alternative finance

Alternative finance is generally viewed as financing channels and instruments outside of the traditional banking sector and capital markets (Baeck et al., 2014; Denis, 2004; Zhang et al., 2016; Zhang, 2008). Two decades ago, alternative sources were considered mainly informal fund (fund from non-professional providers, e.g., friends and family), venture capital investments and business angels (Hussain, Millman and Matlay, 2006; Ramadani, 2009; Atherton, 2012; Čalopa, Horvat and Lalic, 2014; Elston, Chen and Weidinger, 2016). Since 2000, the emerging of different online alternative finance models provides projects and businesses for a broader range of sectors and for various purposes (Baeck, Collins and Zhang, 2014), offering more diverse and transparent ways for consumers to invest or borrow money, fostering innovation, generating jobs and funding worthwhile social causes. In the following, alternative finance will be discussed in two categories – formal and informal financing.

2.4.1 Formal venture capital

Venture capitalists are defined as specialized investors gathering money from non-specialists and placing it into projects exhibiting high growth potential (Schwienbacher and Larralde, 2010) in exchange for an equity stake (Čalopa, Horvat and Lalic, 2014). For several decades venture capital has been a widely used form of financial support, as found by Hellman and Puri's (2000) study, which used a dataset of Silicon Valley start-up companies and concluded that venture capital is a widely used form of financial intermediation that is particularly well suited to support the creation and growth of young entrepreneurial companies. More contemporary case study exemplars come from Elston et al. (2016), who confirmed the predominant role of venture capital for financing start-up businesses in China, and Moghaddam et al. (2017) recognized the critical role of VC funds for high-growth entrepreneurial businesses.

Petty and Bygrave (1993) categorised venture capital into two categories, formal venture capital (FVC) and informal venture capital (comprises of business angels, which will be discussed in the next section). The former only targeted ventures that 'need significant equity capital, amounting to at least \$1 million' (Petty and Bygrave,

1993). Thus, most new ventures are excluded from the FVC markets based on their sizes.

In addition, reviewing various sources of entrepreneurial capital, it can be concluded that VC is the rarest source of capital for nascent entrepreneurs (GEM, 2018). One of the reasons is that nascent entrepreneurs can hardly meet the exacting criteria that venture capitalists must use (Bhide, 1992). Wright and Robbie (1996) discovered that VC might use approaches like due diligence, valuation methods, benchmark rates of return and adjustment for risk to deal with adverse selection problems. In order to address potential adverse selection problems, venture capitalists use a wide range of accounting and non-accounting information and techniques relating to the specific factors concerning a particular investment. In this case, unpublished accounting information and subjective information are important for venture capitalists to make decisions.

Furthermore, venture capitalists have their decision process (Fried and Hisrich, 1994; Harrison, Dibben and Mason, 1997; Payne *et al.*, 2009; Dhochak and Sharma, 2015). Fried & Hisrich (1994) summarised a six-stage process model of venture capitalists' investment decision-making process with different activities occurring in each stage: origination, venture capital firm-specific screen, generic screen, first-phase evaluation, second-phase evaluation, and closing. Moreover, when entering non-domestic markets, venture capitalists need to invest considerable extra effort in understanding the operation of these markets (Wright, Mike & Robbie, 2000). Once they have invested in a company, VCs draw on their networks of service providers (e.g., patent lawyers, investment bankers)—to help the company succeed (O’Gorman and Terjesen, 2006; Hochberg, Ljungqvist and Lu, 2007). Thus, due to incurring these significant costs in investigating, negotiating and monitoring investments, formal venture capitalists rarely invest in nascent entrepreneurs or start-up companies. Entrepreneurs, on the other hand, may not be willing to give up a significant percentage of their company's share (IoD, 2016).

In general, the long application process time and potential costs (financially and equity stake) makes formal finance a less desirable option. Whereas, a large amount of studies suggest that informal financing, which is defined as financing activities with “contracts or agreements conducted without reference or recourse to the legal system to exchange cash in the present for promises of cash in the future” (Schreiner, 2001), is predominantly used over formal financing for start-ups (Au *et al.*, 2016; Elston, Chen and Weidinger, 2016). Different models of informal financing will be discussed in the following to study whether they are sufficient and appropriate to support start-ups.

2.4.2 Business angels

As mentioned above, the second category of venture capital defined by Petty and Bygrave (1993), informal venture capitals, comprises of the private investors or the ‘angels’, a term first used by Freear and Wetzel (1990). It has been argued that informal investment, the provision of equity and near-equity finance directly to new and growing businesses by business angels with no family connection with the business, represents a more appropriate source of capital for early-stage ventures (Walker, 1989; Pettit and Singer, 1985). Unlike formal venture capitalists, most angels have founded companies themselves. As such, they prefer to focus on start-up or infant stage firms, rather than already established businesses (Prowse, 1998). The first attempt to describe the extent of the informal venture capital market in the UK was made in the early 1990s when Professor Colin Mason obtained a grant funded by Economic and Social Research Council to look at informal risk capital in the UK (Mason & Harrison, 1990). In the following year, the research on the size of the market, investors’ characteristics, preferences and decision-making was carried out in the UK (Mason & Harrison, 1990, 1991, 1992a, 1992b).

Business angels are defined as ‘private individuals who make investments directly in unlisted companies in which they have no family connection’ (Harrison *et al.*, 1997; Mason & Harrison, 2000), and they are looking for an attachment and a return (Biele, 1999). Moreover, business angels are often perceived as ‘the second round of financing a start-up goes through, after the entrepreneur has exhausted all his family

and friends' money, but before approaching formal venture capital partnerships' (Prowse, 1998). They are recognised as occupying an important position in the spectrum of entrepreneurial company finance options (Mason & Harrison, 1997, 2000; Sorheim & Landstrom, 2001).

A few decades ago, the informal venture capital industry was a hidden or invisible market, lacking effective channels for business angels and entrepreneurs to make contact with one another (Freear, Sohl and Wetzel, 1994). Later on, business angel networks (BANs) became established and provided 'a channel of communication between private venture capital investors (business angels) and entrepreneurs seeking risk capital' (Mason & Harrison, 1997). According to Mason and Harrison (1997), BANs fall into two categories: not-for-profit as in the public sector and private 'commercially-oriented' BANs. For the latter category, private BANs, it is generally the case that individuals provide risk capital directly to small, private and, often, start-up firms (Prowse, 1998). In a way, it can be argued that angel capital and venture capital firm share similar decision-making criteria and process. Landstrom (1995) documented the process by which angels reach their decisions, which have four phases: awareness and review of investment proposals, meeting with the principals, negotiations with the principals, and final decision. Harrison and Mason (1992) found two factors recognized to be particularly crucial for their decision-making – the management team and the growth potential of the market. The informal investors' most common reasons for rejecting investment proposals are inadequate growth potential, a lack of confidence in management, unsatisfactory risk/reward ratio, and the investors unfamiliarity with either the firm's principals and management or its product or market (Harrison and Mason, 1992; Landström, 1993; Landstrom, 1995).

Besides these exploratory findings, Harrison, Dibben and Mason (1997) further theorised that the interplay between angels and principals – the building of trust relationships, is essential for successful capital investments. The primary criterion that angels use to screen proposals is whether the entrepreneur is previously known and trusted by them or by an associate whom they trust (Prowse, 1998). Further, in the deal structuring stage, Payne et al. (2009) found that investors' primary concern

is their confidence and potential control of a venture, concerning the level of financing they provide. Furthermore, factors such as perceived risk, utility, importance of the opportunity and the perceived competence of the entrepreneur also need to be taken into account.

All these findings suggest that angel capital and nascent entrepreneurs do not match - it might take quite a long time to build a network with business angels or even longer to be trusted. Also, for businesses still in the concept-proving period, it is even harder for the entrepreneurs to persuade angels that the business could make an impressive profit. To protect their interests, business angels use a variety of direct control mechanisms. The most common one is a representation on the Board of Directors. Angels are very often on the board with majority voting rights. The second one is to provide capital in several rounds. Capital is provided in several rounds at fairly distinct development stages, generally with the amount provided just enough for the firm to advance to the next stage of development. If the firm is performing up to expectations, angels may have the power, through their extensive contacts to bring in other investors (Prowse, 1998). Generally speaking, business angels may consider investing only when a business shows promise to grow (Buss, 1993) and usually require a share of the business and hands-on involvement (IoD, 2016). All this is not a desirable situation for a start-up company. In light of this, studies have been exploring a way for start-up companies to get access to investment but without paying 'the hidden costs of other people's money' (Bhide, 1992) (such as relinquishing a share of the business or hands-on involvement). Two sources of finance in the alternative finance market may provide a solution - bootstrapping finance and reward-based crowdfunding.

2.4.3 Bootstrapping finance

Bootstrapping finance is considered one of the key alternative finance options for business start-up (Lahm and Little, 2005; Jones and Jayawarna, 2010; Lam, 2010). Based on experiences with more than 500 entrepreneurs, Thorne (1989) first mentioned about the actual techniques in bootstrapping financing to acquire substantial resources, such as borrowing from suppliers or use of 'free' labour.

Although he did not give a precise definition or conclusion for the term, this financing method is regarded as a 'very important part of a new venture's resources' (Thorne, 1989) and to support its growth (Bhide, 1992; Van Auken and Neeley, 1996; Winborg and Landström, 2001), compared to traditional sources of start-up capital. After Thorne's (1989) discovery, Freear and Wetzel (1990) firstly defined the term bootstrap financing as 'highly creative ways of acquiring the use of resources without borrowing money or raising equity financing from traditional sources'. Bhide (1992) gave an idea that the value of bootstrapping is to launch ventures with modest personal funds.

Considering 'the hidden costs of other people's money and the consequences brought by 'premature funding' such as diminished flexibility and money wasting (Bhide, 1992), bootstrapping is seen as an important alternative source to the launch of the new venture and to support its growth (Bhide, 1992; Van Auken and Neeley, 1996; Winborg and Landström, 2001). Based on previous researchers' studies, Van Auken and Neeley (1996) came to a broader definition that bootstrap financing 'includes those sources of capital that are used after exhausting personal savings and loans from banks'. In 2010, Lam (2010) described bootstrap financing as an 'ongoing process' for an individual to manage the 'funding gap' by one's effort. Therefore, in this case, all sources of capital that differ from traditional sources (e.g. venture capital, business angels, and bank loan) can be considered as bootstrap financing. Nevertheless, it is found that financing bootstrapping is more suitable for traditional low-budget start-ups (Bhide, 1992), and too much depends on entrepreneurs' ability and network (Carter & Van Auken, 2005; Lam, 2010). Furthermore, some bootstrapping may be detrimental to future firm performance (Ebben, 2009a), such as customer-related and delaying-payments methods. Therefore, to apply to a broader variety of start-up companies, the author will look further on the emerging online alternative finance models.

2.5 Online alternative finance models

Various online alternative finance models are seen as a “new brand of innovative, decentralised and potentially disruptive alternative finance is supplying credit to consumers, providing early-stage investments to start-ups and growth capital to SMEs” (Wardrop et al., 2015, p10). In the recent two decades, a growing number of online alternative finance models has emerged, such as crowdfunding, third-party payment systems and other ‘shadow banking’ mechanisms, social impact bonds and alternative currencies like Bitcoin. Studies believed that these models could offer more diverse and transparent ways for consumers to invest or borrow money, fostering innovation, stimulating regional economies and funding worthwhile social causes (Baeck, Collins and Zhang, 2014; Wardrop *et al.*, 2015).

Nowadays, these new forms of alternative finance are proliferating and some believe that it is a fast-growing area of the financing services sector on the way to ‘becoming mainstream’ (Wardrop *et al.*, 2015). Since 2011, the UK online alternative finance market keeps growing rapidly and is increasingly “complex, fluid and dynamic”. In 2018, the combined market activity of the industry grew to £17.2 billion – an increase of about ten times compared to the £1.74 billions of 2014 (Baeck et al., 2014; Zhang et al., 2018). In a wider region, European online alternative finance industry (excluding the UK) grew 63% from € 2.06 billion in 2016 to €3.37 billion in 2017 (Ziegler *et al.*, 2019). The market in the United States grew by 24% with \$42.81 billion total market volume in 2017 than the previous year. The total volume in the Americas across North, Central and South America reached \$44.3 billion in 2017 (Ziegler *et al.*, 2017). The volume and increasing trend suggest the importance and potential of the online alternative finance market.

Therefore, it is essential to have a general understanding of different online alternative finance models in terms of their effectiveness as a source of start-up capital.

According to the report by the University of Cambridge and Nesta based on a nationwide study (Zhang et al., 2016), there are 11 online alternative finance models: Peer-to-Peer (P2P) Business Lending, Peer-to-Peer Business Lending (Real Estate), Peer-to-Peer Consumer Lending, Invoice Trading, Equity-based Crowdfunding, Equity-based Crowdfunding (Real Estate), Community Shares, Reward-based Crowdfunding, Pension-led Funding, Donation-based Crowdfunding, Debt-based securities. In the most recent industry report (Zhang et al., 2018), the number of models is reduced to 10, with pension-led funding categorised into P2P lending. In this chapter, the models will be categorised in 9 based on their nature and subjects: Peer-to-Peer Consumer Lending, Peer-to-Peer (P2P) Business Lending, Community Shares, Invoice Trading, Debt-based securities, Pension-led Funding, Equity-based Crowdfunding, Donation-based Crowdfunding and Reward-based Crowdfunding. In the following, the author will mainly focus on the market size and growth of various alternative finance models in comparison to RBC.

2.5.1 Peer-to-Peer consumer lending

The lending models in the alternative finance industry are mostly debt-based transactions. Individuals use P2P consumer lending platforms to borrow from a number of individual lenders with each lending a small amount. In simple terms, the platforms perform the brokerage function of financial intermediaries by matching lenders' supply and borrowers' demand for funding (Havrylchyk and Verdier, 2018). This model has been evolving to become an important force in the UK consumer credit and lending space. It reached a market volume of £1,403 million in 2017, about one-thirds of the whole online alternative finance industry (Zhang et al., 2018).

It has been seen as a substitution and competition for traditional bank lending to SMEs, and some P2P consumer lending platforms even have referral agreement from a formal financial institution (Cahery, Fenwick and Vermeulen, 2017; de Roure, Pelizzon and Thakor, 2018). However, unlike banks, P2P lending platforms do not create money or perform risk and maturity transformation (Havrylchyk and Verdier, 2018); hence most P2P consumer lending is unsecured personal loans (Wardrop *et al.*, 2015). Without collateral, the inherent problem of information asymmetry is not

knowing if a borrower has the capability to pay the loan or is truthfully willing to pay it in due time making P2P loans riskier than bank loans (de Roure, Pelizzon and Thakor, 2018; Rong *et al.*, 2018). Therefore, to keep a low default rate (less than 1), the platforms usually have strict requirements for borrowers. The borrowers need to have an A or A+ credit rating to be put into the 'prime' or 'super-prime' borrower category, even so, the average rejection rate is still as high as 90 percent, that is, 9 out of 10 loan applications are rejected (Baeck, Collins and Zhang, 2014).

Moreover, rather than starting a new business, most borrowers applied the loan to fund the purchase of a vehicle (46%), or home improvement (26%) and debt consolidation (25%) with an average amount of £5,471 (Baeck, Collins and Zhang, 2014). Borrowers use the platforms to seek a loan with a better interest rate and more flexible terms, while the lenders' principal concern is the interest rate available on the loans they finance and the risk related to it (Baeck, Collins and Zhang, 2014).

Therefore, considering both the demand and supply side, a P2P consumer lending model is not very suitable for start-up financing. Firstly, the amount of loan is somewhat limited. As mentioned above, most of the loans are used for personal use, such as the purchase of a vehicle, home improvement or for a small project. Secondly, the A or A+ credit rating may not be suitable for those young or early entrepreneurs. Lastly, lenders are seeking a low-risk high-interest rate loan, while nascent entrepreneurs can hardly guarantee the yield rate of their new ventures.

2.5.2 Peer-to-Peer business lending

The P2P business lending model is generally the same as consumer lending, but borrowers are businesses, and the lenders can be individuals or institutional investors (Baeck, Collins and Zhang, 2014; Wardrop *et al.*, 2015). It has experienced impressive growth and retained the largest market segment in the online alternative finance industry over the last four years, with £2 billion in transaction volume in 2017; almost half of it in the whole industry (Zhang *et al.*, 2018). There is a growing institutionalisation trend of the model; 40% of the funding was provided by institutional lenders including mutual funds, pension funds, asset managers, banks,

family offices, and other financial institutions. In light of this, lenders are less social-cause motivated but primarily motivated by the financial return available. The main factors influencing their lending decision-making are business creditworthiness, diversifying investment portfolios and rate of return (Zhang et al., 2016). Therefore, borrowers need to present their creditworthiness and the ability to provide a high return.

Most P2P business lending borrowers are SMEs from the manufacturing, professional business services, construction or retail sectors seeking growth capital or working capital. The speed and ease of use are their main reasons to use this financing model (Baeck, Collins and Zhang, 2014). Nevertheless, newly-established businesses can hardly guarantee a high rate of return. Moreover, since 2014, the P2P lending market has been included in the Financial Conduct Authority (FCA)'s regulated activities, and platforms have to comply with a series of regulatory requirements ranging from prudential capital requirements to business conduct rules (Lu, 2018). These regulations are definitely an essential policy for the sustainability of the P2P lending market, but they also set a high entry barrier for nascent entrepreneurs or newly-established business to utilise the financing model.

2.5.3 Community shares

Community shares refer to withdrawable share capital, which is unique to co-operative and community benefit society legislation (Zhang et al., 2016). In simple terms, investors investing in community shares of a business that is mostly serving their community, so that the share capital will help finance the business. Collective participation makes it possible to install more substantial projects in the community, which will lead to cost efficiencies (Zhang, 2016). Most community-based projects aim to support a social or environmental cause, not to make a financial gain, although investors may receive limited interest and tax break on the investment (Community Shares Org, 2017).

Most studies of this financing model focused on community renewable energy projects, such as wind farms and solar energy (Beery & Day, 2015; Chan et al., 2017;

Holstenkamp, 2019) and community-based tourism (Dodds, Ali and Galaski, 2018). Studies have mainly discussed the application of this financing model, investors' characteristics, and implication to policies. It is clear that these projects have a strong geographical characterisation in which the explicit aim is to improve the participation of local communities in the renewable energy or tourism investments accruing in their territories (Candelise, 2016; Broughel & Hampl, 2018). Moreover, this type of share capital can only be issued by co-operative societies, community benefit societies, and charitable community benefit societies. Although investors have the right to withdraw some or all of their share capital, subject to terms and conditions, the shares can never be worth more than how much is paid for them, and they could go down in value if the society gets into financial difficulties (Baeck, Collins and Zhang, 2014).

Therefore, considering the policy and the nature in this sector, the community shares model is not suitable for most of start-up financing (although small local community businesses such as a local pub are more likely to use this model), as this type of share capital can only be issued by certain types of businesses, and is largely affected by the location.

2.5.4 Invoice trading

Invoice trading financing is usually auction-based with the firms selling their invoices or receivables at a discount to a pool of individual or institutional investors in order to receive funds immediately rather than waiting for invoices to be paid (Wardrop *et al.*, 2015). Invoice trading has a relatively large market volume in the UK, with £787 million in 2017, in third position after the two P2P models in the online alternative finance industry (Zhang *et al.*, 2018). The model has proved to generate a relatively substantial value flow and attracts businesses which require 'immediate' finance (as the invoices are usually auctioned on a 24-hour basis, and sellers receive the payment in a short time after the auction ends) (Dziuba, 2018; Iliescu and Pletea, 2018). Dziuba (2018) even predicted that the model would achieve rapid growth with the development of the blockchain technology.

Invoice trading can be particularly useful for small and micro-enterprises to get ‘right-on-time’ access to working capital with the average invoice auction duration of only eight hours. However, this is not for start-up businesses, not to mention nascent entrepreneurs as they would not have invoices or receivables in the start-up stage. After a certain stage, however, entrepreneurs could consider the invoice trading financing option.

2.5.5 Pension-led funding

Pension-led funding allows individuals mainly SME owners/directors, to use their accumulated pension funds in order to start or re-invest in their businesses and (Baeck, Collins and Zhang, 2014; Wardrop *et al.*, 2015). It can be seen as a source of funding for P2P business or consumer lending (Zhang *et al.*, 2018), however in this instance, due to its uniqueness to nascent entrepreneurs, the author chose to discuss it separately.

In 2016, pension-led funding reached £23 million (Zhang *et al.*, 2016), which is a quite small figure compared to other alternative finance models. The businesses seeking pension-led funding came from a range of sectors with retail, construction, technology, and manufacturing among the most prevalent. The average amount of funding secured by those using pension-led finance was £70,257 (Baeck, Collins and Zhang, 2014).

It is clear that the model could be an option for older entrepreneurs with private pension savings who wish to start their businesses, but it works better for older small business leaders who have a larger size of fund to leverage (Prosser, 2017) and use intellectual properties as collateral. Therefore, pension-led funding is not quite suitable for nascent entrepreneurs especially young ones.

2.5.6 Debt-based Securities

Individuals purchase debt-based securities (DBS) (typically a bond or debenture) at a fixed interest rate, and receive full repayment plus interest paid at full maturity (Zhang *et al.*, 2016). Since 2016, HMRC ruled that debt-based crowdfunding (DBC)

investment can be included in Innovative Finance ISAs (Triple Point, 2017), which can be seen as a tax incentive to attract investors. Besides, DBS are regulated investment products under the governing of FCA rules and most of them are fully tradable and transferable. DBS platforms are responsible for conducting due diligence and verification of the offers. Platforms also manage the transfer of ownership and facilitate any payments when a DBS is sold. DBS is perceived as lower volatility than equities and predictable income with a pre-determined maturity date. The returns can be up to 6% per annum, tax-free (Best, 2017). It is a relatively new alternative finance model with only a small amount of deals having been offered and funded (Baeck, Collins and Zhang, 2014), so it has been rarely studied academically (Seiler and Fischer, 2015).

However, in general, the model is a limited option for nascent entrepreneurs. Firstly, they have limited power to issue a DBS. Secondly, according to Baeck et al.'s (2014) survey, the investors are mostly focused on the renewable energy sector.

2.5.7 Crowdfunding

In recent years, crowdfunding has become a popular fundraising method in the alternative finance industry (Bretschneider, Knaub and Wieck, 2014; Thurridl and Kamleitner, 2016; Zheng *et al.*, 2016). Some scholars considered crowdfunding as a form of crowdsourcing (Bretschneider, Knaub and Wieck, 2014; Kuppuswamy and Bayus, 2015; Thurridl and Kamleitner, 2016), which has a long and rich history with roots going back to the 1700s. Crowdsourcing was initially designed for a local firm to get support from others in order to solve problems or access knowledge from areas where the firm may not usually have access (Jeppesen and Lakhani, 2010). In the modern era, the first crowdfunding platform was recognised in 2000, and Schwenbacher and Larralde (2010, p.4) defined crowdfunding as "an open call, essentially through the Internet, for the provision of financial resources either in the form of donation or in exchange for some form of reward and/or voting rights in order to support initiatives for specific purposes".

A broader definition is given by Mollick (2014, p.2) who defines crowdfunding in an entrepreneurial context as “the efforts by entrepreneurial individuals and groups – cultural, social, and for-profit – to fund their ventures by drawing on relatively small contributions from a relatively large number of individuals using the internet, without standard financial intermediaries”. This definition generally considers all the funding from the ‘crowd’ online as crowdfunding, such as internet-based peer-to-peer lending and invoice trading. To distinguish between alternative finance and crowdfunding, the author applied the former definition by Schwienbacher and Larralde (2010), which mainly includes equity-based (including real-estate crowdfunding), donation-based and reward-based crowdfunding.

Crowdfunding models can be generally categorised in two groups - the model that generates financial returns (equity-based crowdfunding) and the models with no monetary returns (donation-based crowdfunding and reward-based crowdfunding). The former group raised much higher funding (£544 million in 2017) than the latter group (£41 million and £44 million, respectively in 2017) (Zhang et al., 2018). The funders are, generally, different groups of people as well. Funders of the former group are mostly private or professional investors with a high level of income – more than 50 per cent of them have an annual income above £50,000, whereas 47 per cent of funders of the latter group earned less than £25,000 per annum (Baeck, Collins and Zhang, 2014). Therefore, they appear to have different expectations and motivation to fund or invest, depending on the model categories. Equity-based crowdfunding funders were primarily driven by the financial returns and were those who would have used the amount for savings and investment, whereas funders of donation or reward-based crowdfunding varied from egoistical motive (e.g., reward) (Gerber, Hui and Kuo, 2012; Berglin and Strandberg, 2013) to altruistic motive (e.g. charitable giving) (Kshetri, 2015; Majumdar and Bose, 2018).

Additionally, according to their survey, Baeck et al. (2014) discovered that fundraisers’ motives also vary depending on the model categories. Equity-based crowdfunding fundraisers valued the speed at which they could access funding or quality of customer service. Donation or reward-based fundraisers most valued having more

control over their projects, which was seen as one key issue for nascent entrepreneurs as they tend to have a significantly higher need for independence (Carter et al., 2002). Furthermore, crowdfunding is considered as a suitable finance option for different stages of firm growth (Ellman and Hurkens, 2014; Bruton *et al.*, 2015). It is worthwhile therefore to discover more about the history and development of crowdfunding.

Figure 2.2 Timeline of crowdfunding

Timeline of crowdfunding	
1886	The pedestal on which the statue of Liberty gets crowdfunded by New York Citizens
2000	ArtistShare, the first reward-based crowdfunding website for music, launches the dedicated Crowdfunding platform to help artists obtain funds
2000	Internet-enabled giving goes mainstream with the emergence of sites such as JustGiving
2005	Kiva was launched which is the first major microloan platform for entrepreneurs in underprivileged countries
2006	Michael Sullivan, the founder of FundaVlog, is credited with coining the term 'crowdfunding'
2008	The economic crisis occurs, big banks begin to cut back small business lending
2008	Indiegogo launches reward-based crowdfunding platform
2009	Kickstarter launches reward-based crowdfunding platform
2010	AngelList unveils equity-based angel investing. Gofundme launches donation-based crowdfunding
2011	Crowdfunder & CircleUp launch equity-based platforms
2011	Obama Administration reveals the Startup America Initiative focused on rebooting small business

2012	Obama Administration passes the Jumpstart Our Business Startup Act a.k.a. JOBS Act
2014	Kickfurther launches first inventory-based crowdfunding platform
2015	Title III of the JOBS Act passes allowing non-accredited investors to invest in equity of companies

Sources:(Chen, 2016; Freedman & Nutting, 2015; Fundable, 2017; Nesta, 2013)

As shown above in Figure 2.2, the history of crowdfunding can be traced back to the 1800s. The first online crowdfunded project is believed to have occurred in 1997 (Masters, 2013; UKCFA, 2019). Fans of Marrillion (a British band) raised \$60,000 via Internet to help finance a North American tour. Although the band was not involved in this round of fundraising, they used the method to finance their album in 2001 and two albums afterwards. In the same year, in the United States ArtistShare was launched as a website where musicians could seek donations from their fans to produce digital recordings. It is also recognised as the first dedicated crowdfunding platform (Freedman and Nutting, 2015; Fundable, 2017; The Startups Team, 2018; ArtistShare, 2019). Later it has evolved into a fundraising platform for music, film/video, and photography projects. According to Freedman and Nutting (2015), ArtistShare’s first crowdfunding project was Maria Schneider’s jazz album. It can be viewed as the first proper crowdfunding project. A tiered system of rewards were offered; for example, for a \$9.95 contribution, a backer could be among the first to download the album, fans who contributed \$250 or more could have their names listed in the booklet of the album as those who ‘helped to make this recording possible’, and ‘one fan who contributed \$10,000 was listed as executive producer’ (Freedman and Nutting, 2015). This initial tiered system of rewards is still in use in the reward-based crowdfunding platforms, for example, the most prominent ones – Indiegogo and Kickstarter.

The launch of JustGiving announced the start of donation-based crowdfunding communities, in which ‘funders voluntarily donate their money with no expectations of any tangible reward’ (Burtch, Ghose and Wattal, 2013a; Smith, Windmeijer and Wright, 2015). Research on these types of donation-based crowdfunding communities draws on the extensive literature involving philanthropy and public

goods (Andreoni, 2006; Vesterlund, 2006). Qualitative studies find that rewards are one of the most important motivations for participating in crowdfunding communities (Gerber, Hui and Kuo, 2012; Steinberg, 2012), which explains the successive launches of Indiegogo and Kickstarter in succession in 2008 and 2009 as RBC platforms.

Later in 2010, Naval Ravikant founded AngelList, an online equity-based angel investing platform, built to reduce search frictions and “improve the matching between start-ups and potential investors”(Bernstein et al., 2016, p.7). The company was argued to have the potential to reshape the venture capital landscape and early-stage funding (The Economist, 2014; Kolodny, 2013; Stone, 2014; Ramsinghani, 2013). In the same year as AngelList, Gofundme was launched as the first donation-based crowdfunding platform. Now it is the largest donation-based crowdfunding platform in terms of market volume (Solomon, 2019). This free platform (only for personal campaigns) allows people to raise money for their life events (e.g., celebrations and graduations) or challenging circumstances (e.g., accidents and illness)(Bloomberg, 2017). In the following year, the launch of CrowdFunder and Circleup unveiled equity-based crowdfunding, offering a platform on which one can sell shares of a company (Fleming and Sorenson, 2016). CircleUp focused on consumer products and retail, which helped 106 companies raise over \$125 million till 2015 (Freedman and Nutting, 2015).

Until this stage, investors mainly engaged in donation-based or reward-based CF in small amounts through crowdfunding platforms (Warnock & Mochizuki, 2014). With the emergence of various financial fraud and platform malpractices, in 2012, the passing of the JOBS Act legalized equity crowdfunding by relaxing various restrictions concerning the sale of securities (Agrawal et al., 2013; Mollick & Robb, 2016). Before the Act, issuers of private securities could not advertise their offerings or solicit investors generally (Freedman and Nutting, 2015). The former president of US, Obama claimed that with the Act “for the first time, ordinary Americans will be able to go online and invest in entrepreneurs that they believe in”(McCracken, 2015).

In general, in the beginning, crowdfunding was seen by some studies as a niche with little prospect of ever impacting the broader financial system (Denis, 2004; Wardrop *et al.*, 2015), whereas nowadays it has grown into a significant force in global finance (Assenova *et al.*, 2016). The crowdfunding market is “growing increasingly complex, fluid and dynamic” (Zhang *et al.*, 2016, p.11). Looking at the emergence of various crowdfunding platforms and the market trends, it is clear that the industry is pushing boundaries of market growth, public awareness, product innovation and international expansion with both social and regulatory support. In the following, the research will discuss the three crowdfunding models from a perspective of market trend, funders’ and fundraisers’ characteristics in terms of each models’ appropriateness for nascent entrepreneurs.

2.5.7.1 Equity-based crowdfunding

Equity-based crowdfunding (EBC) is defined as the sale of registered security in a business to a number of investors in return for investment (Wardrop *et al.*, 2015). Businesses on EBC platforms vary from early-stage to growth-stage, and investors can diversify their portfolio by investing in the business at different stages. It reached £544 million in 2017 with 64% growth from 2016 (although most of this growth relied on real estate crowdfunding) (Zhang *et al.*, 2018), contributing the most among the three models. For those cautious of investing large amounts, in 2014, the Financial Conduct Authority (FCA) introduced a “10 per cent” rule, which requires retail investors that are neither “sophisticated” nor “high net worth” to certify that they are not committing more than 10% of their net investable assets in EBC (FCA, 2015; Kshetri, 2015; Sharman, 2014). This reduces investors’ perceived risk to some extent. Similarly, as with business angels discussed in Chapter 2.4, who have a primary aim of making a financial return, EBC investors also consider the quality of the team and the pitch as the most important decision-making factors (Baeck, Collins and Zhang, 2014).

Therefore, for nascent entrepreneurs, equity-based crowdfunding has similar drawbacks to venture capital or business angels. First, a long period to get the investment. The average EBC campaign duration is 60 days (Di Pietro, Prencipe and

Majchrzak, 2018). This may not be as long as the business angels' decision-making process, but to prepare for the campaign and to network around it still takes quite a long time. Second, the lack of business creditworthiness. EBC may help businesses to directly communicate with potential investors but newly-established or concept-proving period businesses can still have difficulty persuading them that the business could make an impressive profit. Third, although investors on EBC does not have the rights of involvement in a business operation like business angels, selling shares - suggesting losing part of the voting rights is not ideal for nascent entrepreneurs.

2.5.7.2 Donation-based Crowdfunding

With donation-based crowdfunding (DBC), also known as charitable crowdfunding model, individuals donate small amounts to meet the broader funding aim of a specific charitable project whilst receiving no financial or material return in exchange. There is no legally binding financial obligation incurred by a recipient to a donor; no financial or material returns are expected by the donor (Baeck et al., 2014; Kshetri, 2015; Mitra, 2012; Zhang et al., 2016). It allows fundraisers, primarily from social and cultural groups, creative enterprises and community-based organisations to directly make an online appeal for donations and connects donors directly with fundraisers and beneficiaries without a standard intermediary (e.g., charity organisation). DBC accounted for £41 million in 2017 - a slight increase of 3% from the previous year (Zhang et al., 2018).

The social and communal nature of DBC is the primary draw for funders. Studies suggest that both 'warm glow' and pure altruism play an essential role for donors in donation-based crowdfunding markets (Burtch, Ghose and Wattal, 2013a, 2013b; Wash, 2013; Gleasure and Feller, 2016). Donors are motivated by both purely altruistic (solely the desire to provide for a recipient) and the joy of giving. Studies on features associated with the success of DBC campaigns discovered that personal connection and credible appeals are the key factors increasing the likelihood of receiving a donation (Majumdar and Bose, 2018; Polzin, Toxopeus and Stam, 2018). Most backers reported that the first introduction they had to this type of alternative finance came through recommendations made by a friend or family member or other

social connections. Building on this, social media plays a strong role in getting backers to support DBC campaigns (Baeck, Collins and Zhang, 2014). These influencing factors may shed light when exploring the factors influencing fundraisers' decision making in RBC campaigns as they are both financing models without monetary return. It is clear that this financing model is not suitable for nascent entrepreneurs who wish to start businesses outside the charity sector.

In the following, RBC as an alternative financing model enabling start-ups or nascent entrepreneurs to get access investment but without paying 'the hidden costs of other people's money' (Bhide, 1992) will be explored and discussed.

2.6 Reward-based crowdfunding

RBC is one of the oldest and highest usage rate online alternative finance models (Baeck, Collins and Zhang, 2014). As mentioned in 1.4, Various researchers have given their definitions on this relatively new concept. Generally, it is an exchange of a monetary contribution for some non-monetary reward. Backers would expect that 'fund recipients' provide 'a tangible but non-financial reward or product' at a later date in exchange for their contributions. In an RBC project, various levels of rewards/pledges would be introduced based on different pledge amounts from backers (Burtch et al., 2013b; Lin et al., 2016; Thurridl & Kamleitner, 2016; Zhang et al., 2016). Therefore, by the nature of RBC, unlike the equity-based capital mentioned above, all RBC campaigners retain their control in the business and intellectual property rights (e.g. patents, trademarks, and copyrights), which is valued highly by nascent entrepreneurs. It enables them to raise funds on their own terms with a transparent and efficient funding process.

The growth of the RBC market volume is quite remarkable, although it only accounted for a relatively low percentage (0.7%) of the whole online alternative finance industry in 2017 (Freedman & Nutting, 2015; Kraus et al., 2016; Kshetri, 2015; Zhang et al., 2018). The market volume based on RBC platforms in the UK grew from £26 million in 2014 to £44 million in 2017, and the number of both successful campaigns and

repeat fundraisers increased by a large amount (Zhang et al., 2016, 2018). It suggests that RBC platforms and the market are becoming more regulated and standardised, which is a crucial issue to retain the sustainable growth of RBC.

Baeck et al. (2014), from a survey of 191 fundraisers and 1,128 backers who have used RBC summarised the general business features, as well as the characteristics and motivations of fundraisers and backers. They discovered that most of the campaigns tend to be small operations in the social sector or creative industries; often individuals with little trading history and modest, if there is any turnover. Around half of the fundraisers participants were 'unable to get funding elsewhere' or 'unable to source funding locally' and stated they would have been 'unlikely' or 'very unlikely' to raise funds without crowdfunding. This has partially proved the effectiveness of RBC to nascent entrepreneurs.

The principal difficulties fundraisers faced when sourcing funds were finding backers and developing campaign material (e.g., pitch and video). Corresponding to how backers reported finding out about fundraising campaigns, fundraisers listed social media and their existing social networks as the most effective routes for reaching potential backers, with offline promotion the least effective.

On the demand side, when choosing which campaigns to back, more than 60 per cent of backers valued the quality of the projects, knowing their money was making a difference and personal recommendations as the most important factors. Aside from contributing funds, 70 per cent of backers also gave non-financial support, usually by promoting the crowdfunding campaign among their social network online and offline. Therefore, most backers found out about the campaign through social media or direct mailing. In many cases, they also had some connection to, or knowledge of, the fundraiser prior to the crowdfunding campaign, so that they gave funds to someone they knew at least by reputation. This suggests the important role of the social network towards fundraising success, which will be further discussed in Chapter 3.

In addition to social network, the quality of projects and social cause motivation are also voted as essential factors for backers' decision making. According to the results of their survey, the top five reasons for backing projects (voted as either 'very important' or 'important') are 'the quality of the campaign pitch' (91%), 'doing social or environmental good' (84%), 'I feel my money is making a difference' (88%), 'how money will be spent' (82%), and the quality of the campaign team' (80%). Whereas, supporting friends and family (51%) and getting a reward/product (32%) are less important. This is partially the foundation of the research question - what are the relationships between these factors, how do they interplay with each other and what are the theoretical reasons for these influencing factors?

Apart from the brief background and context of RBC, some scholarly literature researched RBC from different perspectives. It is worthwhile to review these academic studies of RBC further.

2.6.1 Existing studies of reward-based crowdfunding

Due to the short history of RBC as stated in Chapter 1, academic research in RBC is a relatively new area. So far, there has not too been much conceptual research in the area, most of the literature is empirical research (Ingram et al., 2014; Kambara, 2014; Kuppuswamy & Bayus, 2015; Wheat et al., 2013). Through EBSCOhost, Web of Science and other literature databases, in total, the author found 132 academic papers in the area of RBC up to April 2019. In this part, the author will introduce the four main themes of extant research.

First, researchers began to investigate the reasons for using RBC and the effectiveness of RBC from a perspective of profitability (Bell et al., 2014; Chan et al., 2018; Ellman & Hurkens, 2014; Hu et al., 2015; Thurridl & Kamleitner, 2016). Ellman and Hurkens (2014) raised the idea that 'funders' are buyers. They designed a model to investigate how the strategic interaction between entrepreneurs and funders could determine consumer, producer and total welfare. In this case, RBC can be used as a market-test to inform subsequent pricing and to provide a signal of future profitability to traditional financiers. Therefore, even if consumers have standard

motivations, RBC is optimal for entrepreneurs who are either profit-maximizing or success-maximizing. Belle et al. (2014) analysed under what condition should entrepreneurs choose between RBC and EBC. Using a unified model considering price discrimination, information asymmetry, the uncertainty of the products' quality and community benefits, they found that the entrepreneur prefers RBC if the initial capital requirement is relatively small compared with market size and prefers EBC otherwise. Based on their findings, it can be argued that from the perspective of fundraisers, RBC is optimal when the initial capital requirement is relatively small. It also partly explains the lower market volume of RBC compared to EBC.

Second, some studies focused on the motives of RBC funders (Bretschneider, Knaub and Wieck, 2014; Galuszka and Victor, 2014; Hossain and Oparaocha, 2017; Steigenberger, 2017a; Cox, Nguyen and Kang, 2018; Crosetto and Regner, 2018). Hossain and Oparaocha (2017) believed that creative rewards and supporting others are the two most important motivations. Giving a more balanced overview, Bretschneider et al. (2014) considered motivation psychology, the motives of human behaviour, and concluded 10 motives which are categorised in two groups: intrinsic motives - 'fun to invest', 'curiosity about crowdfunding', 'altruism', 'reciprocity', 'direct identification', 'indirect identification', 'regional identification', and extrinsic motives - 'recognition', 'personal need', and 'return'; 2 moderators - 'curiosity herding' and 'return-herding'; 2 mediators - 'idea characteristics' and 'team characteristics'. However, these findings with mainly descriptive statistics overlooked the funders' cognitive decision-making processes - the processes starting from when they received the signals from the projects.

Third, some studies considered the factors that would influence the success of RBC projects (Chan et al., 2018; Cordova et al., 2015; Hou et al., 2015; Kraus et al., 2016; Lelo de Larrea et al., 2019; Li & Martin, 2016). Hou et al. (2015) through analysing the data collected from a RBC platform in China discovered that project goal, duration, initiator participation and experience, the number of followers, the source of followers, and the number of visitors significantly influenced the project success. Part of the influencing factors are also confirmed by other researchers (Cordova et al.,

2015; Li & Martin, 2016). Cordova et al. (2015) investigated 1127 technology projects on four RBC platforms, and found that an increase in the project funding goal is correlated with a lower probability and extent of success, while project duration increases the chances of success, and chances of success are positively related to the dollar amount contributed per day. Analysing data from Kickstarter, as another influencing factor, entrepreneur reputation was discovered by Li and Martin (2016) to affect capital formation outcomes favourably in terms of both degree and speed. However, these studies looked at the factors individually, which lacks a balanced overview. The relationship between each factor and a theoretical explanation for these factors is overlooked.

Fourth, some studies focused on the dynamics of crowdfunding (Fan-Osuala et al., 2018; Kuppuswamy & Bayus, 2017, 2015; Li & Duan, 2014; Rakesh et al., 2016). Li and Duan (2014) discovered that investors are more likely to back a project that has already attracted a critical mass of funding and the backing propensity declines over time. Kuppuswamy and Bayus (2015) described this phenomenon as herding and bystander effect. However, not all projects are equally attractive; the underlying nature and the quality of the projects must also play a role.

In conclusion, the efficiency and appropriateness of RBC for nascent entrepreneurs or start-ups is proved. RBC can provide not only financial support but also a signal of future profitability to traditional financiers as being used as a market-test to inform subsequent pricing. It is optimal for entrepreneurs who are either profit-maximizing or success-maximizing (Ellman and Hurkens, 2014) and have a relatively small initial capital requirement (Belle, Lambert and Schwienbacher, 2014). However, studies on funders' motivation focused on egoistical motives without showing a tendency of prosocial motives (Gerber, Hui and Kuo, 2012; Berglin and Strandberg, 2013). Studies looked at the success influencing factors individually, which lacks a balanced overview. The relationship between each factor and theoretical explanation for these factors are overlooked. So far, none of the research considered the relationship between these different influencing aspects or evaluated their roles on the success of campaigns. Therefore, in the next chapter, the author will focus on the theoretical

background for these influencing aspects and their potential manifestation in RBC. To meet the purpose of research question 2 and 3, these influencing factors identified will be considered and tested in the following chapters.

2.6.2 RBC as a new product preannouncement tool

As discussed above, besides the obvious benefit (e.g., transparency, efficiency, full control, social and financial support), another intangible benefit of RBC is that it can be used as a market-test to inform future profitability (Baeck, Collins and Zhang, 2014; Ellman and Hurkens, 2014). However, there is a lack of theoretical explanation for this empirical finding. The research will explore the mechanism and theoretical explanation of how RBC can be used as a signalling tool to suggest future market profitability from the perspective of new product preannouncement (NPP).

In contract theory, signalling is the idea that one party credibly conveys some information about itself to another party. New product preannouncement (NPP) is one of the most effective and popular signalling tools for firms in industries with highly competitive environments (Su and Rao, 2010). NPP is strategic signals that “firms direct at their customers, competitors, channel members, and investors” (Sorescu et al., 2007, p.468). Comparing this to new product announcement, NPP is made with more uncertainty as it usually is far in advance of a new product introduction (Koku, Jagpal, & Viswanath, 1997 as cited in Su & Rao, 2010), which is the case of most RBC campaigns. NPP can create pent-up demand and accelerate the diffusion or adoption process (Su and Rao, 2010); also the pattern of pre-launch orders in this period could help to forecast the future market demand (Urban, Hauser and Roberts, 1990; Brockhoff and Rao, 1993; Moe and Fader, 2002). Sorescu et al. (2007) discovered that financial returns from NPP are significantly positive in the long run, and there is a positive relationship between the specificness of information and investment returns.

Therefore, from the perspective of NPP, RBC could help entrepreneurs to achieve positive financial returns in the long run; also their projects could forecast the future market demand based on the pattern of pre-launch orders. Besides, the features of

RBC that direct communication with consumers also enable the improvement of the products/services before the launch, if necessary.

2.6.3 RBC Platforms

RBC platforms as a sophisticated intermediary play an important role of connecting campaigners with backers and enabling them to “communicate among themselves in order to assess the merits and prospects of the campaign”(Freedman & Nutting, 2015, p.3). RBC platforms provide responsibility and accountability to both parties, which enables the sustainability of the platforms. Moreover, platforms provide the function of social networking. Although some studies consider it as merely a pre-order/pre-sell, RBC platforms are quite different from pre-order websites. A successful funded initiator would need to keep updating and communicating with backers about the progress and the use of the fund, especially when the delivery date is later than expected.

Nowadays, the most well-known RBC platforms are Kickstarter and Indiegogo (Li et al., 2017; McCracken, 2015). Kickstarter's interest is mainly in helping worthy creative projects—such as movies and inventive gizmos - to become a reality, whereas Indiegogo's mission is to launch ‘cool ideas’, or other activities that Kickstarter bans (McCracken, 2015). In addition to these, new RBC models are still emerging but focus more on a narrow product category or niche market. Experiment.com (formerly called Microryza), for example, is a crowdfunding site for scientific research projects, where funders are rewarded with ‘insight behind the science’ (Freedman & Nutting, 2015).

However, the biggest risk of the industry was believed to be platform fraud or malpractice according to Zhang et al.’s survey (2016). As RBC is less complex and a relatively small amount of money involved, it incurs a medium level of risk (Hossain and Oparaocha, 2017). Therefore, the potential of a collapse of one or more of the well-known platforms due to malpractice has been the biggest risk of the RBC industry. It is worthwhile to explore the role of platform in the RBC mechanism and reduce the risk.

2.6.3.1 The goal types of RBC projects

There are generally two types fundraising goals of RBC projects – ‘Keep-It-All’ (KIA) and ‘All-or-Nothing’ (AON) (Cumming, Leboeuf and Schwienbacher, 2019). On some RBC platforms (e.g. Indiegogo), they are also called ‘fixed goal’ and ‘flexible goal’.

With an AON goal, if the goal is not reached at the end of campaign, campaigners cannot keep any of the pledged funds and backers do not receive any reward. Whereas, with a KIA goal, campaigners can keep all the amount, regardless whether the goal is reached or not. The former goal type model is more predominant among crowdfunding projects (Salahaldin *et al.*, 2019). On most crowdfunding platforms such as Kickstarter, and most equity-based crowdfunding platforms like Seedrs and CircleUp, the campaigners cannot choose between the two goal types. The latter goal type is available on some platforms, such as Indiegogo and Crowdfunder UK (leading UK crowdfunding platform with different types of campaigns – donation-based, reward-based and community shares). Commonly, backers are less reluctant to pledge money under the AON model, as they are sure to get the money back if the goal is not reached. Therefore, compared to KIA model, AON projects are viewed as less risky to backers and more likely to attract funds, although the campaigners bear greater risk in this model (Belleflamme, Omrani and Peitz, 2015; Oba *et al.*, 2018; Cumming, Leboeuf and Schwienbacher, 2019).

The key question of this thesis is whether or not RBC is an effective alternative source of finance. From an entrepreneurial finance perspective, campaigners are seeking start-up capital, which normally has a minimum amount that they aim to achieve in order to start-up the new venture, thus matching the approach of AON. In light of this, this thesis will focus on AON model only, which, from a methodological perspective, allows the author to construct a clear measure for crowdfunding success (reaching the target or not) in seeking entrepreneurial finance. As mentioned earlier, Kickstarter offers AON goal type only while Indiegogo offers both AON and KIA. Whereas, campaigners on Indiegogo can move into InDemand automatically after campaign ends, which allow them to raise funds without setting a new goal or

deadline date (Indiegogo, 2019a). This could cause confusion on data collection. It is therefore more appropriate to focus on Kickstarter and its relation to alternative sources of entrepreneurial finance. The concept of the success will be further discussed in Chapter 6.

2.7 Conclusion

This chapter generally explored the possibility for nascent entrepreneurs or start-ups getting access to finance with different sources of financing models. RBC is proved to be the most efficient and appropriate model. Factors influencing the success of RBC campaigns were identified, which can be generally categorised into the quality of the project, social network, and backers' different motivations. So far, none of the research considered the relationship between these different influencing aspects with a balanced overview or evaluated their roles on the success of campaigns. Therefore, in the next chapter, the author will focus on the theoretical background for these influencing aspects and their potential manifestation in RBC.

Chapter 3 Theoretical Background and Hypothesis Building

3.1 Introduction

As discussed in Chapter 2, extant studies of RBC tend to focus on the motivations of investors to fund RBC projects, different factors influencing the success of RBC projects and dynamics on RBC platforms, but lack consideration of the interplay between funders and backers under a dynamic context. In light of this, it is necessary to develop a conceptual and methodological framework to investigate the factors related to the projects' success and to discover the mechanism of how these factors influence the success of RBC projects.

Besides the influencing factors identified in Chapter 2 (the quality of the project, social network, and backers' different motivations), the fundamental concern of RBC or other online alternative finance models is the information asymmetry. Potential Backers are uncertain about the quality of products/service, or the genuineness of the creators, and they can not rely on users' reviews as in traditional shopping. The other party, nascent entrepreneurs also do not have adequate information about the backers or the market. This is where the notion of signalling theory can make a significant contribution to conceptualising RBC, as the fundamental objective of signalling theory is to reduce information asymmetries between two parties via signals.

Therefore, this chapter will use signalling theory as a cornerstone to investigate the factors related to the projects' success by taking into account the project quality, creators' social network and backers' motivation.

3.2 Information asymmetry

The concept of asymmetrical information was first brought to economic theory by Akerlof (1970). He discovered the interaction of quality differences and uncertainty brought by information asymmetry in the labour market. Over time, the concept was used widely in capital markets, especially between managers and investors (Ross, 1973; Vaez, 2007; Khalil *et al.*, 2019).

In general, information asymmetry arises when one party is not fully aware of the characteristics of the other party, or when one party is concerned about another party's behaviour or behavioural intentions (Elitzur and Gavious, 2003; Sceral, Erkoyuncu and Shehab, 2018). For a financial channel, the adverse selection and moral hazard problems are the critical issues associated with asymmetric information (Allen et al., 2018). By the same token, arguing that the central problem of economics was a problem of information, Stiglitz (2000) highlights two broad categories of information; information about quality and information about intent, where asymmetry is critical to resolve.

Focusing on crowdfunding, Belleflamme et al. (2015) provide a comprehensive review of the impact of asymmetric information on funders, fundraisers and crowdfunding platforms. The review focused on the interaction among funders in response to asymmetric information and the role of platforms in managing their interaction. It was found that information asymmetry poses a lot of challenges for the design and governance of the platform in terms of the moral hazard problem. In general, asymmetric information is one of the major factors incurring backers' uncertainty, which could hugely impact on the success of crowdfunding projects (Ahlers *et al.*, 2015; Belleflamme, Omrani and Peitz, 2015).

Uncertainty results from a backers' insecurity about the abilities and intentions of the project creators, as backers do not know whether the creators are trustworthy or credible (Mollick, 2014). Backers on RBC platforms face decisions under uncertainty when they decide whether to pledge for a campaign or not. The uniqueness of the campaigns on these platforms stresses this point, as backers will rarely have to choose between two similar campaigns running simultaneously. The value of the reward remains relatively vague at the time when the investment decision has to be made. Backers are unable to ascertain the real value of the product/service until the delivery, which is after the campaign has ended. Moreover, crowdfunding platforms are designed in a way for potential backers to conveniently observe the level of funding by other backers at any time during the campaign runtime (Thies, Wessel and

Benlian, 2016). This can push backers away or lead to herding behaviour in an unpredictable way.

The herding behaviour in the context of RBC is that backers following the decisions of others when deciding whether or not to invest in a project (Herzenstein et al., 2011; Liu et al., 2015). Backers have to make their funding decisions based on the limited information that the project creators provide on the crowdfunding platform. As a result of having either incomplete or asymmetric private information, backers herd when they are uncertain about the decision to be made, as they believe that others are better informed than they are (Herzenstein et al., 2011). This may affect the project outcome in an unpredictable way.

However, most of studies on information asymmetry in the RBC realm focused only on the information about quality (Barbi and Bigelli, 2017; Bi, Liu and Usman, 2017; Kunz *et al.*, 2017), for instance, using signals like introduction words counts and video counts to signal the quality of projects quality and reduce information asymmetry, but neglecting the other type of information – information about intent. That is the intention of the fundraiser to create this campaign in the RBC context. One of the aims is definitely to gain trustworthiness from backers. Just like in equity financing, the entrepreneur needs to signal that his intention is not to ‘take the money and run’ (Elitzur and Gavius, 2003; Drover, Wood and Fassin, 2014). The other aim is to dig out whether the fundraiser has a prosocial intention, which might reduce information asymmetries to some extent.

As such, signalling theory is useful in RBC realm as it explains how a project’s attributes and actions communicate signals such as introduction words and video counts, to backers about its quality and other features to reduce information asymmetry. In particular, when most products or services on RBC platforms are in concept or prototype stage, backers cannot judge the quality simply based on products or others' review. Therefore, signalling theory will be explored and studied in the following in understanding how parties resolve information asymmetries about possible and unobservable quality as well as intentions.

3.3 Signalling theory

When Spence (1973) formed the signalling theory, the fundamental objective was to explain how information asymmetries between two parties could be reduced between two parties via signals. He demonstrated that, in labour markets, potential employers lack information about the quality of candidates. A costly rigorous higher education of a high-quality candidate could help to distinguish themselves from low-quality candidates, which reduces information asymmetry that perplexes the selection ability of prospective employers. The signalling theory has proven to be an impactful theoretical lens to understand behaviour when two parties have access to different information (Connelly et al., 2011; Davies & Giovannetti, 2018; Drover, Busenitz, et al., 2017; Lelo de Larrea et al., 2019; Rao et al., 1999). Usually, the sender party (signaller) chooses whether and how to communicate (or signal) that information, and the other party (the receiver) chooses how to interpret the signal and feedback is sent to signaller (Connelly *et al.*, 2011).

Signalling theory holds a prominent position in a variety of management literature, such as entrepreneurship (Kromidha and Robson, 2016) and equity financing market (Certo, 2003; Park and Patel, 2015). In the literature, they focused on organisational outsiders, such as prospective consumers or equity investors, assessing the quality of a business. The argument is, that as organisational quality cannot be directly observed, decision-makers have to rely on information signals to make their own judgements (Bergh *et al.*, 2014; Drover, Wood and Corbett, 2018).

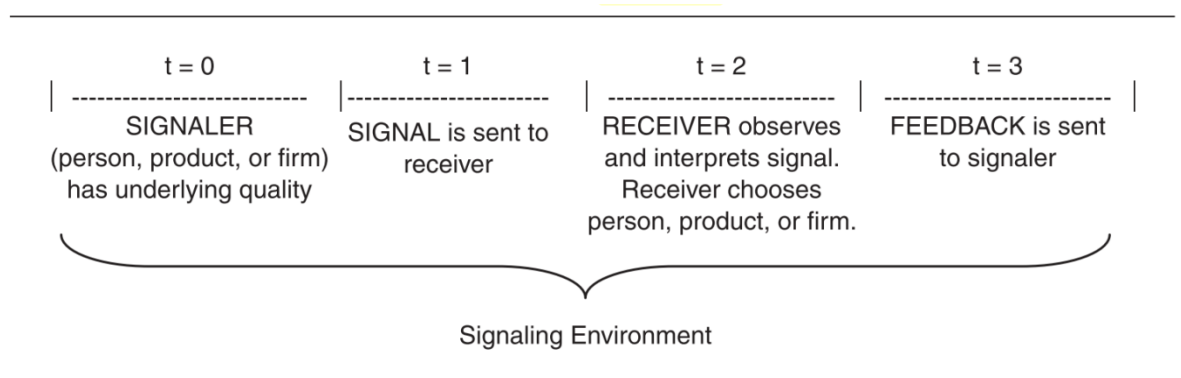
Contrary to Spencer's (1973) objective that is using signalling theory to reduce information asymmetry, it later focuses primarily on that one deliberately communicates positive information, not intending to reduce information asymmetry but to convey positive attributes (Connelly *et al.*, 2011). Whereas in the management and entrepreneurship literature, the notion of signalling to reduce information asymmetry has still been useful while broadly addressing how organisations signal their quality to organisation outsiders via signals such as board characteristics (Certo, 2003) and management team characteristics (Lester *et al.*, 2006).

However, this basic approach shows little concern about signal receivers. It assumes that they all attend and react to signals, either isolated or congruent. How and why one might attend to signals and when multiple signals are considered concomitantly what the receivers' action is, is generally overlooked.

3.3.1 Signalling timeline

To review signalling theory's primary elements, Connelly et al. (2011) proposed a signalling timeline to illustrate the relationship between the two primary actors – the signaller and receiver, and the process of signals making impact shown in the following.

Figure 3.1 Signalling Timeline



Note: t = time.

Source (Connelly et al., 2011, p44)

Besides the two primary actors, it also shows possible feedback to the signaller and the signalling environment. Also, in some situations, it may involve multiple signallers, receivers, and signals (Connelly et al., 2011).

Signaller

Signallers are defined as insiders (e.g., managers or executives) “who obtain information about an individual, product or organisation that is not available to outsiders” (Connelly et al., 2011, p44). Insiders gather information, which can be positive or negative. For instance, this information could include features about the organisation’s products such as preliminary sales results (Kirmani and Rao, 2000), or

in the capital market certification by venture capital or reputable top management teams (Park and Patel, 2015). Insiders also gather negative information about other aspects of the organization, such as lawsuits or future controversies (Doran, 1995). Simply stated, this private information provides insiders with a privileged perspective regarding the underlying quality of some aspect of the individual, product, or organization. In RBC, both the creator and the platform are signallers. The creator has to gather the information about the project, that is, to design and develop campaign material (e.g. video and pitch). The platform, by marking some projects as “Featured projects” or “Projects we loved” and sending weekly newsletters, are all sending a signal of the quality of these projects.

Signal

Signals are attributes or actions that can provide information about unobservable characteristics of the signallers (Park & Patel, 2015; Spence, 1973) and serve to reduce information gaps or asymmetries between two parties (Drover, Wood and Corbett, 2018). Once insiders have obtained both positive and negative private information, they need to decide whether and how to communicate the information to outsiders. Insiders primarily focus on communicating positive information to convey positive organisational attributes or actions (Connelly *et al.*, 2011). Although some scholars discovered that insiders are taking actions to communicate negative information, such as issuing new shares of a firm (Myers and Majluf, 1984). Outsiders may consider the firm’s stock price as overvalued based on this information. According to Connelly *et al.* (2011), signallers do not deliberately send these negative signals in the purpose of reducing information asymmetry, but generally as an unintended consequence of the action.

Signals have two main characteristics. First, signal observability, it can be defined as “the extent to which outsiders are able to notice the signal” (Connelly *et al.*, 2011, p45). The underlying assumption is that signals must be observable to draw attention, so high-observability signals are easily noticed as the information is more observable to outsiders; for instance, mass advertising of a new feature of a product (Drover, Wood and Corbett, 2018). In contrast, it would be more difficult to communicate

using low-observability signals as they are not readily observable or less visible. Therefore, signal observability is highly relevant to the success of a RBC project, as high observable signals have a high chance of standing out to receivers and reaching the crowd. To enhance signal observability of a RBC project, the key approach is to increase publicity via cooperation with popular platforms (e.g., Kickstarter) and fundraisers' social network, which will be discussed in the next section.

The other key characteristic of signals is signal cost, which is referred to as the cost in the signalling context (Bird & Smith, 2005). One of the underlying assumptions for the evolutionary stability of costly signalling theory is that signal cost is quality dependent, that is, "the marginal cost of the signal is negatively correlated with the signaller' quality"(Bird & Smith, 2005, p224). However, some signallers are in a better position than others to absorb the associated costs. For instance, ISO9000 certification is less costly for a high-quality manufacturer as compared with a low-quality manufacturer because a low-quality manufacturer would be required to implement considerably more change to be awarded the certification. If a signaller does not have the underlying quality associated with the signal but considers the benefit of the signal outweigh the costs of producing the qualified signal, he may be motivated to produce false signalling (Connelly *et al.*, 2011). In the context of RBC, fraud is viewed as the highest perceived risk by individuals (Zhang et al., 2018). 'Take the money and run', postponing delivery, and products/services not reaching the underlying quality associated with the signals, can all be seen as fraud. In a short-term, the benefit of the signal might exceed the costs of producing the signal. There is a chance of the fundraisers sending misleading signals. However, in the long run, as the number of repeat funders arose significantly in last three years (Zhang et al., 2018), receivers learn to ignore the misleading signals and the signal of repeat fundraisers might also suggest positive information as previous projects of repeat fundraisers are easy to view on platforms. This will be discussed in detail and tested using the variable, creators' experiences in chapter 4 and 5.

Receiver

A receiver, as the third element in the signalling timeline, is defined as “outsiders who lack information about the organization in question but would like to receive this information” (Connelly *et al.*, 2011). As discussed above, there are conflict interests between signallers and receivers, for instance, when misleading signals have deceived successfully, the signaller will be benefited at the expense of the receiver (Bird and Smith, 2005). Studies involving signalling theory in different subjects had different receivers, such as potential investors of IPO (Lester *et al.*, 2006) or debt holders (Elliott, Prevost and Rao, 2009) in the capital market, and customers in consumer behaviour studies (Rao, Qu and Ruekert, 1999). In these cases, the receivers are incited to make decisions based on information obtained from signals to gain either directly or in a shared manner with the signaller. For instance, investors would profit via investing in stock signalling more profitable futures, and customers would gain via purchasing goods or services signalling high quality.

In the following subsection, the use of signalling theory in the context of entrepreneurial financing and their main features will be discussed.

3.3.2 Signalling theory in the context of entrepreneurial financing

Traditionally, in the entrepreneurial financing literatures, signals are sent to traditional funders such as banks, business angels and formal VC firms from start-ups and firms they lend to or invest in (Dutta & Folta, 2016; Fairchild, 2011; Islam *et al.*, 2018; Kim & Wagman, 2016; Myers & Majluf, 1984). Most studies on debt or equity crowdfunding focused on the impacts of different signals in reducing information asymmetries. For instance, Agrawal *et al.* (2013) discovered that investment from friends and family in the early funding cycle would generate a positive signal for later funders, also signals such as reputation and crowds’ due diligence are two possible mechanisms in crowdfunding that can reduce information-related market failures (Agrawal *et al.*, 2014; Belleflamme *et al.*, 2015; Drover, Wood, *et al.*, 2017).

However, the findings of empirical studies using signalling theory in equity financing can sometimes be quite controversial. Studies found that investment by existing

investors in an early funding cycle generates a positive signal about the quality of new ventures suggesting an endorsement of value and commitment (Mohammadi, Shafizadeh and Johan, 2015). Nevertheless, this does not seem to hold valid in the long run for VCs. As in some circumstances, VCs may be looking for new and richer signals that essentially substitute for the traditionally examined signals (Busenitz, Fiet and Moesel, 2005). It can be seen that the same set of signals may cause different feedback from different receivers.

Sometimes, even examined signals may also lead to different outcomes. Ahlers et al.'s (2015) study on equity crowdfunding suggests that entrepreneurs' human capital expression in investment and providing information about risks can be regarded as a positive signal, while surprisingly social capital and intellectual capital seems to have little impact on funding success. They further justified that it may be due to lack of consideration about the quality of social and intellectual capital where they only measured the size in the study.

Despite the emergence of signalling theory in entrepreneurship, as of yet, there exists little concise and theoretical review in RBC literature. As most research publications are empirical studies, the controversial findings of signals influencing the success of projects may also exist in RBC. Therefore, it could be worthwhile to examine the signals even they have been already tested, the context of related to receivers and signalling environment is different from previous studies.

3.3.3 Signalling theory in the context of RBC

According to the prior literature review in Chapter 2, studies identified that funding success is significantly associated with project quality signals such as preparedness, narrative, and others' backing decisions, as well as signals of fundraisers' individual quality such as personal characteristics, trustworthiness, and social network (Burtch et al., 2013b; Colombo et al., 2015; Mollick, 2014; 2012). The underlying assumption is that rational receivers make decisions based on signals they observed so that the identifiable signals of project quality can predict the project process (Bi, Liu and Usman, 2017). High-quality projects attract funders and receive funding, and the

funders may promote the project to external media and other potential investors, while low-quality projects receive little or no funding (Mollick, 2014; 2012). Kunz et al. (2017) recognized that project preparedness could be expressed by signals such as the supply of multiple rewards and presentation as positive signals, while other project characteristics, such as the funding goal, campaign length and estimated delivery duration are seen as negative signals. The signallers generally send these signals while unaware of the negative consequence of the action. It is worthwhile to explore how to reduce the negative impact of these signals further in the study as a practical implication for entrepreneurs.

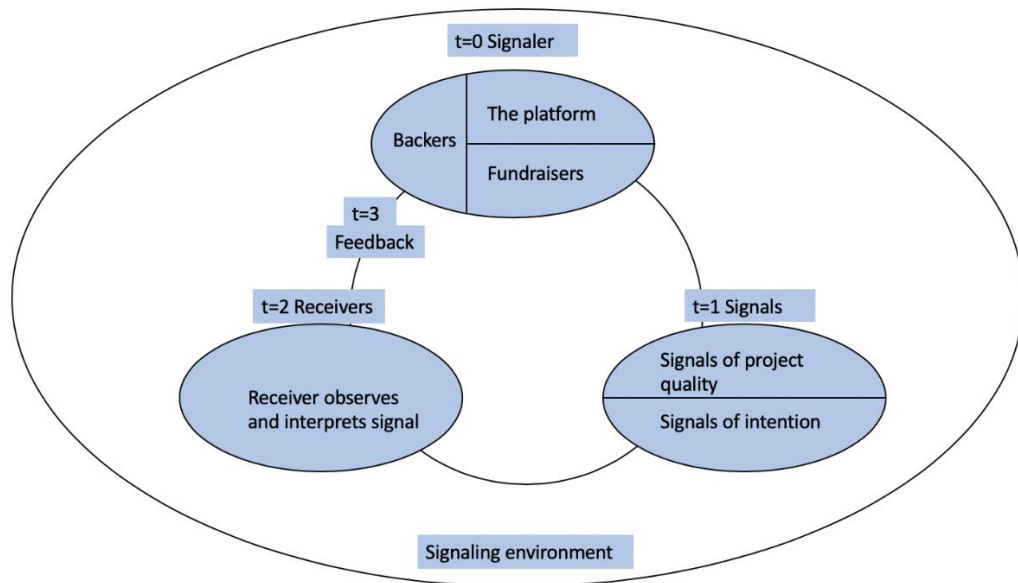
Besides signals of project quality, signals of intention could be another efficacious signal. Based on studies in other domain and observing RBC projects, the author categorises the signals of intention into two types in the context of RBC. First, signals that intend to trigger altruistic motivation to back the project (Engel, Kaandorp and Elfring, 2017; Giudici, Guerini and Rossi-lamastra, 2017; Meer, 2017). Second, project creators' prosocial intention, such as charitable purposes (Carlson, Aknin and Liotti, 2016). The underlying explanation of signals of intention will be further discussed in Chapter 3.4.

The presumption of these empirical findings is that the receivers are perfectly rational and making decisions based on careful and thoughtful consideration of information. However, signal observability and influence from social connections is neglected in this approach. Studies recognised the critical role of social ties in enhancing signal observability (Frydrych et al., 2014; Kang et al., 2017; Mollick, 2014; Roma et al., 2017). Kromidha and Robson (2016) examines success factors of the top 5000 most funded projects on Kickstarter and discovered that in the projects with creators and backers "who identify themselves with the projects in their own social networks" or "exchange more signals in a joint forum" are associated with higher pledge/back ratio" (Kromidha & Robson, 2016, p605). This was confirmed by Wu et al. (2015) with a study of 192 projects from a Chinese crowdfunding platform showing the frequency of announcements by creators as a positive signal to enhance signal observability. However, the intensely collaborative and unique nature of signals and

communications, as well as social network between different parties in the context of RBC has not been fully captured by these studies. It needs to be further discussed and consummated to fulfil the research objective 1 and 2.

So far, as discussed above, we can have a primary model of a RBC campaign process in the perspective signalling theory shown as in the following.

Figure 3.2 Primary Signalling Timeline in RBC



Note: $t = \text{time}$

Source Inspired by Connelly et al. (2011)

As in an RBC platform, such as Kickstarter, a fundraiser or “creator” creates a webpage for the project on the platform to introduce the project. On the webpage, the introduction aims to explain the purpose of the project, rewards and sometimes the specific use of the contributed funds (Kuppuswamy and Bayus, 2015). Receivers will observe and interpret signals to decide whether to back the project and which pledge to choose. They may even share the project to external media or other potential backers.

In conclusion, in this model, fundraisers and the platforms are seen as the signallers. Signals are comprised of signals of project quality (e.g. introduction and video) and signals of intention (e.g. prosocial intention). Receivers observe and interpret signals,

then some of the receivers will become backers to back the projects. The feedback, such as comments and backing behaviour, is sent to the signaller. Then backers also become one of the signallers, sending signals (e.g. the backing behaviour, comments and sharing information in social network) to other receivers. However, the model will not be consummated without considering signal observability (social network theory) and the signal interpretation mechanism (motivation theory), which will be discussed further in this chapter.

3.4 Decision-making and information

As discussed above, the receivers will observe and interpret signals to make decisions. The underlying assumption here is that signals are observed and attended by almost every receiver and they correspond to the given signals, suggesting high rationality (Drover et al., 2018; Kim & Jensen, 2014; Park & Patel, 2015). This met the assumption in traditional economic theory, in which investors are viewed as rational decision makers (Fama, 1970). It applies Bayesian decision-making criteria (Brown et al., 1988), where new information is weighted equally with information that is already known (as cited in Swallow & Fox, 1996). However, a number of studies showed that it might not be valid. Through Swallow and Fox's (1996) research in investor psychology, the findings indicate that investors can overreact to negative information more zealously than they overreact to positive information. For instance, Admati and Pfleiderer (1994)'s research in venture capitalists' decision-making process even shows that inside investors may realize the advantages of inside financing and mitigate the disadvantage. Therefore, it is worthwhile to investigate the relationship between decision-making and information in the context of entrepreneurial finance.

From a financial and accounting perspective, Wiesel et al's (2008) study suggests a need for additional information (e.g., the development and performance of the businesses) to facilitate investors' decision making. Lin and Lee (2004) collected cross-sectional data from a retail financial services database and identified the process of consumers' information searches and the factors that affect their

investment decisions. Investors get access to information mainly from literature, media, the Internet, friends/family, and professional services. Besides the personal knowledge, investors' characteristics (e.g. age, education and income) could influence both the level of information search and decision-making. Based on Lin and Lee's (2004) findings, Loibl and Hira (2009) take several additional demographic variables and search antecedents (e.g. investor personality and involvement) into consideration. They found that the majority of investors perform moderate-to-low information gathering strategies, although information search presents a considerable and unwillingly undertaken challenge to them.

Although there is a lack of relevant studies in the RBC context, it can be argued that information search is essential in making investment decisions. Investors will make more effort in information gathering when dealing with a high-consequence decision task. Extant research scholars have argued that the motivations of backers who act as patrons and customers are similar to those of investors (Agrawal et al., 2013).

Therefore, it can be argued that as a RBC campaign is a relatively less-consequence decision task, receivers may perform low information gathering strategies. It is assumed that they will react mainly on the straightforward information provided on the platform, rather than put too much effort to search more information such as investors' characteristics (e.g. age, education and income). In the next section, the theoretical analysis of how the receivers react to the information will be discussed from a perspective of motivation theory.

3.5 Motivation theory

The concept of motivation can be traced from ancient Greeks: the Socratic, Platonic and Aristotelian ages (Pakdel, 2013). Plato believed in a hierarchy organised such as dietary component, the emotional and the rational. Aristotle, for more than twenty years, continued to affirm the spiritual hierarchy. The ancient Greeks presumed three components; the body's desires, pleasures and pains (senses and efforts of will and spirit) in a hierarchical arrangement for the first theoretical justification of

motivational activities (Pakdel, 2013). In the modern era after the Renaissance, René Descartes distinguished between inactive and active aspects of motivation. He provided the first grand theory of motivation for philosophers. Descartes believed that the body is an inactive factor of motivation, whilst will is an active factor of motivation. The body has a physical and mechanical nature which answers to those desires triggered by senses and physiological needs, reflecting the external environment. The mind has a mental, moral and intellectual nature, which has purposefulness and will. Therefore will is always the force of motivation, Descartes devoted motivation exclusively to the will of man for the first time (Pakdel, 2013).

Over the decades, motivational psychology has become a central theme in humanities and social sciences. Motivation is classified into different categories drawing from different theories, measures and perspectives (Barbuto, 2006; Pakdel, 2013). Jost (2000) argued that motivational psychology differentiates between the notion “motive” and “motivation”. A motive is seen as an individually developed and content-specific, psychological disposition, while motivation describes the process of how an individual’s motives become activated. An active motive will subsequently cause certain behaviour in a particular situational context. Certain things an individual perceives will serve as incentives that stimulate corresponding motives in such situational contexts. The interaction between motives (e.g., personal factors) and incentives (e.g. situational factors) results in a current motivation. This motivation, in turn, causes behaviour (Bretschneider et al., 2014; Papies et al., 2015; Rheinberg, 2006), which is a fundamental base of understanding the mechanism of backers' behaviour on RBC campaigns.

Several motivational concepts are based on this basic model. Self-determination-theory (SDT) outlines one of the most popular motivation concepts: intrinsic motivation, i.e. from inside or internal factors (e.g. curiosity, fun, joy and interest in the thing itself), and extrinsic motivation, i.e. from outside or external factors (e.g., direct or indirect monetary compensation, recognition by others and reciprocity) (Ryan and Deci, 2000). Intrinsic motivation occurs when an individual engages in a behaviour that is initiated without manifest external incentives or separable

consequences, whereas extrinsically motivated behaviour aims to support certain positive outcomes and to avoid negative consequences. Studies have discovered that intrinsic motivation is linked to various positive outcomes, such as work engagement and employee productivity (Bear *et al.*, 2017; Kuvaas *et al.*, 2017).

Additionally, motivations can be categorised into egoistic and altruistic motivations (Rubin and Thorelli, 1984). Studies often connect intrinsic motivation with altruistic behaviour, and extrinsic motivation (economic reward, reputation feedback and reciprocity) with egoistical motives (Hung *et al.*, 2011). However, the categorisation (intrinsic and extrinsic, egoistic and altruistic) of motivations are not mutually exclusive, as benefits for one category may transcend into others. For instance, Scharf (2014) claimed that even some charitable giving behaviour may not be 'pure altruism', as internal compensation (extrinsic motivation) always coincides with intrinsic motivations (Rubin and Thorelli, 1984; Pamela, Severt and Dickson, 2010).

In general, it can be seen that motivation theory is widely used in explaining decision-making behaviour. The relationship between behaviour and motivation has been investigated and recognised for decades. In RBC, studies on backers' motivation mainly focused on egoistical motives (e.g., recognition from others, reciprocal support for friends and family). Even a few studies investigated intrinsic motivation with surveys to backers, and researchers tend to overlook the information (signals) that motivated these motivations. Taking this forward, the relationship between motivations and different signals (signals of quality and signals of intention) of a RBC campaign is discussed in the following sections.

3.5.1 Motivation and signals of project quality in RBC

In their nationwide alternative finance industry report, Baeck *et al.*, (2014) conducted a survey of 1,128 backers who have used RBC. By using a small set of questions with each question representing one possible motive, they identified 12 primary motives whose relevance was concluded from descriptive statistics. Based on the frequency of responses, they identified the most relevant backers' motivations as: 'the quality of the campaign pitch' (91%), 'doing social or environmental good' (84%), 'I feel my

money is making a difference' (88%), 'how money will be spent' (82%), 'the quality of the campaign team' (80%), 'supporting a local project or business' (62%), 'supporting someone I know (friends and family)' (51%), 'being part of the creative process' (47%), 'getting a reward/product I couldn't get elsewhere' (32%), 'curiosity' (31%), 'funding to date' (29%) and 'social pressure' (3%). By the same token, Berglin and Strandberg (2013)'s study, based their online survey of 765 backers of three RBC platforms, another motive was discovered – fan (backers stated that 'I am a fan of the project'). Gerber et al., (2012) in their qualitative research, by interviewing ten backers from three RBC platforms, identified motives as 'collect reward', 'having fun' and 'be part of a community'. Later Ryu and Kim (2016) conducted an online survey of 580 backers of two representative RBC platforms in South Korea, and discovered six motivations – 'interest', 'playfulness', 'philanthropy', 'reward', 'relationship' and 'recognition'. In general, these industry reports and empirical studies gave a hint about the motives for backers' behaviour. And yet, those motives are too general and unsystematic in nature, which could also be used for studying motivations of participants from related domains such as online consumer behaviour. There is a lack of a model to explore the link between different motivations and features of different campaigns and platforms.

Bretschneider and Leimeister's (2017) research tried to fill the gap by using a complexed motivation model to explore the link between different motivations and the behaviour of investment. Based on De Dreu and Nauta's (2009) theory that prosocial and self-interested motives are independent and can even co-exist within individuals, Bretschneider and Leimeister (2017) tried to consider both self-interested motivation factors and prosocial motivation factors, and examine herding phenomenon as a strengthener of backers' motivation. However, this model of connections between 8 factors and motivations has not considered the potential impact of campaigners' intention on backers' motivation, especially the empathic concern for the need of help and altruistic motivation for campaigners' prosocial intention is not addressed. Taking forward Bretschneider and Leimeister's (2017) study, the author has developed a model that incorporate the above factors and is aiming to shed light on the relationship between different signals and motivations

(including altruistic motive and prosocial intentions). The next section aims to understand and make sense of the signals interpreting mechanism combining motivation theory and backers' decision-making.

3.5.1.1 Project description and liking motivation

Crowdfunding literature identifies information as one of the primary sources that help to develop a feeling of liking or disliking a project (Schwienbacher and Larralde, 2010; Ordanini *et al.*, 2011). Project description includes intuitionistic information that receivers can view on the project's webpage, such as the project goal and outcome, risks and challenges, and how the contributed funds would be utilised. Most projects have at least one short video to featuring and praising the project in an audio-visual manner.

The project description shows a signal of project preparedness (Mollick, 2014), which helps to increase receivers' confidence and trust towards the project and its creator. The level of preparedness reveals the quality of projects and projects with higher-quality signals are more likely to develop a feeling of liking a project, which is tested and confirmed in Bretschneider & Leimeister's (2017) study based on 995 surveys from investors on the Innovestment website.

The present studies have shown liking and disliking to be related to important motivational outcomes (Rao, Qu and Ruekert, 1999; Wallace, Buil and de Chernatony, 2017). Therefore, the presumption here is that the signals of the project description reveal the quality of projects and projects with higher-quality signals are more likely to attract funding. Extant studies have tested the presumption with signals such as whether projects have a video present, updates within three days of launch, spelling errors, and introduction word counts (Barbi & Bigelli, 2017; Bi *et al.*, 2017; Mollick, 2014; Wallace *et al.*, 2017). Their findings showed that these signals of project quality are associated with the success of crowdfunding projects. Among these signals, in a project description, the most intuitive and representative signals of project quality should be introduction word counts and video counts. In the introduction of a crowdfunding project, the creator needs to provide significant detailed information.

For example, in the project of Pebble Time smartwatch, which is still the most funded project on Kickstarter since 2015, the creator clarified product specification information, describing the usage scenarios, the long battery life and saying which styles can be chosen (steel or leather). Overall, it can be hypothesized that the more specific detailed narrative of a project that is provided, the more likely a receiver will be to back the project. In other words, a higher introduction word counts is associated with more likelihood of receivers' backing behaviour.

The pitch video is another important signal to a quality RBC project. Depending on different styles of video, it can show the creators' characteristic, his / her story, and more importantly, to show a genuine attitude. Most RBC platforms advise the creators to include a video. For instance, Kickstarter suggests that "There are few things more important to creating a quality Kickstarter project than a good pitch video, and skipping it will do a serious disservice to your project"(Jaeger, 2011). Therefore, it can be hypothesized that the more videos are provided, the more likely a receiver will back the project. In other words, a higher video count is associated with more likelihood of receivers' backing behaviour.

On the other hand, the quality and popularity of a crowdfunding platform also have an impact on people's attitudes (Lacan and Desmet, 2017), as it affects people's confidence and trust on the platform.

3.5.1.2 Comments and lobbying motivation, recognition motivation

According to Maslow (1987), recognition is derived from individuals' inner desire for fame and esteem. As a humanistic psychologist, he observed that people have the needs for recognition. Recognition can be implicit or explicit. For example, a researcher feels implicit recognition when his work is cited in the paper of other researchers.

In addition, explicit recognition takes place when one person praises another for an achievement. In RBC, when backers regard a project as personally relevant and consistent with their values and goals, they will develop a personal need (Ordanini et

al., 2011; Schwienbacher & Larralde, 2010). Through participation in the project such as leaving comments and interaction with creators, backers feel that they can lobby and influence the features of the product/service that are highly valuable to them and reflect a personal need (Dóci and Vasileiadou, 2015; Vasileiadou, Huijben and Raven, 2015; Bretschneider and Leimeister, 2017; Kuti, Tiszberger and Czigler, 2018). It is believed that backers can gain some recognition by the social community through interacting with creators and other backers across projects in return (Cholakova and Clarysse, 2015; Bretschneider and Leimeister, 2017). Additionally, in some projects, backers are offered involvement by a meeting with the project initiator, when pledging a large sum, in that way, implicit recognition would take place (Steigenberger, 2017b). This is also confirmed in Bretschneider and Leimeister's (2017, p11) research that backers expect to "receive recognition from others in return for their investment".

In addition to lobbying and recognition motivation, comments are seen as an interaction between creators and backers, which may reduce information asymmetry. The role of comments will be further discussed in Chapter 3.5.

3.5.1.3 Reward and reward motivation, social comparison motivation

In RBC, backers receive a non-monetary reward in exchange for their pledge, ranging from a simple thank-you email to pre-orders, early access to products, and discounts of projects (Ahlers *et al.*, 2015; Bretschneider and Leimeister, 2017). It is to be expected that one of the motivations for backing behaviour is the reward. Hockenbury and Hockenbury (2003) suggested that behaviour is motivated by external goals, such as reward or money. The extrinsic reward motivation also draws on the incentive theory, which is one of the major theories of motivation, asserting that behaviour is motivated by a desire for reinforcement or incentives (Berglin and Strandberg, 2013). Therefore, the signals related to reward such as the levels of pledge, estimated delivery date and campaign duration, due to the anticipation of rewards or reward motivation could have an impact on projects' outcomes.

A RBC campaign usually has different levels of rewards, varying from a thank-you note, one product with an early bird price to multiple products with a bundle price. Based on reward motivation presumption, most of the backers would want a tangible reward such as one or more products. The median of the cost of a reward (Pledge median) should be considered. Although some people may consider higher pricing as better quality, a higher cost of the reward may push away some of the receivers. Therefore, it can be hypothesized that the higher cost of a reward, the less likely a receiver will back the project. In other words, a higher pledge median is associated with less likelihood of receivers' backing behaviour although the influence may not be significant as people may have different motivation towards pricing.

Estimated delivery time is another critical signal of project quality to satisfy the need for a reward. Studies show that delivery time is an essential criterion for buyers when choosing an online merchant within their buying decision-making process (Jiang and Rosenbloom, 2005; Kunz *et al.*, 2017). Online retailers are recommended to minimize the delivery without delay, as it is seen as service guarantee in the form of a promise made by a seller to deliver products as promised, representing the quality of the service or products offered (Ostrom and Iacobucci, 1998). Given the similarities between RBC and e-commerce, the same principles may apply. Although the estimated delivery date set up by the creator is of a rather vague nature, it shows a signal of close to completion and the estimated duration for backers to receive the reward.

For the aim of the thesis, the author will only focus on the projects created by nascent entrepreneurs or start-ups, which means the reward has not yet been manufactured. With a delivery date that is closer to the end of the campaign, the creator signals his confidence to get the rewards realised, which helps to reduce perceived risks and foster perceived trust (Chang *et al.*, 1973; Kunz *et al.*, 2017), which will affect receivers' backing behaviour. A common phenomenon in RBC is postponed delivery. Mollick's (2014) study estimated that 75% of reward-based projects missed their delivery deadline. The study found that the overfunded campaigns are particularly

prone to delay. The unexpected success may lead to a series of problems, such as, manufacturing problems, changes in scale and scope, and the complexity of shipping. As the volume of reward-based projects goes up, so do stories about campaigns struggling to deliver on their promises. For example, one of the most severe incidents in the UK in recent years is the collapse of a company; the Zano raised £2.3 million on the Kickstarter site for its mini drone project, but failed to deliver as promised (Cellan-Jones, 2015). Repeated backers would have the perception that the delivery could be delayed. A longer delivery duration and delay of delivery could push away some receivers as their reward motivation cannot be satisfied in a short term. Therefore, it can be hypothesized that the shorter delivery duration of a project, the more likely a receiver will back the project.

By the same token, campaign duration could be another important signal of project quality. Kunz et al. (2017) described it as the period in which project initiators try to collect financial contributions from the crowd. Studies believed that long campaign durations signal a lack of confidence of the project (Li and Duan, 2014; Barbi and Bigelli, 2017), which may reduce the backer's confidence in the project initiator's ability to complete the project in the provided time and quality (Kunz *et al.*, 2017). In addition, a longer campaign duration can be a negative influence on backers' reward motivation. Campaigns on Kickstarter last from 1-60 days, as they found that "projects lasting any longer are rarely successful". Kickstarter even recommended a time span of around 30 days (Kickstarter, 2019d). Moreover, a phenomenon discovered by Mollick (2014) is that the backing behaviour occurs mostly in the beginning and last one or two days of the campaign. In other words, longer campaign duration does not necessarily give rise to higher success rate of the projects. Therefore, it can be hypothesized that the shorter the campaign duration of a project, the more likely a receiver will back the project.

In conclusion, the author hypothesizes that signals of project quality are associated with the success of a project.

Hypothesis 1 – The likelihood of receivers’ backing behaviour is positive associated with :

- a. The word counts in the introduction;
- b. The video counts;
- c. A shorter campaign duration;
- d. A shorter delivery duration;
- e. A smaller pledge median.

3.5.2 Motivation and signals of intention

Despite the egoistical motives generated from signals of project quality, the impact of signals of intention on receivers’ motivation has rarely been studied (Gerber, Hui and Kuo, 2012; Berglin and Strandberg, 2013). A creator’s intention can generally be categorised in two types. One is motivated by extrinsic motives, an obvious intention that they want to run a successful campaign in order to get financing for their start-ups. This is more likely to be achieved not only by sending signals of project quality, but also sending signals that could evoke a sense of empathic concern to trigger receivers’ altruistic motivation. The relationship between these types of signals and project outcomes could be analysed. Besides the egoistical intention, creators may also have intention motivated by intrinsic motives, such as charitable purposes. The relationship between motivation and both signals will be discussed in the following.

3.5.2.1 Empathic concern and altruism

Altruism refers to behaviour that is performed to increase another person’s welfare without a direct reward to the person who performs them (Penner *et al.*, 2005; Batson, Ahmad and Stocks, 2011; Stangor, Jhangiani and Tarry, 2014). Some studies interpret it as the direct opposite to selfishness and “doing something for another at some cost to oneself” (Ozinga, 1999; Stairs, 2005). Altruism has been widely studied in the contexts of open source communities and business angel research (Bretschneider, Knaub and Wieck, 2014; Cecere, Le Guel and Rochelandet, 2017; Allen, Qian and Xie, 2018).

In the context of crowdfunding, the idea of altruism is often mentioned in DBC, where backers contribute with their funds but are not expecting returns on their funds.

While in RBC, several studies investigated the influence of altruistic motivation but mainly on local altruism (Giudici, Guerini and Rossi-lamastra, 2017), that people are more willing to support a project located within their own region; reciprocal giving, that people feel the obligated altruism to back a project when they have been backed by the project creator (André *et al.*, 2017). Studies were rarely concerned about the potential impact of the signals that asking for help had on receivers' altruistic motivation.

Watching somebody in need of support can evoke a sense of empathic concern for that individual (Batson, 2014). In the psychology domain, there is an empathy-altruism hypothesis, that empathic concern is related to an effective focus on a person who is suffering (not on oneself), and thus elevates altruistic motivation to provide support (Maner and Gailliot, 2006). A few studies have supported this empathy-altruism hypothesis (Batson *et al.*, 1983, 1997; Batson and Powell, 2003).

Therefore, it can be inferred that altruism can also be a driver that motivates the crowd to invest. Kuppuswamy and Bayus's (2017) analysis over the goal-gradient effect, which is a RBC project receives more backing when it approaches its target goal. After reaching the goal the backing support drops sharply. This can be seen as evidence that altruistic motivation may have a positive effect on project outcomes. The author hypothesizes that the existence of signals that evoke a sense of empathic concern (asking for help) have a positive influence on the likelihood of receivers' backing behaviour.

3.5.2.2 Prosocial intention, charitable purposes and altruistic motivation

Despite the intention out of egoistical motive discussed above, the other signal of creators' intention, which is motivated by extrinsic motivation - prosocial motivation should be studied.

Prosocial motivation as a well-recognised one in intrinsic motivation and is referred to as the desire to benefit other people or to alleviate the sufferings of others (De Dreu and Nauta, 2009; Grant and Berry, 2011; Shepherd, 2015). Prosocial motivation

was widely recognised in the organisational management research (Shamir, 1990; Thompson & Bunderson, 2003). For instance, in organisations management research, Thompson and Bunderson (2003) suggested that, in an organisation, when employees experience prosocial information, their persistence, performance, productivity and willingness to accept and utilise negative feedback will be enhanced. In addition, the role of prosocial motivation in non-profit activities has been studied (Saxton and Guo, 2011; Reddick and Ponomariov, 2013). Studies found that in the charitable and prosocial fundraising online, prosocial motive plays an essential role in philanthropic behaviours such as charitable activity and volunteerism (Afshar, 2012; Jensen, 2013; Kshetri, 2017; Cox *et al.*, 2018). In DBC and other types of charity or philanthropy, projects with charitable purposes will clearly attract more funding than projects with pure self-interests.

While in RBC, although most studies about backers' motivation focused on their egoistical motives (Ordanini *et al.*, 2011; Dóci and Vasileiadou, 2015; Kuti, Tiszberger and Czigler, 2018), a few studies recognised and proved the importance of altruistic motivation by interviews and surveys – one of the motivation for funders of Kickstarter projects is to help others bring their dreams to life (Steinberg, 2012; Gerber and Hui, 2013). Research across several academic domains indicates that people engage in prosocial behaviour when they believe that their actions make a positive impact. However, these studies only considered backers' altruistic motivation based on their own characteristics but neglected the influence of signals they received. Studies rarely mentioned the role of creators' prosocial intention in backers' altruistic motivation, mainly projects' charitable purposes and how they would influence the likelihood of a backing behaviour.

According to the Charitable Purposes under The Charities Act 2006 under the UK Charity Law (Gov.uk, 2006), there are quite a few different charitable purposes, such as the prevention or relief of poverty, disability, and the advancement of animal welfare. In chapter 4, details of charitable purposes in RBC projects will be discussed. Each of these charitable purposes might incentivise prosocial behaviour in their own right, and they might interact with other extrinsic values. For instance, Frey (1994)

argued that altruistic feelings of intrinsically motivated contributors might be reduced when extrinsic rewards are offered thus may discourage them from contributing, as this “intervention from outside” has shifted their “locus of control” thus may impair their self-esteem, “resulting in a reduced effort” (p.337). Beretti et al. (2013) further discussed that “external incentives can change the perceptions people have about a given task, notably by turning goodwill into a market-like interaction leading to a decrease of the overall contribution” (p.65).

Furthermore, Cox et al. (2018) by empirically investigating the behaviour of RBC campaigns backers, discovered that partly extrinsically motivated backers tend to contribute more than purely intrinsically motivated funders. Therefore, the relationship between creators' charitable purposes and project outcomes, as well as its interplay with other extrinsic values, are worthy of investigation.

Referring to related studies in other domain, it can be hypothesized that project showing creators' charitable purposes (prosocial intention) are more likely to get support from a receiver. Also, receivers may have more altruistic motivation when making decisions on the projects with a higher number of charitable purposes. In other words, the existence of a charitable purpose has a positive influence on the likelihood of receivers' backing behaviour, and a higher number of charitable purposes is associated with more likelihood of receivers' backing behaviour.

In conclusion, the author hypothesizes that signals of project intention are associated with the success of a project.

Hypothesis 2 – The likelihood of receivers' backing behaviour is positive associated with :

- a. The presence of a charitable purpose;
- b. The number of charitable purposes;
- c. The presence of signals that evoke a sense of empathic concern (in need of help)

As discussed in Chapter 3.3, signal observability is highly relevant to the success of a RBC project as the signals of project quality and signals of intention need to reach and be observed by receivers. High observable signals have a high chance of standing out to receivers and reaching the crowd. To facilitate this, the theory of social network will be explored in the next section.

3.6 Social network

The role of social network has been long studied in entrepreneurship research. A significant number of social network studies look at social networks as a major source of information, opportunity and resources that are required crucially for new venture creation (Jensen and Koenig, 2002; Hoang and Antoncic, 2003; Hulsink and Elfring, 2003; Engel, Kaandorp and Elfring, 2017). Hulsink and Elfring (2003) argued that most entrepreneurs would start from friends and family because it may provide a shortcut to useful knowledge and access to critical resources. Stuart et al. (1999) argued that an extensive network of social relationships might offer endorsement opportunities.

Furthermore, other studies argued that social networks serve as market opportunities and investment connections. Hsu (2007) argued that a large network of social relationships might serve as the basis for quality and experience evaluation due to it being able to inform the investors' community about the actual reliability of the entrepreneur (Coleman, 1988). This draws attention to the importance of the social network to the creation of a new venture. In what follows, the major impact and mechanism of social network on entrepreneurship and RBC from the perspective of signalling theory will be discussed.

3.6.1 Social network and social capital

The origin of the social network can be traced back to classical sociology (Scott, 1988). The phrase 'social network' has become an influential factor as a distinctive style of sociological work, and been developed dramatically in the last fifty years as an approach to the analysis of social structure (Scott, 1988; Hulsink and Elfring, 2003). Meanwhile, from the perspective of social structure, Gabbay and Leenders (1999)

defined social capital as “set of tangible or virtual resources that accrue to actors through the social structure”. Nahapiet and Ghoshal (1988, p.243) further argued that social capital is “the sum of actual and potential resources” derived from the social network. Overall, social capital is seen as the collective value of the social network.

In the business and management literature, social capital is considered as a multidimensional concept (Coleman, 1988; Hazelton & Kennan, 2000; Nahapiet & Ghoshal, 1988; Wasko & Faraj, 2005; Zheng et al., 2014). Nahapiet and Ghoshal (1988) firstly suggest social capital in terms of three dimensions: structural, relational, and cognitive. In the structural dimension, the structure characteristics such as network ties are the foundation of social capital. In the relational dimension, the obligations, expectations and trustworthiness of the social network build up to social capital. In the cognitive dimension, shared language and narratives help people in one organisation to gain social capital. Social capital theory, together with social cognitive theory and motivation theory, is largely used to explain people's behaviour in online communities (Zheng *et al.*, 2014).

In the entrepreneurship literature, some scholars viewed social capital as a potential source of economic capital. It is mainly based on the opportunities brought by the social network and as an indicator of entrepreneur's capability (Gartner, 1988; Shane and Venkataraman, 2000; Florin, Lubatkin and Schulze, 2003; Lehner, 2014). Binks and Ennew (1997) stated that social capital could be seen as a source of opportunities, as entrepreneurs need strategies to acquire long-term external finance from debt holders or new owners (external debt and equity financing hereafter) to act on opportunities.

In traditional financing, entrepreneurs who manage to develop their bank relationship improve their access to better loan agreements and individually adapted financial information (Uzzi, 1999; Uzzi and Gillespie, 2008). Ebben (2009) further argued that credits relationship with customers or suppliers impacts the management of firm finances significantly, in particular using finance bootstrapping

method. It implied the importance of social capital in the successful handling of financial needs (Ebben & Johnson, 2006; Winborg & Landström, 2001). Jonsson and Lindbergh (2013) also confirmed that in both financing strategies, reliance on external debt and equity financing, entrepreneurs' social capital is essential in creating the opportunity to access resources that are otherwise unattainable. Furthermore, studies suggest that social network indicates entrepreneurs' capability, as it reflects the extent to which entrepreneurs are able to access a large pool of strategic resources, and it bridges the gap between the business idea and its successful execution (Tsai, 2001; Adler and Kwon, 2002; Koka and Prescott, 2002; Stuart and Sorenson, 2003, 2007; Stam and Elfring, 2008; Laursen, Masciarelli and Prencipe, 2012).

Therefore, it can be argued that compared with isolated individuals, a large set of relationships expose entrepreneurs to more opportunities for the creation of new business and facilitate the growth and development of it (McFadyen and Cannella, 2004; Inkpen and Tsang, 2005; Mcevily and Marcus, 2005). Over time, entrepreneurs accumulate social capital (Stuart and Sorenson, 2007).

However, while recognising the opportunities brought by the information, some studies neglected how and why information is made available to entrepreneurs. Shane and Cable (2002, p.366) argued that social ties are formed based on "social obligations between connected parties and information transfer through social relationships". It is argued that the establishment of social ties stimulates trust and allows one to overcome problems of information asymmetry and moral hazard in the financing decision (Venkataraman, 1997; Uzzi, 1999; Uzzi and Gillespie, 2008; Ozmel, Reuer and Gulati, 2013). Furthermore, it is believed that social ties make available information about the quality and talent of the founders as well as their tendency to behave opportunistically, so that it helps soften new entrepreneurial ventures' disadvantages, such as short performance track records and scarce observable histories (Gulati and Gargiulo, 1999; Uzzi, 1999; Shane and Stuart, 2002).

Based on the 'strength' of social ties, Granovetter (1973) classified individuals' networks into 'strong ties' and 'weak ties'. 'Strong ties' refer to the ties between individuals and their close acquaintances, normally family and close friends. 'Weak ties' refer to individuals and their acquaintances with less 'strength', that is, less emotional intensity, the amount of time, and the intimacy. He suggested weak ties are significantly important as it builds the 'bridge' between strong ties and weak ties for "no strong tie is a bridge" (p.1364). Brown and Reingen (1987) further argued that weak ties at the macro level displayed an important bridging function, while strong ties at the micro level were more influential for the flow of referral information than weak ties. It is believed that the essence of social ties is the 'bridge' as the passage of information.

In addition, Stuart and Sorenson (2003) discovered that, besides the relationship structure mentioned above, the size and positioning of the social network is also crucial for entrepreneurs. They believe that entrepreneurs position themselves in a social network to shorten the path to knowledgeable others that possess what they need and enlarge their networks to get more information and resources from others. Some empirical studies on the impact of social network on RBC also confirmed this finding (Giudici et al., 2017; Kang et al., 2017). Giudici et al. (2017) argued that the level of localised social capital is based on the social relations among residents and their compliance with social norms. Kang et al. (2017) discovered that higher funding could be secured in crowdfunding projects when advocates are of further geographical distance and higher social capital.

In sum, a significant part of the social network literature on entrepreneurship emphasises the importance of the social network in the creation of a new venture as a source of information, capital and market opportunities. A major limitation is that these studies have followed a resource-based approach but neglected individuals, and their social relations are reciprocal and interactive. Therefore, it is necessary to develop a balanced view in order to advance understanding of social networks in the context of entrepreneurship and RBC.

3.6.2 Social ties and entrepreneurship

As discussed above, the interplay between individual entrepreneurs and social environment is worth investigating.

Social ties are created by individuals through the ongoing tie formation process. Tie formation is understood as a strategic issue for which entrepreneurs must take action and thoughtfully manoeuvre their social environment (Zott and Huy, 2007; Ozcan and Eisenhardt, 2009; Hallen and Eisenhardt, 2012; Vissa, 2012; Engel, Kaandorp and Elfring, 2017).

From studies of entrepreneurial networking behaviour, it can be concluded that entrepreneurs build their tie formation generally in three steps. First, with deliberate informal meetings, entrepreneurs try actively to meet new potential partners and find out more about them (Hallen and Eisenhardt, 2012; Vissa, 2012). Second, via different interactions, entrepreneurs signal potential ties and seek to combine social and business ties (Hallen and Eisenhardt, 2012; Vissa, 2012). During this process, entrepreneurs will display their personal capability and commitment, emphasise their achievement, the quality of their existing relationship (Zott and Huy, 2007) and the propensity to actively form ties (Ebbers, 2014) or the potential to defend against emerging industry uncertainties by adding multiple ties (Ozcan and Eisenhardt, 2009). The third step is to preserve every relation and to end the tie formation process (Hallen and Eisenhardt, 2012; Vissa, 2012). Overall, the main aim of their networking actions is to deal with entrepreneurial uncertainty. Engel et al. (2017) further conceptualised these tie formation and maintenance behaviours into the concept of entrepreneurial networking and believed that networking is entrepreneurial action.

Additionally, Mollick (2014) found that the external network size of entrepreneurs significantly improved the probability of project success on the crowdfunding platform. Successful entrepreneurs have a balance between strong and weak ties in their social networks (Newell, Tansley and Huang, 2004; Jones, 2005; Salvato and Melin, 2008).

However, these studies of tie formation are under the central assumption of entrepreneurs as active agents. In RBC, the RBC platform and backers are all part of the social environment. Their interplay in this reciprocal, interactive social context should not be neglected.

3.6.3 Social network and RBC

Like Granovetter (1973)'s discussion about the 'strength' of social ties, in the study of crowdfunding, Mollick (2012) considering a campaigner as the actor, classified a campaigner's social network into three degrees. He argued that the First Degree Network is a campaigner's family and friends, while a wider network (friends of friends) defined as the Second, and the Third Degree Networks are formed by strangers. The three-degree network are proved to generate contributions for crowdfunding (Mollick, 2012; Pirolo et al., 2010). Personal networks of project founders are significantly correlated with the success of crowdfunding (Kim et al., 2017; Mollick, 2014).

On the other hand, considering the crowdfunding platform as an actor, Colombo et al. (2015) classified social networks into two types. First, internal social capital is embedded in crowdfunding platforms by establishing relationships with entrepreneurs and backers. Second, external social capital is developed outside crowdfunding platforms or in other third-party social network websites. In the context of RBC, they believed that closer relationships, like family and friends or personal acquaintances in the real world, had supported the internal social capital and other relationships from resources embedded in crowdfunding platforms, such as the social relationships developed and communities established through crowdfunding platforms supported the external social capital (Kendall, 2014; Bao and Huang, 2017). It can be seen that, compared to most other sources of entrepreneurial financing, crowdfunding has the advantage of getting financial support from platforms. This means that the appeal for financial support has moved from focusing on a small group of targets to a broader world (Kim & Viswanathan, 2013; Lagazio & Querci, 2018; Lu et al., 2014). Kang et al. (2017) argued that the process of reaching

a wider world could be done in two ways; the entrepreneur promotes the project himself/herself or engages advocates to help.

Therefore, based on the internal social network embedded in crowdfunding platforms between entrepreneurs and backers, reciprocal giving could be a signal suggesting this type of social network. André et al. (2017) argued that crowdfunding platforms foster specific kinds of relationships relying on reciprocal giving, beyond the usual opposition between altruistic and selfish motivations.

For internal relationship support, Staber (2006) argued that an entrepreneur could develop and maintain social capital through investing in other entrepreneurs' projects. That may generate strong ties with other entrepreneurs and develop an entrepreneurs' reputation in the social network. Therefore, it develops an obligation among other entrepreneurs to fund his/her project. For example, if a project creator once got capital supports from other entrepreneurs in the same platform, he or she may feel it is a duty or commitment to give back to these entrepreneurs when their future crowdfunding projects need investment (Zheng *et al.*, 2014). It can be called "obligations." Therefore, in a community of crowdfunding, entrepreneurs can create and maintain such internal relationship supports with peers by investing others' projects and then gradually forming a reciprocity mechanism.

In addition, as Colombo et al. (2015) argued, many crowdfunding platforms could display the number of projects that an entrepreneur has supported in the public profile and early backers are more willing to support those entrepreneurs that have behaved as good members of the crowdfunding community (Bao and Huang, 2017).

Therefore, it can be hypothesized that reciprocal giving may have a positive influence on the likelihood of receivers' backing behaviour. In other words, the higher number of projects the creator has backed, the more likely receivers will back it.

3.6.4 Social network sites and RBC

Other than the RBC platform, social network sites (SNSs) is another essential site for an entrepreneur to develop his/her social network. Also, by connecting SNSs to the platform, creators are more likely to turn their social network into social capital. Lu et al. (2014) discovered that social media has a positive impact on promoting crowdfunding projects by increasing their success rate. They believe that the most effective and convenient way for entrepreneurs to broadcast their online crowdfunding projects is through SNSs, such as Facebook and Twitter, as online information can be rapidly and widely spread through social media (Mollick, 2014). Most studies used Twitter and Facebook as the main SNSs to investigate the impact of SNSs on the relationship between entrepreneurs and their advocates.

Studies have investigated the formation of social network ties, the geographic locations of advocates, and the number of an entrepreneur's fans (Gerber et al., 2012; Lehner, 2014; Mollick, 2014). These studies show that the initial phase of a crowdfunding project usually is "friend funding" (Colombo, Franzoni and Rossi-Lamastra, 2015a). Mollick (2014) even argued that the number of an entrepreneur's Facebook friends could be considered as an indicator to predict the success of the crowdfunding project. Furthermore, Dushnitsky and Marom (2013) claimed that the backers for RBC are not predominately provided by the community. Instead, the vast majority of contributors are from the project creator's own social network, such as his family, friends and followers from his/her own SNSs.

Nowadays, most people maintain their social relationship and build the Second Degree Network through SNSs such as Facebook and Twitter. An extensive social network should be able to spread information about the campaign more quickly and broadly (Agrawal et al., 2015; Kuppuswamy & Bayus, 2015). Due to its constant presence and accessibility, Facebook as an SNSs should be considered when considering the size of the social network. It is worth checking when creators linked their own social media to crowdfunding platforms and spread the fundraising information through their social networks. Therefore, it can be hypothesized that

whether the project is connected to Facebook could influence the likelihood for projects to reach its target.

3.6.5 Social interaction and RBC

The social network generated from interaction with backers on the platform is another feature in RBC.

Generally, social interactions have been defined as actions “taken by an individual not actively engaged in selling the product or service and that impact others’ expected utility for that product or service” (Godes et al., 2005, p416–417). In an online context, studies mainly identified two types of social interactions, opinion-based and behaviour-based (Chen et al., 2010; Cheung et al., 2014; Tucker & Zhang, 2011). The former type is usually referred to as electronic word-of-mouth (eWOM) communication. Hennig-Thurau et al. (2004) described it as the statement from potential, actual or former customers about a product or a company in an online context. The latter type, behaviour-based social interaction, occurs when individuals observe the actions of other consumers to help make decisions under uncertainty. This to some extent provided an information-based explanation for online herding behaviour, that is, when individuals facing a certain decision they choose to follow the actions of others (Bikhchandani, Hirshleifer and Welch, 1992, 1998; Duan, Gu and Whinston, 2009; Tucker and Zhang, 2011; Thies, Wessel and Benlian, 2016).

So far most studies on social interaction in the context of online shopping focused on the former type, eWOM, which is “any positive or negative statement made by potential, actual, or former customers about a product or company ... via the Internet” (Hennig-Thurau et al., 2004, p.39). The consumers are able to share their opinions, preferences, and experiences online through multiple channels such as product review websites, blogs, and social networking websites (Thies, Wessel and Benlian, 2016).

However, in RBC, backers of crowdfunding projects do not have the opportunity to experience the quality of the products and services before consumption (Ward and

Ramachandran, 2010), so eWOM may not be effective. The latter type, behaviour-based interactions cannot fully explain the backing behaviour either. Therefore, social interaction, as a bridge between the person and his/her social relations and social context, how this bridge is formed and what impact it has are questions left unanswered in the context of RBC. The role of crowdfunding platforms as both a source and a site of the social network should be considered. The types of communication brought by the uniqueness of RBC should not be overlooked.

Beier & Wagner (2015) described crowdfunding platforms as social networks that connect different players, such as creators, backers and interested audience. The interaction among them is mainly through communication via the platform online. Watzlawick and Beavin (1967) have drawn a conceptual line between the content and relational aspects of communication, that “communication is synonymous with what is observable in human interaction”(p.4).

Thus, communication on crowdfunding platforms can be separated into two types. On the one hand, it is the relevant information to influence backing decisions and the willingness to pay of potential backers on a cognitive level, that are the signals of project quality and signals of intention as stated in Chapter 3.3. The type and amount of information can significantly influence the willingness to pay of potential backers (Ajzen & Driver, 1992; Kim & Crompton, 2001).

On the other hand, communication on crowdfunding platforms contains emotional and social levels of interaction. This relational communication is believed to influence potential backers on a relational level, which directly or indirectly influence their willingness to pay and backing decisions (Ajzen & Driver, 1992; Huntley, 2006; Kim & Crompton, 2001; Liu et al., 2011). Through high-quality relational communication, receivers may develop trust and a deeper understanding of the project and recognize shared goals and attitudes of the project initiator (Uzzi, 1997; Yli-Renko, Autio and Sapienza, 2001).

This was also proved by Kromidha and Robson's (2016) study. They found that when the initiators and backers exchange more signals in a joint forum such as comments on the platforms, "but not signals delivered unilaterally by the fundraiser", the projects will have a higher pledge/backers ratio (Kromidha & Robson, 2016, p.605). This relationships formed with the crowd during crowdfunding are also important in the long term.

In brief, studies recognised that stronger social relationship could be fostered through the quality of communication (Moorman, Deshpandé and Zaltman, 2014) and higher intensity interactions (Heide and Miner, 1992; Swan *et al.*, 1999; Ready *et al.*, 2004). These interactions help them to overcome the information asymmetry for products and services. Besides, as crowdfunding campaigns on Kickstarter can only become successful if sufficient funds are raised ("All or nothing"), it is reasonable for backers to encourage others to also back the project by leaving comments and sharing the crowdfunding campaign. As only backers and creators can leave comments on the platform, the comments not only can be seen as a strong signal of quality communication, but also as feedback to creators and a signal of quality to the interested audience. Therefore, it can be hypothesized that a higher number of comments could have a positive influence on the likelihood of receivers' backing behaviour.

3.6.6 Social network and signal observability

As discussed in 3.3, one of the chief characteristics of efficacious signals is signal observability, that is, "the extent to which outsiders are able to notice the signal" (Connelly *et al.*, 2011, p.45). In RBC, the extent of original "walk-in customers" on platforms is relatively low. Browsing RBC websites have started to become a trend but are not that popular yet. Project creators and platforms must generate online traffic for the project on other websites and social media channels to enhance signal observability of the projects (Moreno and Martinez, 2013).

Signal observability, or "the capacity for an outsider to notice a signal" (Jancenelle *et al.*, 2017), can be enhanced through enlarging one's social network, both in the size

and quality. Besides the reciprocal giving behaviour (backing others' projects before creating one), social interaction with backers on the platform (commenting) and using external SNSs (link to Facebook), the size of the team and the community it built could all influence the signal observability.

With more members on the team, the size of entrepreneurs' social network will obviously increase. In addition, it is not merely adding up each one's social network, the collaboration between team members may also suggest a higher quality of the project, which will bring more confidence and trust to the interested audience. As the entrepreneur's social capital increases, the informational value of the performance in the reward-based crowdfunding campaign should be stronger. Thus, it implies that a higher number of collaborators would have a positive influence on the likelihood of receivers' backing behaviour.

The more projects one has created before, the more likely it is that creators will have a large social community on the platform. The more projects created by the creators, the higher chance he/she will have more 'followers' on the platform. If a backer follows the creator of a project he/she backed, the platform will send notifications when the creator starts a new campaign. Although this may not always be a positive influence, if the previous project did not go well (e.g., the project failed, postpone delivery and defective products), it will affect the backers' confidence on both the creator and the project. Nevertheless, in a perspective of enhancing signal observability, it can be hypothesized that the more projects the creator has created before, the more likely the project will reach the target. Besides, having learnt from previous experiences, the creator may conduct a RBC campaign of higher quality.

In conclusion, the author hypothesizes that the signal observability is associated with the success of a project.

Hypothesis 3 – The likelihood of receivers' backing behaviour is positive associated with:

- a. The number of comments
- b. The number of projects the creator has backed

- c. The number of projects the creator has created
- d. The number of projects linked to the creator's Facebook
- e. The number of collaborators

Furthermore, in RBC, creators tend to over-promise in their campaigns, while backers do not always have sufficient experience and knowledge to perform due diligence before backing a project (Hossain and Oparaocha, 2017). Interacting with backers frequently via updates and replying comments could provide more information and confidence to potential backers, representing a signal of project quality.

Thus, different types of signals could interplay with each other. In addition, studies have established that individuals' social networks play a significant role in their fundraising success. Not only does the project creator's network serve as an early pool of backers for the project campaign (Mollick, 2014), but also they provide endorsements which can serve as signal of project quality and lead to more external backers (Shane and Cable, 2002; Shane and Stuart, 2002; Zheng *et al.*, 2014; Fan-Osuala, Zantedeschi and Jank, 2018). Thus, the two types of information (signals of quality and intention) and the characteristic of efficacious signal (signal observability) can sometimes supplement each other and interplay with each other in the project's signalling timeline, which will be discussed in the following.

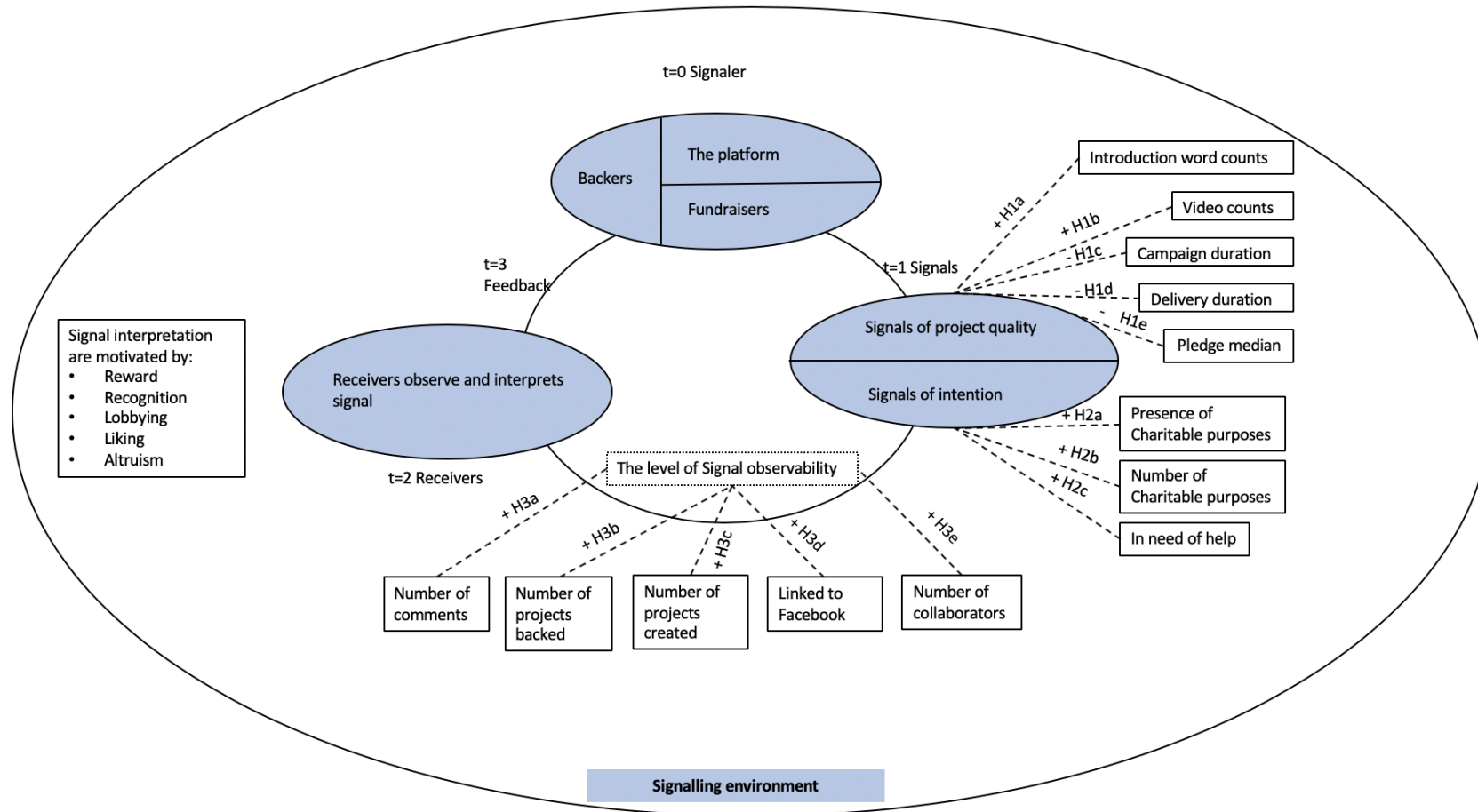
3.7 Conceptual framework

Taking forward the earlier discussion, a proposed conceptual framework of RBC has been developed and is illustrated in diagrammatic form in Figure 3.3.

The diagram illustrates a conceptual framework that incorporates different factors to advance understanding of the complex process of RBC, and interprets the mechanism of how these factors influence the success of RBC projects success by taking into account signal of project quality, signal of intention, and the level of signal observability in a wider signaling environment with the key actors as signalers and receivers. Moreover, the interplay between these factors and the institutional context is addressed in the framework.

...

Figure 3.3 Proposed Conceptual Framework



Note: t = time

Source Inspired by Connelly et al. (2011)

The signalling environment in the thesis is RBC in the UK, taking into account the social, political and legal, and technological context, which may have a positive or negative influence on the industry. In the timeline, when $t=0$ (the first period), the first signaller (fundraiser) prepares for information, which is campaign material (e.g. video and pitch). In this period, the fundraiser needs to choose whether and how to communicate (or signal) that information. When $t=1$ (the second period) a fundraiser or “creator” sends signals by creating a webpage for the project on the platform to introduce the project (the campaign begins). The second signaller (platform) comes to the field. The platform chooses projects based on the preferences of staff team (Kickstarter, 2015) to mark them as “Featured projects” or “Projects we love” and sends newsletters to subscribers about these projects.

The information about a project on the platform is generally two types, quality and intention. In this thesis, signals of project quality are measured by introduction word counts, video counts, campaign duration, delivery duration and pledge median. The author made alternative hypotheses that the first two signals have a positive influence on the likelihood of the success of a project, whereas the latter three have a negative influence.

There are two types of intention, intrinsic and extrinsic. The signals of intrinsic intention (prosocial intention) are measured by the presence and number of charitable purposes, which are hypothesized that they will have a positive influence on the likelihood of the success of a project. The signals of extrinsic intention are measured by the presence of in need of help, which may evoke a sense of empathic concern. It is hypothesized that it will have a positive influence on the likelihood of the success of a project. Signals sent by the platform (their preferences on some projects) are signalling the quality of these projects as well. However, as chosen by the team is not statistically manageable and generalised, this project characteristic is not considered in the thesis.

Between the second and third period is signal observability (how the signals can be observed by the receivers). Apart from direct “walk-in customers” (not many and

depends on the popularity of the platform), the signal observability relies on fundraisers personal social network (Facebook), the community they built based on the platform through reciprocal giving (backing others' projects), previous experience (creating projects), and social interaction (receiving and replying to comments of backers, this is a repeated, back and forth behaviour not necessarily following the simplex timeline). The level of signal observability can be added up by more collaborators in the project. Therefore, the level of signal observability is measured by the number of comments, number of projects backed, number of projects created, the presence of Facebook link, and number of collaborators, which are hypothesized as positive influences on the likelihood of the success of a project.

When $t=2$ (third period) the receivers receive, observe and interpret signals to decide whether to back the project and which pledge to choose. The interpreting mechanism is generally based on their egoistical and altruistic motive, which are reward, recognition, lobbying, liking and altruistic motivation (there could be more, but in the thesis only these main motivations are considered). Backers motivated by reward motivation could require a reward with lower cost in a shorter time. Based on project description, receivers will have a sense of project quality and develop liking or disliking motivation. Both the prosocial intention and in need of help could evoke receivers' altruistic motivation. All these motivations will help receivers to decide whether to back the project, or even share the project to external media or other potential backers. Recognition and lobbying motivation could motivate backers to leave comments. The backing behaviour and comments in turn as the feedback is sent to the signaller. Then backers also become one of the signallers, sending signals (e.g. the backing behaviour, comments and sharing information on the platform and in their social network) to other receivers.

Due to the aim of the study, the thesis mainly focuses on the phenomenon beginning from $t=1$ when the signals are sent and available to the public.

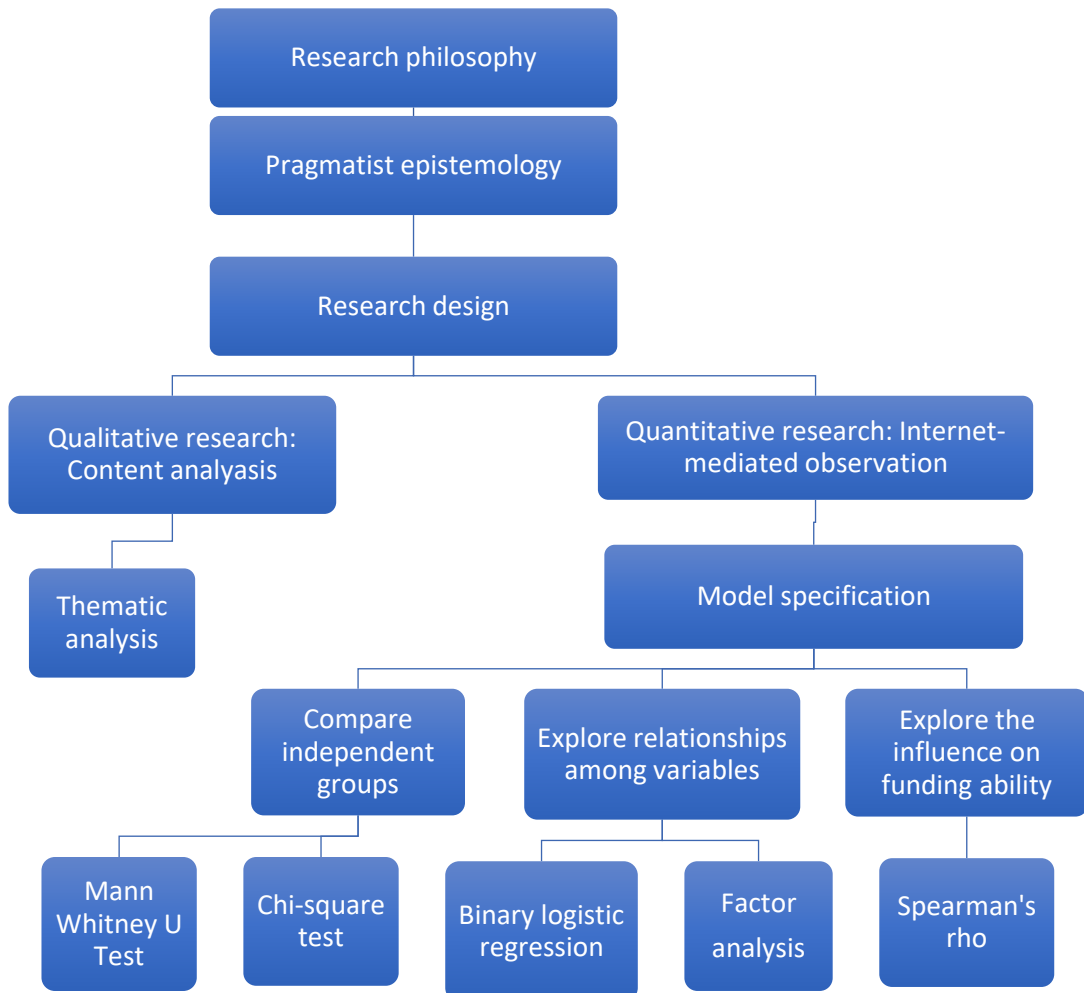
In the next chapter, a coherent methodology that has the potential to address the research aims and objectives will be discussed.

Chapter 4 Research Methodology

4.1 Introduction

This chapter provides an overview of the research methodology adopted in this thesis. In the previous chapter, a conceptual framework drawing upon signalling theory, motivation theory and social network theory has been developed. This conceptual framework is essential for an advanced understanding of the complex process of RBC and interprets the mechanism of how these factors influence the success of RBC projects success. It is, therefore, necessary to select a research methodology that is conducive to prove and justify the conceptual framework.

4.1.1 Methodology structure overview



The chapter starts with exploring the two widely used philosophical assumptions in social science – ontology and epistemology. Based on the chosen philosophical stance, the discussion is followed up by the justification of the mixed method research design with data collection and sampling methods. Then further to the three research objectives, different data analysis methods are discussed. At last, choices of variables are justified based on the key elements of a RBC project in conjunction with factors from the proposed conceptual framework in Chapter 3.

4.2 Research philosophy

The proposed research questions pertain to understanding what gives rise to the success/ failure of RBC projects for business start-ups. The ultimate objective is to understand the mechanisms of RBC, its context, to identify the influencing factors of an RBC project, and evaluate the interplay between the factors which lead to the observed outcome, by providing an opportunity for generalisation. Therefore, in the following, an attempt is made to discuss the ontological and epistemological assumptions and stances of the research.

Saunders et al. (2016, p.124) stated that research philosophy is a "system of beliefs and assumptions about the development of knowledge". If research is a systematic way of developing knowledge (Ghauri and Grønhaug, 2005; Saunders, Lewis and Thornhill, 2016), during this process, the research will make a number of types of assumption (Burrell and Morgan 1979). A research paradigm is a philosophical stance which constructs and orientates a research via guiding through assumptions about the nature of reality (ontological assumptions), human knowledge (epistemological assumptions), and the influence of one's own values and ethics (axiological assumptions) (Burrell and Morgan, 1979; Guba and Lincoln, 1994; Krauss, 2005; Saunders, Lewis and Thornhill, 2016).

These assumptions inevitably have impacts on the way a researcher understands his/her research questions, the methods to use and the way to interpret findings (Crotty, 1998; Johnson & Clark, 2006). In other words, it will underpin the

methodological choice, research strategy and data collection techniques and analysis procedures in the research.

Therefore, as a researcher, it is essential to be aware of one's philosophical position and undertake the research based upon it (Alvesson & Sköldberg, 2017; Johnson & Clark, 2006). In the following, ontology and epistemology, the research will mainly discuss the two widely used philosophical assumptions in social science.

4.2.1 Ontology and epistemology

Ontology focuses on the nature of reality or being (Morgan and Smircich, 1980; Rossouw, 2001). The ontological assumptions concern the very essence of the phenomena or research objects and shape the way the author sees or studies it (Burrell and Morgan, 1979; Saunders, Lewis and Thornhill, 2016). Morgan and Smircich (1980) further clarified the framework offered by Burrell and Morgan (1979), which suggests that all approaches to social science are based on interrelated sets of assumptions regarding ontology, epistemology and human nature. They sketched out Burrell and Morgan's (1979) ontological assumptions (Table 4.1) with their own view of the transition of the nature of the world.

Table 4.1 Assumptions about Ontology

Subjective approaches ←

	Reality as a Projection of Human Imagination	Reality as a Social Construction	Reality as Symbolic Discourse
CORE ONTOLOGICAL ASSUMPTIONS	<p>The social world and what passes as "reality" is a projection of individual consciousness; it is an act of creative imagination and dubious intersubjective status. This extreme position, commonly known as solipsism, asserts that there may be nothing outside oneself: one's mind is one's world. Certain transcendental approaches to phenomenology assert a reality in consciousness, the manifestation of a phenomenal world, but not necessarily accessible to understanding in the course of everyday affairs. The reality in this sense is masked by those human processes which judge and interpret the phenomenon in consciousness prior to a full understanding of the structure of meaning it expresses. Thus the nature of the phenomenal world may be accessible to the human being only through consciously phenomenological modes of insight.</p>	<p>The social world is a continuous process, created afresh in each encounter of everyday life as individuals impose themselves on their world to establish a realm of meaningful definition. They do so through the medium of language, labels, actions, and routines, which constitute symbolic modes of being in the world. Social reality is embedded in the nature and use of these modes of symbolic action. The realm of social affairs thus has no concrete status of any kind; it is a symbolic construction. Symbolic modes of being in the world, such as through the use of language, may result in the development of shared, but multiple realities, the status of which is fleeting, confined only to those moments in which they are actively constructed and sustained.</p>	<p>The social world is a pattern of symbolic relationships and meanings sustained through a process of human action and interaction. Although a certain degree of continuity is preserved through the operation of rule-like activities that define a particular social milieu, the pattern is always open to reaffirmation or change through the interpretations and actions of individual members. The central character of the social world is embedded in the network of subjective meanings that sustain the rule-like actions that lend it enduring form. Reality rests not in the rule or in rule-following, but in the system of meaningful action that renders itself to an external observer as rule-like.</p>

Source: (Morgan & Smircich, 1980, p.494)

Although concerning the nature of social science these assumptions "provide an extremely powerful tool for the analysis of social theory" (Burrell & Morgan, 1979, p.7), it can be seen that traditional philosophy is of dualisms with idealistic or rationalistic approaches. Pragmatism as a method that "connects dualisms" will be discussed in the following (Biesenthal, 2014).

4.2.2 Pragmatism

Pragmatism is not merely a collection of viewpoints about a specific concept, such as 'truth', 'identity' or 'reality' in traditional philosophy (Biesenthal, 2014). In early years, the classical pragmatists like Charles Sanders Peirce, William James and John Dewey, were all heavily influenced by Darwinian thinking. This led them to focus on experience instead of abstract thought, and critique the traditional idealist view on what knowledge is and how it is acquired (Sundin and Johannisson, 2005). Frega (2011) appraised that pragmatism has encouraged the experimental attitude and empirical ways of thinking. He also considered the pragmatist standpoint as the methodological prerequisite for taking a fresh look at human, social, and natural phenomena nowadays.

Pragmatism is a philosophical stance that aims to uncover practical knowledge, the knowledge that only works when they support action (Biesenthal, 2014; Saunders, Lewis and Thornhill, 2016). Pragmatist researchers start with a problem and aim to contribute practical solutions. The acquired knowledge in the process is evaluated by its problem-solving availability in the problem, rather than its universal applicability. In other words, the knowledge would have no meaning without practical consequences. Hence, there is no objective truth within a pragmatic stance. Concepts are provisional, and truth only exists as long as the concepts offer practical solutions (McCarthy and Sears, 2000; Ruwhiu and Cone, 2010).

However, the "no objective truth" has brought critics for pragmatism. As it does not aim for certainty, critics argue that pragmatism lacks explicitness and rigour (Shusterman, 2016; Zhao, 2016). With a pragmatic stance, truth occurs on an individual level through personal experiences. All concepts are contextual by nature

and have different meanings for different people in different situations (Biesenthal, 2014). If one wants to consider the classical epistemological categories such as knowledge, truth, and objectivity in contexts of practice and experience (Frega, 2011), pragmatist epistemology can be considered, which is discussed in the following.

4.2.3 Pragmatist epistemology

As discussed, the dualism of the Burrell and Morgan framework (1979) is argued as being too restrictive for the complex discussions in social science especially in entrepreneurship research (Davies, 1998; Johnson & Duberley, 2000; Murzacheva, 2017; Pittaway, 2005). In comparison, pragmatist epistemology conceives truth as the product of a collective agreement, structure as the result of a process and reality as a process of contingent interaction between human beings and natural factors (Romania, 2013). This brings us to the emergence of pragmatist epistemology as one way to rethink of dominant assumptions guiding organisational research (Tsoukas and Cummings, 1997; Wicks and Freeman, 1998; Powell, 2002; Ruwhiu and Cone, 2010) and as a contribution to reconceptualise classical epistemological categories by examining their function in contexts of practice and experience (Frega, 2011).

In this thesis, the author aimed for the truth to some extent as the result of a process and interaction between human beings, to uncover the reason of consequent actions of social actors, to understand the reason of phenomena and measure what predicts its occurrence. Therefore, the author adopts a pragmatist epistemological stance.

4.3 Research approaches

Based on a pragmatist epistemological stance, both qualitative and quantitative approaches are discussed to reach an overall research strategy in relation to the research objectives.

4.3.1 Qualitative research: objectives and limitations

Qualitative data, principally derived from words and images, are believed to be “more varied, elastic and complex” (Saunders et al., 2016, p.568). Qualitative data

are more likely to be characterised by their richness and fullness (Dey, 2003; Brekhus, Galliher and Gubrium, 2005), and enable deeper comprehension of subtle processes (Stake, 2005; Leech and Onwuegbuzie, 2007). Therefore, qualitative research tends typically to provide rich and contextualised information centred on live experiences (Miles *et al.*, 1994).

The purpose of the qualitative data in this study is to identify meanings and themes by categories, to explore different perspectives through the frequency of occurrence of the qualitative data and finally to link to the conceptual framework. Additionally, through the personal interpretation of the meanings, the research would be able to establish a holistic picture and understand the phenomenon fully (Leech and Onwuegbuzie, 2007). For the purpose of this study, the following strategy will be used to analyse qualitative data: keywords-in-context (Fielding, Lee and Lee, 1998) to capture actual words, and content analysis (Stemler, 2001) to study the frequency of the thematic words.

Whereas, besides its richness and fullness, qualitative data could also bring limited generalisation due to its complexity in nature. The author would not be able to address causality and evaluate the contextual effects on the RBC backing behaviour reasoning. Therefore, quantitative data and research methods are deemed to be necessary, complementary tools to evaluate the mechanism of RBC through a signalling perspective.

4.3.2 Quantitative research: objectives and limitations

Newman *et al.* (1998) believed that the quantitative approach enables the uncovering of casual relationship with a wide range of data and affirm probabilistic causal laws. This enables generalisation about nature (Phillips and Burbules, 2000; Creswell and Creswell, 2017).

The majority of explorative research in the RBC literature has used quantitative approaches (Agrawal *et al.*, 2015; Chan *et al.*, 2018; Crosetto & Regner, 2018; Mollick, 2014), as the approaches enable analysis of large scale data through RBC platforms,

to provide a holistic overview. The quantitative research in this study would enable the author to explore correlation and causation between variables, as well as evaluate how they work through coefficients at the same time. As an evaluative study, the research is to assess the effectiveness of RBC as a source of alternative finance for start-ups, and the aim is not only understanding 'how effective' the factors are, but also 'why', and then comparing the findings to existing theory.

In addition, for the purpose of the study, a longitudinal study would contribute to the research objectives, offering a dynamic perspective on the possible influential direction of the mechanism across time periods.

4.3.3 Bring the approaches together

As discussed above, there are contributions and limitations for both qualitative and quantitative approaches. Mixed methods research combines the use of quantitative and qualitative data collection techniques and analytical procedures (Saunders, Lewis and Thornhill, 2016). Using mixed methods research allows an understanding of the phenomenon in the context qualitatively, and further to identify causal relationships and evaluate the mechanisms based on quantitative research approaches (Lewis and Grimes, 1999; Frydrych, 2015). Neergaard (2007) further states that the interplay between the two approaches may pave the way for new inspiration and insight for investigating a particular phenomenon.

Moreover, from a pragmatist epistemological stance, methodological choices are based on the nature of the research question, the research context and likely research consequences (Creswell, 2015). Research should not be restricted with any one system of methods, but the way that provides the best understanding of the research problem (Cherryholmes, 1992; Creswell and Creswell, 2017).

Therefore, in the thesis, the author acknowledges the richness of qualitative data, but at the same time embraces the qualities of quantitative research approaches, in order to contribute to the broader understanding of the multifaceted mechanism of RBC. In doing so, this approach allows exploring campaigns and their characteristics

to familiarise with campaign patterns and dynamics that reflect mechanism in RBC. It further supports the exploration and identification of variables and facilitates understanding about their impact on the likelihood of backing behaviour of a RBC project.

4.4 Research design and methods

As discussed above, the research adopts a mixed method approach, but using quantitative data analysis predominately. For hypothesis 2c, the signal of 'in need of help' which may evoke a sense of empathetic concern will be identified using the keyword-in-context method, and the occurrence of the keywords will be analysed using content analysis. For the other propositions, different quantitative data analysis methods will apply. The overview of the research design is shown in Table 4.5.

Table 4.3 Research design

Research framework	Type adopted in the research
Research philosophy	Pragmatist epistemology
Methodological choice	Mixed method
Time Horizon	Longitudinal
Data type	Primary data
Techniques and procedures	Data collected through internet-mediated observation. Primarily quantitative data analysis and content analysis as complementary

4.4.1 Sampling and data collection

For the validity of aim of the research, the author will need to choose the samples and determine the boundaries of the study carefully. Structured procedures will be taken to set the design, to implement data collection, to conduct analysis and to identify patterns and relationships.

To fulfil the aim of the study, the samples were chosen from Kickstarter. Launched in 2009, Kickstarter is a leading RBC platform worldwide. Since the launch, 16 million people have backed a project, \$4.2 million has been pledged, and more than 16,000 projects have been successfully funded through the platform (Kickstarter, 2019a). Although based in New York City, U.S., Kickstarter is open to creators from 19

countries and backers from all over the world. Beginning in 31st October 2012, people in the UK are able to launch their projects on Kickstarter. From then to 31st Oct 2017, total 27,500 UK projects had launched, which is about 5,500 projects per year. They have attracted £168 million (Kickstarter, 2017). Kickstarter categorises projects into fifteen types, including art, comics, crafts, dance, design, fashion, film and video, food, games, journalism, music, photography, publishing, technology, and theatre. It is also a commonly studied crowdfunding platform in studies of entrepreneurial crowdfunding for its representative significance in RBC (Colombo et al., 2015b; Lehner et al., 2015; Lelo de Larrea et al., 2019; Mollick, 2014; Scheaf et al., 2018). Therefore, this study will collect publicly available information on cases on Kickstarter. The detailed sampling criteria will be discussed in the next section.

4.4.1.1 Primary data types: preparation, data collection, and analysis

The observation method is applied widely for systematically the observation, recording, description and interpretation of people's behaviour (Saunders, Lewis and Thornhill, 2016). This study adopts internet-mediated observation, which involves collecting data from online communities (Padayachee, 2016). This approach allows researchers to observe purely or to participate with members of an online community to collect data, and to mostly avoid observer bias (UKRIO, 2016). The author has not participated in any of these projects, other than reading or viewing available material. The appropriate and available postings in the online forum were treated as observation data (Paechter, 2013).

However, these observation data from Kickstarter, unlike traditional ones, contain not only people's behaviour but also independent project information. Few studies have justified if these data are primary or secondary. In the Encyclopedia of research design, a primary data source refers to an original data source, which the data are collected first-hand by the author for a specific research purpose of project, while secondary data is defined as "opposition to primary data", or data that "have already been collected for some other purpose" (Salkind, 2012, p.1578). Using this definition, studies using the datasets from Kicktraq or Web Robots these types of websites with scraper robot service can be deemed as using secondary data. The author used a

computer program to extract publicly available information of UK based projects on Kickstarter exclusively for this study, and the data should be considered as primary data.

A purposive sampling method is used in order to meet the research objectives and answer research questions with the judgement of the author (Saunders, Lewis and Thornhill, 2016). As the objective is to evaluate the effectiveness of RBC as an alternative source of financing for start-ups, the cases chosen need to be projects that have a genuine intention to raise funds in order to bring the project alive or for mass production. The projects created by well-established companies such as some well-known gaming companies or electronics companies would not be considered, as they are merely a marketing campaign for their new product. These projects are more like a pre-sell with or without early bird price rather than creating a new venture. Also, projects with goals below £100 and goals above £50,000 but which raised nothing would not be considered, as they represented non-serious efforts to raise funds (Mollick, 2014).

Decisions on the initial data to collect about a chosen project were based on research questions and a review of the existing crowdfunding literature, as shown in Table 4.4. Among them, data presenting signal of project intention cannot be extracted directly from the information on Kickstarter. The author needs to analyse the introduction of projects using content analysis to get useful information.

Table 4.4 Data collection

Structural factors /signalling environment		
Independent variables	Signal of project quality	Introduction word counts, Video counts, campaign duration, delivery duration and pledge median.
	Signal of project intention	Presence of charitable purposes, the number of charitable purposes and presence of ‘in need of help’
	Social network	The number of projects that creator backed, connected to FB or not, the number of collaborators (team size), the number of projects created, number of reviews/comments,
Control variables		Goal, Category
Dependent variable		Status, Ratio (pledge/goal ratio)

4.4.1.2 Longitudinal studies

A longitudinal time horizon is used in data collection, as the data are collected over an extended period. This helps in collecting a relatively large sample of data, to study the development and changes in variables as well as the dynamics and interactions between the projects and its context (Saunders, Lewis and Thornhill, 2016).

As mentioned, people in the UK started to be able to launch their projects on Kickstarter beginning in October 2012. After five years in 2017, the RBC market tended to stabilise. The author collected data from September to December 2017. The data were retrieved from all the UK projects finished in these three months that satisfied the criteria. To enlarge the sample of data as well as analysing any trend, the author collected data for the same period in 2018.

4.4.1.3 Sampling

This study follows a purposive data sampling method inspired by Mollick’s (2014) sampling procedure and Berliner and Kenworthy’s (2017) sampling criteria. This study collects information about each project in the sample on the day of its deadline. To

eliminate the impact from a too broad region and to focus on the context in the UK, the chosen projects are all based in the UK.

As explained in Chapter 2, the author will only focus on RBC projects with AON goal type, for a clear measure of crowdfunding success. Comparing to other platforms with mixed types of funding (e.g. Crowdfunder UK) or goal types (e.g. Indiegogo), Kickstarter as a leading RBC platform with only AON model is chosen.

Besides, the focus of this study is to evaluate the effectiveness of RBC as a source of entrepreneurial finance. The sample projects, therefore, focus on the creators' launch campaigns to raise funds to start a new venture or as the entrepreneur of a newly-established business to raise funds for the survival or growth of the businesses. Other projects, for example, creators raising the fund for their lifestyle activities such as wedding or education, were removed. Projects for charity or donation were removed as well, for example, raising funds to teach photography to poor children. Although these projects offered pledges such as T-shirt, photo prints or paintings, the aim of the creator is for charity rather than initiating a new business venture. Projects purely for selling products were also removed, for example, creators are well-known, long-established companies using Kickstarter as a pre-order platform, such as some projects in the gaming industry and high-tech industry.

For the feasibility of data collection and efficiency of data analysis, especially where the author needs to select start-up only projects and identify the campaigners' intention one by one project, a representative sample is needed. Although there are few academic studies on Kickstarter's monthly performance, according to several empirical studies or data tool (Pecota, 2014; Mathe, 2015; BoardGameData.com, 2019), it shows that the successful rate tends to be higher in April, and lower in January and August, also more projects choose to launch in May. There is no clear tendency in other months. Therefore, the author chooses to collect data of the projects end in the period from September to December to avoid the seasonal influence. Moreover, to further eliminate the yearly influence, data from the same

period in 2018 is collected. This dataset allows to explore Kickstarter's diversity and enables to generalise findings to the Kickstarter population.

As such, the sample for the study consists of:

1. UK based Kickstarter projects only
2. Projects that completed the full campaign period (cancelled and suspended projects were removed)
3. Projects that were completed between September and December 2017, and September and December 2018.
4. Project campaigns from all fifteen Kickstarter project categories.
5. Projects that are genuinely raising funds in order to make the products/services alive (projects with extreme values of fundraising goals were removed, e.g. goals below £100, and goals above £50,000 but which raised nothing).
6. Projects getting supports from a marketing agency (e.g. Crowd Ox, Kickbooster and Funded Today) were removed. This is to eliminate the influence from professional marketing tool, as different types of marketing tools and whether using them or not might have a significant influence on the success of projects.

Using these criteria, after cleaning the data for inaccuracies and incomplete information, the detailed data available for analysis purposes in the resulting sample size for the study is 636 Kickstarter projects. The data and sample size offer a reliable and generalisable dataset to investigate and interpret evidence for knowledge creation, allowing to build on the descriptive and evaluative findings of the study, and to contribute to the scholarly dialogue on crowdfunding.

By building alternative directional hypotheses, which are the testable statement with the direction of the difference or relationship between two or more variables (Saunders, Lewis and Thornhill, 2016), the significance testing can be designed and conducted to test the probability. In the following, different analysis models will be discussed.

4.4.2 Thematic data analysis

Thematic Analysis is referred to as a “foundational method for qualitative analysis” (Braun & Clarke, 2006, p.78), the primary aim of this approach is to “search for themes, or patterns, that occur across a data set” (Saunders et al., 2016, p.579). As the study uses a large sample of data, Thematic Analysis is used to identify themes and patterns together with Content Analysis. This approach helps to identify if there are differences between successful projects and projects that did not reach the goal on one of the signals of project’s intention – intention to trigger receivers' altruism to help them bring projects alive.

4.4.3 Content analysis design: context and objectives (quantitative and qualitative research)

As stated in the comparison of qualitative and quantitative data, using quantitative data can hardly reach richness and fullness. It is necessary to analyse the qualitative description of the projects in order to obtain "the objective, systematic and quantitative description" (Berelson, 1952, p.18) of a project as well as analyse a project’s charitable purpose and the creator’s intention to trigger altruism. Through counting of the frequency and analysing the occurrence of chosen terms, the approach increases the chance that analysis is conducted in a consistent, transparent and replicable way, thereby improving reliability (Saunders, Lewis and Thornhill, 2016).

Therefore, Content Analysis is used to count frequencies and examine relationships between variables in the data. In addition, it provides a means to analyse large amounts of qualitative data where the aim is to describe these quantitatively (Saunders, Lewis and Thornhill, 2016). The author uses NCapture to collect the description of each project, and then to run the word frequency query on these descriptions using NVivo. The repeatedly general words, such as ‘Kickstarter’, ‘Backers’ and ‘shipping’, are set as stop words (as shown in Table B.1), so that they would not affect the result. Then top 10 most frequently used words for the two groups (success and failure groups) (as shown in Table 5.1 and 5.2, more detailed

discussion is shown in Chapter 5) are presented. The author compares these 10 words between the two groups in order to find if there is a tendency for campaigners stating 'in need of help' and whether the 'in need of help' statement would affect the success/failure of projects. The result helps to tell if there is a trend for the success group to trigger receivers' altruism to help them bring projects alive.

In conclusion, the author uses Thematic Analysis and Content Analysis to analyse the qualitative data quantitatively. The approaches to analyse quantitative data is further discussed in the next section.

4.5 Model specification

At this stage of the analysis, in order to analyse and evaluate the impact of variables on the likelihood of backing behaviour of a RBC project, IBM SPSS Software (version 24) is used.

4.5.1 Statistical techniques to compare independent groups

Independent groups t-test is used to determine the likelihood that the values of a numerical data variable for two independent samples or groups are different. It assesses the likelihood of any difference between these two groups occurring by chance alone (Saunders, Lewis and Thornhill, 2016). To achieve research objective 1 and 2, the likelihood of success (reaching the goal) or failure of a RBC project needs to be assessed. The **Mann Whitney U test** is used here when the dependent variable is an ordinal variable (Mann and Whitney, 1947).

Where n as the total number of observations in the group, R as the sum of the numeric ranks, the calculation for the two independent groups (successful and failure) is as follows:

$$U_1 = R_1 - \frac{n_1 (n_1 + 1)}{2}$$
$$U_2 = R_2 - \frac{n_2 (n_2 + 1)}{2}$$

The smaller value of U_1 and U_2 is used when consulting Critical Values of the Mann-Whitney U Table. If the value is smaller than the corresponding critical value in the

significance table when $\alpha = 0.05$ (the alpha level is set as 0.05 in the thesis), the alternate hypothesis is supported.

The **Chi-square test** is used here to determine the likelihood that categorical variables (Facebook connect (Y/N), Creator experience (Y/N) and charitable purposes (Y/N)) and status (Success/failure) are independent. The test is used to discover whether there are statistically significant associations between the three categorical variables and status of RBC projects.

Where df are the degrees of freedom (the number of categories minus 1), O as the observed value and E as the expected value, the Chi-square value is calculated as follows (Pearson, 1900):

$$\chi_{df}^2 = \sum \frac{(O_i - E_i)^2}{E_i}$$

Consulting from significance table, p value can be obtained. If p value < 0.05 , the result is seen as significant (the alternative hypothesis is supported).

4.5.2 Statistical techniques to explore relationships among variables

After exploring if the variables are significantly associated with the outcome, status, to what extent these variables could predict the status is assessed using **binary logistic regression**. It allows prediction of a single categorical dependent variable from a group of independent variables. Binary logistic regression can be used to assess the predictive power of the set of variables, the relative contribution of each variable and whether a particular predictor variable is still able to predict when the effects of another variable are controlled. In this study, the author mainly focuses on the former two aims.

Pallant (2007) stated that although based on correlation, the approach allows a more sophisticated exploration of the interrelationship among a set of variables. It provides a summary of the accuracy of the classification of cases based on the model, allowing the calculation of the sensitivity and specificity of the model and the positive and negative predictive values.

In this binary case, the probability of success is p , and failure is $1-p$, and let Y be the binary outcome variable indicating failure (0) or success (1), $p=P(Y=1)$. When a linear relationship is assumed, where p as the probability of the dependent variable, n = the number of total observations, χ_1, χ_2, \dots and χ_k as predictors, and β gives the odds ratio of the dependent variable, the logistic regression of Y is as follows:

$$\text{logit}(p) = \ln\left(\frac{p}{1-p}\right) = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \dots + \beta_k x_k$$

and

$$p = \frac{\exp(\beta_0 + \beta_1 x_1 + \beta_2 x_2 + \dots + \beta_k x_k)}{1 + \exp(\beta_0 + \beta_1 x_1 + \beta_2 x_2 + \dots + \beta_k x_k)}$$

If $p < \alpha=0.05$, the result is significant (the alternative hypothesis is supported). The odds ratio is also the other key element indicating the predictive power of the independent variable, which detailed illustration is discussed in the next chapter.

As discussed in Chapter 3, to test the three hypotheses in total at least 13 variables need to be tested, and some of them might be highly correlated. Therefore, **factor analysis** is conducted to reduce the number of variables with high correlation between each other into several factors. It also helps to explore the underlying structure of the set of variables (Pallant, 2007).

To obtain the loading matrix, assume there are p variables x_1, x_2, \dots, x_p with means of $\mu_1, \mu_2, \dots, \mu_p$, measured on a sample of n subjects, then variable i can be written as a linear combination of m factors F_1, F_2, \dots, F_m where, $m < p$. Thus,

$$x_i - \mu_i = a_{i1}F_1 + a_{i2}F_2 + \dots + a_{im}F_m + e_i$$

where the a_i s are the factor loadings for variable i and e_i is the part of variable x_i that cannot be 'explained' by the factors (Cornish, 2007), e_i are unobserved stochastic error terms with zero mean and finite variance.

Then, assume F and e are independent, $E(F) = 0$ (the expectation of F), L as the loading matrix, and factors are uncorrelated,

$$\text{Cov}(x - \mu) = \text{Cov}(LF + e)$$

In addition, when calculating the final m (factor scores), a decision needs to be made on how many factors to include. The author consults the Monte-Carlo PCA Table, which will be further explained in the next Chapter.

Although, statistically, the results from these techniques may indicate that there is a relationship between variables, it does not mean that one variable causes the other. These tests cannot prove causality. This needs further comprehension of the results based on the conceptual framework and prior literature review to find relationships between variables. This will be discussed further in Chapter 6.

4.5.3 Spearman's Rank Order Correlation analysis and multiple regression

Besides exploring and evaluating the factors that influence the success/failure of projects, research objective 4 is to explore the influence of these factors on the projects' funding ability. Funding ability is measured by the ratio of pledge over the target, which is a continuous dependent variable. Therefore, correlation analysis could be considered. **Correlation analysis**, is a statistical technique to determine the strength and direction of the relationship between two variables (usually continuous), although one of the variables can be dichotomous (Pallant, 2007).

However, as some of the variables are non-parametric, and the normality assumption is violated (as shown in the Appendices), the author will use **Spearman's rho analysis**. The results from the factor analysis (different variables are put into groups) can be used in the test as well.

Denoting the Spearman's Rank correlation coefficient as γ

$$\gamma = 1 - \frac{6 \sum d^2}{n(n^2 - 1)}$$

Where d is the difference between the two ranks of each observation, n is the number of observations.

Furthermore, **multiple regression** needs to be used to predict the funding ability (Ratio – the final funding over the goal) from a group of independent variables.

Denoting the value of dependent variable for the i th case as y_i

$$y_i = b_0 + b_1x_{1i} + b_2x_{2i} + \dots + b_kx_{ki} + e_i$$

Where:

x_{ji} = i th observation of the j th independent variable

b_0 = intercept term

b_k = slope coefficient for each of the independent variables

e_i = error term for the i th observation

k = number of independent variables

4.6 Justification of choice of variables

Individual variables will be further discussed in the following section. Also, to reduce the skewness, the natural logarithmic transformation is applied to several variables (Manning and Mullahy, 2001).

4.6.1 Descriptive statistics

Descriptive statistics are generally used to describe variables focus on two aspects: the central tendency, and the dispersion (Saunders, Lewis and Thornhill, 2016). It is a way of quantitatively explaining the patterns and trends of the dataset and giving a summary of the data in numerical value (Adesanmi, 2018). The following tables present an overview of all the variables at ratio scale level, and the variables in the successful group and failed group, respectively. Using 636 observations, first, the author examines the measure of variability exhibited by each of the variables, variability indicates how spread out the data is, and the standard deviation provides an index of variability in the distribution.

Table 4.5 Descriptive Statistics of Ratio Level Variables

	N	Minimum	Maximum	Mean	Std. Deviation
Final funding	636	5	462171	4657.46	22399.1
Goal	636	100	700000	8918.73	33597.53
The ratio of final funding over the goal	636	0	23.41	1.429	2.53328
The median of pledge levels	636	0	6000	37.94	251.702

Introduction word counts	636	1	4923	606.83	547.62
Video counts	636	0	31	1.01	1.857
Campaign duration	636	3	60	30.77	10.372
Delivery duration	636	1	1151	100.87	115.704
Number of charitable purposes	636	0	3	0.18	0.45
Projects created	636	1	40	2.41	3.294
Team size	636	1	6	1.25	0.625
Number of backers	636	1	9035	116.17	598.541
Number of comments	636	0	2349	13.88	106.533
Projects backed	636	0	327	9.02	28.004
Valid N (listwise)	636				

Table 4.6 Descriptive Statistics of Ratio Level Variables (Success Group)

	N	Minimum	Maximum	Mean	Std. Deviation
Final funding	341	103	462171	8046.26	30171.51
Goal	341	100	77500	3673.53	7374.588
The ratio of final funding over the goal	341	1	23.41	2.533	3.05306
The median of pledge levels	341	0	1295	23.87	85.083
Introduction word counts	341	1	3858	654.64	548.485
Video counts	341	0	15	1.05	1.438
Campaign duration	341	3	60	29.15	9.68
Delivery duration	341	1	573	92.16	93.013
Projects created	341	1	40	3.05	4.059
Number of charitable purposes	341	0	3	0.26	0.511
Team size	341	1	6	1.33	0.715
Number of backers	341	2	9035	178.09	665.979
Number of comments	341	0	2349	24.71	144.677
Projects_backed	341	0	327	15.1	36.742
Valid N (listwise)	341				

Table 4.7 Descriptive Statistics of Ratio Level Variables (Failed Group)

	N	Minimum	Maximum	Mean	Std. Deviation
Final funding	295	5	14002	767.98	1545.398
Goal	295	100	700000	14981.83	48024.49
The ratio of final funding over the goal	295	0	0.94	0.1535	0.18225
The median of pledge levels	295	0	6000	54.21	357.727
Introduction word counts	295	1	4923	551.56	542.304
Video counts	295	0	31	0.97	2.249
Campaign duration	295	7	60	32.64	10.837
Delivery duration	295	1	1151	110.93	136.823
Projects created	295	1	20	1.68	1.835
Number of charitable purposes	295	0	2	0.17	0.416
Team size	295	1	5	1.16	0.484
Number of backers	295	1	434	16.86	32.503
Number of comments	295	0	38	1.36	3.637
Projects_backed	295	0	58	1.99	6.323
Valid N (listwise)	295				

4.6.2 Status (reaching the target or not)

It is a binary variable for the funding status of the crowdfunding campaign, representing whether the campaign reached the funding goal or not (= 1 when the funding goal reached, = 0 target goal not reached). The research further defines success as when status = 1, that the project reached its goal, and the project is failed when status = 0, which is the project did not reach its goal.

Table 4.8 Status Descriptive Statistics

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Failed	295	0	46.4	46.4
	Success	341	0	53.6	100
	Total	636	0.1	100	

From the table above, it can be seen that, in the 636 samples, the number of projects in the group is 341, 53.6% of the samples, which is higher than the success rate of fully funded projects on Kickstarter as a whole that is 36.84% (Kickstarter, 2018). This

might be because of the sampling criteria, many projects with “non-serious efforts” were removed.

4.6.3 Final funding

From Table 4.5, the average final funding is £4,657, while the largest project achieved final funding of £462,171. The latter is a technological project aiming for sufficient funding to produce micro earplugs. The team has developed the technology and produced some prototypes, which is quite common on a RBC platform. The amount of the final funding suggests that RBC does not necessarily mean a low level of financing, it is possible to reach a considerable amount of funds, although the variance is large (standard deviation is £30,172). The mean of final funding in the failed group is £768, much smaller than it in the successful group of £8047.

4.6.4 Ratio

The ratio here refers to the final funding over the goal when the project ended. Kickstarter has an "All-or-nothing" contract, meaning if the company does not reach its monetary goal in a limited period, they do not receive the funds. Therefore, automatically, the ratio of projects in the success group is equal or larger than 1, and vice versa. From table 4.5, the largest figure of the ratio is 23.41, indicating that the project achieved 23.41 times of the goal at the end of the campaign.

4.6.5 Industry

As mentioned, the author used a computer software programme to collect data from the project page. Creators tend to categorise their projects freely, which labels the projects into categories, such as “indie rock”, “wood working” and so on. The author coded these into nine sectors, somewhat different from those used by Kickstarter but drawing upon published sources: the 2007 U.K. SIC code (ONS, 2007), Kromidha and Robson’s (2016) study, Bi et al.’s (2017) study (Science & Technology, Entertainment, Agriculture and Art), and Mollick (2014) (Art, design, fashion, film, music, publishing, technology). These were: Science and Technology (1), Art (2), Design (3), Fashion (4), Film and Video (5), Music (6), Publishing (7), Food and Drink (8) and Entertainment

(9). The coding can be seen as in the Appendix Table A.1. Dummy variables are further created for each sector, as sector 1 to 9, representing whether the project is in the sector or not (values 1= yes, 0= no).

From Table 4.9, 113 projects (18%) are in the art sector, 99 projects (16%) are in the publishing sector, 98 projects (15%) are in the entertainment sector and 84 projects in the fashion sector (13%). The top 3 sectors in the sample matched the Kickstarter statistics, dance (61.83%), theatre (59.82%) and comics (56.68%) (Kickstarter, 2018). Whereas, the fourth sector is quite different, as the music is only 6% compared to 49.64%, which is from Kickstarter statistics. That may be because most music projects are for creators' personal interest, instead of doing business. Among the 636 samples, the Art industry has the largest number of projects, and the Food & Drink industry has the smallest number of projects, 113 and 34, respectively.

Table 4.9 Industry Sectors

	Frequency	Per cent
Science&Technology	55	8.65
Art	113	17.77
Design	67	10.53
Fashion	84	13.21
Film&Video	48	7.55
Music	38	5.97
Publishing	99	15.57
Food&Drink	34	5.35
Entertainment	98	15.41
Total	636	100.00

4.6.6 Goal

The crowdfunding goal was measured as the total amount of money that an entrepreneur intended to raise for a particular project. Projects of different sizes tend to have different perspectives and features. For instance, projects with a small goal may rely more on friends and family. Hand-crafted projects tend to have a small to medium goal, and the campaigners pay more attention to present a personnel attribute. Gaming projects (tabletop games and computer games) tend to have a

relatively large goal, the descriptions focus more on the products/demos and rarely show personnel attributes.

These features may largely affect the test results of three hypotheses, in particular hypothesis 2 regarding the signals of intention. The author found that signals of intention has no significant influence on the status when conducting analysis using the whole sample. The test results on the influence of other variables have not much difference with previous studies. Therefore, to highlight the features of projects with different goals, the analysis is performed separately for 3 groups which vary by size of project. The author uses goal as one of the control variables to divided the cases into three groups, Group A when the goal of a project is smaller than £1000; Group B when the goal of a project is equal to or larger than £1000, and smaller than £15,000; Group C when the goal of a project is equal to or larger than £15,000. There are 216, 328, 92 projects in Group A, B, C, respectively.

As shown in Table 4.5,

Table 4.6, Table 4.7, goal varies from £100 to £700,000, while the goal of projects in the success group only varies from £100 to £77,500. The mean of goal in the success group is £3703, much smaller than it is in the failed group of £14,834, indicating that the goal could be an influential control variable.

4.6.7 Backers

This uses the natural logarithm of the number of backers of the project in this study, represented as LnBacker. The average number of backers for projects is 116 individual backers. The largest backer number for a RBC project is 9035. The mean of the number of bakers is 178 (± 666 s.d.) in the success group, and 17 (± 32 s.d.) in the failed group. It indicates that the number of backers is significantly associated with project status.

4.6.8 Introduction word counts

This is the word count of the description of the project, any risks and challenges included at the bottom of each page. It uses the natural logarithm of the introduction

word counts of the project in this study, represented as LnIntroduction word counts. The number of introduction word counts is 655 (± 549 s.d.) in success group, and 551 (± 542 s.d) in the failed group. In other words, the average word count of failed projects is lower than the successful group. This will be further analysed in a later section.

4.6.9 Video counts

Video counts is the number of videos in a project. As some projects do not have any videos, it would be inappropriate to use logarithms here.

Table 4.10 The frequency of video counts

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	112	32.80	32.80	32.80
	1	172	50.40	50.40	83.30
	2	31	9.10	9.10	92.40
	3	13	3.80	3.80	96.20
	4	3	0.90	0.90	97.10
	5	5	1.50	1.50	98.50
	6	1	0.30	0.30	98.80
	7	1	0.30	0.30	99.10
	9	1	0.30	0.30	99.40
	10	1	0.30	0.30	99.70
	15	1	0.30	0.30	100.00
	Total	341	100.00	100.00	

From Table 4.10, it can be seen that 112 projects among 341 projects in the success group have no videos, which contradict the findings of previous studies which suggest that having a video in a project is significantly important (Bi et al., 2017; Mollick, 2014). Therefore, instead of using a binary variable (whether the project has a video or not), it uses video counts in the research. The mean of video counts is 1.05 (± 1.438 s.d.) in the success group, and 0.97 (± 2.249 s.d.) in the failed group.

4.6.10 Campaign duration

This is the number of days from the start to the end of a project, which at Kickstarter is a maximum of 60 days. It uses the natural logarithm of campaign duration in the study, represented as LnCampaign duration. From the frequency of campaign

duration, it can be seen that 44.7% of projects have 30 days campaign duration, about 25% of projects have a longer duration.

The minimum campaign duration of projects in the success group is 3 days. The mean of campaign duration is 29.15 (± 9.68 s.d.) in the success group, and 32.64 (± 10.837 s.d.) in the failed group. It implies the negative influence of campaign duration on the likelihood of project success.

4.6.11 Delivery duration

This is the number of days from the end of a project to the estimated delivery date. At Kickstarter, only an estimated delivery month is provided, so the last day of the month is used as an estimated delivery date. It uses the natural logarithm of delivery duration in the study, represented as LnDelivery duration. The mean of campaign duration is 92 (± 93 deviation) days in success group, and 110 (± 136 s.d.) days in the failed group, which may suggest the negative influence of campaign duration on the likelihood of project success.

4.6.12 Pledge (median)

Information on the costs to provide (public) goods or service as well as on the benefits a good's consumption offers increase the willingness to pay of potential buyers (Baron and Maxwell, 1996). As explained in chapter 3, a project may have multiple pledge levels, most of the backers would want a tangible reward such as one or more products. The reward with the least cost is usually a 'thank-you' note/card, and the reward with the highest cost is often a large number of the products/services. Therefore, the median is used to indicate the cost of one or a small number of products/services, which are the choices of most backers. The natural logarithm of the pledge median is used in this study, represented as LnPledge.

4.6.13 Charitable purpose and categories

Inspired by the categorisation of charitable purposes under the Charities Act 2006 (Gov.uk, 2006) and Martin's (2012) study, charitable purposes are summarised into seven groups. 1. Human: poverty, education, religion, health, community

development, amateur sport, equality and diversity, age or other disadvantages; 2. Environment: waste management, renewable energy; 3. Arts, the advancement of the arts, culture, heritage or science (e.g., art galleries, festivals and councils, provision or encouragement of high standards of the arts, preservation of heritage sites or buildings; 4. Culture; 5. Heritage; 6. Science; 7. Animal welfare.

The coding and the Charities Act can be seen as in the Appendix Table A.2 and Table A.3. A dummy variable is created to indicate if a project has charitable purposes or not (=1 yes, 0 otherwise). Dummy variables are further created for each charitable purpose, as CP 1 to 7, representing whether the project has a particular charitable purpose or not (values 1= yes, 0= no). This was coded by the author by reading through the project introduction. In total, 122 projects have charitable purposes, with 45 in the failed group and 77 in the success group. Within them, 62 projects showed Human charitable purpose, which suggested the projects or creators have an intention to advance human rights, health, or relief of those in need (by reason of youth, age, ill-health, disability). From Table 4.12, 514 projects (80.8%) do not have a charitable purpose, while 122 projects (19.2%) at least have one charitable purpose. From Table 4.11, among the 122 projects, which have charitable purposes, 62 projects (10%) are with 'Human' Charitable purpose. The percentage of projects with charitable purposes in the success group is slightly higher than in the failed group. In addition, from Table 4.5,

Table 4.6 and Table 4.7, it is found that the mean of number of charitable purposes in the success group (0.26 ± 0.51 s.d.) is slightly higher than it in the failed group (0.17 ± 0.42 s.d.), which implies that both the number and presence of charitable purpose may have a positive influence on the likelihood of project success.

Table 4.11 Types of Charitable Purposes Descriptive Statistics

	Frequency	Per cent
Human	62	9.75
Environment	17	2.67
Arts	22	3.46
Culture	8	1.26
Heritage	2	0.31

Science	1	0.16
Animal welfare	5	0.79
Total	636	100.00

Table 4.12 Charitable Purpose Descriptive Statistics

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	514	0	80.8	80.8
	Yes	122	0	19.2	100
	Total	636	0.1	100	

Table 4.13 Charitable Purpose Descriptive Statistics (Successful Group)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	264	77.4	77.4	77.4
	Yes	77	22.6	22.6	100
	Total	341	100	100	

Table 4.14 Charitable Purpose Descriptive Statistics (Failed Group)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	250	84.7	84.7	84.7
	Yes	45	15.3	15.3	100
	Total	295	100	100	

4.6.14 Number of comments

Backers can post on the project website to communicate with creators, and others cannot. The comments are visible to any visitor. Replies from creators are also counted as a part of comments. There is a significant difference in the number of comments between success and failed group. The mean of the number of comments is 24.71 (± 144.68 s.d.) in the success group, and 1.36 (± 3.64 s.d.) in the failed group.

4.6.15 Projects backed

Projects backed is the number of projects that the creator has backed before. As some creators have not backed any projects, logarithm would not be used here.

From the frequency of video counts, it can be seen that 319 creators (50.2%) have not backed any projects before, 64 of them (10.1%) have backed one project. The figure of zero projects backed in the failed group goes as high as 69.8%, which is much

higher than in the success group (33.1%). The mean of the number of projects backed in the successful group is 15 (± 37 s.d.), also much higher than in the failed group, which is 2 (± 6 s.d.). It suggests that the number of projects backed may have a significant positive influence on the likelihood of project success.

4.6.16 Creator's experiences

Creator experience represents whether or not the creator has created other projects before on Kickstarter (=1 yes, 0 otherwise). Projects created is the number of projects that he/she created before, including the current project.

Table 4.15 Creators' Experience Descriptive Statistics

		Frequency	Valid Percent	Cumulative Percent
Valid	No	402	63.2	63.2
	Yes	234	36.8	100
	Total	636	100	

Table 4.16 Creators' Experience Descriptive Statistics (Successful Group)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	179	52.5	52.5	52.5
	Yes	162	47.5	47.5	100
	Total	341	100	100	

Table 4.17 Creators' Experience Descriptive Statistics (Failed Group)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	223	75.6	75.6	75.6
	Yes	72	24.4	24.4	100
	Total	295	100	100	

From Table 4.5, the number of projects created is 2.41 (± 3.29 s.d.) on average. From Table 4.6, the average of the number of projects created in success group 3.05 (± 4.06 s.d.) is higher than it in the failed group (Table 4.7), 1.68 (± 1.84 s.d.). From Table 4.15, 402 creators (53.2%) have not created a project on Kickstarter before, while the creators of 234 projects (36.8%) have at least one experience. Although the ratio in the success group is about half to half, it indicates that creators' experience may not be critically important.

4.6.17 Facebook link

In the creator's profile page, it indicates whether he/she connected Facebook with the project. A dummy variable is created to represent whether the creator has or not connected the project with his/her Facebook (=1 yes, 0 otherwise). From Table 4.18, in total, 289 projects are connected to Facebook, 45.4% of the samples. From Table 4.19 and Table 4.20, 169 of them are successful projects, while the other 172 projects in the success group have not connected to Facebook. This is contrary to findings from previous studies that connecting to Facebook is an essential element (Chu and Kim, 2011; Kromidha and Robson, 2016).

Therefore, it will be further analysed in chapter 5 using the goal as a control variable in Group A, B and C.

Table 4.18 Facebook Link Descriptive Statistics

		Frequency	Valid Percent	Cumulative Percent
Valid	No	347	54.6	54.6
	Yes	289	45.4	100
	Total	636	100	

Table 4.19 Facebook Link Descriptive Statistics (Successful Group)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	172	50.4	50.4	50.4
	Yes	169	49.6	49.6	100
	Total	341	100	100	

Table 4.20 Facebook Link Descriptive Statistics (Failed Group)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	175	59.3	59.3	59.3
	Yes	120	40.7	40.7	100
	Total	295	100	100	

4.6.18 Team size

This is the number of collaborators (team size) in a project. It is collected based on the number of collaborators shown on the profile page as well as the context of the creators' profile.

The mean of team size is 1.33 (± 0.72 s.d.) in the success group, which is only slightly higher than it in the failed group 1.16 (± 0.49 s.d.).

4.7 Summary

The chapter starts with exploring the two widely used philosophical assumptions in social science – ontology and epistemology. Through literature review, it is believed that traditional philosophy is of dualisms with idealistic or rationalistic approaches. The author adopts pragmatist epistemological stance to look for the truth as the result of a process and interaction between human beings, and to understand the reason of phenomena and measure what predicts its occurrence.

The discussion is followed up by the justification of the mixed method research design. Content Analysis and thematic analysis are used to test hypotheses H2a, H2b, H2c. Through a longitudinal Internet-mediated observation, data of UK projects are collected from Kickstarter. The sampling criteria stated in 4.4 fulfils the aim of the thesis focusing on nascent entrepreneurs who have a genuine aim to start a new venture/run business in the UK.

In 4.5, two groups of statistical techniques are specified for different research objectives. To reach the research objective 1 and 2, statistical techniques to compare independent groups need to be used to test the three hypotheses. Mann-Whitney U (for numerical variables) and Chi-square test (for categorical variables) are to be applied. For the research objective 3, binary logistic regression test and factor analysis are used to explore the interrelationship between variables. For the research objective 4, Spearman's rho test is used to evaluate the strength and direction of the relationship between variables. Then, to predict the funding ability from independent variables, multiple regression is to be used. At last, the choice of variables is justified, and the descriptive statistics are presented for an overview of the variables.

Chapter 5 Data Analysis and Findings

5.1 Introduction

This chapter presents the findings of the data analysis to fulfil the research objective 3 and further pertains to the existing studies in the RBC domain. It first conducts content analysis to investigate the role of context in the success/failure of a project. Subsequently, it conducts quantitative data analyses to test the hypotheses in order to explore and evaluate the interplay between different signals and their relationship with the successful completion of a project. Finally, it investigates the relationship between signals and the funding ability of projects, where correlation and multiple regression analysis provide an indication of its predictor and criterion.

5.2 The analysis of qualitative data

5.2.1 Content analysis

Table 5.1 Content Analysis Results (Success Group)

Word	Length	Count	Weighted Percentage	Similar Words
helps	5	1384	0.69%	help, helped, helpful, helping, helps
supporting	10	1317	0.66%	'supporter, support, supported, supporter, supporters, supporters', supporting, supportive, supports
needs	5	890	0.44%	need, needed, needing, needs
created	7	864	0.43%	create, created, creates, creating
life	4	693	0.35%	life, life'
originals	9	582	0.29%	origin, original, originality, originally, originals, originates, originating, origination, originator, origins, origin'
lovingly	8	556	0.28%	'lovely', love, love', loved, lovelies, lovely, loves, loving, lovingly
people	6	510	0.25%	people, peoples, peoples'
creativity	10	496	0.25%	creative, creatively, creatives, creativity
friends	7	379	0.19%	friend, friendly, friends, friends'

Table 5.2 Content Analysis Results (Failed Group)

Word	Length	Count	Weighted Percentage	Similar Words
supports	8	1018	0.70%	support, supported, supporter, supporters, supporters', supporting, supportive, supports
helps	5	867	0.60%	help, helped, helpful, helping, helps
created	7	820	0.56%	create, created, creates, creating
needs	5	770	0.53%	need, needed, needing, needs
creativity	10	448	0.31%	creative, creatively, creatives, creativities, creativity
people	6	435	0.30%	people, people', peoples
lovely	6	356	0.25%	love, loved, lovely, loves, loving, lovingly
develops	8	349	0.24%	develop, developable, developed, developer, developers, developing, development, development', developments, develops
life	4	275	0.19%	'life, life, life'
friends'	8	272	0.19%	friend, friendly, friends, friends'

The repeated general words without too much meaning are put in Stop Word List as shown in the Appendix Table B.1. From Table 5.1, and Table 5.2, it can be seen that the top 10 most frequent words of the failed group and success group are similar. The Words "help", "support" and "needs" in the text are frequently used as "I really need the support..." and "I need the/your help...". These words are believed to be the signals that are likely to evoke a sense of empathetic concern (Batson *et al.*, 1983; Maner and Gailliot, 2006). Thus, receivers are motivated by altruistic motivation, so it is more likely for them to back the project.

However, compare between the two tables, the weighted percentage of the three words are at the same level. The influence of the signals presenting "in need of help" on the success of RBC projects need to be analysed further.

5.2.2 Mann Whitney U test

The sum of the weighted average of ‘support’, ‘help’ and ‘need’ frequencies in each project is used here, as variable Words-total. As discussed in Chapter 4, Mann Whitney U test is used here to determine the influence of the signals presenting “in need of help” on the likelihood of RBC projects success.

Table 5.3 Ranks

Ranks				
	Status	N	Mean Rank	Sum of Ranks
Words_total (%)	Failed	295	327.58	96637
	Success	341	310.64	105929
	Total	636		

Table 5.4 Mann Whitney U Test Statistics

Test Statistics ^a	
	Words_total (%)
Mann-Whitney U	47618
Wilcoxon W	105929
Z	-1.16
Asymp. Sig. (2-tailed)	0.246

a. Grouping Variable: Status

As seen in Table 5.4, the Mann-Whitney U test found that there is no statistically significant difference between the two groups (success group and failed group) in the variable of Words-total ($p=.246 > .05$). In other words, there is no significant difference of signals presenting "in need of help" of RBC projects between success and failed group.

Therefore, Hypothesis 2c is rejected.

The outcome is quite contrary to Batson et al.'s empathy-altruism hypothesis, which is a long line of research and has been supported by others (Batson *et al.*, 1983, 1997; Batson and Powell, 2003; Batson, Ahmad and Stocks, 2011; Batson, 2014). The outcome may be based on three reasons. First, it can be seen that the most frequent

words are relevant to asking for help, which means most creators will use the approach. The threshold limit to trigger empathic concern may be raised. They would not fall for these seeming-like standard procedures. Second, as discussed in Batson et al.'s (1997) study, empathic concern is associated with an affective focus on someone who is suffering, and therefore promotes altruistic motivation to provide aid. However, due to the sampling criteria, the help that the chosen projects asking for should be mainly funding for business. The 'suffering' is not strong enough for receivers to provide aid. To 'live others' dream' is not a critical factor for them to make the decision. Third, Maner and Gailliot's (2006) study shows that the empathy-altruism hypothesis could be more relevant in the context of kinship relationships rather than among strangers. Although during their survey, participants expressed their willingness to help both kin-member and a stranger when in specific need, empathic concern is linked to a kin-member more than a stranger. In general, in a RBC project expressing the need for help is of limited meaning as people may tend to help their kinship instead of a stranger.

5.3 Presentation of statistical analysis on the likelihood of reaching the goal

The output of the statistical tests performed are mostly tabulated, which are copied directly from the software (SPSS), and each of the tables has its interpretation. As discussed in Chapter 4, the samples are divided in three groups, Group A- Goal <£1000, Group B - £1000 ≤ Goal < £15000, and Group C - Goal ≥ £15000.

5.3.1 Comparison between Independent groups (Mann Whitney U test, Chi-square test)

The effective size r is used to indicate the size of the difference between the means of the conditions or groups on the dependent variable. It is similarly to a correlation coefficient, and gives the proportion of variance explained by one variable on the other (Cramer and Howitt, 2004). Effect size with higher values indicate a stronger association between the two variables (Pallant, 2007). The value of z reported directly in the output can be used to calculate an approximate value of r . Effect size r and median scores for each group are calculated and presented as in Table 5.5,

Table 5.6 and Table 5.7, $r = z / \text{square root of } N$ where N = the total number of cases. In addition, the power efficiency of the Mann-Whitney U Test relative to the parametric t test for independent samples is reported as 95% (Gibbons, 1976). The author uses Cohen's (1988) criteria for effect size of .10 for small effect, .30 for medium effect and .50 for large effect.

From the mean rank column as shown in the Appendix Table B.2, Table B.3 and Table B.4, it can be seen that in all the three groups, the mean rank of pledge median, introduction word counts, projects backed, number of comments, team size, number of charitable purposes, projects created, video counts and surprisingly even delivery duration in the success group is larger than in the failed group. Whereas, the mean rank of campaign duration in the success group is smaller than in the failed group.

Table 5.5 Group A with goal <1000 Mann Whitney U Test Statistics

	Mann-Whitney U	Wilcoxon W	Z	Asymp. Sig. (2-tailed)	Effect size r
LnPledge median	4793.5	7071.5	-0.466	0.641	0.03
LnIntroduction word counts	3850	6128	-2.687	0.007	0.18
LnCampaign_duration	3807	14982	-2.849	0.004	0.19
LnDelivery_duration	4630	15805	-0.851	0.395	0.06
Projects_backed	2513.5	4791.5	-6.059	0.00	0.41
LnGoal	4457	15632	-1.264	0.206	0.09
LnNumber of backers	443.5	2721.5	-10.709	0.00	0.73
Team size	4439	6717	-2.587	0.01	0.18
Number of comments	2879.5	5157.5	-5.271	0.00	0.36
Projects created	3390.5	5668.5	-3.941	0.00	0.27
Number of charitable purposes	4861	7139	-0.492	0.622	0.03
Video counts	4840.5	7118.5	-0.416	0.677	0.03

a. Grouping Variable: Status

As seen in Table 5.5, in Group A, the Mann-Whitney U test found that there is a statistically significant difference between the two groups (success group and failed group) in the variables of, introduction word counts ($p=.007 <.05$), number of comments ($p=.001 <.05$), campaign duration ($p=.004 <.05$), number of projects backed ($p=.001 <.05$), team size ($p=.01 <.05$), number of projects created ($p=.001$

<.05). There is no statistically significant difference between the two groups in the variables of delivery duration, video counts, pledge median, goal and number of charitable purposes. Using Cohen's (1988) criteria, two variables, the number of projects backed and the number of comments, have medium effect on projects status.

To conclude:

- The introduction word counts, projects backed, team size, number of comments, projects created in the success group is significantly larger than those in the failed group.
- The campaign duration in the success group is significantly smaller than those in the failed group.

Therefore, hypotheses 1a, 1c, 3a, 3b, 3c and 3e are supported.

Table 5.6 Group B £1000 ≤ Goal < £15000 Mann Whitney U Test Statistics

	Mann-Whitney U	Wilcoxon W	Z	Asymp. Sig. (2-tailed)	Effect size r
LnGoal	12177	27228	-1.438	0.15	0.08
LnPledge median	11388.5	23478.5	-2.355	0.019	0.13
LnIntroduction word counts	9525	21615	-4.528	0.00	0.25
LnCampaign_duration	11591	26642	-2.157	0.031	0.12
LnDelivery_duration	11800.5	23890.5	-1.874	0.061	0.10
LnNumber of backers	1494	13584	-13.899	0.00	0.77
Projects backed	8550	20640	-6.112	0.00	0.34
Number of comments	5710	17800	-9.478	0.00	0.52
Team size	10857.5	22947.5	-4.081	0.00	0.23
Number of charitable purposes	11918	24008	-2.467	0.014	0.14
Projects created	11899.5	23989.5	-2.198	0.028	0.12
Video counts	8410.5	20500.5	-6.399	0.00	0.35

a. Grouping Variable: Status

As seen in Table 5.6, in Group B, there is no statistically significant difference between the two groups in the variables of delivery duration and pledge median, as the same as in Group A. However, in addition to the variables with significant influence in Group A, in group B, there is statistically significant difference between the two groups in the variables of number of charitable purposes ($p=.014 <.05$), video counts ($p=.001 <.05$) and pledge median ($p=.019 <.05$). The two variables, number of

projects backed ($p=.001 <.05$, $r=0.34$), and video counts ($p=.001 <.05$, $r=0.35$) have medium effect on projects status. Furthermore, the number of comments ($p=.001 <.05$, $r=0.52$) has a large statistically effect on project status.

To conclude:

- The introduction word counts, projects backed, team size, number of comments, projects created, number of charitable purposes, video counts and pledge median in success group is significantly larger than those in the failed group.
- The campaign duration in the success group is significantly smaller than those in the failed group.

Therefore, hypotheses 1a, 1b, 1c, 2b, 3a, 3b, 3c and 3e are supported, whereas hypothesis 1e has an opposite direction result. The pledge median in the success group is significantly larger than in the failed group, although with a small effect.

Table 5.7 Group C Goal \geq £15000 Mann Whitney U Test Statistics

	Mann-Whitney U	Wilcoxon W	Z	Asymp. Sig. (2-tailed)	Effect size r
LnGoal	597	733	-0.114	0.909	0.01
LnPledge median	495.5	3421.5	-1.159	0.246	0.12
LnIntroduction word counts	342	3268	-2.74	0.006	0.29
LnCampaign_duration	497.5	633.5	-1.155	0.248	0.12
LnDelivery_duration	564.5	3490.5	-0.448	0.654	0.05
LnNumber of backers	18	2944	-6.081	0.00	0.63
Number of comments	140	3066	-5.438	0.00	0.57
Team size	476	3402	-1.889	0.059	0.20
Projects backed	185	3111	-5.084	0.00	0.53
Number of charitable purposes	511.5	3437.5	-1.411	0.158	0.15
Projects created	457	3383	-2.36	0.018	0.25
Video counts	380	3306	-2.591	0.01	0.27

a. Grouping Variable: Status

As seen in Table 5.7, in Group C, there is no statistically significant difference between the two groups in the variables of pledge median, campaign duration, delivery duration, team size, and the number of charitable purposes. The variables which have a statistically significant impact on status have at least small to medium effect on it - introduction word counts ($p=.006 <.05$, $r=0.29$), video counts ($p=.01 <.05$, $r=0.27$) and number of projects created ($p=.018 <.05$, $r=0.25$). In addition, the two variables, number of comments ($p=.001 <.05$, $r=0.57$) and projects backed ($p=.001 <.05$, $r=0.53$) have even large effect on project status.

To conclude:

- The introduction word counts, video counts, projects backed, the number of comments and projects created in success group is significantly larger than those in the failed group.

Therefore, hypotheses 1a, 1b, 3a, 3b, 3c and 3e are supported.

In conclusion, there is no significant difference between the success and failed groups in terms of signals of project intention in Group A and Group C. In all three groups, generally, variables presenting the size and quality of the social network play a larger effect than other variables using Cohen's (1988) criteria. It partially proved that signal observability plays a critical role. In Group B (with a medium-sized goal) the pledge median in the success group is significantly larger than in the failed group, although with a small effect using Cohen's (1988) criteria, which is on an opposite direction of the hypothesis. It may suggest that within an acceptable range, backers do not mind paying more for the product or they perceive a higher price product of better quality.

Moreover, in either of the three groups, surprisingly, there is no significant difference between the success and failed groups in the variables of delivery duration. Hypothesis 1d is not supported. The finding is opposite to previous findings from existing literature (Kunz *et al.*, 2017), that is “the estimated time of delivery for the rewards has a negative impact on the successful completion of a campaign” (p.425).

Also, it is opposite to the characteristics of NPP, which is the uncertainty of the delivery date of the product adds complexity and negative influence on consumers' decisions (Su and Rao, 2010). One possible explanation is that the sampling criteria decides that all chosen projects are start-ups or nascent entrepreneurs, so in most cases, the product is in concept-proving period or not in completion yet. Backers might have perceived the estimated time of delivery for the rewards is long, so it would not affect their decision-making. Second, the NPP theory is based on consumer behaviour. The unique feature of RBC is that backers are not merely 'buyers'. They can also be supporters and encouragers. For instance, in Group C, using Cohen's (1988) criteria two signals of social network play a large effect on the successful completion of a campaign. The motivation to support someone they knew may play a more critical role than the reward motivation.

Chi-square test for independence

As discussed in Chapter 4, the author conducts Chi-square test for independence to compare categorical variables between the success and failed groups. For length and simplicity reasons, only tests showing significant association will be presented either in this chapter or Appendices.

Table 5.8 Chi-square Test (Group A)

	Failed (%) (N=67)	Success (%) (N=149)	Total (%) (N=216)	Chi-square Test	Effect size (r)
Science and Technology Sector	11.9	3.4	6	$\chi^2 = 4.6, df=1, p = 0.032^*$	-0.167
Creator experience	37.3	65.8	56.9	$\chi^2 = 14.128, df=1, p = 0.001^{**}$	0.266

* $p < 0.05$

** $p < 0.01$

From Table B.5 in the Appendix, it can be seen that in Group A, a Chi-square test for independence (with Yates Continuity correction) indicated no significant association between charitable purposes (yes or no) and status, or Facebook link (yes or no) and status. As seen in Table 5.8 The test indicated statistically significant association between Science & Technology industry and Status, $\chi^2 (1, n = 216) = 4.6, p = .032$

<.05, phi = -.17, which is considered as a small effect using Cohen's (1988) criteria. From the Crosstab Table, 6% of projects of samples in Group A are in this industry, and 38.5% of them reached the target. Also, Science and Technology projects have a higher percentage in the failed group (11.9%) than in the success group (3.4%). It suggests that Science and Technology projects with a small goal (<£1000) are less likely to reach the targets. It may be because science and technology projects are normally perceived as a high investment as the R&D cost, while a goal under £1000 decreased its reliability.

Creators' experiences (yes or no) is also statistically significant associated with Status, $\chi^2 (1, n = 216) = 14.13, p = .00 <.05, \text{phi} = 0.27$, which is considered as a small to medium effect using Cohen's (1988) criteria. From the Crosstab Table (Table B.7 in the Appendices), creators of 56.9% projects of samples in Group A have created projects on Kickstarter before, and 79.7% of them reached the target. Also, experienced creators' projects have a higher percentage in the success group (65.8%) than in the failed group (37.3%). It suggests that experienced creators' projects in this group are more likely to reach the targets.

Table 5.9 Chi-square Test (Group B)

	Failed (%) (N=155)	Success (%) (N=173)	Total (%) (N=328)	Chi-square Test	Effect size (r)
Charitable Purpose	34.8	65.2	21.03	$\chi^2=4.839, df=1, p = 0.028^*$	0.129
Culture (Charitable Purpose)	0	100	2.43	$\chi^2 =5.532, df=1, p = 0.019^*$	0.15
Facebook	41.1	58.9	48.17	$\chi^2=4.115, df=1, p = 0.043^*$	0.118
Science and Technology Sector	70.8	29.2	7.32	$\chi^2=4.8, df=1, p = 0.028^*$	-0.133
Music Sector	26.7	73.3	9.15	$\chi^2=4.744, df=1, p = 0.029^*$	0.131

* $p < 0.05$

** $p < 0.01$

From Table 5.9, it can be seen that in Group B, the test indicated a statistically significant association between Charitable purposes (Yes or No) and Status, $\chi^2 (1, n = 328) = 4.84, p = .028 <.05, \text{phi} = .13$, which is considered a small effect using Cohen's

(1988) criteria. From the Crosstab Table, 21% of projects of the samples in Group B appeared to have a charitable purpose, and 65.2% of them reached the target. Also, projects with charitable purposes have a higher percentage in the success group (26%) than in the failed group (15.5%).

This suggests that projects with a charitable purpose are more likely to reach the targets. Among the seven categories of charitable purposes, a significant association between Culture and Status is indicated, $\chi^2 = 5.53$, $p = .019 < .05$, $\phi = .15$, which is considered as a small effect using Cohen's (1988) criteria. From table above, 2.4% of projects of samples in Group B showed a cultural charitable purpose, and 100% of them reached the target. Also, projects with charitable purpose in culture have a higher percentage in the success group (4.6%) than in the failed group (0.0%). It suggests that projects with charitable purpose in culture are more likely to reach the targets. There appears to be no association between other categories of charitable purposes and status.

In addition, the test indicated statistically significant association between Facebook link (Yes or No) and Status, $\chi^2 = 4.12$, $p = .043 < .05$, $\phi = .12$, which is considered as a small effect using Cohen's (1988) criteria. From table above, 48.2% of projects of samples in Group B are connected with creators' Facebook, and 58.9% of them reached the target. Also, projects connected to Facebook have a higher percentage in the success group (53.8%) than in the failed group (41.9%). Which suggests a link between projects that connected creators' Facebook and the likeliness to reach the targets.

Surprisingly, the other categorical variable representing a signal of creators' social network, Creator experience (Yes or No) has no significant association with status, although significantly difference is shown between the number of projects created and status. However, it supported the author's understanding that through creating more projects on the same platform, the creator can build a relative larger 'follower' community - the number of projects created matters more.

For the projects sector, Science & Technology, Music and Publishing industries are indicated to be significantly associated with Status, where $\chi^2 = 4.8, 4.74$ and 5.38 , $p = .028, .029$ and $.02$ respectively, all with small effect size. From the Ranks Table (Table B.3 in the Appendices), it suggests that Science and Technology projects in Group B are less likely to reach the targets, while projects in Music or Publishing industry are more likely to reach the targets.

Table 5.10 Chi-square Test (Group C)

	Failed (%) (N=76)	Success (%) (N=16)	Total (%) (N=92)	Chi-square Test	Effect size (r)
Creator experience	62.5	97.5	17.39	$\chi^2=3.889, df=1, p = 0.049^*$	0.243

* $p < 0.05$

** $p < 0.01$

From Table 5.10, it can be seen that in Group C, the test indicated a statistically significant association between Creator experience (Yes or No) and Status, $\chi^2 (1, n = 92) = 3.89$, $p = .049 < .05$, $\phi = .24$, which is considered a small effect. Creators of 17.4% projects of samples in Group C have created projects on Kickstarter before. Although 37.5% of them reached the target, experienced creators' projects have a higher percentage in the success group (37.5%) than in the failed group (13.2%). It suggests that experienced creators' projects in this group are more likely to reach the targets. However, as the sample size in Group C is relatively smaller, the significance value p is close to $.05$, the author will take the result of the relationship between Creator experience (Yes/No) and Status in Group B as a valid result.

Also, none of charitable purpose, Facebook link, sectors have a significant association with status. Therefore, hypotheses 2a and 3c are supported when only the goal of a project is larger than £1000 and smaller than £15000.

It can be concluded so far in general signals of project quality and creators' social network are significantly related to the status of projects (whether or not achieve the goal). Besides, part of signals of project intention – prosocial intention (charitable

purposes) is significantly related to projects status when the goal is larger than £1000 and smaller than £15000.

To fulfil the research purpose of this evaluative study, the predictive power of the model to the likelihood of projects reaching the target needs further analysed in the next section using the binary logistic regression technique. For the sample size requirements to use the binary logistic regression technique, the variables delivery duration (as no significant influence), pledge median (as only has a significant influence in one group with small effect size) and the number of charitable purposes (strongly related to the presence of charitable purpose) are removed.

5.3.2 Binary logistic regression result

There are three assumptions need to be checked before using the logistic regression technique. First, the sample size. Stevens (1996, p.72) suggested that “for social science research, about 15 participants per predictor are needed for a reliable equation”. Tabachnick and Fidell (2007) further provided a formula for calculating sample size requirements: $N > 50 + 8m$ (where m = the number of independent variables). Therefore, taking into account of 9 variables, the minimum sample size should be 122. The sample size of Group A and B both fulfilled this assumption.

Second, multicollinearity needs to be considered. Pallant (2007) stated that logistic regression is sensitive to high correlations among the predictor variables. The ideal situation is when independent variables strongly related to dependent variables but not strongly related to each other. To request collinearity diagnostics the author used Ratio (the ratio of final funding over the goal) as the dependent variable to run a multiple regression analysis, as seen in Table B.15 in the Appendices, the tolerance values of nine variables are all larger than .1 indicate that the variables are not strongly related to each other in the model.

Third, outliers cases need to be investigated. It is essential to check cases that are not well explained by the model. From the scatterplot, several outliers are not well explained by the model. While inspecting the residuals, it can be seen that the

residuals are roughly rectangularly distributed, with most of the scores concentrated in the centre. Therefore, the presence of outliers does not affect the predictive power of the model.

The research uses a Forced Entry Method as the default procedure available in SPSS at first. In this approach, all predictor variables are tested in one block to assess their predictive ability, while controlling the effects of other predictors in the model. The stepwise procedure (e.g. forward and backward) is applied after the default procedure so that SPSS can pick a subset that provides the best predictive power.

Based on the findings from the Mann Whitney U test, the pledge median and delivery duration are not significantly related to any group. Also, as discussed previously, nine independent variables are chosen to be contained in the model (LnIntroduction word counts, LnCampaign duration, Projects backed, Team size, Number of comments, Facebook Link, Charitable purposes, Projects created and Video counts). In the following, direct logistic regression is performed to assess the impact of factors on the likelihood that projects would reach their target.

Table 5.11 Logistic Regression Predicting Likelihood of Reaching the Target (Group A)

	B	S.E.	Wald	p	Odds Ratio	95% C.I. for Odds Ratio	
						Lower	Upper
LnIntroduction word counts	0.398	0.277	2.057	0.152	1.488	0.864	2.563
LnCampaign_duration	-0.628	0.438	2.055	0.152	0.534	0.226	1.259
Team size	0.545	0.534	1.044	0.307	1.725	0.606	4.908
Projects created	0.148	0.083	3.168	0.075	1.159	0.985	1.364
Projects_backed	0.073	0.028	6.677	0.01	1.076	1.018	1.138
Number of comments	0.25	0.092	7.447	0.006	1.284	1.073	1.537
Facebook Link(1)	0.243	0.369	0.433	0.51	1.275	0.618	2.629
Charitable purpose(1)	0.792	0.487	2.644	0.104	2.208	0.85	5.734
Video counts	-0.056	0.324	0.03	0.862	0.945	0.501	1.783
Constant	-1.458	1.886	0.598	0.439	0.233		

a. df=1

As seen in Table B.16 in the Appendices, in Group A, the full model containing all predictors is statistically significant, $\chi^2(9, N=216) = 69.46, p < .001$, indicating that the

model is able to distinguish between the projects that reached and did not reach their targets. The model as a whole explained between 27.5% (Cox and Snell R square) and 38.7% (Nagelkerke R squared) of the variance in status, and correctly classified 75.5% of cases, an improvement over the 69.0 per cent in Block 0 where IBM SPSS classified that all projects would not achieve the goal. The model is able to correctly classify 85.2 per cent of the project which achieved the goal, and 53.7 per cent projects that did not achieve the goal are correctly predicted.

From Table 5.11, only two of the independent variables made a unique statistically significant contribution to the model (Projects backed and the number of comments). The strongest predictor of projects reaching their target is the number of comments, recording an odds ratio of 1.29. This indicated that projects with every additional comment are 1.29 times more likely to reach the targets, controlling for all other factors in the model.

Table 5.12 Logistic Regression Predicting Likelihood of Reaching the Target (Group B)

	B	S.E.	Wald	p	Odds Ratio	95% C.I. for Odds Ratio	
						Lower	Upper
LnIntroduction word counts	0.108	0.123	0.76	0.383	1.114	0.874	1.418
LnCampaign_duration	-0.592	0.428	1.916	0.166	0.553	0.239	1.279
Projects_backed	0.014	0.011	1.766	0.184	1.015	0.993	1.036
Facebook Link(1)	0.487	0.272	3.202	0.074	1.628	0.955	2.776
Number of comments	0.2	0.037	28.993	0.00	1.222	1.136	1.314
Team size	0.734	0.247	8.811	0.003	2.084	1.283	3.384
Projects created	-0.087	0.09	0.918	0.338	0.917	0.768	1.095
Charitable purpose(1)	1.033	0.318	10.541	0.001	2.81	1.506	5.243
Video counts	0.004	0.059	0.006	0.939	1.004	0.896	1.127
Constant	-0.559	1.678	0.111	0.739	0.571		

a. df=1

As seen in Table B.17 in the Appendices, in Group B, the full model containing all predictors is statistically significant, $\chi^2 (9, N=328) = 119.30, p < .001$, indicating that the model is able to distinguish between the projects that reached and did not reach their targets. The model as a whole explained between 30.5% (Cox and Snell R square)

and 40.7% (Nagelkerke R squared) of the variance in status, and correctly classified 70.7% of cases, an improvement over the 52.7 per cent in Block 0 where IBM SPSS classified that all projects would not achieve the goal. The model is able to correctly classify 65.3 per cent of the project which achieved the goal, and 76.8 per cent projects that did not achieve the goal are correctly predicted.

From Table 5.12, three of the independent variables made a unique statistically significant contribution to the model (Projects backed, team size and Charitable purpose (Yes or No)). The strongest predictor of projects reaching their target is Charitable purpose, recording an odds ratio of 2.81. This indicated that projects with charitable purpose are 2.81 times more likely to reach the targets, controlling for all other factors in the model.

In Group C, considering the impact of sample size on the generalisability of the model, independent variables are firstly deducted to five to suit the sample size (LnIntroduction word counts, projects backed, number of comments, projects created and video counts) based on findings from comparison analysis between the success and failed group. The test shows similar results as using the nine variables. Therefore, to facilitate the comparison, the result of tests using the nine variables is presented as follows.

Table 5.13 Logistic Regression Predicting Likelihood Of Reaching The Target (Group C)

	B	S.E.	Wald	p	Odds Ratio	95% C.I. for Odds Ratio	
						Lower	Upper
LnIntroduction word counts	0.577	0.707	0.666	0.414	1.78	0.446	7.112
LnCampaign_duration	-1.517	2.265	0.448	0.503	0.219	0.003	18.608
Projects_backed	0.587	0.198	8.751	0.003	1.798	1.219	2.652
Facebook Link(1)	-0.154	0.956	0.026	0.872	0.857	0.132	5.582
Number of comments	0.095	0.054	3.118	0.077	1.099	0.99	1.221
Team size	0.312	0.615	0.257	0.612	1.366	0.409	4.559
Charitable purpose(1)	1.687	1.023	2.718	0.099	5.402	0.727	40.128
Projects created	-2.083	1.562	1.778	0.182	0.125	0.006	2.66
Video counts	-0.006	0.344	0	0.985	0.994	0.507	1.949
Constant	-0.581	8.396	0.005	0.945	0.559		

a. df=1

As seen Table B.18 in the Appendices, the full model containing all predictors is statistically significant, $\chi^2(9, N=92) = 50.44, p < .001$, indicating that the model is able to distinguish between the projects that reached and did not reach their targets. The model as a whole explained between 42.2% (Cox and Snell R square) and 70% (Nagelkerke R squared) of the variance in status, and correctly classified 95.7% of cases, an improvement over the 82.6 per cent in Block 0 where IBM SPSS classified that all projects would not achieve the goal. The model is able to correctly classify 81.3 per cent of the project which achieved the goal, and 98.7 per cent projects that did not achieve the goal are correctly predicted.

From Table 5.13, only one of the independent variables made a unique, statistically significant contribution to the model - Projects backed. It records an odds ratio of 1.80. This indicated that a creator with every additional project backed comment are 1.80 times more likely to reach the targets, controlling for all other factors in the model.

In conclusion, the number of projects backed is a strong predictor of projects reaching their targets in all three groups. For projects with small goals (Group A), the number of comments also plays a vital role in prediction. For Group B, whether or not the project has a prosocial intention (Charitable purpose) is the strongest predictor of projects reaching their targets. The number of collaborators is another strong predictor.

To further analysing the underlying factor structure of the variables, factor analysis is applied in the next section.

5.3.3 Factor analysis result

Due to the limited sample size of Group C and the limited improvement of the model for Group A, principal components analysis (PCA) is applied to Group B only.

Table 5.14 Pattern and Structure Matrix for PCA with Oblimin Rotation of Three Factor Solution (Group B)

Item	Pattern Matrix ^a			Structure Matrix			Communalities
	Component 1	Component 2	Component 3	Component 1	Component 2	Component 3	
Number of charitable purposes	0.975	0.00	-0.007	0.974	-0.03	0.079	0.319
Charitable purpose	0.971	-0.015	-0.003	0.971	-0.044	0.081	0.463
Projects backed	-0.046	0.88	-0.131	-0.084	0.867	-0.042	0.943
Projects created	0.011	0.76	-0.251	-0.033	0.733	-0.169	0.772
Number of comments	-0.115	0.487	0.243	-0.108	0.516	0.284	0.164
Facebook Link	0.097	0.334	0.172	0.102	0.349	0.216	0.333
Video counts	-0.169	0.081	0.66	-0.113	0.156	0.653	0.242
LnPledge median	-0.039	-0.176	0.588	0.018	-0.112	0.566	0.599
LnIntroduction word counts	0.051	0.088	0.542	0.097	0.144	0.555	0.352
Team size	0.171	-0.009	0.447	0.21	0.034	0.461	0.949

Note. Major loadings for each item are bolded.

The eleven variables tested in Mann Whitney U and Chi-square test appear to be significantly correlated to project status are subjected to principal components analysis (PCA) using SPSS. Prior to performing PCA, the suitability of data for factor analysis is assessed. Inspection of the correlation matrix revealed the presence of many coefficients of .3 and above. As shown in Table B.19 in the Appendix, the Kaiser-Meyer-Okin value is .55, around the recommended value of .6 (Kaiser, 1970, 1974) and Bartlett's Test of Sphericity (Bartlett, 1954) reached statistical significance, supporting the factorability of the correlation matrix.

Principal components analysis revealed the presence of three components with eigenvalues exceeding 1, explaining 18.67%, 15.37%, 12.74% and 9.79% of the variance, respectively.

An inspection of the Scree plot (as shown in Table B.20) revealed clear breaks after the third and eighth components. Using Cattell's (1966) scree test it is decided to retain three components for further investigation. This is further supported by the results of Monte Carlo Parallel Analysis developed by Marley Watkins (2000), which

showed only three components with eigenvalues exceeding the corresponding criterion values for a randomly generated data matrix of the same size (11 variables * 328 respondents).

In the three-component solution, the communalities output gives information about how much of the variance in each item is explained. Low values (less than .3) of LnCampaign duration, Team size and Facebook Link indicates that they do not fit well with the other items in its component. To improve the scale, the author removed LnCampaign duration variable from the scale first.

Re-run the test without LnCampaign duration variable, the three-component solution explained a total of 51.35% of the variance, with Component 1 contributing 20.50%, Component 2 contributing 16.87%, and Component 3 contributing 13.98%. To aid in the interpretation of these three components, oblimin rotation is performed. The rotated solution revealed the presence of relatively simple structure (Thurstone, 1947), with all components showing several strong loadings and most variables loading substantially on one component, while the number of comments and Facebook link load moderately on Component 2 and 3 as shown in Table 5.14.

The interpretation of the three components is generally consistent with previous discussion on the theories building on this RBC model, with variables suggesting most signals of creators' social capital loading strongly on **Component 2** (Projects backed, projects created, Number of comments and Facebook Link (Yes or No)), variables suggesting signals of projects' prosocial intention loading strongly on **Component 1** (charitable purposes and number of charitable purposes), and variables suggesting signals of project quality loading strongly on **Component 3** (LnIntroduction word counts, video counts, LnPledge median and team size). There is a weak negative correlation between Component 1 and 2 ($r=-.03$), a weak positive correlation between Component 1 and 3 ($r=.09$), and a weak positive correlation between Component 2 and 3 ($r=.106$). Team size, together with other variables suggesting signals of project quality in Component 3, is a bit surprising. Its relationship with other variables will be further observed in correlation analysis in the next section.

The structure of the factors generally matched the proposed conceptual framework - signalling timeline in the RBC context.

5.3.4 Re-run binary logistic regression using factor analysis result

To perform a higher level of analysis, interpretation of these three components, that is, how the components could predict the status, need to be analysed. Here direct logistic regression is performed to assess the impact of the three Regression factor scores based on Components analysed as above on the likelihood that RBC projects reaching the goal.

Table 5.15 Logistic Regression Predicting Likelihood of Reaching the Target Using PCA Results (Group B)

	B	S.E.	Wald	df	p	Odds Ratio
REGR factor score 1	0.286	0.126	5.153	1	0.023	1.331
REGR factor score 2	0.791	0.2	15.705	1	0.00	2.205
REGR factor score 3	0.585	0.15	15.16	1	0.00	1.795
Constant	0.195	0.124	2.488	1	0.115	1.216

As seen in Table 5.16, The full model containing all predictors is statistically significant, $\chi^2(3, N=328) = 55.12, p < .001$, indicating that the model is able to distinguish between the projects that reached and did not reach their targets. The model as a whole explained between 15.5% (Cox and Snell R square) and 20.6% (Nagelkerke R squared) of the variance in status, and correctly classified 69.8% of cases, an improvement over the 52.7 per cent in Block 0 where IBM SPSS classified that all projects would not achieve the goal. The model is able to correctly classify 70.5 per cent of the project which achieved the goal, and 69.0 per cent projects that did not achieve the goal are correctly predicted. As shown in Table 5.15, all the three Components made a unique, statistically significant contribution to the model. The strongest predictor of projects reaching their target is Component 2 (Projects backed, projects created, Number of comments and Facebook Link (Yes or No)), recording an odds ratio of 2.21. It indicates that for the projects with a medium goal ($\geq \text{£}1000$ and $< \text{£}15000$) social network (signal observability) plays a rather important role.

Furthermore, to assess the impact of different industry sectors and types of categories of charitable purposes, direct logistic regression is performed to assess these variables and the impact of the three Regression factor scores.

Table 5.16 Logistic Regression Predicting Likelihood of Reaching the Target Using PCA Results and Categorical Variables

	B	S.E.	Wald	df	p	Odds Ratio
REGR factor score 1 for analysis 2	0.918	0.67	1.879	1	0.17	2.505
REGR factor score 2 for analysis 2	0.741	0.203	13.257	1	0.00	2.098
REGR factor score 3 for analysis 2	0.801	0.167	23.087	1	0.00	2.228
Science and Technology(1)	-1.634	0.626	6.805	1	0.009	0.195
Art(1)	-0.802	0.451	3.161	1	0.075	0.448
Design(1)	-0.496	0.504	0.971	1	0.325	0.609
Fashion(1)	-0.883	0.501	3.104	1	0.078	0.414
Film and Video(1)	-1.2	0.558	4.62	1	0.032	0.301
Music(1)	0.718	0.537	1.783	1	0.182	2.05
Publishing(1)	0.391	0.455	0.739	1	0.39	1.479
Food and Drink(1)	-0.501	0.604	0.689	1	0.407	0.606
Human(1)	-1.595	1.468	1.18	1	0.277	0.203
Environment(1)	-1.563	1.509	1.073	1	0.3	0.209
Arts(1)	-0.387	1.339	0.083	1	0.773	0.679
Culture(1)	18.641	13812.66	0.00	1	0.999	124648454
Heritage(1)	17.148	40192.97	0.00	1	1.00	28020688
Animal welfare(1)	-0.224	1.686	0.018	1	0.894	0.799
Constant	0.868	0.452	3.681	1	0.055	2.381

The model as a whole explained between 24.4% (Cox and Snell R square) and 32.5% (Nagelkerke R squared) of the variance in status, and correctly classified 73.5% of cases, an improvement over the 52.7 per cent in Block 0 where IBM SPSS classified that all projects would not achieve the goal. As shown in Table 5.16, both Science and Technology sector and Film and Video sector made a statistically significant contribution to the model. Projects in these two sectors are statistically less likely to be successful. Different types of charitable purpose have no significant influence on projects' success.

5.4 Presentation of results on funding ability

From the above, it can be seen that most hypotheses are supported. All variables (except delivery duration) have significant influences on the likelihood of projects reaching the goal under different circumstances. Another research objective is to

explore and evaluate the influence of these factors on the funding ability of RBC projects.

Therefore, the author will run correlation analysis with Ratio (the ratio of final funding over the goal) as the dependent variable on the selected sample, which only contains successful projects. Due to the sample size of the success group, the group is divided into two groups, Group D (Goal <£1000 with a sample size of 152) and Group E (Goal ≥£1000 with a sample size of 189).

5.4.1 Spearman's Rank Order Correlation Test Result

As some variables are ordinal, and the assumption of normal distribution is violated for data of ratio level, a non-parametric approach - Spearman's Rank Correlation Coefficient is adopted. The relationship between different independent variables and the ratio of final funding over the goal is investigated using Spearman's Rank Correlation Coefficient. Preliminary analyses are performed to ensure no violation of the assumptions of linearity and homoscedasticity.

Table 5.17 Spearman's Rank Correlation Coefficient Between Variables and Funding Ability Group D (Goal <£1000)

Variables		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	The ratio of final funding over the goal	1	.185*	0.128	-.163*	0.108	.342**	0.003	.577**	0.108	0.154	0.129	0.156	.172*	0.004	0.062
2	LnPledge median	.185*	1	.245**	0.12	.233**	0.005	0.119	0.156	0.149	0.102	0.109	0.052	0.035	0.056	.313**
3	LnIntroduction word counts	0.128	.245**	1	0.113	.282**	0.096	0.062	.190*	0.06	0.021	0.043	0.082	0.024	.248**	.337**
4	LnCampaign_duration	-.163*	0.12	0.113	1	.238**	-.173*	0.051	0.129	0.079	0.095	0.109	-.229*	-.180*	0.016	.198*
5	LnDelivery_duration	0.108	.233**	.282**	.238**	1	0.009	0.015	0.04	0.03	0.004	0.014	0.091	0.076	0.068	.293**
6	Projects_backed	.342**	0.005	0.096	-.173*	0.009	1	.265**	.202*	0.011	-.214*	-.185*	.556**	.515**	0.022	0.05
7	Facebook Link	0.003	0.119	0.062	0.051	0.015	.265**	1	0.07	0.008	0.001	0.013	0.132	.159*	0.04	0.019
8	Number of comments	.577**	0.156	.190*	0.129	0.04	.202*	0.07	1	.183*	0.156	-.171*	0.117	.163*	0.071	.170*
9	Team size	0.108	0.149	0.06	0.079	0.03	0.011	0.008	.183*	1	0.053	0.039	0.059	0.057	.174*	0.017
10	Number of charitable purposes	0.154	0.102	0.021	0.095	0.004	-.214*	0.001	0.156	0.053	1	.976**	-.296*	-.246*	0.104	0.089
11	Charitable purpose	0.129	0.109	0.043	0.109	0.014	-.185*	0.013	-.171*	0.039	.976**	1	-.318*	-.274*	0.123	0.08
12	Projects created	0.156	0.052	0.082	-.229*	0.091	.556**	0.132	0.117	0.059	-.296*	-.318*	1	.847**	-.170*	0.093
13	Creator experience	.172*	0.035	0.024	-.180*	0.076	.515**	.159*	.163*	0.057	-.246*	-.274*	.847**	1	0.153	0.061
14	Video counts	0.004	0.056	.248**	0.016	0.068	0.022	0.04	0.071	.174*	0.104	0.123	-.170*	0.153	1	.253**
15	LnGoal	0.062	.313**	.337**	.198*	.293**	0.05	0.019	.170*	0.017	0.089	0.08	0.093	0.061	.253**	1

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

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

In Group D, from Table 5.17 the output shows a significant correlation between LnPledge median, LnCampaign duration, Projects backed, Number of comments, Creator experience and the ratio respectively. There is a positive correlation of medium effect size between projects backed and Ratio, $\gamma = .342$, $p < .001$, with more projects backed associated with a higher ratio of final funding over the target. This partially confirmed the reciprocal giving theory discussed in Chapter 3. To back others' projects can be seen as an effective way to get access to a quality social network.

There is a strong, positive correlation between the number of comments and Ratio, $r = .577$, $p < .001$, with more number of comments associated with a higher ratio of final funding over the target. A negative correlation is found between campaign duration and Ratio, $r = -.163$, $p = .045$, which suggests campaign duration may affect projects' funding ability negatively. This matched its relationship with project status. Some of the variables which are found significantly related to Status, projects created, team size and introduction word counts appear no significant correlation with Ratio here.

Furthermore, looking at the correlation between each variable, there is a strong, positive correlation between projects created and projects backed, $r = .556$, $p < .001$, with a higher number of projects backed by the creators associated with a higher number of projects created. A positive correlation with medium effect size between LnGoal and LnPledge median, as well as LnGoal and LnIntroduction word counts is discovered, $r = .313$, $p < .001$, and $r = .337$, $p < .001$. It suggests that a higher project goal associated with higher pledge level as well as a higher number of introduction word counts. Also, a negative correlation with medium effect size between Projects created and Charitable purpose is discovered, $r = -.318$, $p < .001$, suggesting a higher number of projects created by the creators associated with the existence of charitable purpose.

Table 5.18 Spearman's Rank Correlation Coefficient Between Variables and Funding Ability Group E (Goal ≥£1000)

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1 The ratio of final funding over the goal	1	-	-	0.128	0.054	0.008	.486**	0.119	.155*	0.069	.268**	.243**	-.218*	-.219*	-
2 LnGoal	0.127	1	.480**	.373**	0.003	.274**	.292**	0.137	.173*	.193**	0.139	0.139	-0.01	0.003	.349**
3 LnPledge median	0.053	.480**	1	.210**	0.013	.193**	0.012	0.037	0	.224**	0.114	0.128	0.011	0.002	.286**
4 LnIntroduction word counts	0.128	.373**	.210**	1	0.056	.229**	.336**	0.088	.283**	0.083	0.095	0.067	0.014	0.003	.297**
5 LnCampaign_duration	0.054	0.003	0.013	0.056	1	0.111	0.027	0.089	0.072	0.077	0.055	-0.05	-0.04	0.028	0.024
6 LnDelivery_duration	0.008	.274**	.193**	.229**	0.111	1	0.084	0.138	0.12	0.104	0.021	0.016	0.053	0.042	0.114
7 Number of comments	.486**	.292**	0.012	.336**	0.027	0.084	1	0.058	.418**	0.035	.288**	.284**	-.281*	-.286*	.178*
8 Facebook Link	0.119	0.137	0.037	0.088	0.089	0.138	0.058	1	0.097	0.018	0.142	0.13	0.022	0.028	0.07
9 Projects_backed	.155*	.173*	0	.283**	0.072	0.12	.418**	0.097	1	0.005	.443**	.463**	0.123	0.104	.150*
10 Team size	0.069	.193**	.224**	0.083	0.077	0.104	0.035	0.018	0.005	1	-.162*	0.139	0.113	0.12	.246**
11 Creator experience	.268**	0.139	0.114	0.095	0.055	0.021	.288**	0.142	.443**	-.162*	1	.964**	0.068	0.055	0.051
12 Projects created	.243**	0.139	0.128	0.067	-0.05	0.016	.284**	0.13	.463**	0.139	.964**	1	0.076	0.062	0.064
13 Charitable purpose	-.218*	-0.01	0.011	0.014	-0.04	0.053	-.281*	0.022	0.123	0.113	0.068	0.076	1	.994**	0.072
14 Number of charitable purposes	-.219*	0.003	0.002	0.003	0.028	0.042	-.286*	0.028	0.104	0.12	0.055	0.062	.994**	1	0.077
15 Video counts	0.098	.349**	.286**	.297**	0.024	0.114	.178*	0.07	.150*	.246**	0.051	0.064	0.072	0.077	1

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

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

In Group E, from Table 5.18 the output shows a significant correlation between the number of projects backed, Number of comments, Creator experience (yes or no), projects created, charitable purpose (yes or no), number of charitable purposes and the ratio respectively. There is a positive correlation of medium effect size between the number of comments and Ratio, $r = .486$, $p < .001$, suggesting more comments is associated with a higher ratio of final funding over the target. This result matched its relationship with project status. There is a negative correlation with small effect size between charitable purpose (yes or no), the number of charitable purposes and Ratio, $r = -.218$, $p = .003$, and $r = -.219$, $p = .002$ respectively. It suggests that projects with charitable purpose or projects with a greater number of charitable purposes associated with a lower ratio of final funding over the target. Some of the variables which are found significantly related to Status, video counts, team size, Facebook link, pledge median, introduction word counts and campaign duration appear to have no significant correlation with Ratio here.

Furthermore, looking at the correlation between each variable, there are positive correlations with medium effect size between LnGoal and LnPledge median, LnIntroduction word counts and Video counts, $r = .480$, $p < .001$, $r = .373$, $p < .001$, $r = .349$, $p < .001$ respectively, suggesting that a larger project goal associated with higher pledge level, higher number of introduction word counts and video counts. Also, positive correlation exists with medium effect size between LnIntroduction word counts and the number of comments as well as video counts, $r = .336$, $.297$, $p < .001$ respectively, suggesting that a higher number of introduction word counts is associated with a higher number of comments and video counts. The number of comments is found also have positive correlation relationship with projects backed and projects created, $r = .418$ and $.284$ respectively, but negative correlation with the presence of charitable purposes, $r = -.286$, $p < .001$. Also, it is discovered that the number of projects backed has a positive correlation with the number of projects created, $r = .463$, $p < .001$. There are also other significant correlations between different variables, here the author mainly focuses on those with medium or strong effect sizes.

Therefore, it can be concluded that for both Group D and E, the existence of creator experience, a higher number of projects backed by the creators and the number of comments are associated with more funding after reaching the target. The signals of project quality, however, has no significant correlation with the funding after reaching the target. The reason could be that in the success group, the variance of project quality between projects is low, quality signals like introduction word counts all reached a high level for the projects to achieve success. This can be partially supported by the medium, positive correlation between introduction word counts and number of comments, while creators' social networks still play an important role to enhance signal observability and attract more funding.

Surprisingly, charitable purposes (yes or no), contrary to its role in contributing to the success of projects, has a medium, negative correlation with the ratio of final funding over the goal. This, however, does not indicate causality between the presence of charitable purpose and funding ability. There is a third variable, number of comments, that influences both of the variables. The number of comments is negatively correlated with the presence of charitable purpose with a medium effect size. This may be because of the suppressed lobbying motivation. As mentioned in Chapter 3, backers through leaving comments can lobby and influence the features of the product/service. Nevertheless, creators with prosocial motivation aim to create a product/service to benefit other people or to alleviate the suffering of others, so there is less motive for backers to lobby. To test the hypothesis, the author re-ran Spearman' rho analysis using Number of comments, Charitable purpose and Ratio with all projects with Goal \geq £1000 in the sample this time.

Table 5.19 Spearman's Rank Correlation Coefficient Between Ratio, Comments and Charitable Purpose

		1	2	3
1	The ratio of final funding over the goal	1	.639**	0.076
2	Number of comments	.639**	1	-0.075
3	Charitable purpose	0.076	-0.075	1

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

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

From Table 5.19, there is no significant correlation between Charitable purpose with either of the other two variables, although there is still a significant correlation between the number of comments and Charitable purpose. This can partially verify the hypothesis. On the other hand, as discussed in Chapter 3, intrinsically motivated funders generally make fewer contributions than extrinsically motivated funders (Cox et al., 2018). Moreover, after projects reaching the goal, receivers with prosocial motivation may not be motivated enough to perform the backing behaviour, the motivation fades with the success of the project. This certainly requires further studies in the future.

Referring to the issue discovered in the factor analysis (Component 3 is comprised of signals of project quality and team size), it is found that in both groups team size is positively correlated with video counts with a small effect size. This suggests that it is possible that projects with more collaborators involved tend to present more videos. Also, team size is negatively correlated with creator experience (Yes/No), which implies that experienced creators tend to have a smaller team. It is an interesting outcome worth further research.

The positive correlation between project characteristics such as introduction word counts and video counts, goal and pledge median, goal and introduction word counts in both Group D and E, are possibly due to survivorship bias for one reason that these figures are initially relatively high in the success group.

5.4.2 Multiple regression analysis

To further explore the relationship between the variables and the ratio of final funding over the goal, multiple regression techniques are applied. Preliminary analyses are performed to ensure no violation of the assumptions of multicollinearity and singularity.

Table 5.20 Multiple Regression Predicting the Funding Ability (Group D Goal <£1000)

Model		Standardized Coefficients			95.0% Confidence Interval for B		Collinearity Statistics	
		Beta	t	Sig.	Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)		1.137	0.258	-1.595	5.911		
	LnPledge median	0.173	2.35	0.02	0.12	1.393	0.949	1.054
	LnCampaign_duration	-0.099	-1.323	0.188	-1.789	0.354	0.911	1.097
	Projects backed	0.002	0.032	0.974	-0.012	0.013	0.941	1.063
	Number of comments	0.434	6.02	0.00	0.052	0.102	0.984	1.016
	Creator experience	0.128	1.703	0.091	-0.157	2.11	0.902	1.108

a. Dependent Variable: The ratio of final funding over the goal

In Group D standard multiple regression is used to assess the ability of variables ((constant), LnPledge median, LnCampaign duration, projects backed, the number of comments and creator experience) to predict the ratio of pledge over the goal. Preliminary analyses are conducted to ensure no violation of the assumptions of multicollinearity, singularity, normality, linearity and homoscedasticity. As seen in Table B.21 in the Appendices, the model explains 25.3 per cent of the variance in Ratio. From the ANOVA table, it can be seen that the model reaches statistical significance, $p < .0005$. As seen in Table 5.20, two variables made a statistically significant unique contribution to the equation, which is the number of comments and pledge median. The number of comments makes the strongest unique contribution to explaining Ratio, recording a Beta coefficient 0.434, when the variance explained by all other variables in the model is controlled for.

Table 5.21 Multiple Regression Predicting the Funding Ability (Group E Goal \geq £1000)

Model		Standardized Coefficients			95.0% Confidence Interval for B		Collinearity Statistics	
		Beta	t	Sig.	Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)		7.702	0.00	1.272	2.148		
	Number of comments	0.489	7.677	0.00	0.004	0.007	0.981	1.02
	Projects backed	0.037	0.44	0.66	-0.01	0.015	0.569	1.758
	Projects created	0.029	0.353	0.725	-0.132	0.19	0.582	1.717
	Charitable purpose	0.092	1.438	0.152	-1.138	0.178	0.973	1.028

In Group E, the results of the analyses presented in Table 5.21 shows that the model, which includes the variables show significant correlation with Ratio in Spearman's rho (Number of comments, projects backed, projects created, charitable purpose (yes or no)), and explains 26.7% of the variance in Ratio. Of these variables, the number of comments makes the largest unique contribution (beta=.49).

5.5 Summary

From Content Analysis, the link between helping and empathic concern is investigated. The most frequent words are 'needs', 'supports' and 'help', mostly with references like "I really need the/your support/help". However, comparing the success and failed group, there is no significant difference in the weighted percentage of these words. Hypothesis 2b is rejected, that existence of signals that evoke a sense of empathic concern has no significant influence on the likelihood of a RBC project reaching its target.

Through factor analysis, the categorising and interpretation of the three components are generally consistent with the previous discussion on the theories building on this RBC model, variables suggesting the size and quality of creators' social network loading strongly on Component 2 (Projects backed, projects created, Number of comments and Facebook Link (Yes or No)), variables suggesting signals of projects' prosocial intention loading strongly on Component 1 (charitable purposes and number of charitable purposes), and variables suggesting project quality loading strongly on Component 3 (LnIntroduction word counts, video counts, LnPledge median and team size). Although team size (the number of collaborators) is not loaded in Component 2 with other variables representing social network as expected, the output from Spearman's rho shows a significant positive correlation between team size and signal of project quality (introduction word counts and video counts). Besides social network brought by each team members, the collaboration of team members may suggest a positive project quality as discussed in Chapter 3.

Among the three Components/themes (signals of project quality, signals of intention and signal observability), the signal observability is the strongest predictor of the likelihood of projects reaching the goal. It partly supports findings from existing studies (Kraus et al., 2016; Mollick, 2014; Rakesh et al., 2015) that the creators' social network is the most important factor for the success of a RBC project. It also partly verifies the conceptual framework, signal observability plays as an important link in making the signals observable to receivers.

It can be concluded so far in general signals of project quality and creators' social network are significantly related to the status of projects (whether or not achieve the goal). In addition, part of signals of project intention – prosocial intention (charitable purposes) is significantly related to projects status when the goal is larger than £1000 and smaller than £15000.

From statistical analysis technique, for projects of small goal (under £1000), part of variables representing signals of project characteristics (introduction word counts and campaign duration), most variables representing the size of creators' social network (number of projects backed, team size and number of projects created) and social interaction (the number of comments) have statistically significant impact on the likelihood of projects reaching their target. Moreover, the number of projects backed by the creators, and the number of comments made a strong unique contribution to explaining the funding ability of a project after reaching the goal.

For projects of medium goal (more than £1000 and under £15000), which is 51.6% of the sample size, the presence of charitable purpose and availability of creators' Facebook are also key factors impacting the likelihood of projects reaching the target. Existence of charitable purpose is the strongest predictor of projects reaching their target. These findings support the hypotheses and complete the model, which can correctly classify 70.7% of cases.

For projects of a large goal (higher than £15000), similar to projects with a small goal, only project quality and social network have a statistically significant impact on the

likelihood of projects reaching the target. The role of signals of intention is not significant, although the number of projects backed made a uniquely significant contribution to the model.

To test the funding ability of RBC projects, cases of a project that reached its goal are selected. The number of comments and projects backed by the creators are still the most critical factors that have a positive influence on a project's funding ability, although the existence of charitable purpose has a negative influence.

The condition to support or retain the hypotheses is further discussed in Chapter 6 as well as the implication of findings to existing knowledge.

Chapter 6 Discussion

The core purpose of this Chapter is to interpret and describe the significance of the findings in Chapter 5, and to explain any unexpected findings emerged as a result of the study of the research question. In addition, this Chapter aims to connect the output from the tests of hypotheses with research questions and prior research.

The results of this study address the objective to identify the key project characteristics and external factors that related to the success or failure of RBC projects, and most importantly to evaluate the interplay between the factors and their impact on the likelihood of reaching the goal as well as the funding ability of RBC projects.

There have been mixed findings in the extant literature regarding the influence of individual factors (e.g. introduction word counts and the presence of video) on the success of a RBC project. This research identifies how the RBC start-ups projects respond to the same variables and some other variables not tested in existing literature (e.g., charitable purpose, the number of projects backed, and the number of projects created). It is one of the first to examine the role of signals of intention in a crowdfunding context. The problem is investigated from a perspective of signalling theory. The influencing factors integrate into a closed loop in a signalling timeline. They interacted with each other and cannot be considered in isolation. How these factors contribute to the success and funding ability of RBC projects in different levels of goals enriches the insights of RBC as a source of entrepreneurial finance for different parties especially for nascent entrepreneurs, financiers, researchers and policymakers.

The structure of this Chapter proceeds as follows. First, the conceptual framework developed in Chapter 3 is brought together with the hypotheses tested in Chapter 5 to justify the feasibility of the framework, provide a holistic view on project characteristics and external factors at the project level and their interaction in the signalling environment. Second, each of the research objectives is discussed in detail

in light of the key results, and their connection with the literature. Finally, the conceptual framework of RBC process is presented as the outcome of the research.

6.2 Linking qualitative and quantitative inquiries together

In this section, the conceptual framework and hypotheses developed in Chapter 3 and tested in Chapter 5 are discussed in light of a holistic view of RBC projects' funding process model and its environment.

Table 6.1 and Table 6.2 consolidate the outputs achieved so far.

Table 6.1 Summary of Hypotheses

Domains	Variables	Hypotheses	Links with the relevant theories
Project quality	Introduction word counts	Hypothesis 1a	Liking motivation
	Video counts	Hypothesis 1b	
	Campaign duration	Hypothesis 1c	Reward motivation
	Delivery duration	Hypothesis 1d	Reward motivation
	Pledge median	Hypothesis 1e	Reward motivation
Project intention	Presence of charitable purpose	Hypothesis 2a	Prosocial motivation
	The number of charitable purposes	Hypothesis 2b	
	Presence of signals that evoke a sense of empathetic concern (in need of help)	Hypothesis 2c	Altruism
Signal observability			Recognition, lobbying motivation and social interaction
	The number of comments	Hypothesis 3a	Reciprocal giving
	The number of projects backed by the creators	Hypothesis 3b	
	The number of projects created by the creators	Hypothesis 3c	Social network and signal observability enhancement
	Availability of creators' Facebook	Hypothesis 3d	
The number of collaborators	Hypothesis 3e		

Table 6.2 Hypotheses Test Results

Hypotheses	Result	Condition
Hypothesis 1a	Support	
Hypothesis 1b	Support	Goal \geq £1000
Hypothesis 1c	Support	Goal < £15000
Hypothesis 1d	Reject	
Hypothesis 1e	Reject	
Hypothesis 2a	Support	£1000 \leq £Goal < £15000
Hypothesis 2b	Support	£1000 \leq £Goal < £15001
Hypothesis 2c	Reject	
Hypothesis 3a	Support	
Hypothesis 3b	Support	
Hypothesis 3c	Support	
Hypothesis 3d	Support	£1000 \leq £Goal < £15001
Hypothesis 3e	Support	Goal < £15000

The findings of the RBC model are generally consistent with the conceptual framework. The model is based on signalling theory, with both fundraisers and the platforms as the signaller, different project characteristics as signals, the process to enhance signal observability and the interpretation mechanism of receivers.

6.2.1 The concept of success and funding ability

Some literature suggested that crowdfunding success should be beyond purely financial gain or loss, not just judged by whether a project reached its goal (Gerber and Hui, 2013). However, for start-ups, the fundamental and initial aim is commonly raising funds enabling to start a new venture (Scherr, Sugrue and Ward, 1993). In this thesis, of all the chosen projects, creators created the campaign to raise funds either for their newly established business or to start a new business. Whether the project reached its goal is crucial for the creator to realise his/her dream. This is partly proved in Content Analysis in Chapter 5. Creators ask for help to evoke empathy no matter whether the project reached the goal or not. During the data collection period, two projects succeeded in their second or third attempt, both the projects achieved the goal by reducing it in the last attempt. Therefore, on Kickstarter, with its “all or

nothing” rule, the main aim of serious creators is reaching the goal. That is why the group of projects reaching their goals are called the “success group” in this thesis, although a campaign reached its goal does not necessarily mean the project will be successful.

The part of the final funding exceeding the goal, on the other hand, represents funding ability beyond reaching the goal. Most successful projects are typically overfunded by only a small margin, while a small percentage of projects are extremely overfunded with a high ratio of the final funding over the goal. It can reflect market acceptance, willingness to pay and bring publicity to some extent. An overfunded project indicates that more customers are willing to pay for the product/service than anticipated by the entrepreneur (Burtch et al., 2013; Mollick & Nanda, 2014; Thies et al., 2018). Kickstarter stands at a quite supportive stance to project overfunding, as more rewards could be produced and distributed and it “lets the creator put that money back into the project to create something better for the backers and themselves” (Kickstarter, 2019c).

However, it may not always be a positive thing. Extremely overfunding may bring challenges and risks. First, heavily-overfunding may lead to severe delay in deliveries (Mollick, 2014; Koch, 2016). According to Mollick’s (2014) study, projects funded at ten times their goals are half as likely to deliver at the promised time, compared to projects just funded at their goal. Massive overfunding means a vast amount of rewards need to be delivered, which takes more human capital, other resources and time than anticipated and prepared for by the entrepreneur. For instance, Coolest Cooler, the 2nd most funded campaign on Kickstarter of all time, was funded at 265 times its goal. The heavily-overfunded and underestimated asking price led to repeatedly delayed shipping.

Second, the heavily-overfunded campaign might be a negative signal for the VC fund. VCs may consider it is already saturated with little growth opportunity (Thies *et al.*, 2018). Subsequent funding after the campaign could be an issue for those entrepreneurs. Two per cent projects of the sample reached a ratio (the final funding

over the goal) larger than 10. It is worth investigating their performance (e.g., delivery timeliness and review of products) after the campaign.

In addition to financial success, creators' prosocial intention can be considered as both an element contributing to the financial success of projects and a type of non-financial success. When the intention of the creator is beyond purely financial success, but to benefit others or to alleviate the pain of others (Grant and Berry, 2011), the project could attract backers who would want to help the creator to bring his/her dream to life.

6.3 Review of the research aim and objectives

The research aim, as stated in Chapter 1, is to explore and evaluate the factors that give rise to the success/failure and funding ability of RBC projects for business start-ups. In the following, the findings are explained related to each objective and comparison with previously published knowledge about the subject.

6.3.1 Research objective one

RO1 - To identify the key project characteristics related to the success (or failure) of RBC projects

Through review of existing literature, the common tested and acknowledged project characteristics related to the success (or failure) of RBC projects are the scope of the description (project introduction, video or images)(Bao and Huang, 2017; Bi, Liu and Usman, 2017; Kunz *et al.*, 2017), creator's characteristics (creator profile) (Beier & Wagner, 2015; Davies & Giovannetti, 2018), time span (campaign duration and delivery duration) (Mollick, 2014), and reward (reward level and the number of it) (Barbi and Bigelli, 2017; Crosetto and Regner, 2018). These project characteristics covered most of the project features. Relevant research focused on the relationship between these features and project quality, as well as its impact on backers' egoistical motives. The creator's intention beyond financial success is overlooked. Through reviewing literature in other domains such as e-commerce and charity, and based on the context in the samples, the author categorised the creator's intention

into two types – charitable purpose and self-concerned intention that evoke a sense of empathetic concern.

To test the relationship between these project characteristics and the success (or failure) of RBC projects, alternative directional hypotheses are built based on theories and existing literature as follows.

Hypothesis 1 – The likelihood of receivers’ backing behaviour is positive associated with:

- a. The word counts in the introduction;
- b. The video counts;
- c. A shorter campaign duration;
- d. A shorter delivery duration;
- e. A smaller pledge median.

Hypothesis 2 – The likelihood of receivers’ backing behaviour is positive associated with:

- a. The presence of a charitable purpose;
- b. The number of charitable purposes;
- c. The presence of signals that evoke a sense of empathic concern (in need of help)

The output from data analysis shows that, except delivery duration and signals suggesting in need of help, all the other factors are related to the success/failure of RBC projects. Among the projects with a medium goal, pledge median opposite to the hypothesis, has a positive influence on the likelihood of the success and creators' prosocial intention plays a uniquely significant contribution to it.

6.3.2 Research objective two

RO2 - To identify the key external factors that contribute to the success/failure of RBC projects

Besides the signaling environment factors, that is, political and legal context, technological context and social context as discussed in Chapter 1, the external

factors that impact signal observability should play an important role on the success/failure of RBC projects according to the signaling theory.

Through review of existing literature, the common tested and acknowledged external factors to enhance signal observability mainly focuses on the size of creator's own social network (the number of friends on Facebook) (Kromidha and Robson, 2016), social capital based on reciprocal giving (the number of projects backed) (André *et al.*, 2017) and level of social interaction (the number of comments and updates)(Kromidha and Robson, 2016; Block, Hornuf and Moritz, 2018). The social ties brought by collaborations and creators' previous experience are overlooked. Therefore, the factor of team size and the number of projects created by the creator previously are brought in.

Overall, to test the relationship between these external factors and the success (or failure) of RBC projects, alternative hypothesis 3 is built based on theories and existing literature as follows.

Hypothesis 3 – The likelihood of receivers' backing behaviour is positive associated with:

- a. The number of comments;
- b. The number of projects the creator has backed;
- c. The number of projects the creator has created;
- d. The number of projects linked to the creator's Facebook;
- e. The number of collaborators.

Hypothesis 3 is fully supported under certain conditions based on data analysis. The external factors tested are all significantly related to the success/failure of RBC projects. Among the social network built by difference method, the social interaction and reciprocal giving are more influential, as the number of projects backed by the creators and number of comments made a unique statistically significant contribution to the model.

6.3.3 Research objective three

RO3 - To investigate the reasons that give rise to the factors identified and in particular to explore the interrelationship between the key factors.

The RBC model is shaped fundamentally after achieving the first two objectives. However, the interrelationship between the key factors is left unsolved.

The relationship between each factor is analysed using correlation analysis. It was found that positive correlation between independent project characteristics such as pledge level and goal, as well as project description and goal. It suggests that despite the survivorship bias, creators have a common perception and expectation that to achieve a higher goal, they need to put more effort in preparing for the campaign, for instance, more introduction word counts, video counts. A product with a higher pledge median is usually perceived as high quality. Therefore, the quality of project descriptions should be able to associate with the level of the pledge as well as the goal. This also explains the positive relationship between project quality and the level of social interaction, such as a positive correlation between introduction word counts and number of comments.

Additionally, unexpectedly, creators' intention has a negative correlation with the level of social interaction as well as the funding ability of RBC projects after reaching the goal when goal larger than £1000. However, this partially verified the relationship between altruistic motivation and prosocial intention (charitable purposes) in the RBC context, as mentioned in Chapter 3. Backers are motivated to back the projects altruistically to support the creators' prosocial intention. With little lobbying motivation, backers might be not motivated to post comments on the project page. When the project reached its goal, it is likely the altruism-effect to be less influential as a part of the dynamics findings of RBC (Bretschneider & Leimeister, 2017; Mollick, 2014). This also partially explained the negative correlation between prosocial intention and projects funding ability after reaching the goal.

Furthermore, the creators' prosocial intention was found negatively associated with their previous RBC experiences. The output suggests that the more projects they created, the less likely the project still has a prosocial intention. That is an interesting phenomenon that has not so far had a proper explanation. It needs exploring in further research.

6.3.4 Research objective four

RO4 – To evaluate how these factors influence the funding ability of RBC projects

The funding ability is tested to be positively significant influenced by social interaction and social network brought by participation and 'obligations'. The number of comments and projects backed by the creators contribute mostly to a project's funding ability. On the one side, as mentioned in Chapter 3, the backing behaviour considering as a reciprocal giving may bring 'obligation' funding (Zheng *et al.*, 2014). On the other side, more than purely enhancing signal observability, a higher number of projects backed by the creator as a signal may let receivers to feel that the creator belongs to the RBC network. Bao and Huang (2017) discovered the phenomenon that early backers are more willing to support those entrepreneurs that have behaved as good members of the crowdfunding community. Also, project quality at this level has no significant impact on the funding ability. This suggests that there is a cap for the influence of project quality, to achieve a larger goal, the size and quality of social network plays a more critical role.

Overall, the research meets the aim and objectives, and the conceptual framework of the RBC model is analysed and supported by the findings. Three key factors are identified, the creators' prosocial intention, creators' project backing experience and comments. They are discussed in the following subsections.

6.4 Prosocial intention

A creator's prosocial intention measured by his/her charitable purposes, which is categorised under the Charities Act 2006 (Gov.uk, 2006) and inspired by Martin's (2012) study, is tested as the strongest predictor to the success/failure of a project,

but is negative associated with the funding ability among projects with a medium goal.

On the one hand, it provides evidence for the hypothesis, that creators' prosocial intention could evoke backers' altruistic motivation to live creators' dream (to help others). This partly acknowledged existing research of the relationship between charitable purposes and prosocial behaviour in the charity domain, that projects with charitable purposes attract more funding than projects with pure self-interests (Vesterlund, 2006; Scharf, 2014; Lovett, 2017). The theory applied to RBC projects as well. On the other hand, its negative influence on the funding of successful projects, whereas, partly acknowledged the relationship between extrinsically motivated backers and intrinsically motivated backers, that is the former tend to contribute more than the latter (Cox *et al.*, 2018). Also, taking the third variable (comments) into account, intrinsically motivated backers with less lobbying motivation might be less likely to leave comments. The finding, on the other hand, suggests a dynamic change of prosocial motivation before and after a project reaching its goal, that it decreases as the change of project status. This clearly is an interesting area that worth further study.

6.5 Reciprocity

The strong predictive power of the number of projects backed, acknowledges the "obligation" effect from a reciprocity mechanism, that sometimes backers' donations or investments are to respond to previous supports they received (Zheng *et al.*, 2014). It also partly affirmed the existing finding that social ties are formed based on social obligation between connected parties (Shane and Cable, 2002). This social obligation between connected parties based on a reciprocity mechanism is built upon the RBC platform and has a significant effect on crowdfunding performance. It transformed the Third Degree Network into Second Degree Network. This transformation built a virtuous cycle in the RBC environment on the platform. A backer by creating a RBC project is transforming his/her social ties on the platform into social capital. A backer

or a creator would not give up the social network he/she built on this platform easily, which increased their social attachment on the platform.

6.6 Comments

The number of comments has a strong predictive power of the success/failure and funding ability of RBC projects. Drawing back upon signalling theory (Spence, 1973) and signalling timeline developed by Connelly et al.(2011), in RBC, entrepreneurs communicate, interact and share information with backers through comments to reduce the information asymmetry (Lelo de Larrea, Altin and Singh, 2019), these comments, in turn, become signals for interested audience, thus, facilitating their decisions to back. On the one hand, communication through comments “complement and validate” other signals of project quality (e.g. introduction and videos counts) as an endorsement of quality and credibility (Courtney et al., 2017, p.20). The creator by replying the comment increases his/her trustworthiness. On the other hand, both processes of comments left by backers and comments of creators’ replies contain emotional and social levels of interaction. The interaction could influence backers on a relational level (Dillard, Solomon and Palmer, 1999), and they might develop trust and a deeper understanding of the project and recognise shared goals and attitudes of the project initiator (Yli-Renko, Autio and Sapienza, 2001), therefore, to share the project via personal network, thus, increasing signal observability. The variable number of comments loads moderately on both component 2 with other signals of social network and component 3 with other signals of project quality could give a glimpse of the concept. The multiple meanings of the comments explain their strong influential power.

In summation, the longitudinal approach provides a relatively large data set, including descriptions of RBC campaign, some of the creators' characteristics and the interplay between project creators and backers. It offers a foundation to develop a RBC funding concept and model. Therefore, the thesis presents a valuable contribution to RBC research, especially when most research published to date is still at an exploratory stage. It is argued that future research using longitudinal and larger

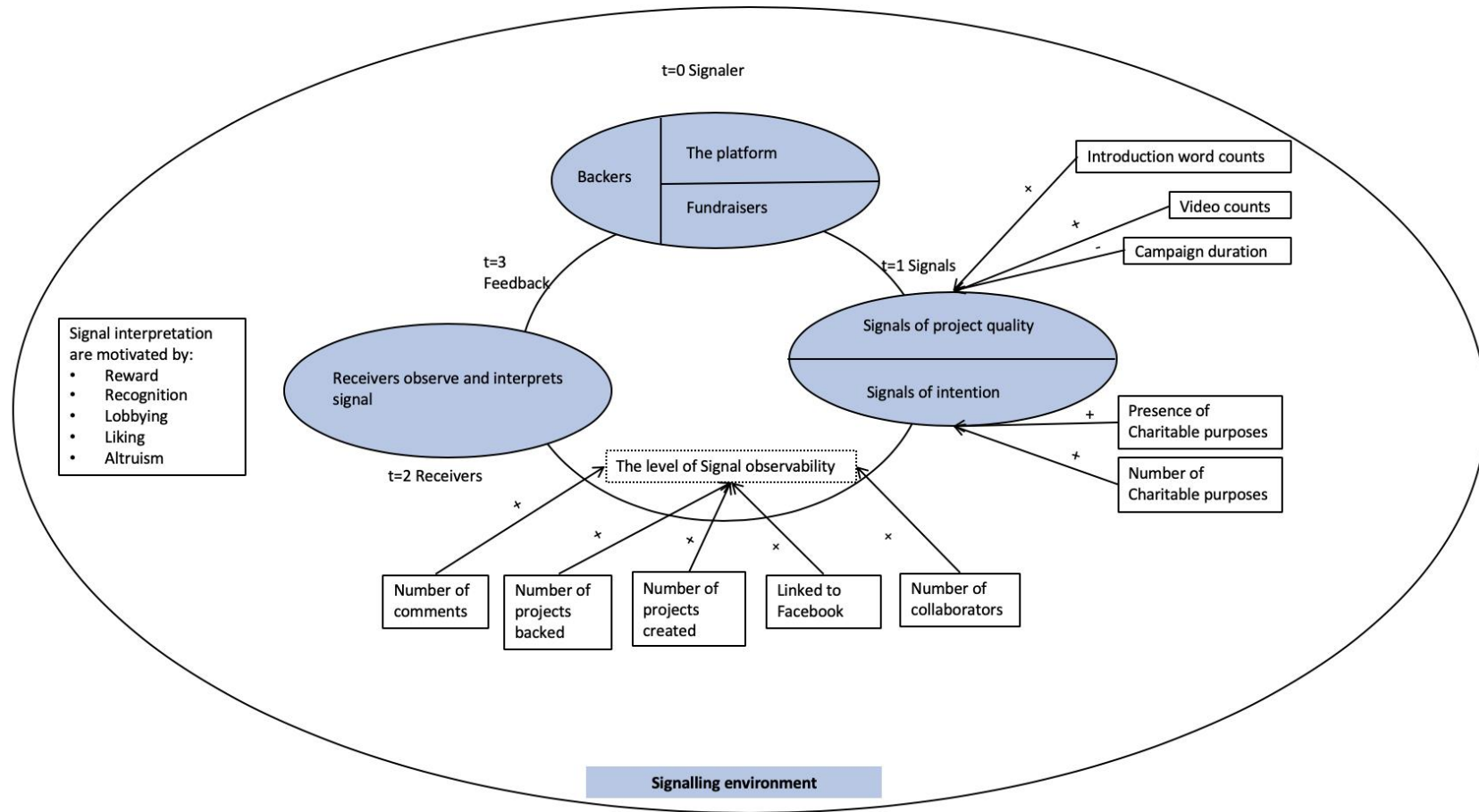
sample size should be encouraged and supported as they have the potential to advance understanding of the development of RBC as a rapid growing social phenomenon.

6.7 Summary

This Chapter discussed the results of the research to fulfil three research objectives, combining the theoretical insights of Chapter 3 with the theory-testing by means of statistical data analysis in Chapter 5.

Based on data analysis output and discussion, the conceptual framework of RBC process is presented in the following.

Table 6.3 Finalised Conceptual Framework



Note: t = time

Source Inspired by Connelly et al. (2011)

In the next Chapter, the findings of the research are brought together, and discussed in light of the theoretical contribution, and implications for academia, policymakers and practitioners.

Chapter 7 Conclusion, Implications and Recommendations

This chapter provides a reflection of the entire study. It concludes with commenting on the main strengths and weaknesses of the research undertaken on the effectiveness of RBC as entrepreneurial finance for start-ups. The first part of the reflections considers the main conceptual themes and the ways in which they advance understanding of RBC. The second part reflects upon methodological issues. The chapter is then concluded by explaining how the research has contributed to theory and practice. Several key claims on both the contribution and limitations of this thesis are made with some suggestions for further research. Finally, some interesting phenomena discovered in the data collection process are briefly discussed, and future research suggestions are presented.

7.1 Theoretical contributions

7.1.1 Understanding RBC as an alternative finance for start-ups

This study sheds light into an interesting population of entrepreneurs and exposes the current financing circumstances of the growing group of start-up capital-seeking entrepreneurs. In chapter 2, reference is made to different sources of entrepreneurial finance, and whether they are appropriate for these nascent entrepreneurs. One of the major criticisms is that there is a lack of serious evaluation of the appropriateness of these different sources of financing in terms of start-up capital.

In-depth investigation of the UK's environment for start-ups or nascent entrepreneurs from political, legal, technological and social perspectives is discussed in Chapter 2. This discussion highlighted common start-up capital sources, such as traditional bank and grants (Åstebro and Bernhardt, 2003; Landier, 2003), venture capital (Markova and Petkovska-Mircevska, 2009; Au *et al.*, 2016; Islam, Fremeth and Marcus, 2018), finance bootstrapping (Lam, 2010) and business angels. As discussed earlier, business angels which was believed to be the most appropriate source of capital for early-stage ventures (Walker, 1989; Pettit and Singer, 1985) were discovered to not be sufficient or appropriate for most nascent entrepreneurs. In

light of this, different models in the online alternative finance industry are investigated and it is found that RBC is recognised to be an appropriate source of financing, a supplement of traditional financing for nascent entrepreneurs. One key contribution of this thesis is its focus on campaigns specifically related to start-ups on reward-based platforms, thus directly relevant to entrepreneurial finance.

7.1.2 Core contribution: building bridges across perspectives on RBC

In Chapter 2, reference is made to extant exploratory studies of RBC from different perspectives. Due to the relatively short history, most studies of RBC as a financing model are still exploratory in nature. Studies tend to look at the RBC from several perspectives - the fundraisers' reasons for using RBC (e.g., profitability and marketing) (Bell et al., 2014; Chan et al., 2018; Ellman & Hurkens, 2014; Hu et al., 2015; Thurridl & Kamleitner, 2016), motives of funders (Bretschneider, Knaub and Wieck, 2014; Galuszka and Victor, 2014; Hossain and Oparaocha, 2017; Steigenberger, 2017a; Cox, Nguyen and Kang, 2018; Crosetto and Regner, 2018), 'success factors' (Chan et al., 2018; Cordova et al., 2015; Hou et al., 2015; Kraus et al., 2016; Lelo de Larrea et al., 2019; Li & Martin, 2016) and dynamics of RBC (Fan-Osuala et al., 2018; Kuppuswamy & Bayus, 2017, 2015; Li & Duan, 2014; Rakesh et al., 2016). However, there is a lack of a holistic overview of these studies to explore the link between different perspectives. Research to date is mostly limited to descriptive analysis that does not account for the effectiveness of RBC from a theoretical perspective (Bock & Frydrych, 2017; Mollick, 2014; Rakesh et al., 2016). One of the main contributions of this thesis is to build connections between the different perspectives and to extend this into a more advanced conceptual framework. The conceptual framework developed then has the potential to advance understanding of RBC studies from different perspectives of RBC, their connections and influences on the RBC funding process as a whole.

7.1.3 Understanding the RBC funding process from a signalling theory perspective

One of the main contributions of the thesis is the use of signalling theory as a cornerstone to connect different perspectives of RBC together, thereby investigating their interplay and evaluating their influences on the RBC funding process. The

conceptual framework developed contributes to advance understanding of RBC studies from different perspectives of RBC, and to investigate the factors related to the projects' funding process by taking into account the project quality, project intention, and the size and quality of creators' social network. By adopting a signalling theory, the thesis has argued that information asymmetry is the main barrier for the financing of a RBC project. With a signalling timeline, the two information types – signals of quality and signals of intention, as well as the two characteristics of signals – signal observability and signal cost have their different roles in getting feedback from as many receivers as possible. Therefore, different perspectives of RBC, such as motivation and social network, are understood in the RBC funding process. The prosocial intention, project quality (introduction and video), reciprocity and social interaction (comments) are found to have strong influencing power of the success of RBC projects.

Another major contribution of this thesis is its focus on the funding process of RBC, rather than merely specific factors or elements. One of the primary outcomes is that different factors are integrated into a closed loop on a signalling timeline in terms of the whole process of RBC campaign. They interacted with each other and cannot be considered in isolation. Also, how the elements on the timeline contribute to the success and funding ability of RBC projects enriches the insights of RBC as a source of entrepreneurial finance for different parties especially for nascent entrepreneurs, financiers, researchers and policymakers.

In addition to identifying the significance of a range of predictors that increase the likelihood of success, this study also looks at the whole funding process of the campaign and their influences on the funding ability after reaching the target. In doing so, a more in-depth understanding revealed the dynamic of backers' feedback before and after the project reaching its goal, facilitating understanding of the interplay between backers' motivation and creators' intention during crowdfunding processes. The findings have both theoretical and practical implications that add to the existing studies of RBC research.

7.1.4 Recognising the role and influence of signal of intention

In Chapters 2 and 3, reference is made to the lack of studies on the content of the RBC projects' introduction in terms of fundraisers' intention. One of the main contributions of this thesis is that it helps to address the knowledge gap by examining the role of signals of intention in a crowdfunding context and its interplay with other factors in a dynamic funding process.

The empathy-altruism hypothesis (Batson *et al.*, 1983, 1997; Batson and Powell, 2003; Batson, Ahmad and Stocks, 2011; Batson, 2014) is tested in the RBC context. Whilst the hypothesis was not supported in the projects of start-ups on RBC, it did shed light to entrepreneurs in terms of the material preparation which is perceived as the most challenging part of a RBC campaign (Zhang *et al.*, 2016). Another major contribution is that creators' prosocial intention, as another signal of intention was discovered to have a strong positive influence on the success of RBC projects. The relationship between prosocial intention and altruistic motivation, and its influence on the level of social interaction and lobbying motivation were also identified and indicated via data analysis.

7.2 Methodological contributions

This thesis challenges the dualism of the Burrell and Morgan framework (1979) due to the complex discussion in entrepreneurship research (Davies, 1998; Johnson & Duberley, 2000; Murzacheva, 2017; Pittaway, 2005) and adopts a pragmatist epistemological assumption stance in RBC studies. Therefore, the author is able to advance understanding by in-depth investigation of the process and interaction between human beings, thus helping to uncover the reason for consequent actions of social actors, to understand the reason of phenomena and measure what predicts its occurrence.

The thesis also challenges the traditional dualistic categorising of data – primary and secondary. By adopting internet-mediated observation, the research purely observes and collects data from online communities. However, these observation data from

Kickstarter, unlike traditional ones, contain not only people's behaviour but also independent project information. Few studies justified if these data are primary or secondary. Based on the definition of primary and secondary data from different sources, the research was able to justify and define the nature of this type of data. It sheds light to academics who use this type of data on the justification and definition.

Moreover, adopting a longitudinal approach, it provides a relatively rich and large data set with both qualitative and quantitative data, including descriptions of RBC campaigns, characteristics of creators' intention and the interplay between project creators and backers. It offers a foundation to develop a RBC funding theory and model. Also, by an acknowledgement of both the richness of qualitative data and the qualities of quantitative research approaches, the thesis contributes to the broader understanding of the multifaceted mechanism of RBC, and both descriptive and evaluative findings. Therefore, the thesis presents a valuable contribution to RBC research, especially when most research published to date is still at an exploratory stage. Research using longitudinal and large sample sizes should be applied more in the future to aid understanding of the development of RBC.

7.3 Implications

The findings of the thesis can help policy makers to understand better the RBC industry and its role in start-up financing, which is essential in developing relevant policies in this under-governed area. The thesis makes contributions to both theory and practice. The findings have major implications for different parties including: policy makers, practitioners, researchers and educators.

An important implication is that this study can help policy makers to better understand the RBC industry, which is essential in developing relevant policies in this under-governed area. Additionally, it provides an insight for practitioners considering the adoption of a crowdfunding approach and the knowledge and recommendations in running a successful RBC campaign. It also helps nascent entrepreneurs to reconstruct their financing strategy through the better understanding of the position

of RBC in entrepreneurial financing. Moreover, it supports interested audiences to mitigate the risk of fraud projects with learning the approaches to reduce information asymmetry. Finally, this research contributes to growing knowledge and interest in entrepreneurial finance, especially in the online alternative finance market, which is beneficial for both researchers and educators.

The implication of the thesis will be generally discussed considering policymakers, practitioners and academia.

7.3.1 Policy implications

In chapter 2, reference is made to the particular focus of policy makers on EBC and issues related to investors' criteria across EBC platforms. RBC due to its relatively low market volume but large investors/backers base is still an ungoverned area. The unregulated stance of RBC makes it difficult to draw a boundary of the model and adds confusion towards its definition and business mechanism. Therefore, it is essential for policymakers to set clear boundaries of the model to educated stakeholders about how it is positioned within the entrepreneurial finance industry.

Currently, in the UK, policy makers are quite supportive of entrepreneurial activities, especially as entrepreneurship is a critical source of job creation and economic growth. Nevertheless, as stated in Chapter 1, so far policies supporting start-ups are mainly focused on a relatively small amount of start-up loan and related grants, in which the StartUp Britain Scheme is in a leading position. Policymakers need to recognise the critical role of RBC in start-up financing, not as a substitution, but as a complementary link to traditional start-up finance mechanisms, in order to create more opportunities and stimulate entrepreneurial activities. In other words, governments should foster the positioning of crowdfunding as a complementary link amongst 'traditional' finance mechanisms to build a more comprehensive system that stimulates entrepreneurial activities. For instance, in the case of the StartUp Britain Scheme, the successful applicant of a start-up loan is provided with a free mentor to subsequently guide on new venture creation and other support in the first 12 months.

The findings from this thesis support the important role of mentors to RBC in the sense that they help to position the new venture in the start-up financing mechanism, for example, a mentor could introduce RBC to entrepreneurs when it suits their purpose and circumstances. In addition, mentors can guide on how to use RBC to get financing in a certain stage. Because of this, it is recommended that more support from mentors can be provided to the nascent entrepreneurs.

Moreover, policymakers should not only focus on practitioners (e.g., fundraisers and backers) but should also address RBC platforms. Legal regulations for the market are needed. The output from this thesis demonstrates the role of RBC platforms as intermediaries. As such, regulatory bodies (e.g. FCA) may need to consider adequate rules and regulations to apply in this emerging industry. As mentioned earlier, signals sent and received by RBC platforms brings communications and relationship building on the platforms. The large number of users and multiple online channels increases the communication complexity and the difficulty to manage the communication and interaction between the two parties.

Therefore, it is essential for policymakers to enforce guidelines, which regulate online interactions and communication on the platforms in order to facilitate trust and ensure quality standards in online investments. Under the current regulations (or lack of) RBC platforms do not mediate or intervene when funded companies fail to keep their promises. For instance, on Kickstarter, only projects breaking the rules will be removed from the platform (e.g., nudity and violence). The platform is not responsible for false information or fraudulence (e.g. non-delivery or indefinite delay of deliveries). As mentioned in Chapter 6, five years since the completion of the campaign, a large number of backers for Coolest Cooler projects on Kickstarter have still not received the reward yet. Policymakers should consider implementing a government level 'code of conduct' to require platforms to run due diligence, especially on the projects with a large capital requirement. Thus, the risk brought by false information and fraudulent activities could be minimised or mitigated. Nevertheless, policymakers should avoid too stringent regulations, to keep the 'fluid

and dynamic' of the market (Baeck, Collins and Zhang, 2014), as it is not a formal venture capital model after all.

7.3.2 Practical implications

7.3.2.1 Fundraisers

The findings related to the critical role of RBC as start-up finance demonstrate the importance for nascent entrepreneurs to familiarise themselves with knowledge and strategies of campaigns. The research provides suggestions based on each hypothesis's test results.

First, in the material preparation, the main aim of an entrepreneur is to build the trust and minimise information asymmetry, through demonstrating his/her capabilities and addressing quality uncertainty. Entrepreneurs should provide an introduction that is as detailed as possible, along with quality videos and images. Considerations regarding estimated delivery date and the pricing strategy of rewards can take a backseat when preparing for the campaign. It would be helpful if the entrepreneur has a charitable purpose in the project. If so, one should address the charitable purposes in the description and what is the plan to realise it after the project gets success.

Second, an entrepreneur should understand the importance of collaboration within a team; reply to comments in time; link personal SNSs to the platform and the campaign is better to be kept shorter than 30 days. Also, by creating quality projects, one may build a 'follower' community. Moreover, entrepreneurs can build and maintain such internal relationships with peers by backing others' projects, and then gradually forming a reciprocal relationship. This is likely to generate strong ties with other entrepreneurs and develop an entrepreneurs' reputation in the social network. In general, an entrepreneur should aim to maintain and enlarge one's network size and quality in order to reach potential backers.

In addition, the entrepreneurs might benefit from signals sent by platforms, for instance, to be chosen as 'Featured Projects' or 'Projects We Love' on Kickstarter. Although as crowdfunding platforms are somewhat standardised in the presentation of projects, entrepreneurs can use other websites and social media channels to present additional information and content (e.g., video, photo, audio) with an personalised design.

Notably, entrepreneurs should understand that although the signal observability is an important part in the whole signalling environment, it has to be noticed that one cannot rely too much on the personal social network. A high degree of entrepreneur social capital is unlikely to reflect market acceptance and willingness to pay for the given new product idea.

Most importantly, RBC is not the only financing option. It is not presented as a substitute for traditional financing, but as a complement. It does not work as a quick solution to the funding gap, but also requires a significant investment of time and resources. Backers would not trust someone with merely an idea. There are still some critical requirements for an entrepreneur to get sufficient funding, such as having at least several prototypes, having a video and a team and a personal social network. Nascent entrepreneurs in the UK can start with applying for a start-up loan and get other support from the government, such as human resources (e.g., free mentoring, entrepreneurs networking to build up a team) and more opportunities (e.g., meeting potential customers or investors). When it developed to a certain stage, the entrepreneur could start a RBC campaign with a higher success rate.

7.3.2.2 Backers

One of the biggest concerns is that backers assume fewer risks in RBC campaigns. Backers being 'over-enthusiastic' may suggest that an essential education piece is missing. The findings of this study help potential backers to understand the inherent risk of backing nascent ideas or projects, the common challenges of reward fulfilment and their possible approaches and rights to mitigate risks.

7.3.2.3 RBC platforms

According to Zhang et al. 's survey (2016), the biggest risk of the industry is platform fraud or malpractice,. As RBC is less complicated in nature and a relatively small amount of money involved, it incurs a medium level of risk to individuals (Hossain and Oparaocha, 2017), while the biggest risk of the RBC industry has been the potential of a collapse of one or more of the well-known platforms due to malpractice.

The RBC market is still less regulated and standardised. The potential of a collapse of one or more of the well-known platforms due to malpractice has been the biggest risk of the RBC industry. The findings of the thesis can help platforms to understand the risk and concerns in the industry. The platforms should provide more self-regulation to keep the industry sustainable, for instance, due diligence on projects with a large capital requirement, to manage the utilising of a marketing agency, as entrepreneurs who have not used the agencies may feel it is unfair which is a discouragement to the diversity of the crowdfunding environment.

7.3.3 Education implications

Crowdfunding, especially RBC, is not mentioned as much as venture capital and business angel investments in terms of start-up financing. Research of RBC to date is mostly limited to descriptive analysis that does not account for the effectiveness of RBC from a theoretical perspective (Bock & Frydrych, 2017; Mollick, 2014; Rakesh et al., 2016). As such, academics should consider the contribution of scholarly research on this typical crowdfunding model. On the one hand, future studies could aim to develop an advanced conceptual framework towards the whole RBC process from the concept creation till backers' satisfaction after the delivery, bring together theories across different disciplines. This has been mentioned in detail in Chapter 2 and 3. On the other hand, nowadays, entrepreneurial and management education mostly focus on traditional business planning. Programmes should focus more on new forms of business pitching especially online pitches (e.g., video pitch and pitch in context). Students could be encouraged to learn more about the mechanisms of entrepreneurial financing using online alternative finance, and apply the knowledge into practice (e.g., to manage and create their own crowdfunding campaign, although

the issues of ethics should not be overlooked). In a similar vein, students should familiarise themselves with different fundraising approaches in the online alternative finance industry. More and more alternative finance models have emerged nowadays, such as Initial Coin Offering (ICO) crowdfunding, which is a sign of globalisation of the financial market. Both the teaching and learning parties should have an open mind to innovative teaching methods, emerging phenomenon, and still keep a strong commitment to theories and research.

7.4 Research limitations and opportunities for future research

The limitations of the thesis, as well as opportunities for further research, are discussed in this section.

7.4.1 Limitations of the sample

Businesses in different stages

To the author's knowledge, this study analyses RBC campaigns specifically related to start-ups or nascent entrepreneurs. This study is, however, also limited in its focus on start-ups. Future studies may seek to investigate the businesses in different product stages, such as production, shipping and pre-order stage. Studies can evaluate whether the variables presented here are apparent or better at predicting the likelihood of projects' success, as well as to test the applicability of the conceptual framework in other types of projects.

Moreover, some projects after reaching the goals will start a pre-order stage on the platform. Funds received in that stage also represent a project's funding ability to some extent. That could be further explored as well as a longitudinal perspective of network changes.

Outliers cases (Extreme cases) and statistical causality

Cases with extreme values are removed in order to maintain the accuracy and generality of the findings. However, it cannot be denied that these projects are a part of the crowdfunding environment and worth at exploring to some extent, for

instance, projects with standard signals of project quality or even charitable purposes but received zero funding. It might be worthwhile to analyse these types of extreme cases to eliminate some influencing factors in the future. Moreover, the relationship between variables from the statistical analysis does not contribute to statistically causality. The findings are based on deduction from data analysis and review on existing literature and theories. There still might be errors that influenced by random variation in the data, with variables being included or removed from the model on purely statistical grounds (Tabachnick and Fidell, 2007).

Digging more using Content Analysis

Although Content Analysis is used to identify the signals that evoke a sense of empathetic concern, and whether or not creators have prosocial intention is identified in the context of project description, there are still other elements can be explored in the content. For instance, the warmth level in the contents of comments and project description may affect the trustworthiness and reputation of the creator (Kervyn *et al.*, 2014).

Individual effort vs Support from agencies

Cases that collaborated with a marketing agency (e.g. Crowd Ox and Kickbooster) were kept aside from the sample in order to screen from the 'noise'. However, with the rapidly emerging development of the market more entrepreneurs will use the agencies as a marketing tool. Future studies could investigate the role and influence of these agencies, for instance, the efficacy of utilising a marketing agency concerning the financial cost one has to pay for the service. Also, its influence on both a creator's ability to fully grasp the market acceptance and receivers' perception could be worth investigating.

Comparative studies of different platforms

The author only collected the sample of projects on Kickstarter to eliminate the influence across different platforms. Nevertheless, the connection between different RBC platforms is not considered. In particular, potential of social ties possibly built across different platforms can be further studied. For instance, even if it shows zero

projects backed on the project page, the creator may still have created projects before on other platforms. A creator after a successful campaign on Kickstarter may start another one on Indiegogo with the same products/service. Whether the project gets success again as there is wider signal observability, or failed due to a saturated market, may be worth to investigate in the future.

Also, the features of different platforms (e.g., goal type, 'Like' a project, frequency of platforms' newsletter, the popularity and target audience of the platforms) and their impact on the characteristics of projects and projects' success could be studied. For instance, unlike the 'all or nothing' feature of Kickstarter, on Indiegogo creators can have a flexible goal. Creators can keep the amount of money no matter how much is funded. The influence of different goal type could be studied.

Moreover, platforms of mixed crowdfunding models could be studied. For instance, Crowdcube, a well-known UK investment crowdfunding platform, contains campaigns with an equity-based crowdfunding concept but also offering non-monetary rewards. In prior studies, scholars have argued that the motivations of backers who act as patrons and customers are similar to those of investors (Agrawal et al., 2014; Mollick, 2014). Nevertheless, the influence of the platforms and the structure of the mix 'reward' on their motivations are worth investigation.

The dynamics of the market (comparative studies of data across different periods)

Although adopting a longitudinal approach, the thesis focused more on building a conceptual framework to theoretically understand the RBC funding process. Whereas, future studies could further investigate the comparison of data across different periods and the dynamics of the market with the existing sample data.

Moreover, all the data is collected at the end of the campaign to keep the validity of the sample. Whereas, some project after reaching the goals will start a pre-order stage. Funds received in that stage also represent a project's funding ability to some extent. The dynamics change of the funding ability could be further explored as well as a longitudinal perspective of network changes.

Comparative studies of different SNSs in the RBC context

The only SNSs considered in the study is Facebook as it is widely and commonly used across different age groups. The availability of personal websites or other SNSs on the project page and the quality and frequency of updates on these SNSs may have different levels of influence on the ability to enhance signal observability. Creators' project related updates on SNSs can also be a factor worth exploring in the future. Furthermore, different SNSs may represent or have different impacts on the size and quality of creators' social network. For instance, a personal homepage on Wordpress may not attract too much attention, but if the project is in the publishing sector, it might have significant impact on receivers.

7.4.2 Digging more into the prosocial intention

The findings recognise the critical role of prosocial intention on the success of RBC projects, but the negative influence on the funding ability after projects reach their targets. It is worth further study of the phenomenon and the dynamic change of people's altruistic motivation evoked by others' prosocial intention before and after the realisation of the intention, especially from a perspective of social image (Andreoni & Bernheim, 2009; Daughety & Reinganum, 2010).

Also, the interplay between prosocial intention and other factors, such as the number of comments, creators' previous experience and intention to back others needs exploring in further qualitative research. For instance, the output suggests that the more projects they created, the less likely the project still has a prosocial intention. This is an interesting phenomenon that so far has not had a proper explanation.

Moreover, future studies could investigate the feedbacker towards creators' prosocial intention based on different characteristics of receivers (e.g., social status and gender) and even the impact of different types of charitable purposes.

7.4.3 Consumer innovativeness

The research viewed the receivers' decision-making process from a collective perspective in order to build a conceptual framework that can be generalised. While individual receivers may have their own perspectives of decision-making, due to the nature of RBC, the level of consumer innovativeness may have a critical influence on their decision-making.

Consumer innovativeness is a construct that deals with how receptive consumers are to new products. In behavioural finance, a general conjecture is that risk and return are not sufficient in explaining consumers' investment decisions (Statman, 1999)(as cited in Hoffmann & Broekhuizen, 2010). In Im, Mason and Houston (2007) 's research, they examine the role of vicarious innovativeness in mediating the link between ICI (innate consumer innovativeness) and adoption behaviour, and it is found that 'persons with higher ICI engage in social communications about new products' are more likely to adopt those products. Therefore personal communications (e.g. engagement in WOM) could play a consistently active role in predicting new product adoption behaviour, this finding is also supported by Hoffmann and Broekhuizen (2010), who considered the impact of visibility (exposure to and engagement in WOM) as well as the complexity, risk and of innovative investment product. They also find that among the three variables, risk has the weakest impact, meanwhile, 'psychological and sociological personality traits play an important role in consumers' adoption of new investment products by systematically affecting their dispositional innovativeness' (Hoffmann and Broekhuizen, 2010).

Receivers' different levels of consumer innovativeness may have a significant impact on the likelihood of backing behaviour. This is also from the author's own experience.

7.4.4 Further development of the conceptual framework

The conceptual framework developed in the thesis mainly focused on the funding process of RBC. Further efforts could be made to advancing the conceptual framework across the whole RBC process, beginning from the idea formation to after the completion of the campaign. Creators' preparation for the campaign until backers' satisfaction after the delivery (the interplay between their perception and

satisfaction) could be all investigated and combined into the framework. The study could enhance the long-term development and sustainability of the industry. Taking the Coolest Cooler as an example, it has been receiving hundreds of complaints towards the creator and platform due to the indefinite delay of deliveries (the last 'nasty' comment posted on Kickstarter was in June 2019). It still managed to sell quite well on Amazon Launchpad though. The role of comments, backers' satisfaction and eWOM towards the framework needs to be reviewed here and might even add some other factors in to explain the phenomenon (e.g., consumer innovativeness).

The role of the social network is roughly viewed in the thesis. The impact of the conceptual framework not only on projects' success and funding ability, but also the dynamic of social network could be further studies as well. Social dynamics, as a fundamental feature in the crowdfunding ecosystem, is constructed around the relationships in heterogeneous social networks (Frydrych *et al.*, 2014). Peer effects and social interaction are essential in forming the communities since membership and communications are publicly observable (Ward and Ramachandran, 2010) and in advancing understanding the dynamics of the social network. The study may be critical as well to the outcome of the crowdfunding effort (Burtch, Ghose and Wattal, 2013a).

The social dynamics might have different levels of influence on the ability to enhance signal observability as well. It could be a factor worth exploring in the future.

Moreover, the research only collected the number of videos as a project's visual characteristic. The use of images is not concerned due to its relatively low signal cost, as the signal with low cost may represent a signal of low quality. Nevertheless, reviewing several success projects with no videos, the author discovered that they often contained some pictures with a clear description. The pictures' influence as visual signals on potential funders' decision making, as well as the different features (e.g., colour and the presence of texts) of pictures could be both worth investigating.

In addition to focusing on the RBC funding process, the role of signal cost has been weakened in the framework. Future studies could take into account the cost of the

different signals, such as the high cost of campaign duration, delivery duration and video counts (Kunz *et al.*, 2017). Also, the cost of signal observability may need to be considered as well, such as the frequency of project updates and reply timeliness.

7.5 Interesting phenomena and future research

During the data collection process, the author discovered some interesting phenomena that might be further researched by adopting a case study approach to investigate the details.

First, one project was successfully funded at the third attempt across nine months. The project raised about the same level each time, and it reached the target at last actually by decreasing the target. The fundraiser backed 204 projects, and created 19 projects, all of them are successful (except these 3 projects). All the projects the fundraiser backed are very similar to her own projects. A future case study research could investigate the criteria to decide the target (whether it is still sufficient with a lower goal) and her motivation to back other projects with quite similar products to her (whether they work as competitors or complements).

Second, for some campaigns in the science and technology sectors, the patent is clearly a signal of project quality. However, how is it measured, and the authenticity of the patent could be interesting to investigate as well, for instance, the scandal of Theranos fraudulence, that is a leading breakthrough technology turned out to be a fraud. Although it mostly raised the finance from venture capital and other types of investments, surely it will get success on RBC platforms with the "breakthrough technological blood testing product". Whether or not should these types of projects allowed to raise funds from RBC are also worth discussing.

Third, given considering the creators' prosocial intention, whether or not these start-ups can be regarded as a social enterprise and the environment around it is worth investigating.

7.6 Summary and conclusion

This study identified and evaluated how the key factors (signals of project quality, signals of project intention and signal observability) impact on crowdfunding's success, as well as investigating the interplay between different actors (signallers, receivers and signals) in the RBC market. The thesis developed a conceptual framework combining of these elements to advance understanding of the RBC funding process through using a signalling theory lens.

This chapter consolidates the findings of the study, clarifies both of its theoretical and methodological contributions, and outlines a range of implications for policy makers, practitioners, researchers and educators. First, through reviewing studies of different sources of start-up finance, RBC was recognised to be an appropriate source of financing and a supplement of traditional financing for nascent entrepreneurs. Second, this thesis has built connections between the different perspectives and extended them into a more advanced conceptual framework. The conceptual framework developed supports advance understanding of RBC studies from different perspectives of RBC, their connections and influences on the RBC funding process as a whole. Third, prosocial intention as a signal of intention was recognised for the first time as having a strong positive influence on the success of RBC projects. The relationship between prosocial intention and altruistic motivation, and its influence on the level of social interaction and lobbying motivation were also identified and indicated via data analysis.

The thesis provides an insight for practitioners considering the adoption of a crowdfunding approach and the knowledge and recommendations in running a successful RBC campaign. It also supports nascent entrepreneurs in reconstructing their financing strategy through the better understanding of the position of RBC in entrepreneurial financing. Moreover, that this study could help policy makers to better understand the RBC industry, which is essential in developing relevant policies in this under-governed area.

Therefore, the thesis presents a valuable contribution to RBC research, especially when most research published to date is still at an exploratory stage. This research contributes to growing knowledge and interest in entrepreneurial finance, especially in the online alternative finance market.

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A Appendix Coding

Table A.1 Industry Coding

1	Science & Technology	2	Art	3	Design	4	Fashion	5	Film & Video	6	Music	7	Publishing	8	Food and Drink	9	Entertainment
1	technology	12	art	25	product design	36	Wearables	43	film & video	53	music	62	comic books	77	restaurants	84	video games
2	hardware	13	conceptual Art	26	3d printing	37	shorts	44	drama	54	electronic music	63	publishing	78	bacon	85	tabletop games
3	gadgets	14	crafts	27	DIY	38	apparel	45	comedy	55	sound	64	print	79	drinks	86	dance
4	space exploration	15	illustration	28	DIY electronics	39	jewellery	46	documentary	56	indie rock	65	periodicals	80	small batch	87	movie theatres
5	apps	16	people	29	woodworking	40	footwear	47	thrillers	57	blues	66	places	81	food	88	events
6	web	17	anthologies	30	graphic design	41	fashion	48	experimental	58	classical music	67	graphic novels	82	Food trucks	89	mobile games
7	software	18	photobooks	31	candles	42	accessories	49	horror	59	metal	68	fiction	83	Vegan	90	plays
8	spaces	19	fine art	32	pottery			50	audio	60	Country & folk	69	children's books			91	immersive
9	flight	20	photography	33	sculpture			51	video	61	faith	70	academic			92	radio & podcasts

Industry Coding (Continued)

1	Science & Technology	2	Art	3	Design	4	Fashion	5	Film & Video	6	Music	7	Publishing	8	Food and Drink	9	Entertainment
10	camera equipment	21	digital art	34	design			52	film			71	comics			93	festivals
11	Robots	22	Painting	35	Architecture							72	cookbooks			94	games
		23	Photo									73	art books			95	playing cards

		24	Performan ce art									74	Journalism				
												75	Printing				
												76	Nonfiction				

Table A.2 Charitable Purposes under the Charities Act 2006

Charitable Purposes under The Charities Act 2006	
Categories of charitable purposes	Examples of charitable activity/organisations
The prevention or relief of poverty	Grants of money, provision of essential items such as clothing, bedding and food
The advancement of education	Schools (including private schools), PTAs, prize funds, museums, galleries and scientific institutes
The advancement of religion	Provision of places of worship, carrying out religious acts and missionary or outreach work
The advancement of health or the saving of lives	Provision of medical treatment and rescue services, medical research, life-saving or self-defence classes, provision of proper standards of medical practice, e.g. GMC
The advancement of citizenship or community development	Promotion of civic responsibility and good citizenship, e.g. Scout and Guide groups, promotion of urban and rural regeneration
The advancement of the arts, culture, heritage or science	Art galleries, festivals and councils, provision or encouragement of high standards of the arts, preservation of heritage sites or buildings
The advancement of amateur sport	Multisport centres, advancing sport at local clubs
The advancement of human rights, conflict resolution or reconciliation or the promotion of religious or racial harmony or equality and diversity	Relieving victims of human rights abuse, promotion of restorative justice, mediation groups, enabling inter-faith understanding
The advancement of environmental protection or improvement	Conservation of the environment (locally or generally), zoos, promotion of recycling and sustainable waste management, research into renewable energy sources
The relief of those in need, by reason of youth, age, ill-health, disability, financial hardship or other disadvantage	Provision of housing, care and specialist equipment or accommodation
The advancement of animal welfare	Provision of veterinary care and treatment, animal sanctuaries, feral animal control

The promotion of the efficiency of the armed forces of the Crown, or the efficiency of the police, fire and rescue services or ambulance services	Increasing technical knowledge or physical fitness of members of the services, military history research, encouraging recruitment, provision of facilities for training
Any other purposes currently recognised as charitable and any new charitable purposes which are similar to another charitable purpose	Promotion of industry and commerce, provision of public works and services, promotion of patriotism, e.g. war memorials, the promotion of mental or moral improvement

Source: Charity Commission, 2009.

Source: (Gov.uk, 2006; Martin, 2012)

Table A.3 Charitable Purposes Categories in the thesis

Charitable purpose
1 Human
2 Environment
3 Arts
4 Culture
5 Heritage
6 Science
7 Animal welfare

B Appendix Results

Content Analysis

Table B.1 Stop Word List for Content Analysis

'well '100 'albums' 'back 'backer' 'backers' 'colour 'copy' 'cover 'day 'design 'early' 'food 'food' 'free 'get 'getting 'great 'hand 'just 'kickstarter 'likes' 'making 'musically 'new 'new' 'one 'page 'patron' 'pin' 'play 'plays' 'please 'print' 'special 'start 'tech' 'thank 'thanks 'two 'two' 'updates' 'work 'world @one 000 100 2017 2018 2018' 2018' 2019 a about above account accountability accountable accountancy accountant accounted accounting accounts after again against album albums all also am an and any anywhere app apps are aren't aren't art art' art' arts as at avail availability available available back back' backed backer backer' backers backers' backers' backing backs be because been before being below between blog blogs book book' booked booking bookings books books' both bring bringing brings but by campaign campaigner campaigns can can't can't cannot card card' carding cards cards' center centered challenge challenged challenger challenges challenging charter check checked checking checks choice choices choose chooses choosing colour coloured colourful colourfully colouring colourings colours come comes comic comical comics comics' coming comment commentating commentator

commentators comments communities community complete complete' completed completely completeness completes completing completion cookie cookies copies copy could couldn't couldn't cover covered covering covers craft crafted crafting crafts creator creators credit credited crediting credits day days dec decs deliveries delivery design designate designated designation designed designer designers designs designing designs did didn't didn't digit digital digitalization digitally digitals digitize digitizer digitizing digits do does doesn't doesn't doing don't don't down download downloadable downloaded downloads during each early edit edited editing edition edition' edition' editioning editions editions' edits enamel end ended ending endings ends engine engineer engineered engineering engineers engines english estimate estimated estimates estimating estimator exclusive exclusively exclusives explorable exploration explorations explore explored explorer explorers explores exploring faq faqs feature featured features featuring few film first film filmed filming films first firstly food food' foods for free free' freeing from full fund funded funding funds further game game' game'' games games' gaming gbp get gets getting give gives giving goal goals goals' great grateful greatly greats had hadn't hadn't hand handbook handed handful handing hands has hasn't hasn't have haven't haven't having he he'd he'll he's he'd he'll he's hello her here here's here's hers herself him himself his how how's how's i i'd i'll i'm i've i'd i'll i'm i've if illustrate illustrated illustrates illustrating illustration illustrations illustrator illustrators in include included includes including independant independence independent independently independents into is isn't isn't issue issues it it's it's its itself job jobs just kickstart kickstarted kickstarter kickstartered kickstarters kickstarting know know' knowing knowingly knows learn learned learning learnings learns let's let's like liked likely likeness likes liking limit limitation limitations limite limited limiting limits london london' londoner londoners longer look look' looked looking looks made magazine magazines make makes making makings many may me mobile mobility more most music musical musically musicals mustn't mustn't my myself name named namely names naming new newsletter newsletters no nor not nov oct of off on once one one' ones only or other ought our ours ourselves out over own pack packed packing packs packs' page page' paged pages paint painted painting paintings paints patron patrons patrons' pbc period periodic periodically periodicals periods person personal personalities personality personalization personalize personalized personally persons physical physicality physically pin pin' pinned pinning pins play play' played playful playfully playfulness playing plays please pleased pleasing pledge pledge' pledged pledges pledging plus plus' podcast podcasts policies policy postcard postcards poster posterity posters pound pounds press pressed presses pressing print printed printing printings prints prints' privacy produce produced producer producers produces producing product production production' productions productions' productive productivity products project project' projected projecting projection projects publish published publisher publishers publishing question questionable questioning questions reach reached reaches reaching receive received receiver receivers receives receiving report reported reporter reporters reporting reports research researched researcher researchers researching reward rewarded rewarding rewards rewards' risk risking risks rule ruled rules safety said same say says search searched searches searching see seeing sees sep set sets sets' setting settings shall shan't shan't she she'd she'll she's she'd she'll she's ship shipped shipping ships shirt shirt' shirts should shouldn't shouldn't sign sign' signed signing signs small smalls so some special specialism speciality specialize specializes specializing specially specials start start' started starting starts stat stats sterling sticker stickers stories stories' story story' story' stretch stretched stretching such take take' takes taking tech term terms than thank thanked thankful thankfully thanking thanks thanks' that that's that's the their theirs them themselves then there there's

there's these they they'd they'll they're they've they'd they'll they're they've this those through time time' timed timely times timing timings to too trust trusted trusting two two' under unlock unlockable unlocked unlocking unlocks unsuccessful until up update updated updates updating upon us use used useful uses using very video videoing videos want wanted wanting wants was wasn't wasn't way way' ways we we'd we'll we're we've we'd we'll we're we've well wellness wells wells' wells' were weren't weren't what what's what's when when's when's where where's where's which while who who's who's whom whose why why's why's will with won't won't work worked working works world world' worlds would wouldn't wouldn't year year' year's' yearly years years' you you'd you'll you're you've you'd you'll you're you've your yours yourself yourselves

Mann Whitney U test

Table B.2 Ranks of Ratio Variables (Group A)

	Status	N	Mean Rank	Sum of Ranks
LnPledge median	Failed	67	105.54	7071.5
	Success	149	109.83	16364.5
	Total	216		
LnIntroduction word counts	Failed	67	91.46	6128
	Success	149	116.16	17308
	Total	216		
LnCampaign_duration	Failed	67	126.18	8454
	Success	149	100.55	14982
	Total	216		
LnDelivery_duration	Failed	67	113.9	7631
	Success	149	106.07	15805
	Total	216		
Projects_backed	Failed	67	71.51	4791.5
	Success	149	125.13	18644.5
	Total	216		
LnGoal	Failed	67	116.48	7804
	Success	149	104.91	15632
	Total	216		
LnNo. of backers	Failed	67	40.62	2721.5
	Success	149	139.02	20714.5
	Total	216		
Team size	Failed	67	100.25	6717
	Success	149	112.21	16719
	Total	216		
No. of comments	Failed	67	76.98	5157.5
	Success	149	122.67	18278.5
	Total	216		
Projects created	Failed	67	84.6	5668.5
	Success	149	119.24	17767.5
	Total	216		
No. of charitable purposes	Failed	67	106.55	7139
	Success	149	109.38	16297

	Total	216		
Video counts	Failed	67	106.25	7118.5
	Success	149	109.51	16317.5
	Total	216		

Table B.3 Ranks of Ratio Variables (Group B)

	Status	N	Mean Rank	Sum of Ranks
LnGoal	Failed	155	172.44	26728
	Success	173	157.39	27228
	Total	328		
LnPledge median	Failed	155	151.47	23478.5
	Success	173	176.17	30477.5
	Total	328		
LnIntroduction word counts	Failed	155	139.45	21615
	Success	173	186.94	32341
	Total	328		
LnCampaign_duration	Failed	155	176.22	27314
	Success	173	154	26642
	Total	328		
LnDelivery_duration	Failed	155	154.13	23890.5
	Success	173	173.79	30065.5
	Total	328		
LnNo. of backers	Failed	155	87.64	13584
	Success	173	233.36	40372
	Total	328		
Projects_backed	Failed	155	133.16	20640
	Success	173	192.58	33316
	Total	328		
No. of comments	Failed	155	114.84	17800
	Success	173	208.99	36156
	Total	328		
Team size	Failed	155	148.05	22947.5
	Success	173	179.24	31008.5
	Total	328		
No. of charitable purposes	Failed	155	154.89	24008
	Success	173	173.11	29948
	Total	328		
Projects created	Failed	155	154.77	23989.5
	Success	173	173.22	29966.5
	Total	328		
Video counts	Failed	155	132.26	20500.5
	Success	173	193.38	33455.5
	Total	328		

Table B.4 Ranks of Ratio Variables (Group C)

	Status	N	Mean Rank	Sum of Ranks
LnGoal	Failed	76	46.64	3545
	Success	16	45.81	733
	Total	92		
LnPledge median	Failed	76	45.02	3421.5
	Success	16	53.53	856.5
	Total	92		
LnIntroduction word counts	Failed	76	43	3268
	Success	16	63.13	1010
	Total	92		
LnCampaign_duration	Failed	76	47.95	3644.5
	Success	16	39.59	633.5
	Total	92		
LnDelivery_duration	Failed	76	45.93	3490.5
	Success	16	49.22	787.5
	Total	92		
LnNo. of backers	Failed	76	38.74	2944
	Success	16	83.38	1334
	Total	92		
No. of comments	Failed	76	40.34	3066
	Success	16	75.75	1212
	Total	92		
Team size	Failed	76	44.76	3402
	Success	16	54.75	876
	Total	92		
Projects_backed	Failed	76	40.93	3111
	Success	16	72.94	1167
	Total	92		
No. of charitable purposes	Failed	76	45.23	3437.5
	Success	16	52.53	840.5
	Total	92		
Projects created	Failed	76	44.51	3383
	Success	16	55.94	895
	Total	92		
Video counts	Failed	76	43.5	3306
	Success	16	60.75	972
	Total	92		

Chi-square test for independence

Group A

Table B.5 The Chi-square test overall output (Group A)

	Failed (%) (N=67)	Success (%) (N=149)	Total (%) (N=216)	Chi-square Test
Art sector	20.9	22.8	22.2	$\chi^2=0.019$, $df=1$, $p = 0.891$
Design sector	9	10.7	10.2	$\chi^2=0.025$, $df=1$, $p = 0.875$
Fashion sector	14.9	16.8	16.2	$\chi^2=0.02$, $df=1$, $p = 0.887$
Film and Video sector	7.5	5.4	6	$\chi^2=0.084$, $df=1$, $p = 0.772$
Music sector	0	5.4	8	$\chi^2=2.2382$, $df=1$, $p = 0.123$

Publishing sector	17.9	16.1	16.7	$\chi^2=0.017, df=1, p = 0.895$
Food and Drink sector	6	3.4	4.2	$\chi^2=0.272, df=1, p = 0.602$
Entertainment sector	11.9	16.1	14.8	$\chi^2=0.349, df=1, p = 0.555$
Charitable purpose	13.4	16.8	15.7	$\chi^2=0.179, df=1, p = 0.673$
Human (Charitable purpose)	9	9.4	9.3	$\chi^2=0.0, df=1, p = 1$
Environment (Charitable Purpose)	1.5	1.3	1.4	$\chi^2=0.0, df=1, p = 1$
Arts (Charitable Purpose)	3	3.4	3.2	$\chi^2=0.0, df=1, p = 1$
Culture (Charitable Purpose)	0	2.7	1.9	$\chi^2=0.653, df=1, p =0.419$
Heritage (Charitable Purpose)	1.5	0	0.5	$\chi^2=0.169, df=1, p = 0.681$
Science (Charitable Purpose)	No statistics are computed because Science is a constant.			
Animal welfare (Charitable Purpose)	0	0.7	0.5	$\chi^2=0.0, df=1, p = 1$
Facebook Link	34.3	46.3	42.6	$\chi^2=2.245, df=1, p = 0.134$

Table B.6 Status* Science and Technology

Crosstab					
			Science and Technology		
			No	Yes	Total
Status	Failed	Count	59	8	67
		% within Status	88.10%	11.90%	100.00%
		Adjusted Residual	-2.5	2.5	
Status	Success	Count	144	5	149
		% within Status	96.60%	3.40%	100.00%
		Adjusted Residual	2.5	-2.5	
Total		Count	203	13	216
		% within Status	94.00%	6.00%	100.00%

Chi-Square Tests						
	Value	df	Asymptotic Significance (2-sided)	Exact R(2-sided)	Exact R(1-sided)	
Pearson Chi-Square	6.022 ^a	1	0.014			
Continuity Correction ^b	4.6	1	0.032			
Likelihood Ratio	5.486	1	0.019			
Fisher's Exact Test				0.026	0.019	
Linear-by-Linear Association	5.994	1	0.014			
N of Valid Cases	216					

a. 1 cells (25.0%) have expected count less than 5. The minimum expected count is 4.03.

b. Computed only for a 2x2 table

Symmetric Measures			
		Value	Approximate Significance
Nominal by Nominal	Phi	-0.167	0.014

	Cramer's V	0.167	0.014
N of Valid Cases		216	

Table B.7 Status * Creator experience

Crosstab					
			Creator experience		
			No	Yes	Total
Status	Failed	Count	42	25	67
		% within Status	62.70%	37.30%	100.00%
		Adjusted Residual	3.9	-3.9	
	Success	Count	51	98	149
		% within Status	34.20%	65.80%	100.00%
		Adjusted Residual	-3.9	3.9	
Total		Count	93	123	216
		% within Status	43.10%	56.90%	100.00%

Chi-Square Tests					
	Value	d f	Asymptotic Significance (2-sided)	Exact R(2-sided)	Exact R(1-sided)
Pearson Chi-Square	15.267 ^a	1	0.00		
Continuity Correction ^b	14.128	1	0.00		
Likelihood Ratio	15.262	1	0.00		
Fisher's Exact Test				0.00	0.00
Linear-by-Linear Association	15.196	1	0.00		
N of Valid Cases	216				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 28.85.

b. Computed only for a 2x2 table

Symmetric Measures			
		Value	Approximate Significance
Nominal by Nominal	Phi	0.266	0
	Cramer's V	0.266	0
N of Valid Cases		216	

Group B

Table B.8 Charitable purpose * Status

Crosstab			
			Status

			Failed	Success	Total
Charitable purpose	No	Count	131	128	259
		% within Charitable purpose	50.60%	49.40%	100.00%
		Adjusted Residual	2.3	-2.3	
	Yes	Count	24	45	69
		% within Charitable purpose	34.80%	65.20%	100.00%
		Adjusted Residual	-2.3	2.3	
Total		Count	155	173	328
		% within Charitable purpose	47.30%	52.70%	100.00%

Chi-Square Tests					
	Value	df	Asymptotic Significance (2-sided)	Exact R(2-sided)	Exact R(1-sided)
Pearson Chi-Square	5.455 ^a	1	0.02		
Continuity Correction ^b	4.839	1	0.028		
Likelihood Ratio	5.54	1	0.019		
Fisher's Exact Test				0.021	0.013
Linear-by-Linear Association	5.438	1	0.02		
N of Valid Cases	328				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 32.61.

b. Computed only for a 2x2 table

Symmetric Measures			
		Value	Approximate Significance
Nominal by Nominal	Phi	0.129	0.02
	Cramer's V	0.129	0.02
N of Valid Cases		328	

Table B.9 Culture (Charitable Purpose) * Status

Crosstab					
			Status		
			Failed	Success	Total
Culture	No	Count	155	165	320
		% within Culture	48.40%	51.60%	100.00%
		Adjusted Residual	2.7	-2.7	
	Yes	Count	0	8	8
		% within Culture	0.00%	100.00%	100.00%
		Adjusted Residual	-2.7	2.7	
Total		Count	155	173	328
		% within Culture	47.30%	52.70%	100.00%

Chi-Square Tests					
	Value	df	Asymptotic Significance (2-sided)	Exact R(2-sided)	Exact R(1-sided)
Pearson Chi-Square	7.347 ^a	1	0.007		
Continuity Correction ^b	5.532	1	0.019		

Likelihood Ratio	10.415	1	0.001		
Fisher's Exact Test				0.008	0.006
Linear-by-Linear Association	7.324	1	0.007		
N of Valid Cases	328				

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 3.78.

b. Computed only for a 2x2 table

Symmetric Measures			
		Value	Approximate Significance
Nominal by Nominal	Phi	0.15	0.007
	Cramer's V	0.15	0.007
N of Valid Cases		328	

Table B.10 Facebook Link (yes/no) * Status

Crosstab						
		Status				
				Failed	Success	Total
Facebook Link	No	Count	90	80	170	
		% within Facebook Link	52.90%	47.10%	100.00%	
		Adjusted Residual	2.1	-2.1		
	Yes	Count	65	93	158	
		% within Facebook Link	41.10%	58.90%	100.00%	
		Adjusted Residual	-2.1	2.1		
	Total	Count	155	173	328	
		% within Facebook Link	47.30%	52.70%	100.00%	

Chi-Square Tests					
	Value	df	Asymptotic Significance (2-sided)	Exact R(2-sided)	Exact R(1-sided)
Pearson Chi-Square	4.576 ^a	1	0.032		
Continuity Correction ^b	4.115	1	0.043		
Likelihood Ratio	4.589	1	0.032		
Fisher's Exact Test				0.036	0.021
Linear-by-Linear Association	4.562	1	0.033		
N of Valid Cases	328				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 74.66.

b. Computed only for a 2x2 table

Symmetric Measures			
		Value	Approximate Significance
Nominal by Nominal	Phi	0.118	0.032
	Cramer's V	0.118	0.032
N of Valid Cases		328	

Table B.11 Science and Technology (Sector)* Status

Crosstab					
		Status			
			Failed	Success	Total
Science and Technology	No	Count	138	166	304
		% within Science and Technology	45.40%	54.60%	100.00%
		Adjusted Residual	-2.4	2.4	
	Yes	Count	17	7	24
		% within Science and Technology	70.80%	29.20%	100.00%
		Adjusted Residual	2.4	-2.4	
	Total	Count	155	173	328
		% within Science and Technology	47.30%	52.70%	100.00%

Chi-Square Tests					
	Value	df	Asymptotic Significance (2-sided)	Exact R(2-sided)	Exact R(1-sided)
Pearson Chi-Square	5.775 ^a	1	0.016		
Continuity Correction ^b	4.8	1	0.028		
Likelihood Ratio	5.891	1	0.015		
Fisher's Exact Test				0.019	0.014
Linear-by-Linear Association	5.758	1	0.016		
N of Valid Cases	328				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 11.34.

b. Computed only for a 2x2 table

Symmetric Measures			
		Value	Approximate Significance
Nominal by Nominal	Phi	-0.133	0.016
	Cramer's V	0.133	0.016
N of Valid Cases			328

Table B.12 Music (Sector) * Status

Crosstab					
		Status			
			Failed	Success	Total

Music	No	Count	147	151	298
		% within Music	49.30%	50.70%	100.00%
		Adjusted Residual	2.4	-2.4	
	Yes	Count	8	22	30
		% within Music	26.70%	73.30%	100.00%
		Adjusted Residual	-2.4	2.4	
	Total	Count	155	173	328
		% within Music	47.30%	52.70%	100.00%

Chi-Square Tests					
	Value	df	Asymptotic Significance (2-sided)	Exact R(2- sided)	Exact R(1- sided)
Pearson Chi-Square	5.616 ^a	1	0.018		
Continuity Correction ^b	4.744	1	0.029		
Likelihood Ratio	5.859	1	0.015		
Fisher's Exact Test				0.021	0.014
Linear-by-Linear Association	5.599	1	0.018		
N of Valid Cases	328				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 14.18.

b. Computed only for a 2x2 table

Symmetric Measures			
		Value	Approximate Significance
Nominal by Nominal	Phi	0.131	0.018
	Cramer's V	0.131	0.018
N of Valid Cases			328

Table B.13 Publishing (Sector) * Status

Crosstab					
			Status		
			Failed	Success	Total
Publishing	No	Count	139	138	277
		% within Publishing	50.20%	49.80%	100.00%
		Adjusted Residual	2.5	-2.5	
	Yes	Count	16	35	51
		% within Publishing	31.40%	68.60%	100.00%
		Adjusted Residual	-2.5	2.5	
	Total	Count	155	173	328
		% within Publishing	47.30%	52.70%	100.00%

Chi-Square Tests					
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	Value	df	Asymptotic Significance (2-sided)	Exact R(2- sided)	Exact R(1- sided)
Pearson Chi-Square	6.113 ^a	1	0.013		
Continuity Correction ^b	5.381	1	0.02		
Likelihood Ratio	6.267	1	0.012		
Fisher's Exact Test				0.015	0.01
Linear-by-Linear Association	6.094	1	0.014		
N of Valid Cases	328				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 24.10.

b. Computed only for a 2x2 table

Symmetric Measures			
		Value	Approximate Significance
Nominal by Nominal	Phi	0.00	0.013
	Cramer's V	0.137	0.013
N of Valid Cases			328

Group C

Table B.14 Creator experience * Status

Crosstab					
			Status		
			Failed	Success	Total
Creator experience	No	Count	66	10	76
		% within Creator experience	86.80%	13.20%	100.00%
		Adjusted Residual	2.3	-2.3	
	Yes	Count	10	6	16
		% within Creator experience	62.50%	37.50%	100.00%
		Adjusted Residual	-2.3	2.3	
	Total	Count	76	16	92
		% within Creator experience	82.60%	17.40%	100.00%

Chi-Square Tests					
	Value	df	Asymptotic Significance (2-sided)	Exact R(2- sided)	Exact R(1- sided)
Pearson Chi-Square	5.451 ^a	1	0.02		
Continuity Correction ^b	3.889	1	0.049		
Likelihood Ratio	4.659	1	0.031		
Fisher's Exact Test				0.03	0.03
Linear-by-Linear Association	5.392	1	0.02		
N of Valid Cases	92				

a. 1 cells (25.0%) have expected count less than 5. The minimum expected count is 2.78.

b. Computed only for a 2x2 table

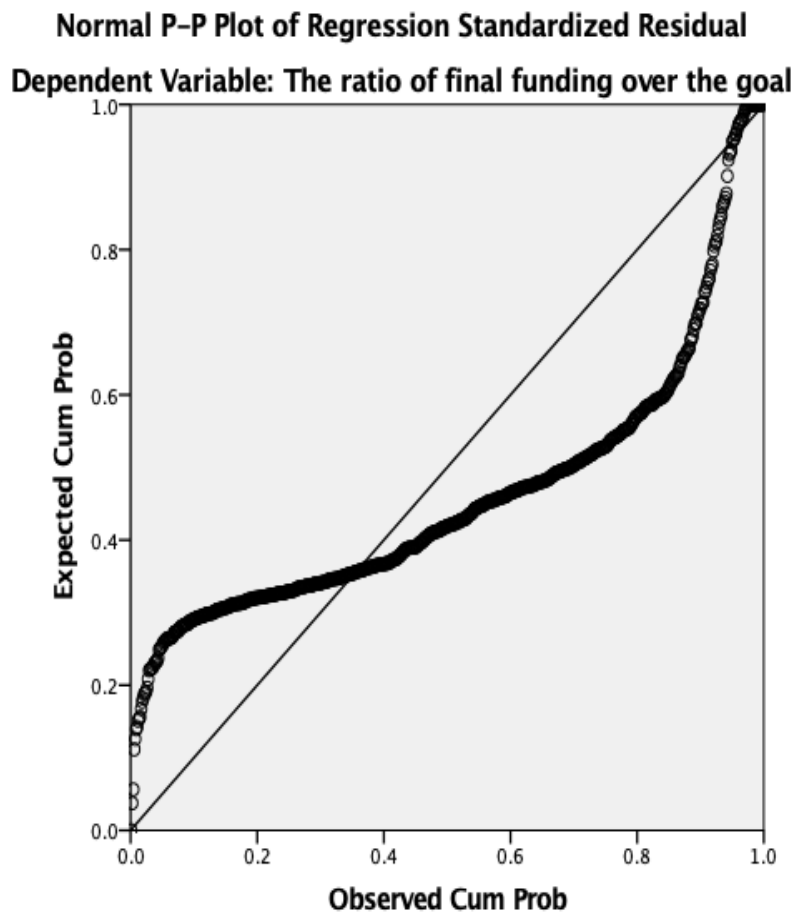
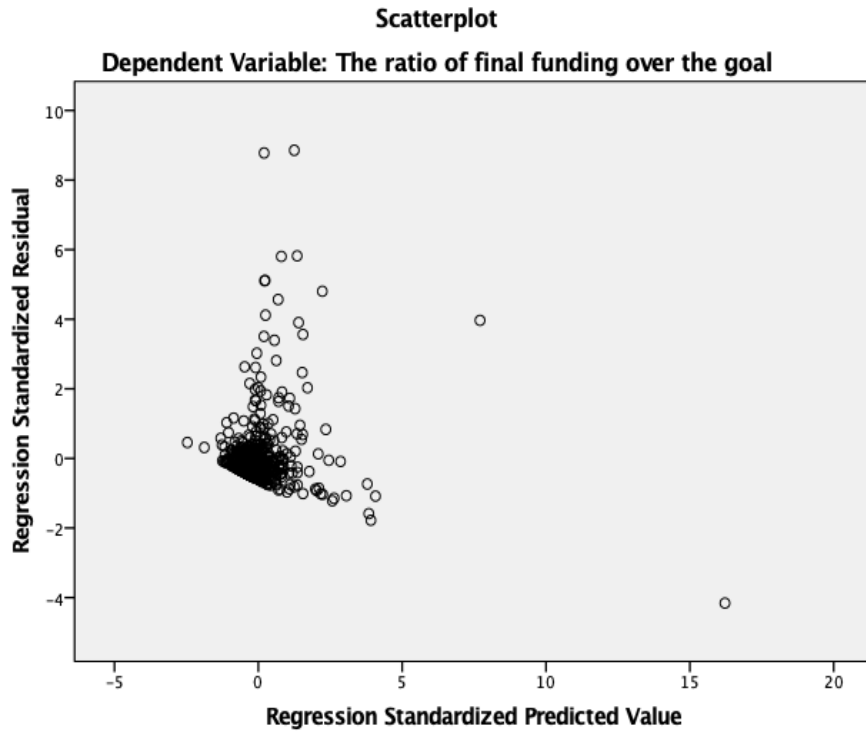
Symmetric Measures			
		Value	Approximate Significance
Nominal by Nominal	Phi	0.243	0.02
	Cramer's V	0.243	0.02
N of Valid Cases		92	

Binary Logistic Regression Result

Assumption tests (Used the Ratio request collinearity diagnostics)

Table B.15 Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	2.732	1.011		2.703	0.007		
	LnIntroduction word counts	0.173	0.087	0.075	1.982	0.048	0.929	1.077
	Video counts	-0.092	0.053	-0.067	-1.725	0.085	0.878	1.139
	LnCampaign_duration	-0.799	0.259	-0.119	-3.089	0.002	0.903	1.108
	Charitable purpose	-0.125	0.239	-0.019	-0.524	0.601	0.974	1.027
	No. of comments	0.007	0.001	0.3	7.896	0	0.934	1.071
	Projects_backed	0.011	0.004	0.119	2.978	0.003	0.841	1.189
	Projects created	0.079	0.032	0.103	2.474	0.014	0.782	1.278
	Facebook Link	-0.105	0.19	-0.021	-0.551	0.582	0.957	1.045
	Team size	0.099	0.152	0.024	0.652	0.514	0.956	1.046



Group A

Table B.16 Logistic Regression Predicting Likelihood Of Reaching The Target Output Supplement (Group A)

Block 0: Beginning Block

Classification Table ^{a,b}					
			Predicted		
			Status		
	Observed		Failed	Success	Percentage Correct
Step 0	Status	Failed	0	67	0
		Success	0	149	100
	Overall Percentage				69.0

a.Constant is included in the model.

b. The cut value is .500

Variables in the Equation							
		B	S.E.	Wald	df	Sig.	Exp(B)
Step 0	Constant	0.799	0.147	29.524	1	0	2.224

Variables not in the Equation					
			Score	df	Sig.
Step 0	Variables	LnIntroduction word counts	8.27	1	0.004
		LnCampaign_duration	6.294	1	0.012
		Team size	3.407	1	0.065
		Projects created	10.077	1	0.002
		Projects_backed	9.472	1	0.002
		No. of comments	6.413	1	0.011
		Facebook Link(1)	2.713	1	0.1
		Charitable purpose(1)	0.39	1	0.532
		Video counts	0.225	1	0.635
	Overall Statistics		34.502	9	0

Block 1: Method = Enter

Omnibus Tests of Model Coefficients				
		Chi-square	df	Sig.
Step 1	Step	69.458	9	0.000
	Block	69.458	9	0.000
	Model	69.458	9	0.000

Model Summary			
Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	198.058 ^a	0.275	0.387

a. Estimation terminated at iteration No. 8 because parameter estimates changed by less than .001.

Hosmer and Lemeshow Test			
Step	Chi-square	df	Sig.
1	2.622	8	0.956

Classification Table ^a					
	Observed	Predicted	Status		Percentage Correct
			Failed	Success	
Step 1	Status	Failed	36	31	53.7
		Success	22	127	85.2
	Overall Percentage				75.5

a. The cut value is .500

Variables in the Equation									
Step		B	S.E.	Wald	df	Sig.	Odds Ratio	95% C.I. for EXP(B)	
								Lower	Upper
1 ^a	LnIntroduction word counts	0.398	0.277	2.057	1	0.152	1.488	0.864	2.563
	LnCampaign_duration	-0.628	0.438	2.055	1	0.152	0.534	0.226	1.259
	Team size	0.545	0.534	1.044	1	0.307	1.725	0.606	4.908
	Projects created	0.148	0.083	3.168	1	0.075	1.159	0.985	1.364
	Projects_backed	0.073	0.028	6.677	1	0.01	1.076	1.018	1.138
	No. of comments	0.25	0.092	7.447	1	0.006	1.284	1.073	1.537
	Facebook Link(1)	0.243	0.369	0.433	1	0.51	1.275	0.618	2.629
	Charitable purpose(1)	0.792	0.487	2.644	1	0.104	2.208	0.85	5.734

	Video counts	-0.056	0.324	0.03	1	0.862	0.945	0.501	1.783
	Constant	-1.458	1.886	0.598	1	0.439	0.233		

a. Variable(s) entered on step 1: LnIntroduction word counts, LnCampaign_duration, Team size, Projects created, Projects_backed, No. of comments, Facebook Link, Charitable purpose, Video counts.

Group B

Table B.17 Logistic Regression Predicting Likelihood Of Reaching The Target Output Supplement (Group B)

Block 0: Beginning Block

Classification Table ^{a,b}					
	Observed	Predicted	Status		Percentage Correct
			Failed	Success	
Step 0	Status	Failed	0	155	0
		Success	0	173	100
	Overall Percentage				52.7

a. Constant is included in the model.

b. The cut value is .500

Variables in the Equation							
		B	S.E.	Wald	df	Sig.	Exp(B)
Step 0	Constant	0.11	0.111	0.987	1	0.321	1.116

Variables not in the Equation					
			Score	df	Sig.
Step 0	Variables	LnIntroduction word counts	5.886	1	0.015
		LnCampaign_duration	1.002	1	0.317
		Projects_backed	13.151	1	0
		Facebook Link(1)	4.576	1	0.032
		No. of comments	20.928	1	0
		Team size	16.816	1	0
		Projects created	3.065	1	0.08
		Charitable purpose(1)	5.455	1	0.02
		Video counts	2.459	1	0.117
	Overall Statistics		52.341	9	0

Block 1: Method = Enter

Omnibus Tests of Model Coefficients				
		Chi-square	df	Sig.
Step 1	Step	119.297	9	0.00
	Block	119.297	9	0.00
	Model	119.297	9	0.00

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	334.420 ^a	0.305	0.407

a. Estimation terminated at iteration No. 7 because parameter estimates changed by less than .001.

Hosmer and Lemeshow Test			
Step	Chi-square	df	Sig.
1	11.57	8	0.171

Contingency Table for Hosmer and Lemeshow Test						
		Status = Failed		Status = Success		Total
		Observed	Expected	Observed	Expected	
Step 1	1	31	27.198	2	5.802	33
	2	28	25.407	5	7.593	33
	3	19	23.578	14	9.422	33
	4	19	21.776	14	11.224	33
	5	19	18.888	14	14.112	33
	6	13	16.139	20	16.861	33
	7	16	12.305	17	20.695	33
	8	7	6.967	26	26.033	33
	9	3	2.551	30	30.449	33
	10	0	0.191	31	30.809	31

Classification Table ^a					
	Observed	Status	Predicted		Percentage Correct
			Failed	Success	
Step 1	Status	Failed	119	36	76.8
		Success	60	113	65.3
	Overall Percentage				70.7

a. The cut value is .500

Variables in the Equation									
		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
								Lower	Upper
Step 1 ^a	LnIntroduction word counts	0.108	0.123	0.76	1	0.383	1.114	0.874	1.418
	LnCampaign_duration	-0.592	0.428	1.916	1	0.166	0.553	0.239	1.279
	Projects_backed	0.014	0.011	1.766	1	0.184	1.015	0.993	1.036
	Facebook Link(1)	0.487	0.272	3.202	1	0.074	1.628	0.955	2.776
	No. of comments	0.2	0.037	28.993	1	0	1.222	1.136	1.314
	Team size	0.734	0.247	8.811	1	0.003	2.084	1.283	3.384
	Projects created	-0.087	0.09	0.918	1	0.338	0.917	0.768	1.095

	Charitable purpose(1)	1.033	0.318	10.541	1	0.001	2.81	1.506	5.243
	Video counts	0.004	0.059	0.006	1	0.939	1.004	0.896	1.127
	Constant	-0.559	1.678	0.111	1	0.739	0.571		

a. Variable(s) entered on step 1: LnIntroduction word counts, LnCampaign_duration, Projects_backed, Facebook Link, No. of comments, Team size, Projects created, Charitable purpose, Video counts.

Group C

Table B.18 Logistic Regression Predicting Likelihood Of Reaching The Target Output Supplement (Group C)

Block 0: Beginning Block

Classification Table ^{a,b}					
		Predicted			
		Status		Percentage Correct	
	Observed	Failed	Success		
Step 0	Status	Failed	76	0	100
		Success	16	0	0
	Overall Percentage				82.6

a. Constant is included in the model.

b. The cut value is .500

Variables in the Equation							
	B	S.E.	Wald	df	Sig.	Exp(B)	
Step 0	Constant	-1.558	0.275	32.089	1	0	0.211

Variables not in the Equation					
	Variables	Score	df	Sig.	
Step 0	LnIntroduction word counts	6.464	1	0.011	
	LnCampaign_duration	2.188	1	0.139	
	Projects_backed	31.865	1	0	
	Facebook Link(1)	0.984	1	0.321	
	No. of comments	11.862	1	0.001	
	Team size	5.068	1	0.024	
	Charitable purpose(1)	1.327	1	0.249	
	Projects created	6.001	1	0.014	
	Video counts	6.552	1	0.01	
	Overall Statistics	40.707	9	0	

Block 1: Method = Enter

Omnibus Tests of Model Coefficients				
		Chi-square	df	Sig.
Step 1	Step	50.439	9	0.00
	Block	50.439	9	0.00
	Model	50.439	9	0.00

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	34.576 ^a	0.422	0.7

a. Estimation terminated at iteration No. 10 because parameter estimates changed by less than .001.

Hosmer and Lemeshow Test			
Step	Chi-square	df	Sig.
1	8.232	8	0.411

Contingency Table for Hosmer and Lemeshow Test						
		Status = Failed		Status = Success		Total
		Observed	Expected	Observed	Expected	
Step 1	1	9	8.983	0	0.017	9
	2	9	8.933	0	0.067	9
	3	9	8.874	0	0.126	9
	4	9	8.83	0	0.17	9
	5	8	8.79	1	0.21	9
	6	8	8.686	1	0.314	9
	7	9	8.451	0	0.549	9
	8	8	8.05	1	0.95	9
	9	7	5.262	2	3.738	9
	10	0	1.14	11	9.86	11

Classification Table ^a					
			Predicted		
			Status		
	Observed		Failed	Success	Percentage Correct
Step 1	Status	Failed	75	1	98.7
		Success	3	13	81.3
	Overall Percentage				95.7

a. The cut value is .500

Variables in the Equation									
		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
								Lower	Upper
Step 1 ^a	LnIntroduction word counts	0.577	0.707	0.666	1	0.414	1.78	0.446	7.112
	LnCampaign_duration	-1.517	2.265	0.448	1	0.503	0.219	0.003	18.608
	Projects_backed	0.587	0.198	8.751	1	0.003	1.798	1.219	2.652
	Facebook Link(1)	-0.154	0.956	0.026	1	0.872	0.857	0.132	5.582
	No. of comments	0.095	0.054	3.118	1	0.077	1.099	0.99	1.221
	Team size	0.312	0.615	0.257	1	0.612	1.366	0.409	4.559
	Charitable purpose(1)	1.687	1.023	2.718	1	0.099	5.402	0.727	40.128
	Projects created	-2.083	1.562	1.778	1	0.182	0.125	0.006	2.66
	Video counts	-0.006	0.344	0	1	0.985	0.994	0.507	1.949
		Constant	-0.581	8.396	0.005	1	0.945	0.559	

a. Variable(s) entered on step 1: LnIntroduction word counts, LnCampaign_duration, Projects_backed, Facebook Link, No. of comments, Team size, Charitable purpose, Projects created, Video counts.

Factor Analysis (Group B only)

First run

Table B.19 Output from PCA (First run)

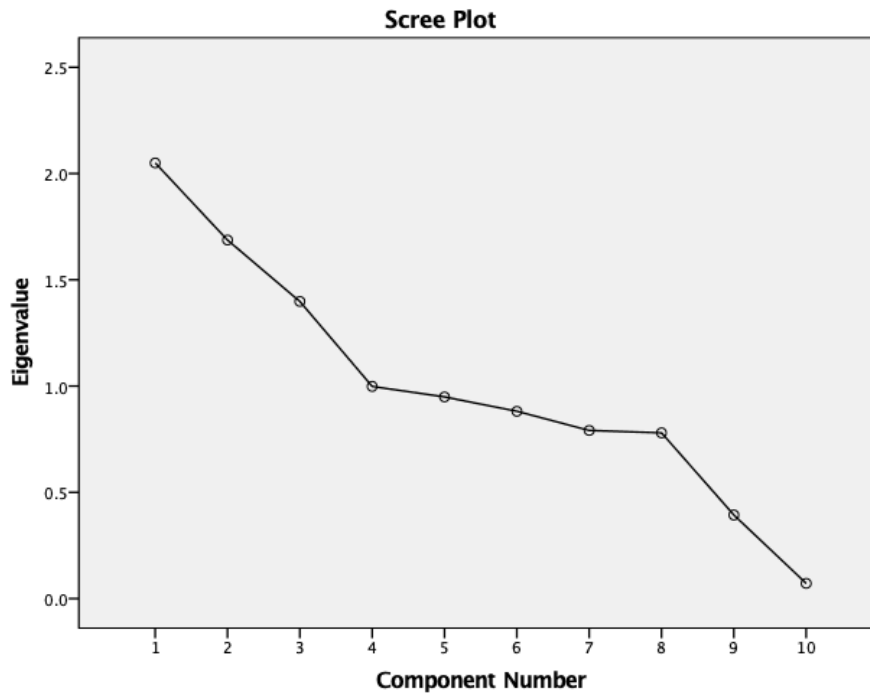
KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.512
Bartlett's Test of Sphericity	Approx. Chi-Square	866.824
	df	.55
	Sig.	0

Total Variance Explained							
Component	Total	Initial Eigenvalues		Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings ^a
		% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	2.054	18.67	18.67	2.054	18.67	18.67	1.984
2	1.691	15.371	34.041	1.691	15.371	34.041	1.753
3	1.402	12.742	46.784	1.402	12.742	46.784	1.43
4	1.077	9.787	56.571	1.077	9.787	56.571	1.108
5	0.989	8.987	65.558				
6	0.928	8.437	73.995				
7	0.826	7.513	81.509				
8	0.791	7.189	88.697				
9	0.779	7.086	95.783				
10	0.393	3.575	99.358				
11	0.071	0.642	100				

Extraction Method: Principal Component Analysis.

a. When components are correlated, sums of squared loadings cannot be added to obtain a total variance.

Table B.20 Scree Plot



Comparison of eigenvalues from PCA and criterion values from parallel analysis

	Actual eigenvalue from PCA	Criterion value from parallel analysis	Decision
1	2.054	1.306	Accept
2	1.691	1.2151	Accept
3	1.402	1.1499	Accept
4	1.077	1.0903	Reject

Three-factors solution

Communalities		
	Initial	Extraction
LnIntroduction word counts	1	0.315
Video counts	1	0.459
Charitable purpose	1	0.943
Projects_backed	1	0.769
Facebook Link	1	0.159
No. of comments	1	0.332
Team size	1	0.242
Projects created	1	0.605
LnPledge median	1	0.344
No. of charitable purposes	1	0.95
LnCampaign_duration	1	0.029

Extraction Method: Principal Component Analysis.

Three-factors solution without LnCampaign duration

Total Variance Explained								
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		Rotation Sums of Squared Loadings ^a		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	
1	2.05	20.499	20.499	2.05	20.499	20.499	1.989	
2	1.687	16.871	37.37	1.687	16.871	37.37	1.739	
3	1.398	13.983	51.353	1.398	13.983	51.353	1.44	
4	0.998	9.984	61.337					
5	0.949	9.491	70.829					
6	0.881	8.814	79.643					
7	0.791	7.911	87.554					
8	0.78	7.798	95.352					
9	0.393	3.933	99.285					
10	0.071	0.715	100					

Multiple Regression Predicting the Funding Ability of RBC Campaigns

Table B.21 Multiple Regression Predicting the Funding Ability of RBC Campaigns Output Supplement (Group D)

Model Summary ^b				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.503 ^a	0.253	0.228	3.20115

a. Predictors: (Constant), Creator experience, LnPledge median, Number of comments, Projects_backed, LnCampaign_duration

b. Dependent Variable: The ratio of final funding over the goal

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	507.379	5	101.476	9.903	.000 ^b
	Residual	1496.118	146	10.247		
	Total	2003.497	151			

a. Dependent Variable: The ratio of final funding over the goal

b. Predictors: (Constant), Creator experience, LnPledge median, Number of comments, Projects backed, LnCampaign duration