Investigations into the Structure of Crowdfunding Research and the Role of the Content and Linguistic Cues in Risk Disclosure in Crowdfunding Campaigns

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Ahmad Ridhuwan Abdullah

Master of Science in Finance (Northern University of Malaysia)

Bachelor of Business Administration in Finance (MARA University of Technology)

School of Economics Finance and Marketing

College of Business

RMIT University

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DECLARATION

I certify that except where due acknowledgement has been made, the work is that of the author alone; the work has not been submitted previously, in whole or in part, to qualify for any other academic award; the content of the thesis is the result of work which has been carried out since the official commencement date of the approved research program; any editorial work, paid or unpaid, carried out by a third party is acknowledged; and, ethics procedures and guidelines have been followed.

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ABSTRACT

Crowdfunding is widely touted as a way to bring significant changes to the entrepreneurial finance landscape, enabling any entrepreneur to get easy access to financing by tapping into the online crowd. Because of its importance, crowdfunding research in various research areas continues to evolve. Despite its multidisciplinary nature, the centric of crowdfunding research is claimed to be on the determinants of success. This is particularly important given the high failure rate of crowdfunding campaigns and the lack of academic understanding in regard to the factors that contribute to funding success. These issues justify the need to: (1) reveal the overall objective of crowdfunding literature without a specific focus on success factors; and (2) to explore other factors that may contribute to crowdfunding success. In brief, this thesis seeks to investigate the structure and trend in crowdfunding research and to explore the role of risk disclosure in funding success. To achieve this, three empirical studies have been conducted. The first study adopts the bibliometric analysis in examining the structure and trends of crowdfunding-related publications using the citations, co-citations, and co-word analysis on a sample data of 2,956 articles published from the year 2008 to 2018. The data was collected from the premium Web of Science research database. Findings revealed that crowdfunding publications were predominantly in the business and management areas. Although crowdfunding is considered to have originated from the crowdsourcing concept, results from the co-word analysis unveiled that crowdfunding research has little connections to the broader concept of crowdsourcing. The results were expected as crowdfunding concept is specific to financing technology. The results also support previous claims by scholars that most of the publications in crowdfunding focus on funding success. These publications also receive higher citations which imply the importance of the topic in crowdfunding. These findings further support the need to investigate other factors that influence success. The next two studies investigate the role of risk disclosure in crowdfunding campaigns. Study 2 explores the role of risk disclosure in two phases of

analysis. The first phase identifies the risk information categories communicated by the two groups of projects, the successful and the failed group. By utilising co-word analysis on a dataset that was comprised of 28,312 projects, the findings reveal that there are three categories of risk information: risk related to the key operations and process (OPR), risk related to the ability of the team to complete the project (TR), and risk related to funding dependency and business process (FBR). In the second phase, the study utilises the computer-aided textual analysis approach to develop a specific dictionary to measure and identify the presence of the risk information categories in the risk disclosure messages. The study then applies the Ordinary Least Squares (OLS) and logistic regression to explore their relationship with success. The findings show that the OPR and TR are positively associated with success while the FBR has a negative relationship. The positive effects of OPR and TR imply that these risk information categories contain signals that are relatively costly to produce, in which only high-quality projects or experienced entrepreneurs could afford them. Findings on the FBR indicate that projects that communicate this risk information category are relatively low-quality when they solely depend on the outcome of the crowdfunding campaign. The results also show that when the 15 categories of projects were grouped into two major categories (i.e., technology and creative-based), these major categories of projects moderate the relationship between risk information categories and success. Furthermore, findings reveal that the technology-based projects have a stronger overall effect on success. This indicates that, except for the FBR, risk information disclosed by the entrepreneurs helps their projects to be successful, especially for entrepreneurs who are involved in technology-based projects. The investigation demonstrates that OPR and TR signal the preparedness and competency of the entrepreneurs. Further, the findings of FBR suggest that by fully relying on the campaign outcome and accentuating the risks of crowdfunding projects as similar to the risks involved in the business process signal, then, the projects disregard the intrinsic motivation of backers when funding a project on a reward-based crowdfunding platform. The third study complements the second study by investigating the effects of

language usage in risk disclosure on success. This study examines the linguistic cues utilising the concept of language expectancy and impression management. By using the same sample as in the previous study (Study 2), the findings reveal that backers expect the entrepreneurs to discuss risk information using more concrete language. This indicates that language concreteness enhances the persuasion message even when discussing the uncertainty of crowdfunding projects. The analysis of the moderation effects on the relationship between language concreteness and success demonstrate that the temporal and social distance influences such relationships. The results indicate that entrepreneurs who set their funding duration shorter, and made themselves socially proximate, were expected to use more concrete language. Similar results were produced for the behaviour of entrepreneurs who attempted to reduce the social distance between themselves and the potential backers. These findings indicate that the effects of language concreteness were further enhanced when there was a fit between the expected language and the two psychological distance dimensions. Study 3 also reveals the importance of managing impressions when disclosing risk information in the disclosure. Findings indicate that impression management strategies such as tone management, excuses, exemplification and supplication lead to crowdfunding success. Interestingly, the supplication strategy that is considered as the most negative form of impression technique affects success positively. This suggests that making an impression of neediness coerced backers to support the project, thus further suggesting the backers' intrinsic motivation to fund a project on a reward-based crowdfunding platform. To summarise, this thesis provides valuable insights into crowdfunding research and the role of risk disclosure in crowdfunding success. Findings from Study 2 and 3, in particular, have significant theory, practical and policy implications. Key recommendations are provided for entrepreneurs, backers, and crowdfunding platforms on the importance of risk disclosure in influencing backers' funding decisions.

CHAPTER 1

INTRODUCTION

1.1 Introduction

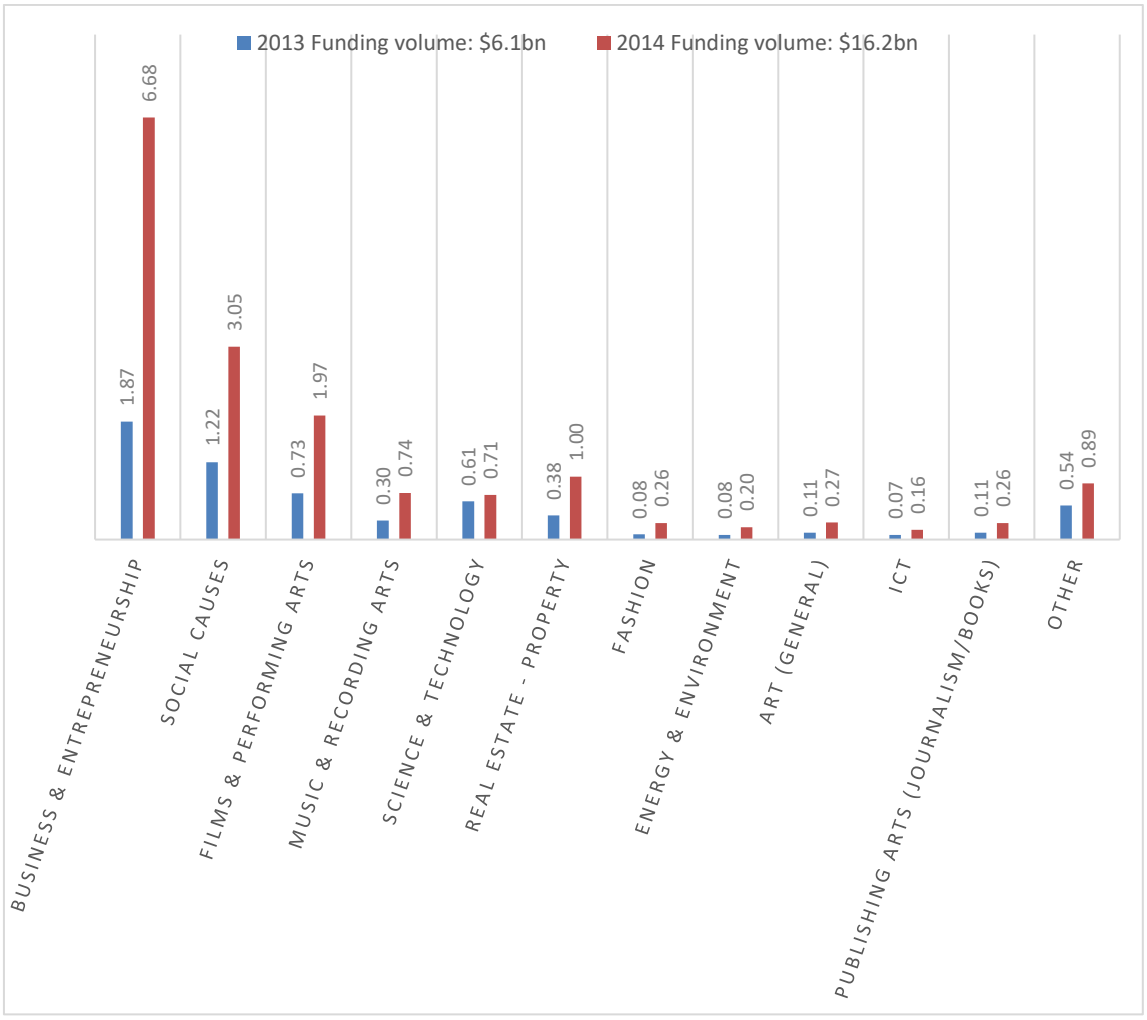
This chapter introduces this research. First, the research background relevant to crowdfunding is explained. Then, the research aims, objectives, and questions are presented. The significance of the research is discussed next. Finally, the chapter concludes with a description of the thesis structure.

1.2 Research Background

In recent years, crowdfunding has emerged as a novel phenomenon in entrepreneurial finance. Although crowdfunding is a relatively new Internet-based strategy for soliciting capital, the industry has experienced unprecedented growth because of the continuous global support of the public to crowdfund and help entrepreneurial individuals raise capital. The industry, to some extent, has successfully brought in a fresh supply of capital to bridge the gap in the entrepreneurial finance sector. The 2015 Crowdfunding Industry Report, by Massolution (2015), states that global crowdfunding has significantly increased from USD $6.1 billion in 2013 to USD $16.2 billion in 2014, representing a massive growth of 167%. Dominant industries that utilise crowdfunding are businesses, social causes, films, and the performing arts (Figure 1.2-1).

As shown in Figure 1.2-1, the most active crowdfunding categories is the business and entrepreneurship. For this category, the portion of the total funding in 2013 and 2014 are about 30.6 percent and 41 percent, respectively. This shows how the crowds are willing to participate in crowdfunding and help to provide financial assistance to entrepreneurs. The second largest portion of funding volume is in the social cause category, which shows that beside participating in a category which usually provides some sort of returns, the crowds are also interested to provide funding for social cause. It should be noted here that some crowdfunding platforms or providers has dual focus, which support social cause projects by giving funding access to entrepreneurs without any financial returns (e.g., Kiva.org). These show a crucial role of crowdfunding in providing an alternative source of financing for entrepreneurs. It also helps to open new ventures, which the entrepreneurs were previously unable to penetrate using other traditional sources such as bank loans, venture capitalists, and angel investors. Studies have listed several crowdfunding advantages, such as enabling entrepreneurs to enjoy a lower capital cost, increased access to more information, market validation, and as a price discrimination strategy (Agrawal, Catalini & Goldfarb 2014; Belleflamme, Lambert & Schwienbacher 2014). Given these advantages and the unprecedented growth of the industry, there has been an increasing interest on crowdfunding by researchers from multiple disciplines to increase scholarly understanding of the crowdfunding phenomenon. In particular, a considerable amount of literature has been published on the success factors of crowdfunding campaigns (Colombo, Franzoni & Rossi-Lamastra 2015; Crosetto & Regner 2014; Frydrych et al. 2014; Moritz, Block & Lutz 2015; Pitschner & Pitschner-Finn 2014; Mollick 2014).

Figure 1.2-1 Funding Volume for the Eleven Most Active Crowdfunding Categories in 2013 and 2014 (Billion USD) (Adapted from Massolution 2015CF – Crowdfunding Industry Report).



Although crowdfunding has been recognised as a significant step up in entrepreneurial finance, academic understanding of the phenomenon is still lacking (Block et al. 2018; Mollick 2014). Early crowdfunding literature includes efforts to identify and investigate the related success factors of crowdfunding campaigns (Kuppuswamy & Bayus 2018). Understanding the factors that ensure the success of a crowdfunding campaign is important, as not all entrepreneurs can achieve their funding goals. For example, the overall success rate on Kickstarter, a reward-based crowdfunding platform, was reported to be approximately 36% in February 2016 with most of that portion coming from projects with funding goals of USD $10,000 and less. The low rate of campaign success has not

encouraged entrepreneurs to attract crowds to fund their projects. Moreover, it has been reported that unsuccessful projects usually fail their funding ratio[1] by a large margin (Mollick, 2014).

It is crucial to understand the factors that contribute to the success of a crowdfunding campaign. First, one of the main motivations that attract entrepreneurs to participate in crowdfunding is the need to raise funds for new entrepreneurial ventures (Gerber & Hui 2013). Crowdfunding has been found to offer more advantages than traditional forms of entrepreneurial finance. Crowdfunding has also enabled entrepreneurs to implement an easy, efficient, and organised way to solicit funds from many people at once (Gerber & Hui 2013). The core mechanism of crowdfunding involves utilising the Internet and social media, which allow entrepreneurs to tap into the market that is highly interested in their projects.

Kuti and Madarász (2014) argued that one of the greatest advantages of crowdfunding is that it enables entrepreneurs to initiate direct personal communication with a large number of potential supporters who are genuinely interested in and are emotionally attached to their projects. Given these advantages and the basic mechanism of crowdfunding, determining the factors that influence campaign success is crucial for attracting entrepreneurs to use crowdfunding as their financing option, and to show them how to strategise and execute a successful campaign. Here, the main argument is that although crowdfunding is available for all entrepreneurs and individuals, not many will consider this option. Therefore, the most important factor that would influence entrepreneurs to resort

[1] Funding ratio is basically a performance ratio that measures how well the projects had successfully met their funding target (i.e., funding goal). Funding ratio is calculated by taking the amount of funding received at the end of the campaign period divided by the project's funding goal.

to crowdfunding for their projects is whether or not the crowdfunding campaign will be successful.

Second, when launching a crowdfunding campaign, entrepreneurs are exposed to certain risks. Studies show that entrepreneurs are discouraged from crowdfunding their projects because they are afraid of not being able to attract enough backers. Consequently, the entrepreneurs place themselves at risk of experiencing public failure, which would negatively impact on their image (Gerber & Hui 2013; Gleasure 2015). Although crowdfunding provides easy access to financing, entrepreneurs should be aware that raising funds through crowdfunding is risky, as not all crowdfunding campaigns will succeed. Hollas (2013) argued that the success rate of crowdfunding campaigns is quite low, with many struggling to reach their goals

Entrepreneurs are also discouraged from using crowdfunding as a financing alternative since they need to disclose publicly strategic information that could expose them to the risk of idea theft (Agrawal, Catalini & Goldfarb 2014). Gleasure (2015) also found the fear of disclosure as one of the factors that discouraged entrepreneurs from crowdfunding. Launching a crowdfunding campaign on any platform (e.g., Kickstarter, Indiegogo, Seedrs, or Crowdcube) requires entrepreneurs to pitch their project or business proposal and to disclose a certain amount of information related to their innovative products or processes as well as some sensitive information about their partners and customers. The risk could be reduced if the campaign were successful, so the entrepreneurs could continue working on their next milestones. However, if the campaigns failed and the entrepreneurs did not have a backup strategy to protect and continue their projects (e.g., had already secured a patent on their products or services), they may risk having competitors imitating their projects. Therefore, further investigations are needed to explore the factors that contribute to the success of crowdfunding campaigns.

1.3 Problem Statement

1.3.1 Issue 1: The Multidisciplinary Structure and the Major Focus of Crowdfunding Research on Success Factors

Crowdfunding research has a clear observable trend; early crowdfunding research started by emphasising on the potential of crowdfunding as an alternative source of financing (Gobble 2012; Schwienbacher & Larralde 2012). Later works focused on explaining how crowdfunding operates within the existing or new regulatory developments of different countries (Armour & Enriques 2018; Ibrahim 2015; Moore 2017). These studies were then followed with an exploration into risk-related issues in crowdfunding (Käfer 2017; Schwienbacher 2017) and investigations into various factors associated with investor funding intentions and crowdfunding campaign success. For a comprehensive review on these topics, the reader is referred to Kaartemo (2017) and Short et al. (2017). In sum, these studies provide an early understanding of the evolution and trend in crowdfunding research.

Because the trend in crowdfunding research can be observed directly without involving statistical analyses, some scholars conclude that crowdfunding research is a multidisciplinary research structure that encompasses a variety of research areas (Gleasure & Feller 2016; Lehner 2013). However, the structure of early crowdfunding research and its current trend has also been observed to focus more on the determinants of crowdfunding success (Kuppuswamy & Bayus 2018; Short et al. 2017). For example, many studies have investigated the factors that contribute to crowdfunding success, such as the entrepreneurs' social capital (Butticè, Colombo & Wright 2017; Colombo, Franzoni & Rossi-Lamastra 2015; Giudici, Guerini & Rossi-Lamastra 2018), informational cues and signaling mechanisms (Ahlers et al. 2015; Allison et al. 2015; Allison et al. 2017; Block, Hornuf & Moritz 2018; Ciuchta et al. 2016; Courtney, Dutta & Li 2017; Zhou et al. 2018),

trust management (Kang et al. 2016; Zheng et al. 2016), cultural and geographic effects (Burtch, Ghose & Wattal 2014; Guenther, Johan & Schweizer 2018; Mollick 2014), and gender effects (Mohammadi & Shafi 2018). This inconsistency of views between scholars gives opportunity to study the structure of the overall structure of crowdfunding research.

Research on the overall structure and trend of crowdfunding is very limited. Recent reviews have focused more on crowdfunding success factors. For example, Kaartemo (2017), Kuppuswamy and Bayus (2018), and Short et al. (2017) applied a systematic review methodology with a specific focus on crowdfunding success factors. Furthermore, previous studies have attempted to review crowdfunding research using a bibliometric approach, but these investigations only used citation count to identify the most influential statistics such as authors and journals (e.g., Blasco-Carreras, Albort-Morant & Ribeiro-Navarrete 2015; Martínez-Climent, Zorio-Grima & Ribeiro-Soriano 2018). Another bibliometric research on crowdfunding is that of Martínez-Climent, Zorio-Grima and Ribeiro-Soriano (2018), which had a narrower focus on crowdfunding investment. Because only a few studies have conducted reviews on the crowdfunding structure, with most of them focusing only on success factors, there is a research gap on the overall structure and trend of crowdfunding. Reviewing the broader structure of crowdfunding literature would provide important insights on how the literature has evolved over the years, reveal the major trend and hidden meaning of themes in crowdfunding research, and help researcher to identify which area of research should be focused in subsequent studies. Thus, this thesis conducts a broader literature review without focusing on a specific topic, and includes information from all available publications on crowdfunding. The study It is hoped that this thesis will contribute to increasing the scholarly understanding of the crowdfunding phenomenon.

1.3.2 Issue 2: The Introduction of Risk Disclosure Requirement and its Relationship with Crowdfunding Success

In entrepreneurial finance literature, financing new ventures involve investing money in projects that have high levels of risk, uncertainty, and information asymmetry. Therefore, careful due diligence is required during the evaluation of a company or a business idea (Agrawal, Catalini & Goldfarb 2014). A similar situation can be observed in a crowdfunding environment. Mollick (2014) pointed out that the profound risks of crowdfunding include the risk of fraud and the risk of delay in delivering products and services. In particular, studies have reported that the risk of delay in delivering products is common in reward-based crowdfunding (Mollick 2014; Mollick & Kuppuswamy 2014). The primary reason for this uncertainty is because the majority of entrepreneurs, especially start-up entrepreneurs, are said to be incompetent (Agrawal, Catalini & Goldfarb 2014) and do not possess resources such as scalable production facilities (Brüntje & Gajda 2016). Therefore, it is the duty of the backers to assess the ability of the entrepreneurs and the viability of the project to be funded. In conventional entrepreneurial finance, the party that provides capital is expected to perform an adequate risk assessment process of the proposed venture to mitigate risks (Sahlman 1997). However, in a crowdfunding setting, there is less opportunity for backers, as capital providers, to perform careful due diligence because of the high level of information asymmetry (Agrawal, Catalini & Goldfarb 2014).

Besides depending on the signals generated by others, backers generally rely on the information conveyed by entrepreneurs in the project description. Recent development on Kickstarter (one of the most popular crowdfunding platforms and the main platform investigated in this study), requires entrepreneurs to disclose risk information by providing a customised risk disclosure message in their project descriptions under a prescribed section called "*Risks and Challenges*" (Agrawal, Catalini & Goldfarb 2014). This new requirement aims to educate the backers investing money in crowdfunding projects about

the risks involved and that Kickstarter is not an e-commerce store. Kickstarter also expects backers to assess the entrepreneurs' ability to complete the project and make careful judgements of the entrepreneurs' honesty and transparency (Strickler, Chen & Adler 2012). Although entrepreneurs are required to disclose risk information, Kickstarter neither monitors the content of this section, nor provides any risk disclosure standards. Kickstarter relies on the entrepreneurs themselves to assess how the risk disclosure message should be disclosed (i.e., entrepreneurs have full discretion to disclose what and how much risk information is in the disclosure). However, not knowing the effect of disclosing risk information could lead to a campaign's failure; and simply adhering to a disclosure requirement to report risks would be an unseemly strategy.

Communicating information about the venture or project risk through a customised risk disclosure message can either increase entrepreneurs' trustworthiness (Williams & Noyes 2007) or indicate their level of expertise (Allison, McKenny & Short 2014). In turn, this influences their chances of campaign success. Williams and Noyes (2007) note that the message containing the disclosure of the existence of risk (negative message) will be trusted more than a message that only suggests the absence of risk. However, due to the novelty of crowdfunding, the role of risk disclosures and the methods to communicate the inherent risks that affect the outcomes of crowdfunding campaigns are still not well understood. Moreover, entrepreneurs are not obliged to follow a certain standard when disclosing risk information on Kickstarter, as the platform does not monitor the content of risk disclosures. These issues, therefore, raise two questions regarding the content of risk disclosure information i.e. "How are the risk disclosure messages communicated?" and "What is the impact of different risk information content and language on the success of crowdfunding campaigns on Kickstarter?" Given the growing significance of crowdfunding as an alternative form of entrepreneurial finance, in-depth research into this topic is crucial.

1.4 Research Aims, Objectives and Questions

The crowdfunding issues discussed in Section 1.3 were used to develop two main aims for this thesis. First, the thesis aims to explore the structure and trend in crowdfunding research. Second, this study aims to explore how the content and language in risk disclosures can be used as a winning strategy for crowdfunding campaigns on Kickstarter. To address the research aims, six research objectives were developed. To achieve these objectives, the research was divided into three primary studies. Study 1 focuses on reviewing the crowdfunding literature, hence addressing the first and second objectives. The third and fourth objectives deal with the information content of risk disclosure and are covered in Study 2. Finally, Study 3 addresses the fifth and sixth objectives concerning the role of language in crowdfunding success. These three studies were developed to answer the questions and objectives of this research.

Because of the dearth of information in this area, there is a need to increase the body of knowledge on crowdfunding. Therefore, the following objectives are the focus of this research: 1) To explore the evolution of crowdfunding research based on various sources or scientific journals related to crowdfunding; 2) To identify the main research themes and the latest trend in crowdfunding research based on keywords extracted from publications that have received the highest number of citations; 3) To explore the main risk information categories in the disclosure section of crowdfunding projects from the most successful to the least successful crowdfunding projects on Kickstarter based on word occurrences and similarities; 4) To examine the effect of risk information categories in the disclosure section of crowdfunding projects on crowdfunding success on Kickstarter; 5) To examine the effect of concrete risk disclosure language on crowdfunding success on Kickstarter, and the roles of psychological distance in moderating the relationship; and 6) To measure the association between the four impression management strategies (tone, excuses, exemplification, and supplication) embedded in the risk disclosure information and its

relationship with crowdfunding success on Kickstarter. These six objectives have led to the development of specific research questions to be answered in this thesis, to increase knowledge on crowdfunding, its literature, and specifically the requirement to disclose risk on the Kickstarter crowdfunding platform.

The research objectives regarding past literature trends and risk disclosed in crowdfunding could increase the success of Kickstarter campaigns by contributing new knowledge for entrepreneurs, backers, and the platform itself. Therefore, this study aimed to address the following research questions: (1) How has crowdfunding been accepted as a topic across various research areas? (2) What are the main research themes and the latest trend in crowdfunding research based on the most cited topics? (3) What are the main categories of risk information in the disclosure communicated by the most successful project to the most unsuccessful, or failed group, of crowdfunding projects on Kickstarter? (4) To what extent does the content of risk disclosure information affect crowdfunding success on Kickstarter? (5) To what extent does the expected language used in risk disclosure influence crowdfunding success on Kickstarter, and is the relationship moderated by psychological distance? and (6) Is there any relationship between impression management strategies, namely tone management, excuses, exemplification, and supplication embedded in the risk disclosure information, and crowdfunding success on Kickstarter? These questions were developed to guide this research to reach practical and theoretical answers, as well as future research aims, which will increase overall knowledge, specifically, on how risk disclosure language on crowdfunding platforms can be improved to enhance the chance of campaign success. The answers can also be used to prove the importance of risk disclosure areas on crowdfunding platforms to entrepreneurs and backers. Since this is an often-overlooked area, this study could reveal undiscovered ways to increase positive campaign results.

1.5 The significance of the Research

This thesis contributes to crowdfunding theory and practice across five areas: first, this research provides a clearer picture of past crowdfunding research. On one hand, entrepreneurship scholars argue that most crowdfunding research has focused on studying success factors (Kuppuswamy & Bayus 2018; Short et al. 2017). Some systematic review studies have been conducted to provide a comprehensive review of success factors (Kaartemo 2017; Kuppuswamy & Bayus 2018). On the other hand, scholars also argue that crowdfunding is a multidisciplinary phenomenon and has attracted many scholars from various research areas (Gleasure & Feller 2016; Lehner 2013). By utilising bibliometric analysis, this research visualises the past and current progress of crowdfunding research via a more interesting approach with no preliminary topic of focus at the beginning of the research (e.g., a focus on success factors). In line with the argument made by scholars (Kuppuswamy & Bayus 2018; Short et al. 2017) crowdfunding success is indeed the centre of crowdfunding research across all models (peer-to-peer lending, reward, and equity model). Publications that focus on crowdfunding success have received higher citations than others. The dataset showed that crowdfunding research has been published across four major research clusters: (1) fundamentals of entrepreneurship and new business development; (2) application of economic theories, problems, and mathematical models in functional business areas; (3) marketing and understanding of consumer behaviour; and (4) organisational management.

Second, this research supplements the current crowdfunding literature on success factors by examining the role of information content and linguistic cues embedded in the risk disclosure section of crowdfunding campaigns. By utilising a co-word network analysis, three risk factors were identified: (1) operational and process risk; (2) team risk; and (3)

funding and business risk. These information content categories or risk factors were also found to be the crucial factors influencing crowdfunding success.

Third, besides information content, linguistic cues were also found to be important determinants of crowdfunding success. This research employed two theories to investigate linguistic cues in the risk disclosure message. First, this research applied the Language Expectancy Theory to examine the concreteness of the risk disclosure language. It is found that using more concrete language positively affected success. Furthermore, the relationship between concrete language and negative language and crowdfunding success was moderated by temporal distance and social distance. Second, this research was based on the Impression Management Theory, which showed that tone management, excuses, exemplification, and supplication strategies were also crucially important determinants of crowdfunding success.

Fourth, for the entrepreneurs, this research provides insights into how to appropriately disclose risk information by considering the importance of content and linguistic cues. Entrepreneurs that have developed quality projects but fail to design proper risk disclosure because of no prior strategy could dissuade potential backers.

Finally, for crowdfunding platforms and policymakers, this research provides insights that risk is an important consideration in backing crowdfunding projects. Risk disclosure is one of the methods used to overcome information asymmetries and to please funders. Platforms that operate on a reward-based model, given the nature of crowdfunding, can adequately use a loose risk disclosure requirement such as the one imposed by Kickstarter. A stricter requirement may hamper the reward-based crowdfunding industry. However, for financial return or equity-based crowdfunding, stricter regulations may be needed to protect the investor. Overall, policymakers should strive to find the right balance

between the regulations for all parties involved in crowdfunding, particularly among crowdfunding platforms, entrepreneurs, and its main players.

1.6 The organisation of the Thesis

Chapter 1 introduces the background of this research by highlighting the need to investigate the structure and trend in crowdfunding research and the role of risk disclosure in crowdfunding campaign success. This chapter then establishes the research questions and objectives to address the problem. Finally, the significance of the research is explained.

Chapter 2 reviews the literature regarding the background and development of crowdfunding. The discussion focuses on the success factors and the role of disclosure in crowdfunding campaigns. The chapter also describes the Kickstarter platform and provides a review of the literature that utilises data from the platform.

Chapter 3 presents Study 1, which uses a bibliometric analysis to investigate the evolution of crowdfunding research in the last decade. The findings are reported and tied to the subsequent two studies (Study 2 and Study 3).

Chapter 4 describes the methodological approach of Study 2 and Study 3. This chapter also presents the research design and strategies. It further outlines the basic content analysis principles applied in both studies.

Chapter 5 presents Study 2, which focuses on identifying the risk information categories in the risk disclosure messages and the effects of such content categories on

crowdfunding success. This chapter outlines the theoretical framework, methods, reports, and discussions of empirical findings.

Chapter 6 presents Study 3, which focuses on examining the effects of language or linguistic cues on crowdfunding success. This chapter is composed of sections on theoretical framework, methods, findings, and discussion.

Chapter 7 concludes this research. The objectives and the main findings of this thesis are further iterated. Additionally, the findings of Studies 1, 2 and 3 are combined and the interpretation of these findings are discussed in relation to the study contributions and policy implications. This is followed by suggestions for future research. Finally, the limitations of the thesis are presented.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter reviews the relevant literature pertinent to the crowdfunding phenomenon. It starts with a discussion of the background of crowdfunding such as the definition, types, and history. The chapter then introduces one of the prominent crowdfunding platforms, Kickstarter. The chapter further provides a review of previous studies that have utilised sample data from the Kickstarter platform. The third section presents the determinants of crowdfunding success. Furthermore, the chapter discusses the importance of crowdfunding success research and how the risk disclosure requirement, particularly on the Kickstarter platform, may affect success. The last section concludes the chapter.

2.2 Overview of crowdfunding

2.2.1 What is Crowdfunding?

Crowdfunding emerges from the broad concept of crowdsourcing, which relates to a business outsourcing its business functions or activities; such as, problem-solving and innovation projects, to a crowd through an open call mostly using the Web 2.0 platform (Qiu 2013; Schenk & Guittard 2011). The key characteristic of crowdsourcing is the use of the open call style and the wide undefined network of potential labourers (Howe 2006). Schwienbacher and Larralde (2010) suggested that crowdfunding can be viewed as an element of crowdsourcing, which is useful as a starting point to transpose into the crowdfunding definition but some caveats and clarification need to be done in defining it properly (Belleflamme, Lambert & Schwienbacher 2010). Furthermore, as crowdfunding is derived from the crowdsourcing phenomena (Ley & Weaven 2011), the issue of finding

a common definition for crowdsourcing also prevails in crowdfunding research where authors have different attitudes and perceptions toward this new financial technology (Valančienė & Jegelevičiūtė 2013). As a newly emerged field of research where the academic conceptions are in a state of evolutionary flux, the situation makes the complete definition of crowdfunding arbitrarily limited (Mollick 2014).

In general, studies mostly define crowdfunding by incorporating the three involved parties, which are the creators of project, backers of the project and intermediaries that connect the creators and backers (see Table 2.2-1). The dynamic of a crowdfunding definition is influenced by how researchers perceive these three parties in their context of research (Valančienė & Jegelevičiūtė 2013). However, as the crowdfunding industry continues to grow and research continues by academics, new findings start to emerge and affect how the definition is refined. For example, Zheng et al. (2014) found evidence that project creators tend to support each other on crowdfunding platforms. Supporting other creators also leads to a high level of funding performance (Zheng et al. 2014). The results indicate that for some cases, both creators and backers could be entrepreneurs, which makes the definition by Valančienė and Jegelevičiūtė (2013) incomplete or misleading.

Table 2.2-1 Summary of Crowdfunding Definition Adopted from Previous Studies

Author/s	Definition/statement
Schwienbacher and Larralde (2010)	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.
Ordanini et al. (2011)	A collective effort by people who network and pool their money together, usually via the Internet, in order to invest in and support efforts initiated by other people or organisations.
Ley and Weaven (2011)	Crowdfunding as a source of start-up equity capital pooled via small contributions from supporting individuals collaborating through social media.
Giudici et al. (2012)	Crowdfunding consists in getting large groups of people to finance a project by using a website or other online tool to solicit funds.
Hollas (2013)	The practice of funding a project or venture by raising many small amounts of money from a large number of people, typically via the Internet.
Valančienė and Jegelevičiūtė (2013)	A method to establish the connection between entrepreneurs, who aim to raise capital, and novel investors, who form an emerging source of capital and are willing to invest small amounts, through internet-based intermediaries.
Tomczak and Brem (2013)	The act of acquiring third-party financing from the general public via an intermediary, generally in the form of a web-based platform.
Mollick (2014)	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.

Belleflamme, Lambert and Schwienbacher (2014)	An open call, mostly through the Internet, for the provision of financial resources either in the form of a donation or in exchange for a future product or some form of reward to support initiatives for specific purposes.
Sannajust, Roux and Chaibi (2014)	A novel method for funding a variety of new ventures, allowing individual founders of for-profit, cultural, or social projects to request funding from many individuals, often in return for future products or equity.
Ahlers et al. (2015)	An umbrella term used to describe an increasingly widespread form of fundraising, typically via the Internet, whereby groups of people pool money, usually (very) small individual contributions, to support a particular goal.
Bouncken, Komorek and Kraus (2015)	Crowdfunding focuses on raising funds from the public, represented by a group of people, who are using specific internet-based platforms.
Belleflamme, Omrani and Peitz (2015)	An open call, essentially through the Internet, for the provision of financial resources in the form of a donation and/or in exchange for some form of reward and/or voting rights.

Some authors focused on the breadth or context of crowdfunding in their definition (Belleflamme, Lambert & Schwienbacher 2014; Belleflamme, Omrani & Peitz 2015; Mollick 2014; Tomczak & Brem 2013). For example, Belleflamme, Lambert and Schwienbacher (2014) provide a broader definition of crowdfunding, which is, a process of getting funds by making an open call for the provision of financial resources to support projects or specific purposes, without including any specific party or context. Contrarily, Mollick (2014) specifically defined crowdfunding in the context of entrepreneurship, as a process of getting funding from entrepreneurial individuals to support their business ventures. Ley and Weaven (2011) also proposed their definition in the venture capital context and specifically focused on crowdfunding as a source of equity financing for start-

ups. Mollick (2014) argued that defining crowdfunding in a more general context is elusive as crowdfunding covers a diverse usage and has been researched in many disciplines, currently and possibly in the future. Furthermore, Sannajust, Roux and Chaibi (2014) suggested that a narrower definition is preferable if academics focus on examining crowdfunding as a remarkable phenomenon in entrepreneurial finance and new ventures financing.

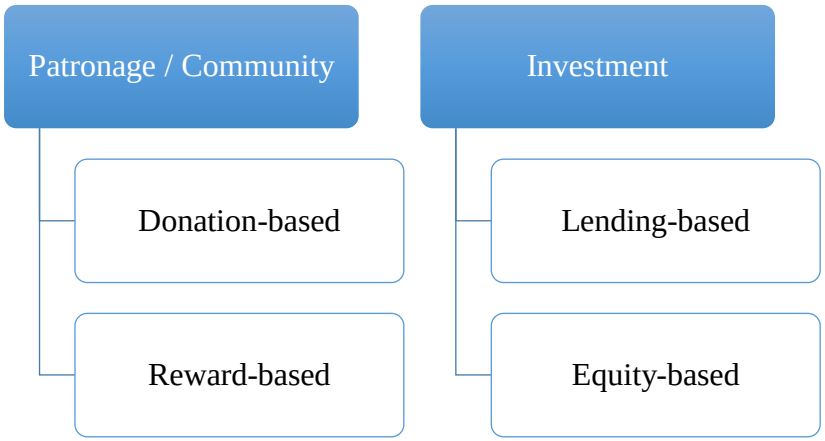
The current and ongoing development of crowdfunding also plays a significant role in shaping its definition. For example, Belleflamme, Omrani and Peitz (2015) revised the definition from Belleflamme, Lambert and Schwienbacher (2014) due to the recent development of crowdfunding activities where the projects' creators (either on reward or equity-based platforms) combine both forms of financial resources (donations and some form of future rewards) in their crowdfunding campaigns. They also included voting rights in the definition to reflect the equity-based crowdfunding model. We can see that it is difficult to get a broad definition of crowdfunding to suit everyone, as scholars discuss it in diverse topics across many disciplines (Mollick 2014). However, the researcher observed that the basic idea of all the definitions is that crowdfunding focuses on the process or mechanism of obtaining external financial resources from the public either through indirect (crowdfunding platforms) or direct (e.g., using an owned blog or Facebook page) internet intermediary, where individuals can support others by contributing their money in exchange for some form of, or combination of, rewards. The researcher believes that the definition provided by Belleflamme, Omrani and Peitz (2015) is inclusive enough to represent the current crowdfunding phenomenon and which is applicable across all the funding models and forms of crowdfunding, hence it was adopted for this study. This is an important preliminary procedure to justify the later data collection process.

2.2.2 Crowdfunding Models

Previous studies have postulated that crowdfunding models can be classified as donation-based, reward-based, lending-based and equity-based crowdfunding (Galuszka & Bystrov 2014). As shown in Figure 2.2-1, the first two crowdfunding models focus on patronage or communities involving no monetary or financial returns, while the latter two have an extrinsic focus on investment (Belleflamme, Omrani & Peitz 2015; Kirby & Worner 2014; Kuti & Madarász 2014). The donation-based model is described as the earliest model of crowdfunding, and is then followed by lending-, reward- and equity-based crowdfunding.

The first patronage type of crowdfunding model was donation-based where backers donated their money mainly for social and charitable purposes and were not promised any tangible return. Nowadays, backers are voluntarily funding projects and often receive emotional rewards, like receiving recognition from the fundraisers or community. For example, GoFundMe, a donation-based platform provides an avenue for a concerned community to help and support individuals, groups, and organisations. Backers donate their money with no return expected from the fundraiser apart from a thank you message. Backers on another music-based platform, ArtistShare, often receive a credit listing on the back of the album for supporting the music production of an artist. Therefore, backers who are motivated to provide support for social and charitable purposes on donation-based crowdfunding platforms can be seen as philanthropists (Belleflamme, Omrani & Peitz 2015; Mollick 2014)

Figure 2.2-1 Crowdfunding Models



Another crowdfunding model that follows a patronage focus is reward-based crowdfunding. In reward-based crowdfunding, the model treats backers as early consumers of the entrepreneurs' products or services where backers receive only tangible rewards with no financial benefits attached (Kuppuswamy & Bayus 2017; Mollick 2014). In fact, most, if not all, of the reward-based platforms have "terms of use" disclosures that clearly state, for any potential entrepreneur who wants to raise funds on the platform that they must not offer any monetary or financial benefits to backers. Instead, entrepreneurs can offer other alternative perks that vary by funding level, such as offering a basic version of a T-Shirt up to more advanced rewards, like becoming a business partner or local distributor for the entrepreneurs' products or services. Most crowdfunding campaigns on reward-based platforms use the "pre-purchase" or "pre-order" mechanism which allows entrepreneurs to adopt a price discrimination strategy by charging a lower price before the full release of the products or services.

Moreover, the pre-purchase mechanism allows entrepreneurs to cover some or all of the venture's initial working capital in the production process (Frydrych et al. 2014). Due to the uncomplicated nature of reward-based crowdfunding and its pre-purchase mechanism, the model seems to be relevant for start-ups, existing business, and entrepreneurial

individuals with creative ideas searching for funding alternatives (Kuti & Madarász 2014). In fact, one of the platforms, Kickstarter, has been regarded as the most prominent reward-based crowdfunding platform and as of 2015 (Belleflamme, Omrani & Peitz 2015; Mollick 2014) reported a total of over USD $2 billion raised and contributed to by more than 10 million people.

The next crowdfunding model, which has an investment focus, is lending-based. The lending-based crowdfunding model, also known as crowdlending, peer-to-peer (P2P) lending, credit-based lending, debt crowdfunding and social lending (Everett 2014), enable the establishment of debtor and lender relationships between entrepreneurs and backers resembling a traditional bank loan (Frydrych et al. 2014). The only difference is that entrepreneurs can raise or borrow funds through the platform without the need to provide collateral. Similar to all crowdfunding models, the lending-based platforms provide matching activity between entrepreneurs and backers and are not typically consolidators of funds like traditional capital providers but instead are where backers decide and provide funds directly to entrepreneurs (Bruton et al. 2015). Backers typically make their funding decisions based on a credit rating assigned by the platforms and receive monetary returns in the form of pre-determined interest payments apart from the principal loan amount. However, lending-based crowdfunding platforms can also be operated under a mechanism where lenders are repaid their principal sum of money without any additional interest payment. The best example is Kiva.org, which Allison et al. (2015) pointed out as a platform for prosocial lending.

The last crowdfunding model under the investment focus is the equity-based model where financial gain is the main motivation of backers. The types of rewards in this model can be either transfer of equity shares or a future profit-sharing arrangement. Equity-based crowdfunding is the most complicated model as it deals with ownership and stakeholder

issues through the sale of security instruments and a share of future profits which requires regulatory interference from governments (Harrison 2013). Unlike lending-based platforms that are identical to traditional bank loan arrangements, equity-based platforms offer a managed investment scheme for backers. Some platforms like Crowdcube and Crowdfunder have different options for entrepreneurs who opted to try equity-based crowdfunding to raise capital. These are options in which they can offer a stake in their company either in the form of equity, bonds, a convertible note, or revenue shares.

2.2.3 History and Development of Crowdfunding

Crowdfunding has a fascinating history in which its underlying concept was initially inspired by the realm of fundraising for charity and social cooperation purposes (Ordanini et al. 2011). For example, the concept of collecting small amounts of money from crowds resulted in the construction of the Statue of Liberty by donations from American and French people; in addition, it helped raise most of the funds for the presidential campaign of U.S. President Barack Obama in 2008, and enabled the British rock band Marillion to fund their 1997 concert tour in the United States by making an open call through the internet (Hemer 2011). These examples confirm that the concept is not new, although the term crowdfunding appeared initially in 2006.

The term crowdfunding has been described as the hybridization of two existing concepts: (1) crowdsourcing which is a type of participative online activity in which an individual, an institution, a non-profit organisation, or company proposes to a group of individuals of varying knowledge, heterogeneity, and number, via a flexible open call, the voluntary undertaking of a task; and (2) microfinance which is the lending activity that benefits socially or economically disadvantaged borrowers who are unable to access traditional sources of external finance and typically involves very small amounts of money or loan size (Harrison 2013). Despite this, crowdfunding is known to share similar characteristics

with traditional resource-pooling and social-networking phenomenon (Ordanini et al. 2011) and therefore, crowdfunding extends the model that enables funders to obtain rewards in the form of tangible, monetary or non-monetary instruments through internet platforms (Bœuf, Darveau & Legoux 2014; Frydrych et al. 2014; Giudici, Guerini & Rossi-Lamastra 2018). Crowdfunding platforms can be operated using a single model or a combination of the four models, either using a keep-it-all (KIA) or all-or-nothing (AON) funding approach. However, some platforms may have both funding approaches where entrepreneurs can choose between the two that best work for their projects (see Table 2.2-2 for some of the active and popular crowdfunding platforms).

As shown in Table 2.2-2, the early models of crowdfunding (donation, reward, and lending-based) started to emerge in 2000 and were focused primarily in the arts and creativity-based industry with ArtistShare being the pioneer of online crowdfunding platforms (Agrawal, Catalini & Goldfarb 2014; Moritz, Block & Lutz 2015). The reason for the art and creative-based industry to be the focus of the early crowdfunding platforms is because this industry crossed only a few regulatory boundaries (Bruton et al. 2015). The regulatory environment plays a significant role in determining whether it permits the platform to be operated in a country.

Although some of the equity-based crowdfunding platforms were already in place back in 2005 (e.g., EquityNet, ASSOB, and CrowdCube), they were restricted to offering investment opportunities to accredited investors only due to regulatory issues. However, recent developments in equity-based crowdfunding have shown that many countries are now embracing its potential in addressing the entrepreneurial finance capital gap and promoting innovation in the business landscape. For example, many countries such as New Zealand, UK, US, and Malaysia have recently introduced and reformed regulations

(2013 to 2015) to encourage businesses to use equity-based crowdfunding and permit non-accredited investors to participate in it.

Table 2.2-2 Examples of Crowdfunding Platforms (source: author's construction as of 11th February 2016)

No.	Platform Name	Year Founded	Funding Model	Funding Approach	Country-Based/ Operated	Total Fund Raised
1	ArtistShare	2000	Reward	KIA	US	Not available
2	ASSOB	2006	Equity	AON	Australia	AU$145,003,286
3	CrowdCube	2010	Equity & Lending	AON	UK	£138,168,392
4	Crowdfunder	2011	Equity	AON	US	$103,000,000
5	EquityNet	2005	Equity & Lending	AON	US	Over $200 million
6	Fundable	2012	Reward & Equity	AON	US	Over $232m
7	FundAnything	2012	Reward & Donation	KIA	US	Not available
8	FundedByMe	2010	Equity & Lending	AON	Sweden	€ 6,900,000
9	FundRazr	2008	Donation	AON or KIA	Canada	$77,000,000
10	GoFundMe	2010	Donation	AON or KIA	US	Over $1 billion
11	Indiegogo	2008	Reward & Donation	AON or KIA	US	Over $800 million
12	Kickstarter	2009	Reward	AON	US	$2,197,151,962
13	Kiva	2005	Lending	AON	US	$813,227,950
14	Lending Club	2007	Lending	AON	US	$13,402,853,260
15	Lending Crowd	2014	Lending	AON	UK	Over £3.7 million
16	OzCrowd	2014	Reward	AON or KIA	Australia	AU$5,000,000
17	PledgeMe	2012	Reward & Equity	AON	New Zealand	NZ$8,434,858
18	Pledge Music	2009	Reward	AON	UK	Not available
19	Pozible	2011	Reward	AON	Australia	AU$43,679,778
20	Prosper	2006	Lending	AON	US	Over $5 billion
21	Seedr	2012	Equity	AON	UK and Europe	Not Available
22	Symbid	2011	Equity & Lending	AON	Netherlands	€526,000,000

Furthermore, Vasileiadou, Huijben and Raven (2016) suggested that government support is essential to the success of crowdfunding. However, due to the dynamic nature of crowdfunding which has been described to favour a self-regulated environment, it has been suggested that cumbersome and complex regulations may be detrimental to the industry (Leboeuf & Schwienbacher 2018). For example, the New Zealand government believed that loose regulations would be more useful for the country, while others, such as Germany (Klöhn, Hornuf & Schilling 2016) and Malaysia (Securities Commission Malaysia 2015) imposed strict compliance and regulations to ensure that transparency was in place. Therefore, governments have to find the right balance between not too strict and not too loose when regulating crowdfunding activities, while ensuring it is tailored to the market and industry needs.

The potential of crowdfunding is beyond expectations based on authentic previous crowdfunding cases which indicated how people have increasingly supported and adopted crowdfunding. For example, Pebble Technology participated in crowdfunding to finance the development of its E-Paper Watch and set their funding goal at USD $100,000 only. After 37 days, the campaign had successfully raised USD $10,266,845 from 68,929 backers and was regarded as one of the most successful projects in 2012. In 2015, Pebble Technology decided to use Kickstarter again to finance its new version of a smartwatch and successfully raised $20,338,986 in just 31 days, which exceeded its funding goal ($500,000) by 40.68%. In another case, Blocks Wearables was able to reach its funding goal of $250,000 in less than 56 minutes. These situations show how the crowdfunding models can offer unlimited financing potential for entrepreneurs wishing to use this new technology.

An industry report on crowdfunding published by Massolution recently revealed that global crowdfunding recorded accelerated growth in 2014 when it expanded from USD $6.1

billion to $16.2 billion of the amount raised and was projected to double in 2015 when it, in fact, raised about $34.4 billion (source: http://www.crowdsourcing.org). The report showed how the global community has progressively accepted crowdfunding as a new financial technology, therefore increasing the need to identify the unique features of crowdfunding, as compared to previous financial technology. From a general economics perspective, the rise and accelerated growth of crowdfunding is due to the lower transaction costs, reputation signalling and market design of crowdfunding platforms (Agrawal, Catalini & Goldfarb 2014). Furthermore, these factors are associated with the utilization of the Internet as a core feature of crowdfunding platforms. For example, the Internet has enabled entrepreneurs to lower the cost of capital by providing a better matching activity between creators and backers (Agrawal, Catalini & Goldfarb 2014), and it has lowered the cost of information searches and publicity, especially for distant backers (Macht & Weatherston 2014). Moreover, backers have greater access to investment opportunities, even for inexperienced backers or unsophisticated investors. These economics factors are crucial, as a primary source, to understand the rise and growth of global crowdfunding activities which indicate how the general community has increasingly embraced crowdfunding as an alternative financial technology.

It can be seen, therefore, that support from government entities is essential to administer the future growth of crowdfunding. However, due to the novelty of crowdfunding (Ordanini et al. 2011; Valančienė & Jegelevičiūtė 2013), its dynamic nature (Kuppuswamy & Bayus 2017; Mollick 2014), and the challenges faced to regulate the industry (Bruton et al. 2015) extensive studies are warranted to increase our understanding of the phenomenon. Therefore, the next discussion will focus on the main area of this research and its related literature. It can be seen from the literature that the unlimited potential of crowdfunding motivates academics to study and identify factors that have contributed to the successfulness of crowdfunding projects.

2.3 Crowdfunding Success

2.3.1 Previous Research on the Factors Related to Crowdfunding Success

Crowdfunding provides excellent opportunities for entrepreneurs seeking start-up capital for their new ventures (Tomczak & Brem 2013). While it has an observable importance and a great potential for funding opportunities, further crowdfunding research is necessary particularly on the determinants of crowdfunding campaign success (Mollick 2014). The success of a crowdfunding campaign is, in fact, the main motivational factor of entrepreneurs participating in crowdfunding (Gerber & Hui 2013). It is a simple premise that most, if not all project creators have a similar objective which is to succeed in their crowdfunding campaign.

Moreover, investigation of the determinants of a successful crowdfunding campaign have received major interest in early crowdfunding research where several scholars have identified the related factors affecting funding performance and the successfulness of crowdfunding campaigns (Colombo, Franzoni & Rossi-Lamastra 2015; Crosetto & Regner 2014; Frydrych et al. 2014; Li & Duan 2014; Mollick 2014; Moritz, Block & Lutz 2015; Pitschner & Pitschner-Finn 2014). Recently, crowdfunding success has also been considered the current major focus of crowdfunding research by scholars (Kuppuswamy & Bayus 2018; Short et al. 2017). Therefore, this section will discuss the important considerations for entrepreneurs who wish to secure capital through crowdfunding platforms.

Firstly, findings from previous studies show that not-for-profit projects are significantly more successful at reaching their minimum funding goals as compared to for-profit projects (Pitschner & Pitschner-Finn 2014). Not-for-profit projects also tend to be more successful in individual crowdfunding efforts, in which entrepreneurs launch their own

individual crowdfunding campaign using social media (e.g., Facebook, Twitter, and blog) and not through the standardised crowdfunding platforms (Belleflamme, Lambert & Schwienbacher 2013). However, the study by Pitschner and Pitschner-Finn (2014) only utilised a dataset from a reward-based crowdfunding platform or model in the US so the results might be different for other crowdfunding platforms that operate in the US or other countries. For example, backers or investors in an equity-based crowdfunding model have greater attention toward the financial and governance aspects of the new ventures (Ahlers et al. 2015) even if the ventures have similar noticeable characteristics, which shows that there could be a difference in funding objectives between backers participating in reward-based models and backers seeking equity-based models. Similarly, the sample from the Belleflamme, Lambert and Schwienbacher (2013) study was small and consisted of only 44 cases which might not be enough to make a robust statistical analysis and might generalise the findings. Moreover, most of the cases (61%) used a reward-based crowdfunding model.

Secondly, the underlying characteristics of the projects were also found to be directly associated with crowdfunding success. Projects' characteristics such as the target amount, funding duration, team size, price, reward structure, social exposure, its partnerships with other companies, and the description's length all contributed to the success of the projects (Crosetto & Regner 2014; Frydrych et al. 2014; Li & Duan 2014; Mollick 2014). Also, in a study that focused only on a cultural category of crowdfunding on Kickstarter, Bœuf, Darveau and Legoux (2014) showed that incentives and rewards, that represented a public acknowledgement or symbolic dimension exclusively related to the project, could be key motivation factors for backers to provide funding. They explained that the results were associated with the prosocial behaviour of backers participating in cultural projects. Another study by Frydrych et al. (2014), suggested that the

characteristics of the projects could generate entrepreneurial legitimacy, and therefore, could be associated with crowdfunding success, which will be discussed later.

Thirdly, another important aspect of successful crowdfunding identified in the literature is the early contributions or early funding (accumulated capital received by entrepreneurs early in their crowdfunding campaign). In an analysis of the effect of early contributions, Agrawal, Catalini and Goldfarb (2015) found that the propensity of other backers to fund a project increased rapidly with the accumulated capital. Similarly, Zhang and Liu (2012) also found that early contributions had the same effect on a microlending platform (Prosper.com – a debt-based crowdfunding platform). However, the Zhang and Liu (2012) study lacked an explanation of who and why backers contribute early. A study by Agrawal, Catalini and Goldfarb (2015) reported that the social capital of the project creators, particularly their friends and family, play a significant role in the early stage of the funding process. They claimed that friends and family members contribute to the crowdfunding campaign in two ways; first by providing the early capital, and second, by promoting it to their friends through social networks. In this case, friends and family act as a trustworthy source, thus affecting other backers to fund the project.

In a follow-up study, Colombo, Franzoni and Rossi-Lamastra (2015) contributed further to crowdfunding knowledge by assessing the determinants of backers' decisions to provide early funding. The issue led them to research the impact of internal social capital which creators developed and maintained within a crowdfunding platform on early funding and crowdfunding success. Previous studies have identified social capital in the form of family and friends, including Agrawal, Catalini and Goldfarb (2015) , and followers through the use of social media promotion such as Facebook (Greenberg & Gerber 2014; Kuppuswamy & Bayus 2017; Mollick 2014; Zheng et al. 2014). However, Colombo, Franzoni and Rossi-Lamastra (2015) argued that the previous studies mainly focused on

external social capital (e.g. the number of Facebook friends that were outside the crowdfunding platforms) and had yet to discover the impact of social capital developed from within crowdfunding platforms (internal social capital). The results of their study enhanced the knowledge of the role of social capital in crowdfunding where the effect of internal social capital on crowdfunding success is found to be greater than external social capital. Their study confirms that the success of crowdfunding is closely associated with early contributions and that internal social capital plays a significant role in early capitalization. Another important finding of the study was that the effect of the internal social capital success of a crowdfunding campaign was fully mediated by the size of early funding (both amount of accumulated capital and number of backers). They argued that the stronger effect of internal social capital towards crowdfunding success was due to the norms of reciprocity, in which members of crowdfunding platforms help each other (i.e. by promoting and funding each others' projects).

Similarly, a comparative study by Zheng et al. (2014) also supported the role of reciprocity in crowdfunding, where it was found to be a significant predictor of funding performance. Another study also confirmed the effect of reciprocity behaviour, in which the results showed that entrepreneurs who funded other entrepreneurs' projects increased the propensity of backers to support their projects (Bœuf, Darveau & Legoux 2014). It can be seen that social capital developed within the crowdfunding platforms and other entrepreneurs' social networks are crucial in determining funding performance. Results from the previous studies on social capital weighed in on social capital's important role in the crowdfunding context. As a new financial technology that is based on community participation (crowdfunding platforms enable the community to be involved in rich social interactions, norms and behaviours) and the nature of entrepreneurship as a social activity, it can therefore be assumed that social capital would have a significant role in the

successfulness of crowdfunding campaigns or new ventures (Colombo, Franzoni & Rossi-Lamastra 2015).

Fourthly, there is a signalling effect that implies project quality. A qualitative study by Ley and Weaven (2011) described why the signalling effect is perceived by experienced investors (venture capitalists) to be high in crowdfunding. The notion is certainly true in the case of crowdfunding where there is a lack of reliable performance measures which, in turn, leads potential backers to look for other alternative indicators that could signal future performance (Ahlers et al. 2015). For example, studies on the effect of early contributions made by entrepreneurs' social capital, discussed earlier, also showed how those contributions could generate a valuable signal to other backers by indicating the quality of a project (Agrawal, Catalini & Goldfarb 2015; Zhang & Liu 2012). Moreover, in essence, crowdfunding platforms that utilised Web 2.0 technology along with the ability to search and share information through various online social media channels would make the signalling effect more prominent in crowdfunding. Agrawal, Catalini and Goldfarb (2014) pointed out that backers rely heavily on accumulated capital as a signal of quality. The availability of information on the number of early backers and the current status of a crowdfunding campaign on crowdfunding platforms provides indirect information of project quality (Mollick 2014) which will affect other backers to follow such behaviour through observational learning (Colombo, Franzoni & Rossi-Lamastra 2015).

Some crowdfunding platforms also provide information about the investors who have already invested in a particular crowdfunding project (e.g., Seedrs and Equitise). Backers with less investing experience (unsophisticated investors) would be likely to follow those who are considered experienced backers (sophisticated investors) which enable them to make a quicker decision without using a standard cognitive process. In a recent study investigating herding behaviour in equity-based crowdfunding, Moritz, Block and Lutz

(2015) reported that funding decisions of peer investors influenced other investors' investment decisions. Furthermore, backers were also attracted to fund projects that had already achieved a critical mass of funding but were still in the campaign period (Li & Duan 2014) as it shows the level of market confidence of the quality and outcome of the projects. However, to date, the dimensions of project quality were found to be sparse and need further investigation. The only study that discussed the dimensions of project quality was found in Mollick (2014). The author showed that project quality could be determined by looking at entrepreneur preparedness. Preparedness was measured by looking at the ability of entrepreneurs to provide a visual pitch, the ability to provide project updates shortly after the campaign had started, and those with no spelling mistakes found in the project descriptions.

Another mechanism of the signalling effect is the impact of comments written about a project campaign by early backers in which they apparently offer suggestions and input that enable creators to continuously modify or make improvements to the projects during the campaign period (Colombo, Franzoni & Rossi-Lamastra 2015). The information economics of word-of-mouth and online comments' feedback of early backers in a crowdfunding setting could be remarkably dynamic and would be poised to have a much wider effect on crowdfunding campaigns or new ventures due to the nature of the Internet and the human-computer interactions tools available on crowdfunding platforms. For example, the online feedback mechanism in crowdfunding differs from traditional word-of-mouth referrals (Dellarocas 2003) as backers or any registered member of a crowdfunding platform can post their comments on a particular project campaign page. In addition, creators can directly respond to funders while other interested backers monitor the communication between the two. Customer comments about product quality and the company communication policy provide potential backers with information about a

company's reliability and sustainability (Moritz, Block & Lutz 2015), thus its overall project quality.

Fifthly, another important consideration concerning a successful crowdfunding campaign is how entrepreneurs communicate the viability of their project, thus its legitimacy, in a crowdfunding environment. Legitimacy is paramount for new ventures in attracting outside capital by gaining the trust of capital providers (Hall & Hofer 1993; Mason & Stark 2004; Moritz, Block & Lutz 2015; Van Osnabrugge 2000) and it is considered to be one of the main variables that moderate backers' decisions to fund (Lehner 2013). Similarly, Lehner, Grabmann and Ennsgraber (2015) pointed out that the decision to fund an uncertain crowdfunding project or product is highly dependent on its legitimacy as perceived by the backers. This is certainly true based on the previous discussions concerning the high level of informational asymmetry in crowdfunding. The importance of project legitimacy in contributing to the successfulness of crowdfunding campaigns warrants further investigation especially in regard to how legitimacy can be communicated. In a study that reviewed extant literature, Lehner (2013) argued that for social ventures, backers typically do not look much at collateral or business plans, but rather at the legitimacy of its idea and the core values of the firm. However, the argument put forward was particularly relevant only in the social ventures context and cannot be generalised to other business models. For example, Ahlers et al. (2015) demonstrated empirical evidence that the unavailability of financial projections, which is apparently or usually found in a business plan, will negatively affect the success of equity-based crowdfunding.

In an exploratory study, Frydrych et al. (2014) suggested that entrepreneurs can establish and demonstrate legitimacy in reward-based crowdfunding by setting lower funding goals and a shorter funding duration which would indicate a prudent level of expectation and preparedness by the entrepreneurs. Next, projects with a proper and attractive reward-

level structure (not overpriced, mixed with tangibles and intangibles, and encompassing social-psychological related rewards) would increase the likelihood of crowdfunding success, thus its legitimacy. Finally, they suggested that the composition of the team plays an important role in demonstrating a new ventures' legitimacy as well as its crowdfunding success. These exploratory findings correspond to the general rational business-oriented organisational legitimacy (Frydrych et al. 2014). The only deviation in their findings was that a visual pitch does not necessarily increase legitimacy as most of the projects (both successful and failed) which posted on the platform had at least one video. They suggested that an investigation of the visual pitch should focus more on a social psychological approach when demonstrating legitimacy which is currently lacking in crowdfunding literature.

In a follow-up qualitative study and analysis of interview data, Moritz, Block and Lutz (2015) proposed that pseudo-personal communication through the presentation of videos and active communication (giving fast and reliable answers to backers' queries) on social media channels would increase entrepreneurs' credibility and legitimacy. The results indicated that communication is important for successful crowdfunding which supports the notion that an effective investor's communication reduces information asymmetries between the company and investors. In general, therefore, it seems that demonstrating legitimacy through an effective communication strategy is an important factor for successful crowdfunding. However, demonstrating legitimacy is a big challenge for new ventures as they deal with a large heterogeneous mix of backers (Lehner 2013). Furthermore, previous research on legitimacy has been descriptive and exploratory in nature (Frydrych et al. 2014; Lehner 2013; Moritz, Block & Lutz 2015) which lacks the details (e.g. types of information and language used in visual pitches) to link it to successful crowdfunding.

In summary, raising capital through crowdfunding exposes entrepreneurs to a dynamic process that requires certain strategies to be successfully provided; first, that they have good quality projects. Belleflamme, Omrani and Peitz (2015) claimed that in an efficient market, with a limited supply of funds, fundraisers with the highest quality projects should receive the funding. Previously reviewed studies, have documented the importance of the primary objectives of the project creators (profit-oriented vs. non-profit-oriented), the underlying characteristics of the projects, early contributions made by the entrepreneurs' social capital, the signalling effect of project quality, and the legitimacy of the projects or new ventures. The evidence reviewed here seems to suggest that many factors affect crowdfunding success with some having shown extensive details and others yet to be explored. Investigation of what drives backers to provide funding remains a necessary goal to enhance our knowledge of crowdfunding.

2.3.2 The Role of Risk Disclosure on Crowdfunding Success

Currently, the entrepreneurial finance landscape is focused on how the early stages of risk capital have been transformed (Harrison 2013). The traditional capital providers such as banks, venture capitalists, and angel investors have made a considerable effort to assess investment risk and to secure a good investment return. As such, assessment of risk by the investors is an important investment process to make informed investment decisions. Furthermore, the effort becomes more critical when investing in new ventures which involve investing money in high levels of risk, uncertainty, and information asymmetry (Agrawal, Catalini & Goldfarb 2014; Bruns & Fletcher 2008). Specifically, the investors or capital providers may be motivated to perform more careful due diligence when investing in unproven technologies, unfinished products and unverified market demand trends (Murray & Marriott 1998) which are generally associated with new ventures. To help them make informed investment decisions, capital providers seek information related to the ventures' quality by assessing entrepreneurs' written experiences or forecasts, and

written business plans (Allison, McKenny & Short 2014; Chen, Yao & Kotha 2009; Sahlman 1997). In this respect, the signalling theory has been employed to explain the effect of information related to the ventures' quality based on investors decisions (e.g., Ahlers et al. 2015; Arthurs et al. 2009; Backes-Gellner & Werner 2007; Courtney, Dutta & Li 2017; Deutsch & Ross 2003; Keasey, McGuinness & Short 1992; Kim, Buffart & Croidieu 2016; Mollick 2014). Many of these studies focused on the problem of information asymmetry and how various signals concerning ventures' quality could help facilitate the funding process.

In crowdfunding campaigns, the primary way to communicate and persuade investors to support the project is through a business pitch. Entrepreneurs communicate information related to their project in the form of either verbal, written or graphic media to provide positive signals. Studies have shown that information related to the project and the venture's quality communicated by entrepreneurs assists campaign success (e.g., Ahlers et al. 2015; Courtney, Dutta & Li 2017; Kim, Buffart & Croidieu 2016; Mollick 2014). Despite such information, entrepreneurs who post their projects on Kickstarter are also required to communicate risk information pertinent to their project. This information assists investors with their decision-making in the crowdfunding environment but is often characterised by a high level of information asymmetry (Ahlers et al., 2015) where investors are the under informed party in the funding process (Agrawal, Catalini & Goldfarb 2014). A recent study by Zhao-Der, Wang and Chen (2017) revealed that risk is an important factor affecting investors' funding intention in crowdfunding. Interestingly, their study showed that perceived risk is positively associated with funding intentions among experienced investors who had previously invested in crowdfunding projects.

Besides reducing information asymmetry, entrepreneurs also have the opportunity to signal the quality of their project when disclosing risk information. Allison, McKenny and Short (2014) contend that when entrepreneurs provided risk information, associated with their venture, in their funding proposal, such action will signal their expertise. Furthermore, as pointed out by Barry (1994), it is well recognised in the entrepreneurship literature that investing in new ventures involves a high level of risk and uncertainty. Importantly, entrepreneurs' expertise in dealing with certain risk and risk disclosure to potential investors is inevitable for their funding success. Neglecting risk disclosure when the potential investors are aware of the high-risk nature of new ventures would seriously undermine entrepreneurs' credibility, hence the funding outcome (Allison, McKenny & Short 2014; Sahlman 1997).

Although risks are highly prevalent in new ventures, the concept of risk disclosure is often neglected in entrepreneurial finance. However, a recent development in entrepreneurship literature has shown that scholars have begun to study risk disclosure. A few related studies have been conducted to investigate the role of risk disclosure in entrepreneurial finance (e.g., Allison, McKenny & Short 2014; Lardon & Deloof 2014; Sadeh & Kacker 2017). These studies have focused on the behaviour of entrepreneurs in using voluntary information disclosure to attract potential business partners (Sadeh & Kacker 2017), coupled with the impact of risk disclosure through hardship rhetoric and concrete language about the amount of capital raised from venture capitalists (Allison, McKenny & Short 2014). Furthermore, a likely benefit of disclosure has been shown to affect the amount of financial information disclosed by entrepreneurs in the unregulated Euronext Access Market, a capital market specifically designed for startups and small or medium scale entrepreneurs (Lardon & Deloof 2014).

2.3.3 The Role of Information Content and Linguistic Features of Risk Disclosure

In the crowdfunding context, risk disclosure may be considered as a message attentively communicated by entrepreneurs to help investors assess the level of risk associated with a project. To effectively communicate risk information, entrepreneurs may focus on two features of a message; namely, its content and linguistic style (Shen 2012). The content of a message, according to Shen (2012), is what the message is about and what it argues for. In crowdfunding campaigns, the content of a risk disclosure is about potential risks and challenges faced by the investors, that entrepreneurs disclose which is usually confined to a specific or focused topic or theme related to their project. Thus, in presenting their message's content, entrepreneurs put their arguments along with evidence (e.g., statistical data, testimonial, anecdotal, and analogical) together to support their claims (Shen 2012). The other component of risk disclosure is style which primarily deals with linguistic cues or word choices used in communicating the message (McQuarrie & Mick 1999). This includes the use of powerful vs. powerless linguistic cues (O'Barr 1998) and message framing using positive vs. negative language (Goffman 1974).

Research has shown that the content (Bao & Datta 2014) and linguistic features jockey for position to (Boudt & Thewissen 2018) communicate their message which, in turn, influences the recipient's attitudes and behaviour (Ajzen 1992). For example, previous studies, particularly in the accounting and finance literature, provided evidence of the importance of information with superior reliability in predicting future risk as compared to market information on past risk (Deumes 2008) thus providing significant predictive power in affecting investors' negative perceptions on future performance (Fortin & Berthelot 2012) and playing a crucial role in reducing information asymmetries (Miihkinen 2013). Similarly, the style or linguistics cues were also crucially important in the disclosure research. For example, the usage of positive versus negative words and how they are structured in a Chief Executive Officers' (CEO) letters can predict future firm performance

(Boudt & Thewissen 2018). In addition, the usage of linguistic cues (e.g., words that represent optimism, passivity and complexity) help to detect fraudulent accounting disclosure effectively (Goel et al. 2010; Goel 2014) whereas the usage of tone management generates inaccurate perceptions about the firm's fundamentals (Huang, Teoh & Zhang 2014).

2.4 Overview of the Kickstarter Platform

Kickstarter is one of the imminent, reward-based, crowdfunding platforms for creative projects (Colombo, Franzoni & Rossi-Lamastra 2015; Kuppuswamy & Bayus 2017). Kickstarter focuses on creative projects that the platform has grouped into 15 broad categories which are; games, technology, design, film & video, music, food, publishing, fashion, art, comics, theatre, photography, dance, journalism, and crafts (the project grouping is correct as of 25th October 2016). The platform employs an "All-or-Nothing" model, meaning that an entrepreneur (called a project's Creator on Kickstarter) will only get the money invested by backers if the amount raised is equal or greater than the funding goal at the end of the funding period. The entrepreneur is free to decide how many days are needed, to set the projects' funding period, for example, it may be anywhere between 1 and 60 days. If the project fails to achieve the goal before the end of the funding period, then it is considered failed or unsuccessful.

Kickstarter is a reward-based crowdfunding platform which does not permit any projects for charity purposes or projects that offer financial incentives to be posted on the platform. According to Kickstarter's guidelines, there is no specific range to offer as the reward price; however, most of the rewards are priced between USD $1 to USD $500. In order to raise or invest money through Kickstarter, an individual must be a registered member of the Kickstarter community. An entrepreneur who wants to use the platform to raise funds will need to create a project or campaign page and provide a written description of the project

and its reward structure with videos and photos to compliment the project and to provide a clear explanation of what the project is all about. Other information that is published on the page includes a link to the entrepreneur's profile, the entrepreneur's location, their funding goal, the current funds received, the number as well as basic information of backers that have already invested in the project, the end date of the campaign, the days remaining before the end date, any project updates and comments. The campaign page also provides links for backers to help promote the entrepreneur's project by sharing it on social media such as Twitter, Facebook and Pinterest.

For this research, a dataset from Kickstarter was utilised. The research focused on entrepreneurial individuals who solicited funding from the United States-based crowdfunding platform, Kickstarter, based on two reasons. First, Kickstarter is considered as one of the most prominent crowdfunding platforms (Colombo, Franzoni & Rossi-Lamastra 2015; Kuppuswamy & Bayus 2017) which many researchers have utilised as their studies' samples (Colombo, Franzoni & Rossi-Lamastra 2015; Cordova, Dolci & Gianfrate 2015; Frydrych et al. 2014; Kuppuswamy & Bayus 2017; Lehner 2014; Lehner, Grabmann & Ennsgraber 2015; Mollick 2014). The prominence is of note because the platform had successfully raised more than USD $2 billion as of October 2016 making Kickstarter one of the most funded reward-based platforms (see Table 2.2-2 for comparison). Second, based on the author's observations, Kickstarter is the only platform to date that requires entrepreneurs to disclose or discuss potential risks and challenges concerning their project in a specific section called "Risks and Challenges" on the project's campaign page. The section is fixed, making the dataset from Kickstarter the most appropriate platform information, to study the features of risk messages communicated by entrepreneurs in a crowdfunding environment. Additionally, the disclosure and discussion of information about risks and challenges are not required nor a common practice on other platforms such as Indiegogo, PledgeMe, OzCrowd, Pozible, FundAnything and Fundable,

although some entrepreneurs did disclose such information on the Indiegogo platform at their own discretion.

2.4.1 Previous Crowdfunding Studies Utilising Kickstarter Data

Colombo, Franzoni and Rossi-Lamastra (2015) used data from Kickstarter to investigate internal social capital and the attraction of early contributions in crowdfunding. Their sample consisted of concluded projects in four categories: design, technology, film and video, and video games. The projects were randomly selected with the final sample size 502 projects across the four categories which they argued could sufficiently represent the projects in each of the categories. Similarly, Mollick (2014) utilised a dataset from a single crowdfunding platform, Kickstarter, to examine the underlying success factors of crowdfunding campaigns. The study used a large sample size of 48,526 projects which consisted of concluded projects in all categories on the Kickstarter platform. In order to determine which factors were associated with campaign success, the study used descriptive statistics and logistic regression of the odds of successful funding.

Kuppuswamy and Bayus (2017) used a different approach to collect data from Kickstarter. Instead of only using concluded projects, they included both concluded as well as projects that were still in their funding or campaign period. By using this particular approach, their study focused on investigating the dynamics of backers' funding behaviour over the project's funding period. Their sample consisted of 14,704 projects collected from two years data between 1 January 2010 and 31 December 2011 with only projects that had a funding duration of at least 25 days selected. The sample excluded projects posted on Kickstarter in the year 2009 as they argued that the platform had undergone several modifications which limited the extraction of data.

On the contrary, Cordova, Dolci and Gianfrate (2015) attempted to discover the factors that influenced entrepreneurs' ability to succeed in their funding efforts. Their research used a dataset containing only 1127 cases of technology start-ups seeking funds in 2012 and the first seven months of 2013. Limiting the sample to technology cases was used to focus on crowdfunding campaigns that aimed to become long-lasting companies. Data was extracted from four different platforms: Kickstarter, Ulule, Eppela, and Indiegogo. A vast amount of data, for successful projects, was extracted from Kickstarter (597) followed by Indiegogo (424).

As mentioned earlier, crowdfunding studies related to the current research approach, but using other crowdfunding data, are studies from Allison et al. (2015) and Allison, McKenny and Short (2013). Allison et al. (2015) used a dataset from a single lending-based crowdfunding platform, Kiva.org, using a sample size of 36,665 cases representing 51 countries from a total population of 927,000 crowdlending loans (about 4% of the population). They analysed the intrinsic and extrinsic cues in each of the entrepreneurial narratives (a project's description that explains the entrepreneur's venture and purpose for the funding) that influenced prosocial lenders' (backers) decisions to lend money. The intrinsic cue was defined as the degree of human-interest language used by entrepreneurs in the narratives while extrinsic cues were the degree of profit and risk-taking language. The data which was associated with the predictor variables measured the intrinsic and extrinsic cues and was analyzed using computer-aided text analysis (CATA) software, Diction 6.0. Allison, McKenny and Short (2013) used CATA to investigate the rhetorical content of entrepreneurial narratives in influencing the speed of funding. Their sample consisted of 6,051 crowdfunding projects from 39 countries collected from a single crowdlending platform, Kiva.org.

2.5 Chapter Summary

The motivation for this research is based on the limited knowledge in crowdfunding literature. Crowdfunding is a new phenomenon in entrepreneurial finance and has made a significant economic impact globally. To understand the phenomenon, a review of its background was needed. Firstly, being a new phenomenon, crowdfunding was interpreted differently by the scholars resulting in various definitions found in the literature. Secondly, crowdfunding can be categorised into four major types; namely, the donation-based, reward-based, lending-based, and equity-based models. The first two types provide no financial return to the funders or contributors. The lending and equity crowdfunding are for funders who require some form of future financial reward. Historically, the concept of crowdfunding was not new but became more popular after the revolution of the Internet, specifically the Web 2.0. There are various crowdfunding platforms operating around the world with most of the popular ones based in the United States (US). One of the most popular platforms is Kickstarter, a reward-based crowdfunding platform that focuses on creative projects. The platform is not only popular among the global public for funding, but also popular among academics since the platform provides a rich and publicly available data source for research.

Early crowdfunding research focused on examining various determinants of crowdfunding success. This is a major research topic in crowdfunding literature with a lack of understanding of the dynamics of success which remains the main motivation for researching this crowdfunding topic. The introduction of a risk disclosure policy on the Kickstarter platform provides an avenue of research given the distinctive nature of crowdfunding as opposed to other entrepreneurial finance alternatives.

CHAPTER 3

STUDY 1: BIBLIOMETRIC ANALYSIS OF CROWDFUNDING RESEARCH

3.1 Introduction

This chapter presents a review of the literature which focuses on crowdfunding. By employing bibliometric analysis, this study explores the evolution of crowdfunding research since it began being empirically studied and published in scientific journals. First, the chapter starts with an overview and the nature of crowdfunding research followed by a discussion of the previous systematic reviews of the crowdfunding topic. The second section presents the methodology employed in the study. In the third section, the results from the bibliometric analysis are presented. The final section discusses the findings and concludes the chapter.

3.2 Literature Review and the Current State of Crowdfunding Research

Crowdfunding is a relatively new topic of research which has received much attention among scholars, particularly in the entrepreneurship field. A work by Schwienbacher and Larralde (2010) is believed to be the first empirical research to study the crowdfunding phenomenon. Since then, crowdfunding research has evolved not only in entrepreneurship literature (for a review, see Short et al. 2017) but across many other disciplines; such as, computer science, communication, law, engineering, sociology, biomedical, social sciences, and educational research (see Figure 3.2-1). As the literature continued to expand, early crowdfunding research that highlighted its potential as an alternative source of financing (e.g., Gobble 2012; Ley & Weaven 2011; Schwienbacher & Larralde 2012) continued to burgeoned out to explain how it should; operate within existing or new regulatory developments in different countries (e.g., Armour & Enriques 2018; Ibrahim 2015; Moore 2017), explore risk-related issues in crowdfunding (e.g., Käfer

2017; Schwienbacher 2017), investigate various factors associated with investors' funding intentions, and scrutinize the factors of crowdfunding campaign success (e.g., for a review, see Kaartemo 2017; Short et al. 2017).

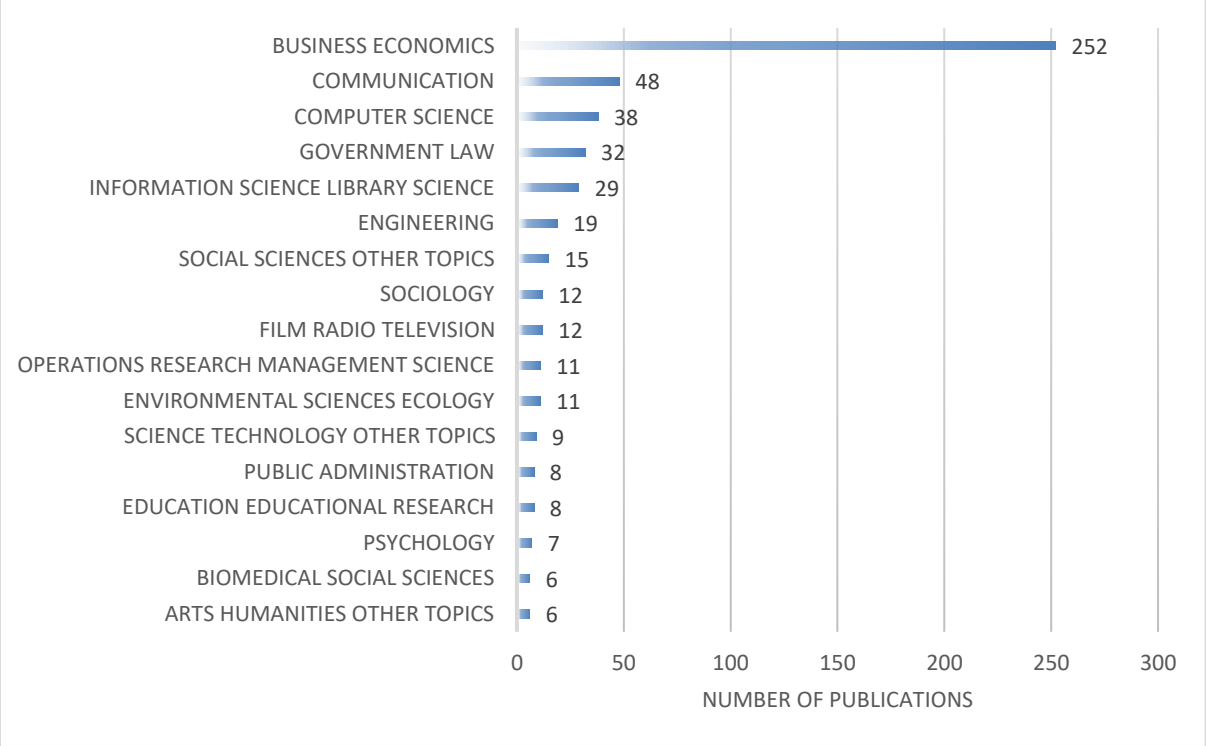


Figure 3.2-1. Number of Articles Published in Scientific Journals based on the 17 Top Research Categories on WoS Database (source: https://webofknowledge.com, accessed on 31st March 2018)

Although the current developments in crowdfunding research show a diversity of research areas, the centric of early research on crowdfunding was mainly about identifying the determinants of crowdfunding success (Kuppuswamy & Bayus 2018; Short et al. 2017). Many studies have been conducted to investigate what factors contribute to crowdfunding success; such as, entrepreneurs' social capital (e.g., Butticè, Colombo & Wright 2017; Colombo, Franzoni & Rossi-Lamastra 2015; Giudici, Guerini & Rossi-Lamastra 2018), informational cues and signaling mechanisms (e.g., Ahlers et al. 2015; Allison et al. 2015; Allison et al. 2017; Block, Hornuf & Moritz 2018; Ciuchta et al. 2016; Courtney, Dutta & Li 2017; Zhou et al. 2018), trust management (e.g., Kang et al. 2016; Zheng et al. 2016), cultural and geographic effects (e.g., Burtch, Ghose & Wattal 2014; Guenther, Johan & Schweizer 2018; Mollick 2014), as well as gender effects (Mohammadi & Shafi 2018).

Crowdfunding research is currently expanding and highly dynamic. This may be attributed to the following reasons: (1) the basic concept of crowdfunding allows any individual to gain access to financing for any particular goal; such as, raising funds for business or entrepreneurship (e.g., Ahlers et al. 2015; Allison et al. 2015), social status (Calic & Mosakowski 2016; Lehner & Nicholls 2014; Meyskens & Bird 2015), scientific research (del Savio 2017; Krittanawong et al. 2018; Siva 2014), and education or academic purposes (Bushong, Cleveland & Cox 2018; Colasanti, Frondizi & Meneguzzo 2018; Kaplan 2013); and, (2) the growth and quickly expanding market of the crowdfunding industry itself (Barbi & Bigelli 2017; Baumgardner et al. 2017) has caused many countries to take action by introducing new or relaxing existing legislative barriers to support the crowdfunding industry (Ahlers et al. 2015).

3.2.1 Previous Systematic Review of Crowdfunding Research

Similar to other fields of research, entrepreneurship scholars also have taken a pause, to reflect upon what has been done in past crowdfunding research and extrapolate on the

future research (Chandra 2018). Overall, most of the previous crowdfunding review research focused specifically on crowdfunding in the domain of entrepreneurship. For example, Drover et al. (2016) provided a more general review of entrepreneurial finance alternatives including crowdfunding. In their review, Drover et al. (2016) discussed how crowdfunding can advance both the theory and practice that has been applied before in venture capital and angel financing. Specific to crowdfunding research, Short et al. (2017) and Kuppuswamy and Bayus (2018) reviewed the current empirical literature on crowdfunding. Both studies concluded that the current crowdfunding research mainly focuses on factors affecting investors', funders', and donors' funding intention. They further argued that most of the crowdfunding literature investigates the role of quality signals on crowdfunding success and only a few studies have investigated the role of social norms (e.g., the reciprocity behaviour of social capital). Similarly, Kaartemo (2017) focused his review on the determinants of crowdfunding success by using four categories; namely, the campaign-related factors, investor-related factors, crowdfunding platform-related factors, and entrepreneur-related factors.

3.3 Methodology

3.3.1 Bibliometric Analysis as an Approach for Reviewing Crowdfunding Research

This study focuses on reviewing crowdfunding research using bibliometric analysis that was developed to review the present and past activities of scientific work by quantitatively analysing citation information (Leung, Sun & Bai 2017; Schildt, Zahra & Sillanpaa 2006). The analysis is not new since the early work can be traced back more than fifty years (Perianes-Rodriguez, Waltman & Van Eck 2016). In a bibliometric study, the combination of the analysis and science mapping techniques help researchers to visualise and gain a better understanding of the intellectual structure of a research topic or field (Leung, Sun &

Bai 2017; Van Eck & Waltman 2014; Van Nunen et al. 2017). Through bibliometric analysis, this study can identify, for example, the prominent authors and publications, dominant journals, countries and institutions, and the evolvement of publications focusing on a particular topic (An & Wu 2011; Leung, Sun & Bai 2017; Van Nunen et al. 2017).

Bibliometric analysis can be conducted by employing several techniques such as co-authorship analysis, citation-based analysis (e.g., citation, co-citation, and bibliographic coupling analysis), and co-word analysis (Van Eck & Waltman 2014). As for this study, it employs the combination of co-citation and co-word analysis. Leung, Sun and Bai (2017) suggested that using the combination of different techniques in bibliometric analysis could help to reveal more information and insight on the topic. Co-citation analysis is an advanced technique in bibliometric study that is frequently used to measures the relationship between two publications (Ferreira et al. 2017). The relatedness of the two articles is measured based on the frequency that they have been cited together in other articles. Simply put, two articles that are cited together in another article is assumed to be co-cited (Small 1973) and closely or completely related to the topic area (Schildt, Zahra & Sillanpaa 2006). In co-word analysis, the technique combines both bibliometric and text mining procedures to explore the analytical meaning of the topic (An & Wu 2011) by measuring and mapping the strength of interactions between keywords in the sample data (Callon, Courtial & Laville 1991; Leung, Sun & Bai 2017). Co-word analysis is often used to describe a network of interactions and a trend a of research discipline (Leung, Sun & Bai 2017).

3.3.2 Data collection and analysis

The data collection process is crucial in conducting a bibliometric study as it could influence the results and their interpretation. Therefore, this study follows the three specific guidelines as proposed by Andrés (2009), which begins with a clear topic definition,

conduct a bibliographic search, saving and exporting the datasets, and data analysis and reporting. The most important step, which is a bibliometric study need to have a clear research topic has been discussed in Section 1.3.1 on page 5. As for the second and third step, these are discussed in the following paragraphs. The PRISMA guidelines was not utilized in this study as it was beyond the scope of the study. Although it seems to be relevant to the context of Study 1, PRISMA Guidelines were primarily used to accommodate systematic reviews and meta-analyses which have a specific focus or topic of interest. If the objective of Study 1 is to explore the determinants of crowdfunding campaigns success using systematic reviews or meta-analyses techniques, then it will be highly suitable to use the PRISMA Guidelines. However, the objective of Study 1 is to investigate the structure and trend of the overall crowdfunding research using the science mapping analysis, and without confining it to any specific topic (e.g., determinants of crowdfunding campaigns success) in crowdfunding literature. Therefore, Study 1 follows the specific guidelines of conducting bibliometric or science mapping analysis.

In the second step, the bibliometric data are collected from the target database. This study utilises bibliometric data from the Web of Science (WoS) Core Collection database provided by Clarivate Analytics. The data was downloaded in April 2018 therefore all available data since the emergence of the crowdfunding phenomenon up until the first quarter of 2018 were included in the initial sample. The study aims to find an exhaustive number of publications on crowdfunding. Before the study proceeded to data preparation and analysis, several sampling procedures were performed. First, in order to find related publications on crowdfunding, by using the Scopus's search strings, the study searched for specific boundaries of the keywords for "crowdfunding", "crowd-funding", "crowd funding", "online funding", "online lending", "peer-to-peer lending", and "p2p lending". The searches used a combination of search terms using 'OR' operator. These keywords were used based on the understanding of the definition provided by Belleflamme, Omrani and

Peitz (2015). Second, this study screened only journal articles for the analysis. This procedure is commonly used in the review of any research field (e.g., Chandra 2018; Drover et al. 2016; Short et al. 2017). According to Saunders, Lewis and Thornhill (2016), journal articles are concerned with producing theoretical contribution and are highly specialised while generally focusing only on a particular area of research. Third, although crowdfunding is closely related to the business, management and social science category, this study does not limit the sample to only these categories. This is because of the nature of crowdfunding research which is subject to be multidisciplinary (Gleasure & Feller 2016; McKenny et al. 2017) and so, a larger sample size is preferable as it will produce more information and precise statistical estimates in the bibliometric study (Williams & Bornmann 2016). Fourth, the study included only English language articles for easy data analysis and interpretation of results. These procedures yielded 487 articles from the period of 2010 to 2018 for analysis.

The third step of conducting a bibliographic study is to save and export the downloaded datasets into a readable format specific to the requirements of the VOSviewer. Before data analysis and reporting, this study performed several data cleaning processes similar to other studies (Leung, Sun & Bai 2017) to remove any coding errors and standardise the data. For example, some authors who have more than one form of their name (e.g., “Cumming, D.” and “Cumming, D.J.” are the same person) were corrected. Similarly, some journals have more than one abbreviation and therefore were corrected (e.g., “J Bus Venturing” and “J Business Venturing” are the same journal’s abbreviation for the “Journal of Business Venturing”). Another concern is the list of keywords supplied by the authors. The authors may use different keywords to describe similar ideas in their research. For example, some authors use “peer-to-peer lending” while others are comfortable using “p2p lending”.

After all the procedures have been performed, the last step is to conduct data analysis and report the results. The data analysis for this study uses three steps. First, the study presents the descriptive statistics of citation analysis results of the dataset. Second, this study maps the crowdfunding research's co-citation networks to provide a visualisation of how crowdfunding has been studied in various research areas. Next, the co-word network of keywords was mapped to identify the major topics in crowdfunding. The study utilises BibExcel for data cleaning and VOSviewer for data analysis. VOSviewer is a program developed by (Van Eck & Waltman 2010) that focuses on the bibliometric analysis of scientific publications. All the statistical and normalisation measures used in the program are discussed in detail by Van Eck and Waltman (2009).

3.4 Results

3.4.1 Descriptive Analysis

Table 3.4-1 presents the top 12 cited journals in crowdfunding research. Overall, from a total of 3,300 citations, crowdfunding research has generated 1,671 different published articles by scholars. The total number of citations generated by the top 12 journals is 1,496 which cover more than 45% of the total citations (3,300) from 317 journals. The most cited journal in crowdfunding research was the *Journal of Business Venturing*, followed by *Management Science* and *Entrepreneurship Theory and Practice*. These are the top journals perceived by scholars to focus on entrepreneurship (Carraher & Paridon 2009) and among the top 5 in the Google Scholar metrics of the Top Publication category "Entrepreneurship & Innovation". It should be noted that the citation results from these journals may contain self-citation bias where authors were mostly citing each other within the same field of research (Leung, Sun & Bai 2017) but it is unnecessary to correct the bias when performing citation analysis (Benckendorff & Zehrer 2013). For the *Journal of Business Venturing*, the most cited publications were from Mollick (2014) and

Belleflamme, Lambert and Schwienbacher (2014), while for *Management Science*, they were from Zhang and Liu (2012) and Lin, Prabhala and Viswanathan (2013). As for *Entrepreneurship Theory and Practice*, the most cited publications were from Ahlers et al. (2015) and Colombo, Franzoni and Rossi-Lamastra (2015).

Table 3.4-1 Most cited journals in crowdfunding research

Journal	**Number of articles**	**Citations**
Journal of Business Venturing	6	572
Management Science	10	289
Entrepreneurship Theory and Practice	9	250
Electronic Commerce Research and Applications	11	98
New Media and Society	12	90
Business Horizons	5	46
California Management Review	6	40
Small Business Economics	9	33
Journal of Business Research	5	29
Venture Capital	8	21
PLOS One	5	18
Strategic Change	7	10
Total	93	1,496

3.4.2 Co-citation Network

In order to visualise the co-citation network of sources, the study follows the steps suggested by (Van Eck & Waltman 2014) with some adjustments made to accommodate for the research objective and dataset. This study utilised the “fractional counting” normalisation method in the analysis because each reference in a publication should be treated as equally representative (Perianes-Rodriguez, Waltman & Van Eck 2016). Since it is impossible to include all the journals and citations in the bibliometric analysis (Schildt, Zahra & Sillanpaa 2006) only sources that received 20 or more citations were included. It turns out that there are 128 different sources (journals and other literature) which have

been cited twenty times or more by the authors (of 487 articles). These sources were clustered using the association strength or proximity index similarity measure (Van Eck & Waltman 2010). The results of the co-citation network of sources can be viewed in Figure 3.4-1. The colour of the bubble identifies the cluster of the source to which it is associated. The size of the bubble depicts the number of citations received by a source. The proximity and thickness of lines that link between the bubbles indicate the strength of their relationship.

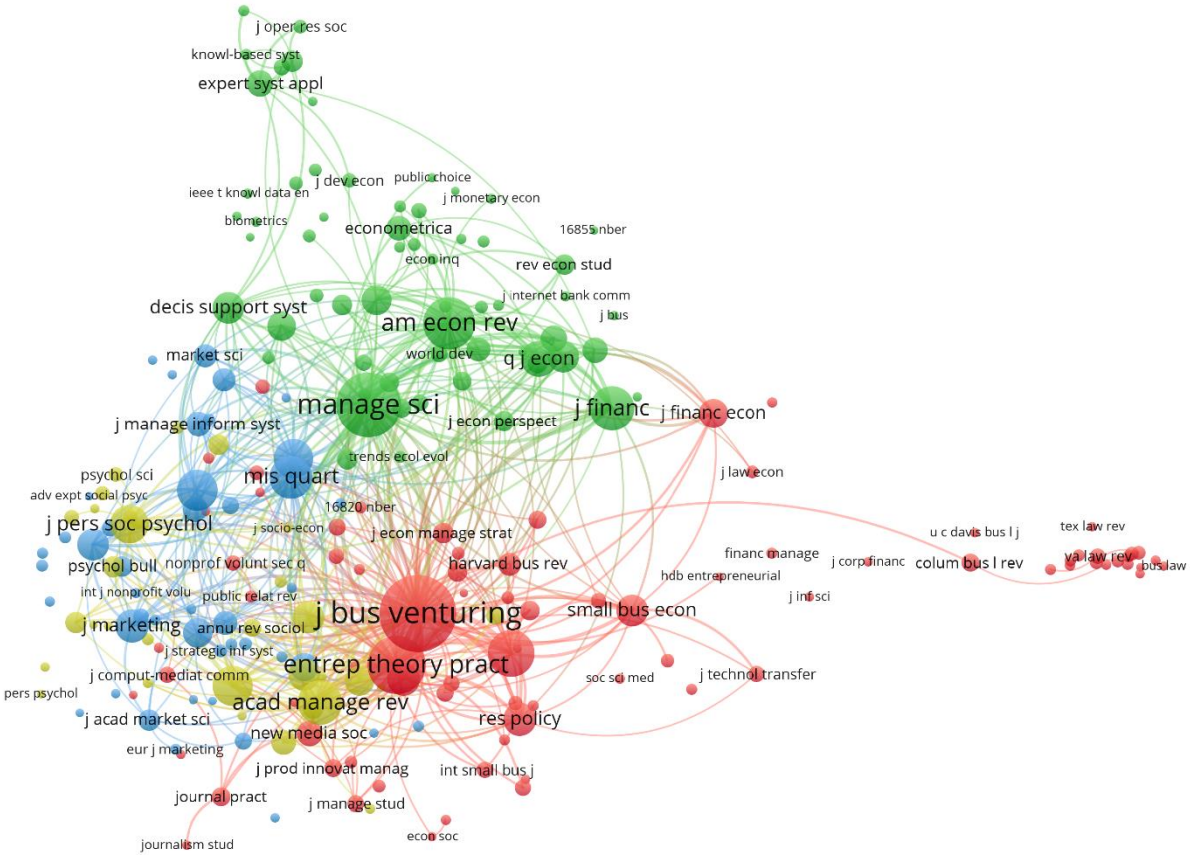


Figure 3.4-1 Visualized co-citation network of sources in crowdfunding research (note: the network was produced based on the default settings of VOSviewer, i.e., all the statistics and how the network was produced were computed and configured using the default settings of VOSviewer).

As shown in Figure 3.4-1, the co-citation network of crowdfunding research can be categorised into four clusters and named according to the majority of representative sources. The network was produced using the VOSviewer software. The software uses the default techniques of computing the similarities between the sources (journals), documents (articles), and items (words) to produce the clusters. The default configuration suggested by the developer of the program is the VOS mapping technique and association strength for normalisation measure. Then the program will differentiate the clusters by assigning a colour to each of the cluster. All of the basic operations of the program are referred, and technical details can be found in the four published papers of the developer of the program (see Van Eck & Waltman 2009, 2010).

The study identifies the first cluster as *entrepreneurship and new business development* (see Table 3.4-2), the red cluster. The first cluster was made up of sources that focused on entrepreneurship and new ventures creation research such as the *Journal of Business Venturing, Entrepreneurship Theory and Practice,* and *Venture Capital*. These entrepreneurship related sources were observed at the centre of the network. Sources related to financial laws and regulations were also identified as part of the first cluster located at the right side end of the network. The second cluster was labelled as *economics and functional business areas*, the green cluster, where the main focus of the research is about economic problems in functional business areas such as finance and operations. The third cluster was established as *marketing and information systems,* the blue cluster, focusing mainly on the marketing management and behaviour of consumers. The fourth cluster was observed as *organisational management and strategy,* the yellow cluster, which focuses on management theory, practices, and organisational strategies.

Table 3.4-2 Co-citation cluster of research areas

Cluster	Representative Sources / Journals
Entrepreneurship and new business development	Journal of Business Venturing, Entrepreneurship Theory and Practice, Venture Capital, Small Business Economics, and Columbia Business Law Review
Economics and functional business areas	Management Science, American Economic Review, Quarterly Journal of Economics, Journal of Finance, Decision Support System, Expert Systems with Applications, and European Journal of Operational Research
Marketing and information systems	Journal of Marketing Research, Journal of Consumer Research, MIS Quarterly, Information Systems Research
Organizational management and strategy	Academy of Management Review, Academy of Management Journal, Administrative Science Quarterly, Organization Science, Journal of Personality and Social Psychology,

3.4.3 Co-word Network Analysis

In order to visualise the network of terms using co-word network analysis, this study uses two fields or types of information from the dataset, which are the title and abstract. The study screened terms that had appeared ten times or more. As the research objective is to explore the research themes and trends in crowdfunding research, the study used three options of the co-word network visualisation available in the VOSviewer program. First, the study used the default option to view how each term is associated within the cluster. Second, an overlay visualisation option was utilised to identify highly cited terms in the network. To process the network visualisation, this study selected the average citations in the visualisation scores option of the program. Third, overlay visualisation was utilised again to observe the trends of crowdfunding research. To achieve this, the study chose the average publication year in the visualisation scores option. Similar to co-citation network analysis, the size of the bubble indicates the number of term appearances while

the thickness of lines and proximity between the bubbles indicate the relationship strength, while the colours distinguish clusters based on research category. Figure 3.4-2, 3-4, and 3-5 present the co-word network for clusters analysis, highly cited terms analysis and the trend analysis of terms in crowdfunding research, respectively.

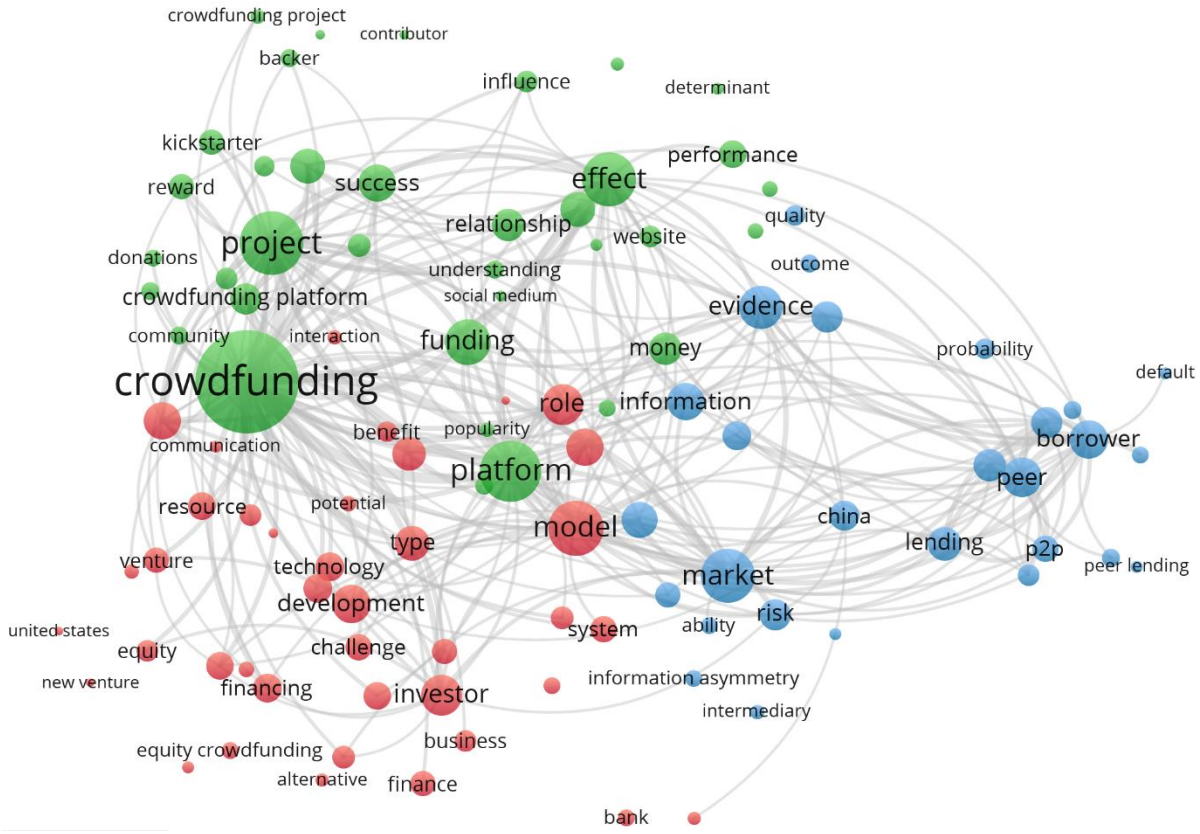


Figure 3.4-2 Co-word network

As shown in Figure 3.4-2, three clusters of terms were identified based on their colour, namely the green, red and blue cluster. In the green cluster, the term “crowdfunding”, “project”, “platform”, “effect”, “funding”, and “success” represent the cluster which had co-occurred 245, 131, 123, 107, 84, and 67 times in the dataset, respectively. The cluster was also represented by the term “campaign” (59 times), “money” (56 times), “relationship” (55 times), “performance” (45 times), and “kickstarter” (39 times). This shows that the green cluster seems to represent publications that focus on reward-based crowdfunding.

Terms such as “reward”, “contribution”, and “backer” support this early presumption. Furthermore, the term “funding”, “success”, “factor”, and “effect” suggest that most of the publications in the green cluster were focused on investigating factors contributing to crowdfunding campaign success.

For the red cluster, representative terms such as “model”, “role”, “investor”, “development”, “entrepreneur”, and “impact” had co-occurred together (110), (74), (73), (68), (67), (66), respectively. The study observes that this cluster appears to represent publications focusing on equity-based crowdfunding as visualised by the term “equity crowdfunding”, “investor”, “investment”, “framework” and “regulation”. These representative terms also indicate that publications surrounding equity-based crowdfunding have focused more on the development and exploration of the equity model as an alternative to entrepreneurial finance. For the blue cluster, the most co-occurred terms were “market” (106 times), “evidence” (80 times), “peer” (70 times), “borrower” (68 times), “information” (67 times) and “mechanism” (62 times). In this cluster, the term “borrower”, “p2p”, “lending”, “peer”, and “loan” suggest that most of the publications within the cluster were related to peer-to-peer lending. As with the green cluster, terms such as “lender”, “behavior”, “decision”, “probability” and “likelihood” suggest that publications related to peer-to-peer lending were also focused more on investigating the behaviour of lenders, particularly on the factors that influence lending decisions. Furthermore, results also showed that risk and information asymmetry is among the most important issues highlighted and used as a theoretical basis in the blue cluster.

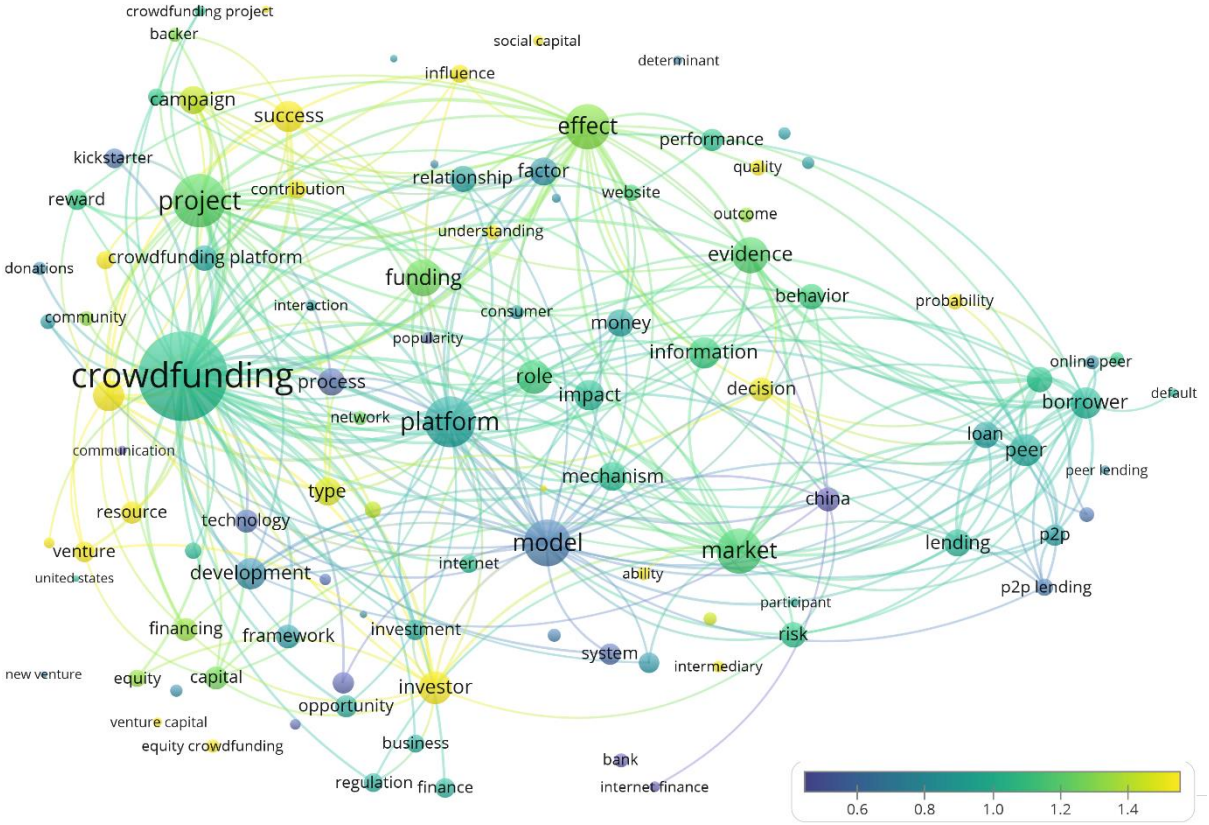


Figure 3.4-3 Co-word network visualised by the average normalised number of citations

Figure 3.4-3 shows the co-word analysis with additional information on citations. The colour of the bubble indicates the average citations received by a term. The average normalised number of citations of a term was calculated by dividing the number of citations of the publication by the average number of citations of all publications that contain the term in the title or abstract. Normalised values of citations helped to correct any citation bias in which older publications usually have more citations than newer publications because of time effect. Terms that received more citations are shown in yellow, while terms that received fewer citations are shown in blue. Based on the average normalized number of citations, publications that have the term “success”, “investor”, “entrepreneur”, “venture”, “resource”, “contribution”, “decision”, “influence”, “social capital”, “probability” and “ability” received the highest number of citations in crowdfunding research. The results indicate

that most of the highly cited publications focus on the factors that influence funders' decisions to fund and contribute to campaign success.

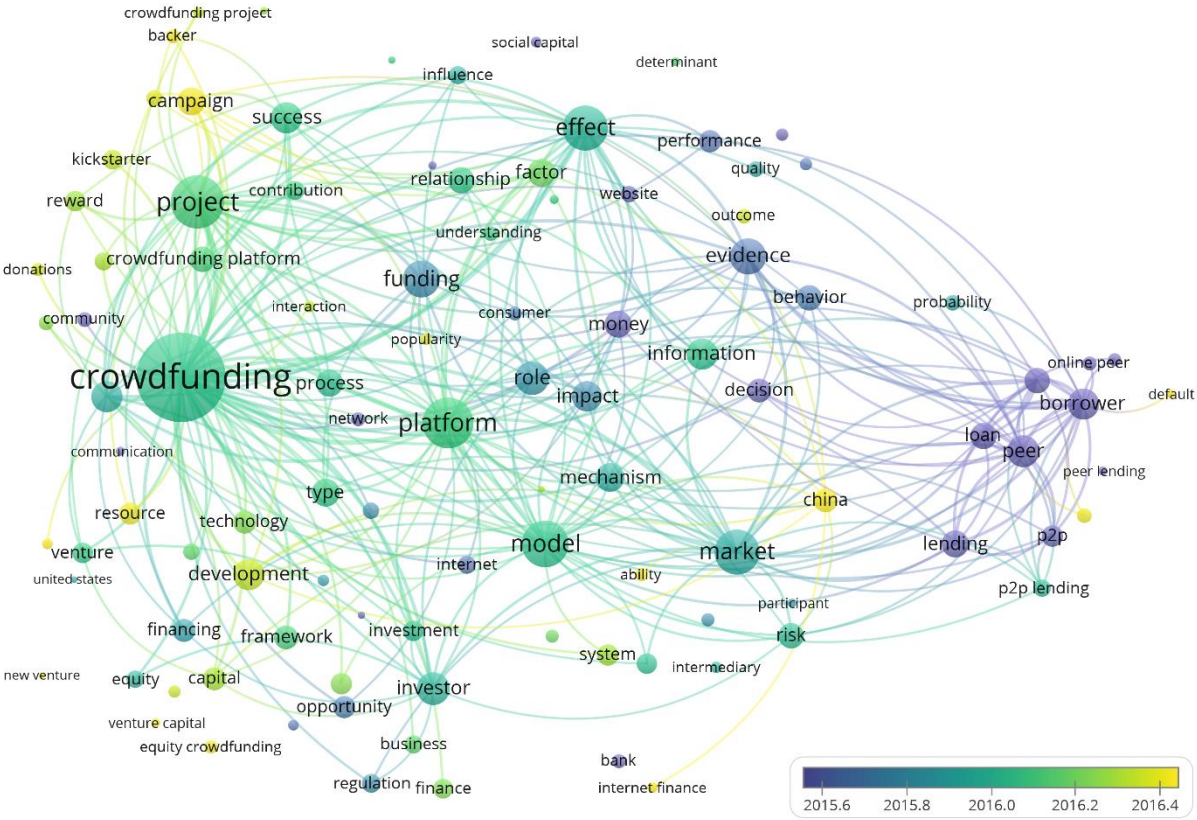


Figure 3.4-4 Co-word network visualised by the average publication year

Figure 3.4-4 illustrates the co-word analysis of crowdfunding research, but with further information about the time period. The colour of a term identifies the term's average publication year. Terms that were used more in 2016 and onwards are visualised in yellow, while terms that were used more towards 2015 are visualised in blue. By including the time information in the network, most of the publications in early crowdfunding research were focused on the peer-to-peer lending technology as represented by the term "borrower", "peer", "loan", "lending" and "p2p". Research on peer-to-peer lending had also started to focus on borrowers' decision-making and behaviour in the early period as shown by the term "decision", "evidence" and "behaviour". As crowdfunding research evolved,

more publications started to describe the role and potential risks in crowdfunding within the entrepreneurial financing framework (corresponding terms: role, risk, information asymmetry, regulation, framework) while exploring further determinants of crowdfunding success (corresponding terms: success, impact, factor, quality, social network, motivation). The network also shows two countries were mentioned in the data relatively higher than others, namely the United States and China. Table 3.4-3 presents the main countries based on the first author's location that published articles on a crowdfunding topic. The United States is the leading country to publish crowdfunding research, followed by China, England, and Germany.

Table 3.4-3 Countries with the highest number of publications

Country	Number of Publications
USA	178
People Republic of China	108
England	41
Germany	37
Canada	31
Italy	24
Australia	20
France	17
Spain	14
Belgium	11
Netherlands	10

In order to see the time trend of publishing countries, Figure 3.4-5 further illustrates the network of countries that have published crowdfunding research. The size of the bubble represents the average number of publications published by the country (based on the author's location) and the colours indicate the year of the publications for each country. Based on the network, most of the early publications or authors originated from the United States, followed by India, South Korea, Spain, and Belgium. This result indicates that early

publications focused on the US-based crowdfunding platforms. The later trend suggests that more publications started to emerge from China, Japan and a few European countries such as Italy, Sweden, the Netherlands and Scotland. The expansion trend in other countries indicates that crowdfunding research is still evolving and continues to receive an increasing trend of academics' attention globally.

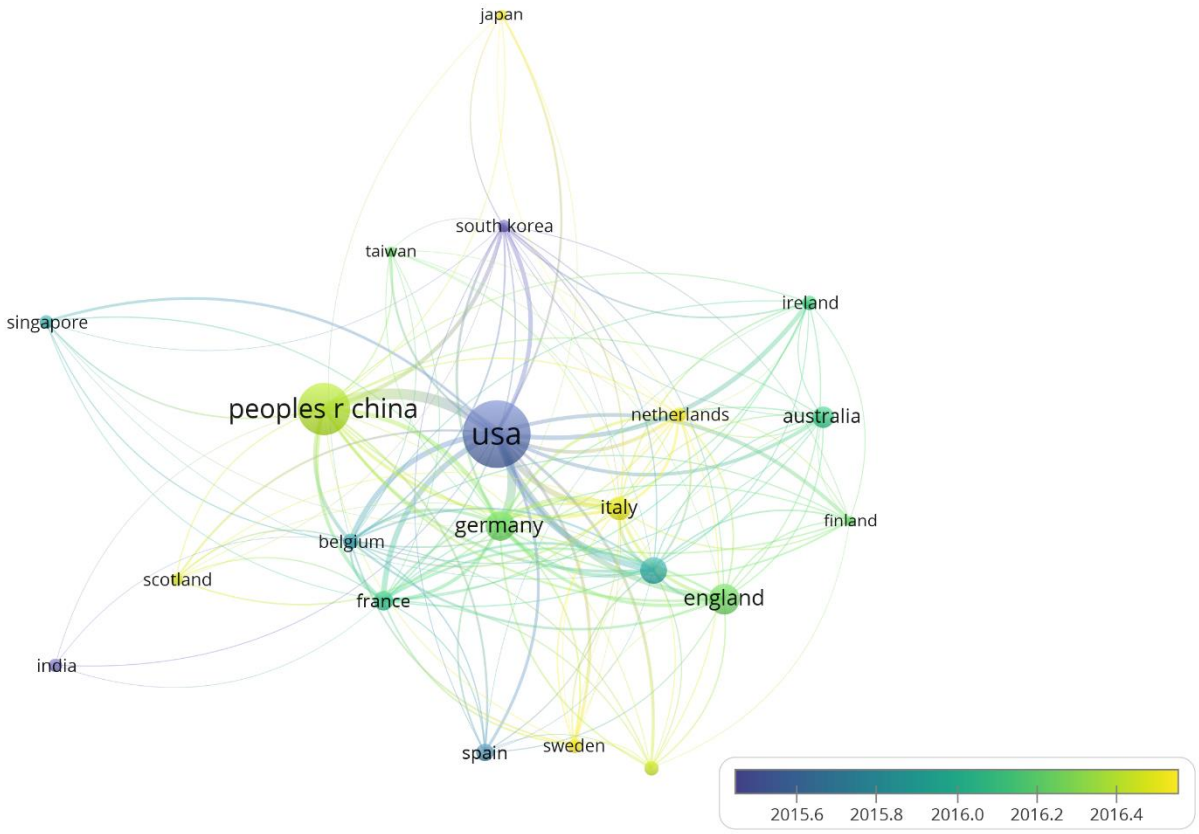


Figure 3.4-5 Citation network of countries publishing crowdfunding research

3.5 Discussion

Bibliometric analysis provides an interesting and different approach in reviewing past research. This study reviews crowdfunding research in a broader perspective by including all the related publications that have investigated the crowdfunding phenomenon. In this sense, a bibliometric analysis approach allows this study to present how crowdfunding research has progressed from 2010 until 2018. By utilising citation analysis and co-citation networks, this study includes the analyses of the sources and co-occurrence of terms with the citation and time information. This study contributes further to the existing crowdfunding literature.

Citation analysis results showed that the most cited sources or scientific journals in crowdfunding research are the *Journal of Business Venturing, Management Science,* and *Entrepreneurship Theory and Practice*. Publications that have received the highest citations in these journals were identified as papers that have provided a basic understanding of crowdfunding such as the definition, funding mechanism and early works to outline the determinants of success, particularly on a project's quality and signaling effects (e.g., Ahlers et al. 2015; Colombo, Franzoni & Rossi-Lamastra 2015; Lin, Prabhala & Viswanathan 2013; Mollick 2014; Zhang & Liu).

To answer the Research Question 1 (How has crowdfunding been accepted as a topic across various research areas?), this study used co-citation network analysis to present how crowdfunding has been accepted and research published by various sources or scientific journals. This study revealed that the crowdfunding topic has attracted many academics from various backgrounds to study and publish papers in various scientific journals. Based on the findings from the co-citation network, these scientific journals which were co-cited together, can be grouped into four major clusters: 1) fundamentals of entrepreneurship and new business development (red cluster); 2) application of economic

theories, problems, and mathematical model in functional business areas (green clusters); 3) marketing and the understanding of consumers' behaviour (blue clusters); and 4) organisational management (Yellow). These journals mostly published articles that presented empirical analysis of the crowdfunding phenomenon within the research areas covered by the journals. However, it should be noted that some sources outside the four clusters have published crowdfunding topics particularly on the potential of crowdfunding as alternative financing. Crowdfunding is considered to be able to support other initiatives not focused on entrepreneurship purposes, such as, for education (e.g., Antonenko, Lee & Kleinheksel 2014; Colasanti, Frondizi & Meneguzzo 2018), health (e.g., Kaplan 2013; Renwick & Mossialos 2017), and cultural and social development (e.g., Bernardino & Santos 2018; Simeoni & Crescenzo 2018).

Research Question 2 (What are the main research themes and the latest trends of crowdfunding research based on the most cited topics?) is answered by using the co-citation network of terms used by scholars in their articles, particularly in the title and abstract field. Some interesting results emerged from the analysis. First, the study observed that crowdfunding research can be categorised based on their funding model: the reward model, equity model and the debt or peer-to-peer lending model. This study also observed that most of the articles in the reward and peer-to-peer model were focused on the determinants of crowdfunding success. This provides support for the argument of entrepreneurship scholars that the centric of crowdfunding research is mostly on success factors (Kaartemo 2017; Kuppuswamy & Bayus 2018; Short et al. 2017). While for the equity model, most of the articles discuss investor protection and a review of equity crowdfunding within regulatory aspects, acceptance of the technology, and other challenges. However, it should be noted that some articles on equity crowdfunding have also investigated success factors (e.g., Ahlers et al. 2015; Block, Hornuf & Moritz 2018; Lukkarinen et al. 2016). The main reason why the study of success drivers in equity

crowdfunding is new and lags behind the other two models is probably because of data limitation. Equity crowdfunding is still in an infancy stage and highly regulated with only a few active platforms around the world. The number of projects or campaigns on the platforms is also much less than the reward and peer-to-peer platforms and they are not publicly available except for registered members. These issues posed a great challenge to academics who need access to datasets to produce measurable results from sample data of equity-based platforms (Ahlers et al. 2015; Block, Hornuf & Moritz 2018; Dorff 2014).

Second, the study provides evidence that the most cited articles were the ones that focused on success factors. The results showed that articles which investigated how the quality of the projects, as well as the behaviour of entrepreneurs and investors, influenced campaign success and, in turn, received high citation counts in crowdfunding research. This evidence also further supports the theory that crowdfunding research mostly focuses on crowdfunding success which is highly referred by the academic community. Third, the results showed that the trends of crowdfunding research began with peer-to-peer lending articles before progressing to the reward and equity crowdfunding. Interestingly, articles on peer-to-peer lending are the premise of the research landscape on crowdfunding success before it extended and applied success in reward and equity crowdfunding. Results also revealed that a growing significant number of recently published articles which use crowdfunding platforms originate from China. Other countries that have contributed to the topic recently are those from European regions such as Italy, Sweden, the Netherlands and Scotland. The time trend of publications suggests that more countries have started to ease the regulatory environment for crowdfunding (Hornuf & Schwienbacher 2017) and, with that, the possibility of crowdfunding challenging existing traditional finance (Drover et al. 2016), then, crowdfunding research is expected to

continue to evolve with more publications based on equity or investment type crowdfunding in the near future.

3.6 Chapter Summary

In conclusion, through bibliometric analysis, this study provides a different review of crowdfunding research, by studying the acceptance of crowdfunding as the research topic, and the trend of crowdfunding research. This study also provides further support that crowdfunding research is still in its infancy stage, particularly for equity crowdfunding, and shows that most of the publications were focused on the determinants of crowdfunding success. Based on the findings, this study expects that research surrounding crowdfunding success will continue as a hot topic and agrees that it warrants further investigation. Moreover, as pointed out by Mollick (2014), the current understanding of the dynamic success factors in crowdfunding campaigns are still lacking and unveils the importance of researching this topic. The current situation suggests that this area of research will evolve as more data becomes available in the near future and this may prove to be crucial knowledge for crowdfunding sustainability. Overall, this study provides further justification to investigate other factors that could influence people to fund crowdfunding projects; hence, it becomes the primary focus of the next two studies.

CHAPTER 4

RESEARCH DESIGN AND METHODOLOGICAL APPROACH FOR STUDY 2 AND STUDY 3

4.1 Introduction

This chapter describes the methodological approach employed for Study 2 and Study 3. The chapter begins with the introduction of the research paradigm and strategies adopted to answer the research questions related to both studies. A description of the content analysis approach is presented then the final section summarises the chapter.

4.2 Research Paradigm and Strategies

In order to achieve the research objectives, this research was conducted from a positivist approach to investigate the specific issues, which are consistent with the findings of previous crowdfunding studies of the same nature (e.g., Allison et al. 2015; Allison, McKenny & Short 2013). From a positivist philosophy, the problem to be investigated reflects the need to provide empirical causalities by identifying and examining the causes that influence outcomes (Creswell 2013). As such, positivist-based studies help to develop, or contribute to, knowledge based on careful observation and measurement, either by using experimental or non-experimental research designs.

The third research question was explored using the inductive research strategy to explore the key content of risk information in the disclosure. As suggested by Saunders, Lewis and Thornhill (2016), the inductive research strategy was primarily adopted to answer the "what" question. As for the fourth, fifth and sixth research questions, these questions were

explored using the deductive research strategy, where theories have been proposed and hypotheses have been developed for testing. According to Blaikie (2009), the deductive strategy is useful for testing the previously established theories which represent a current state of knowledge. A deductive research strategy is also helpful for the purposes of prediction and for an explanation of the results. The central concept for the third and fourth questions is the risk information content category communicated by the entrepreneurs, while for the fifth and sixth questions is based on the linguistic cues embedded in the risk disclosure.

In terms of the source of sample data, this research used a dataset from a reward-based crowdfunding platform, Kickstarter. To the author's knowledge and at the time the data was collected, Kickstarter was the only platform that provided consistent risk disclosure data (i.e., a risk disclosure is a requirement on the platform). In collecting the data, this research used the web-extraction method to download the required data from the Kickstarter's website. Data cleaning and a reduction process were implemented in this phase. For the data analysis procedures applied to Study 2 and 3, a specific discussion explaining the procedures involved is presented in each of the chapters for Study 2 and 3.

4.3 Content Analysis

Content analysis deals with a systematic reading and analysing of texts, images, videos and symbolic matter. Content analysis can be defined as "a research technique for making replicable and valid inferences from texts (or other meaningful matter) to the context of their use" (Krippendorff 2004, p. 18). It involves specialised scientific procedures and reliable techniques with the goal of producing results that are valid. Content analysis, according to Berg (2001), is where the "analysis of messages conveyed in the data being analysed is accomplished using explicit rules called criteria of selection". The criteria for selection or the constructs must be developed and sufficiently exhaustive to reflect its

reliability. The constructs must be able to account for each variability of the message content, and if applied by other researchers, it would consistently produce a comparable result (Berg 2001). Prasad (2008) claims that these criteria conform to the three basic principles of scientific method, namely, the objectivity of the analysis used based on explicit rules and procedures, the systematic way of the inclusion or exclusion of content by applying consistent rules to eliminate bias, and generalisation of the results.

Saunders, Lewis and Thornhill (2016) pointed out that content analysis is a well-ordered approach to analysing data which follows a sequential process. The process of conducting the content analysis method involves the sampling and collection of data, developing content categories (constructs development), defining the units of analysis (words, sentences or paragraphs), conducting coding and quantitatively analysing the data. According to Riffe, Lacy and Fico (2014), content analysis can be conducted either by focusing only on content analysis, combining content analysis with other methods to explore how the content is affected by the influencing factors, or combining content analysis with other methods to explore how the content affects the factors. In regard to this research, the content analysis methodology was pursued using the third approach by combining content analysis with quantitative content analysis methodology.

4.3.1 Quantitative Content Analysis

The analysis of narrative risk disclosures of a considerable number of crowdfunding projects requires a methodology that can handle the analysis in an effective and efficient way. As a scientific research tool, content analysis has been utilised in previous studies of the same nature for analysing entrepreneurial narratives (Allison et al. 2015; Allison, McKenny & Short 2013; Noel & Erskine 2013; Parhankangas & Ehrlich 2014). However, quantitative text analysis approaches using computer programs, which can be referred to as computer-aided text analysis (CATA), has been applied extensively in studying

corporate narrative (Arena, Bozzolan & Michelon 2015; Arslan-Ayaydin, Boudt & Thewissen 2014; Broberg 2014; Craig & Amernic 2014; Craig & Brennan 2012; Craig, Mortensen & Iyer 2013; Geppert & Lawrence 2008; Goel et al. 2010; Henry 2008; Henry & Leone 2014; Ober et al. 1999; Patelli & Pedrini 2014, 2015) and entrepreneurial narrative (Allison et al. 2015; Allison, McKenny & Short 2013, 2014; Engelen, Neumann & Schmidt 2016; Huang 2011). According to Kabanoff (1997), computer-aided text analysis can be defined as "any technique involving the use of computer software for systematically and objectively identifying specified characteristics within the text in order to draw inferences".

The use of software for analysing the narrative or textual data has become more prevalent in today's management research due to its advantages and the availability of data in a digital format such as annual reports, letters to shareholders, press releases and risk disclosures. The speed and reliability of the technique in analysing hundreds of documents offer researchers a significant advantage in organisation research (Duriau, Reger & Pfarrer 2007). Pollach (2012) argued that the issue is no longer on its applicability, in analysing textual data, but which approach is the most suitable and qualified for a particular data set.

Approaches to quantitative text analysis are varied and can be classified by looking into several different dimensions, such as the research aim, paradigm or philosophy, approaches or inferences, the bandwidth of research questions, and the main focus (Mehl 2006; Pollach 2012). According to Pollach (2012), there are three main approaches to CATA, namely the computer-aided interpretive textual analysis, computer-aided content analysis and corpus linguistics. Computer-aided interpretive textual analysis is applied by researchers when their research focus is to understand the meanings and interpretations, so thus, follow the qualitative and interpretive research design. The second approach,

computer-aided content analysis follows the positivist research paradigm where researchers quantify the textual data based on the concepts identified either through a deductive or an inductive approach. Hence, this approach follows the quantitative approach of research, from a positivist lens that focuses on producing thematic or semantic indices from observable and measurable features of the text (Pollach 2012).

The last approach, corpus linguistics focuses on lexical or linguistic patterns rather than meanings and concepts, which can be used for both research paradigms. Similar to computer-aided content analysis, the third approach, corpus linguistics allow researchers to make inferences on the linguistic patterns either deductively or inductively. However, Pollach (2012) points out that this approach differs based on three points: (1) corpus linguistics focuses on lexical patterns rather than on concepts or categories; (2) corpus linguistics requires a researcher to use some techniques without a methodological protocol; (3) corpus linguistics always requires the researcher to combine both qualitative and quantitative analysis. Table 4.3-1 provides a comparison and the main characteristics of the three approaches.

Table 4.3-1 Comparison of the Three Computer-Aided Text Analysis Approaches

	Computer-Aided Interpretative Textual Analysis	**Computer-Aided Content Analysis**	**Corpus Linguistics**
Paradigm/philosophy assumptions	Interpretive	Positivist	Positivist or Interpretive
Main focus	Meanings	Concepts	Lexical patterns and themes
Inferences	Inductive	Deductive or inductive	Deductive or inductive
Main techniques	• Keyword-in-context • Collocations • Self-constructed dictionaries	• Existing dictionaries • Self-constructed dictionaries	• Keyword-in-context • Collocations • Word distribution • Corpus comparisons • WordNet
Research questions	• Meaning creation in texts • Relations between texts	• Presence of concepts/constructs • Positive/negative sentiment in texts • Co-occurrence of concepts/constructs in texts	• Comparison of textual patterns with other textual patterns in the same corpus or in other corpora • Comparison of textual patterns with contextual patterns
Software	e.g., ATLAS.ti, NVivo, QDA Miner	e.g., LIWC, Diction 7.0	e.g., WordStat, AntConc

(source: Pollach 2012, p. 265)

As this study focuses on exploring and examining the concepts or constructs within risk disclosure, the second approach, computer-aided content analysis was adopted. This approach enables the study to answer research questions. According to Krippendorff (2004), this approach helps researchers to answer research questions that focus on the presence of concepts in the textual data or the presence of co-occurrences of concepts in textual data. Additionally, the observable and measurable features of the textual data (risk disclosure) allow the researcher to examine the influence of the concepts, or categories, on crowdfunding success.

4.3.2 Methodological Principles of Quantitative Content Analysis

4.3.2.1 Theory and rationale

Theory and rationale deals with the form of content selected for the study, and why the researcher was interested in it.

4.3.2.2 Conceptualisation

Conceptualisations focus on determining what variables will be included in the study and how they are defined.

4.3.2.3 Operationalisation

Operationalisation means the measurements of variables matched and how they were conceptualised in the conceptualisation process. It also deals with the unit of data collection, the unit of analysis, and the validity of the measurements.

4.3.2.4 Computer coding schemes

When using computer coding schemes to code the variables or concepts defined in the earlier conceptualisation principle, the researcher needs to have a codebook. The codebook is important as it contains an explanation of the employed dictionaries, either from existing or self-developed dictionaries and how to apply them.

4.3.2.5 Sampling

Sampling involves determining whether a subset of the sample can represent the whole sample or not. Hence, it deals with how the subset is defined and selected for analysis.

This study selected a subset of the sample consisting of the most successful and the failed group of crowdfunding projects. This was achieved by listing all the projects and sorting them according to funding performance, which is the percentage of the amount raised against the funding goal. The procedures are further explained in section 4.2.2.

4.3.2.6 Coding

Coding is the process of applying the dictionaries to the textual data to generate per-unit frequencies for each dictionary.

4.3.2.7 Tabulation and reporting

This is the final principle in content analysis research where researchers report the results. Researchers can report their figures and statistics by using several techniques such as univariate, bivariate, multivariate, and time trend technique.

4.4 Chapter Summary

The research applied the computer-aided content analysis method to identify the presence of construct within the textual data. As the research dealt with a large amount of textual data, a computerised quantitative content analysis approach was utilised to guide the research. All the methodological principles in the quantitative content analysis were appropriately followed to produce the best possible research outputs.

CHAPTER 5

STUDY 2: THE ROLE OF INFORMATION CONTENT IN RISK DISCLOSURES ON CROWDFUNDING SUCCESS

5.1 Introduction

This chapter explores the role of information content in risk disclosures for crowdfunding campaigns and its impact on funding success. The chapter starts with a review of the literature and presents the rationale for exploring the content of risk disclosure. The chapter then proceeds with the first phase of identifying the risk information categories in the disclosure. It then describes the methodology involved before presenting the results from the analysis. The next section continues to the second phase of this study. It begins with a discussion of relevant theory linked to the risk information categories. A description of the methodology used to measure and test the relationship between the variables is presented in the next section. The results are then discussed in the next section. Lastly, the chapter provides conclusions on the second phase of Study 2.

5.2 Literature Review and Rationale for Exploring the Content of Risk Disclosures

Communicating risk in a crowdfunding campaign might be as important as corporate risk disclosures in practice. If the goal of such practice is similar, which is to manage public expectation about a company's strategy, its financial position and business processes (Power 2007), then entrepreneurs disclosing risk information would allow backers to perform sufficient risk assessments before making their investment decisions. For example, the related literature on risk disclosures among publicly listed companies showed that an increase of risk disclosures (quality and quantity) would reduce their cost

of capital (Elzahar & Hussainey 2012; Iatridis 2008, 2011), which is the demand of the rate of return from investors toward the companies. The results indicate that risk disclosure would influence investors' expectations of investment return. Related studies also reveal that risk disclosure also increases transparency, reduces information asymmetries and increases investors' confidence (Abraham & Cox 2007; Linsley & Shrives 2006). Furthermore, Miihkinen (2013) found that investors required more quality risk disclosures from small and high tech companies. The results imply that potential investors value the risk disclosures made by companies, especially from the risky ones, which enable them to perform a careful risk assessment and make informed investment decisions, which could generate positive outcomes for the companies.

On the other hand, in a highly regulated markets (e.g., stock market), several studies have documented that disclosing risk factors through textual risk disclosures increased the investors' risk perceptions (Campbell et al. 2014; Kravet & Muslu 2013; Uddin & Hassan 2011) which could negatively affect the company's stock performance (Li 2016). Therefore, there is a trade-off in disclosing risk information, too much disclosure might be appropriate, but it might also lead to a negative reaction. Due to this trade-off, companies might be reluctant to discuss more risk information. In order to adhere to this issue, many regulatory bodies have introduced standards to ensure the disclosure quality. However, in the perspective of entrepreneurial finance, the inexistence of such standards has made most of the communications and investment transactions to be based on trust and accountability (Moritz, Block & Lutz 2015).

In the context of crowdfunding, entrepreneurs communicating risk information might be perceived by backers as trustworthy (Allison, McKenny & Short 2014). However, backers face problems in distinguishing between reliable and unreliable entrepreneurs. According to the costly signalling theory, the reliability of communication is positively correlated with

the investment in the signal or advertisement. By building on this notion, experienced entrepreneurs (who have already equipped themselves with required experience and information which is costly to inexperienced entrepreneurs) are more able to realistically view their projects or ventures based on their knowledge of possible risks and challenges. Disclosing risk may signal to the backers or backers the expertise and credibility of the entrepreneur or entrepreneurial team. Therefore, from the costly signalling perspective and in the context of crowdfunding, entrepreneurs who have experience in running a project, and who have already invested their money, time, energy and effort in the project, are more likely to disclose more information in risk disclosures. If the risk disclosure (signal) is of high quality and more reliable and comes from credible and experienced entrepreneurs, the likelihood of campaign success would be higher than lower quality projects.

PHASE 1 – IDENTIFICATION OF RISK INFORMATION CATEGORIES OF RISK DISCLOSURE

5.3 Methodology

This section presents the research methodology used specifically for Phase 1 of Study 2. The aim of this Phase 1 is to identify the risk information categories communicated by the entrepreneurs in the disclosure. The first subsection starts by presenting the population of Kickstarter projects and the process of sample selection. The second subsection discusses how the risk information categories are explored in the textual data. The third subsection presents the results of Phase 1.

5.3.1 Population and Selection of Sample

5.3.1.1 Kickstarter's Projects Population

The data utilised in the present study consists of crowdfunding projects extracted from the Kickstarter platform. There are three reasons for using Kickstarter data to conduct this exploratory study. First, Kickstarter is recognised as one of the most prominent reward-based crowdfunding platforms. It has helped entrepreneurs to raise more than USD $3.4 billion worldwide since its inception in April 2009. Second, Kickstarter data is publicly available and it is the only reward-based platform that requires entrepreneurs to disclose risk information to date. Third, Kickstarter data has been used by scholars in crowdfunding research (e.g., Chan & Parhankangas 2017; Colombo, Franzoni & Rossi-Lamastra 2015; Kuppuswamy & Bayus 2017; Mollick 2014; Parhankangas & Renko 2017; Skirnevskiy, Bendig & Brettel 2017). This enables useful comparisons to be made across findings and offers insight for a deeper understanding of crowdfunding.

This study utilised the population of Kickstarter projects as of 25th October 2016. As of this date, Kickstarter had posted 323,141 projects on the platform and had successfully secured more than USD $2 billion from over 11 million individuals (see

Table 5.3-1 and Table 5.3-2). The four most funded categories of projects on Kickstarter were from games, design, technology, and film & video projects with the total amount of solicited funds at USD $551.39 million, USD $531.12 million, USD $521.49 million, and USD $353.45 million, respectively. The number of current live projects for all categories was 4,655 projects whereby the games, design, technology, film & video, publishing, and music were the most popular categories of projects. The average success rate for all categories of projects was 35.77% with dance, theatre, comics, and music categories with the highest recorded success rates of 62.64%, 60.33%, 51.7%, and 49.93%, respectively. The Project category that had the lowest success rate was technology with only 19.96% of projects in the category with successfully secured funding on Kickstarter.

Table 5.3-1 Summary of Kickstarter's Projects and Dollars as of October 2016

Category	Launched Projects	Total Dollars	Successful Dollars	Unsuccessful Dollars	Live Dollars	Live Projects	Success Rate
All	**323,141**	**$2.68 B**	**$2.33 B**	**$310 M**	**$41 M**	**4,655**	**35.77%**
Film & Video	58,540	$353.45 M	$295.93 M	$55.47 M	$2.05 M	535	37.13%
Music	48,634	$181.83 M	$165.42 M	$15.44 M	$965.08 K	433	49.93%
Publishing	34,116	$104.52 M	$89.21 M	$14.19 M	$1.12 M	482	29.81%
Games	27,487	$551.39 M	$493.69 M	$50.41 M	$7.29 M	625	33.70%
Technology	25,576	$521.49 M	$441.00 M	$68.26 M	$12.23 M	561	19.62%
Art	23,860	$72.58 M	$63.31 M	$8.77 M	$502.50 K	256	40.53%
Design	23,286	$531.12 M	$467.51 M	$51.84 M	$11.78 M	572	33.59%
Food	20,991	$104.16 M	$86.67 M	$16.78 M	$713.41 K	258	25.01%
Fashion	18,023	$100.93 M	$86.35 M	$12.57 M	$2.01 M	345	23.63%
Theater	9,941	$39.78 M	$35.31 M	$4.25 M	$222.56 K	66	60.33%
Photography	9,627	$30.51 M	$26.30 M	$3.89 M	$320.84 K	94	30.10%
Comics	8,605	$57.66 M	$52.54 M	$4.08 M	$1.05 M	183	51.70%
Crafts	7,039	$11.04 M	$8.99 M	$1.81 M	$238.81 K	151	23.71%
Journalism	4,057	$10.40 M	$8.75 M	$1.59 M	$61,410	62	21.63%
Dance	3,359	$11.47 M	$10.66 M	$767.38 K	$46,580	32	62.64%

(Source: www.kickstarter.com/help/stats)

Table 5.3-2 shows the number of successful projects from the highest to the lowest, with the music category being at the top of the list (24,065), followed by film and video (21,537), publishing (10,026), art (9,567), and games (9,052), while the least were from dance (2,084), crafts (1,633), and journalism (864). The total number of successfully funded projects as at 25th October 2016 was 113,911 across all 15 categories. The data also shows that most of the successfully funded projects had raised less than USD $10,000 (about 78,992 projects) and the majority of the figures came from music (2,362 + 17,316 = 19,678), film and video (2,413 + 12,284 = 14,697), art (2,100 + 6,049 = 8,149), publishing (1,492 + 6,318 = 7,810), theatre (833 + 4,355 = 5,188), and games (693 + 3,561 = 4,254)

categories. However, some projects had also successfully raised more than USD $100,000. Kickstarter points out that there are a growing number of projects that have successfully raised more than six figures. Based on the table, the number of projects that successfully ended their campaigns within the range of more than USD $100,000 and less than USD $25 million (Pebble Technology is the highest funded project to date which has raised USD $20,338,986) were 3,452 projects. Most of the projects that have successfully raised more than USD $100,000 were from the technology (933 + 66 = 999), design (797 + 40 = 837), games (730 + 70 = 800), and film and video (321 + 6 = 327) category.

Table 5.3-2 Summary of Kickstarter's Successfully Funded Projects as of October 2016

Category	Successfully Funded Projects	Less than $1,000 Raised	$1,000 to $9,999 Raised	$10,000 to $19,999 Raised	$20,000 to $99,999 Raised	$100 K to $999,999 Raised	$1 M Raised
All	**113,911**	**13,684**	**65,308**	**16,246**	**15,221**	**3,255**	**197**
Music	24,065	2,362	17,316	3,086	1,240	59	2
Film & Video	21,537	2,413	12,284	3,405	3,108	321	6
Publishing	10,026	1,492	6,318	1,295	858	63	0
Art	9,567	2,100	6,049	871	504	40	3
Games	9,052	693	3,561	1,672	2,326	730	70
Design	7,629	492	2,605	1,360	2,335	797	40
Theater	5,958	833	4,355	489	264	17	0
Food	5,186	568	2,166	1,228	1,161	57	6
Technology	4,909	313	1,388	677	1,532	933	66
Comics	4,354	543	2,705	561	473	71	1
Fashion	4,178	438	1,939	774	883	141	3
Photography	2,869	537	1,636	406	276	14	0
Dance	2,084	195	1,645	184	59	1	0
Crafts	1,633	550	862	131	85	5	0
Journalism	864	155	479	107	117	6	0

(Source: www.kickstarter.com/help/stats)

5.3.1.2 Sampling Procedures, Data Collection and Preparation

A sample is a smaller collection of elements or units used to represent the population (Saunders, Lewis & Thornhill 2016; Sekaran 2003). The sample is selected using a sampling technique identified by a researcher that best ensures the validity of the data and acts as a true representation of the population. According to Saunders, Lewis and Thornhill (2016), sampling techniques can be divided into two types, namely, probability, or representative sampling, and non-probability sampling. In probability sampling, each unit is known and has an equal chance or probability of being selected from the target population. Saunders, Lewis and Thornhill (2016) pointed out that probability sampling techniques are often used in survey and experiment research. For non-probability sampling, the chance of each unit being selected from the population is not known with the majority of the techniques involving subjective judgment. There are four non-probability sampling techniques; namely, quota, purposive, volunteer and haphazard. A brief overview of each non-probability sampling technique, according to Saunders, Lewis and Thornhill (2016) is as follows:

Quota sampling – Is a type of stratified sample where the selection process of cases by researchers within the strata is conducted in a non-random way. Often used for structured interviews and based on the premise that the sample selected will represent the target population. Quota sampling involves only minimal cost and can be set up very quickly due to non-requirement of the sampling frame.

Purposive sampling – Researchers need to use judgement to select cases that are perceived to have the best property in answering the research questions and addressing research objectives. There are six types of purposive sampling; namely, extreme case (for unusual or special research focus), heterogeneous (for investigating or revealing key concepts or themes), homogeneous (for in-depth focus of research), critical case (for

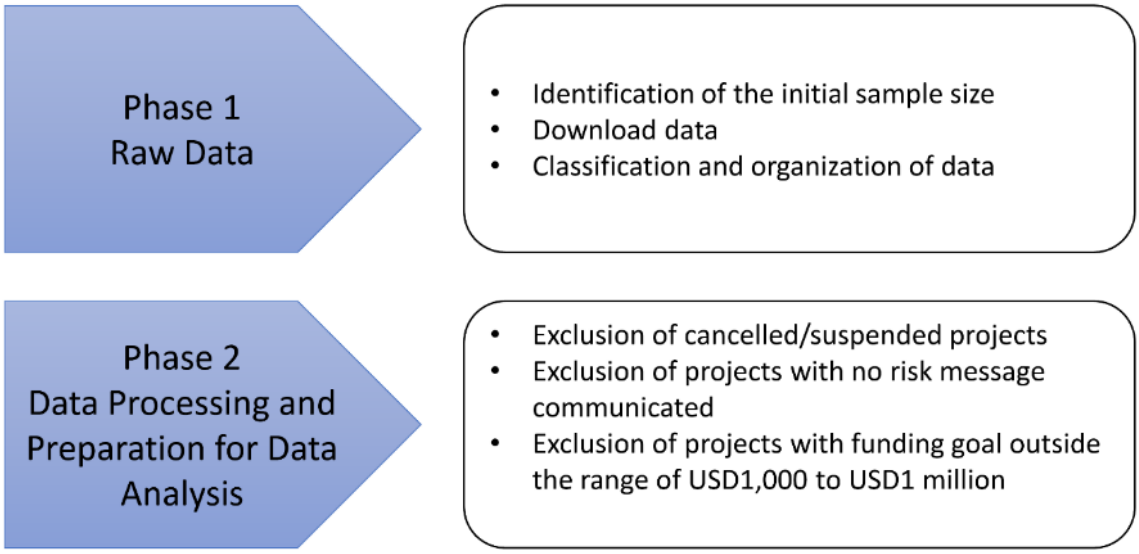
research that focus on important cases), typical case (for research that focus on giving illustrative findings), and theoretical (focus on informing emerging theory).

Volunteer sampling – There are two types of volunteer sampling; namely, snowball and self-selection sampling. Snowball sampling is where participants volunteered to be part of the research. Researchers need to contact one or two cases from the population and then ask for their help to identify further cases. The new cases will identify further new cases and the process will go on until the sample is adequate for analysis and is manageable. For self-selection sampling, the researchers will publicly advertise their need for cases and start collecting data from those who are interested or who responded to take part in the research.

Haphazard sampling – The most popular form of haphazard sampling is convenience sampling. The selection of cases in convenience sampling is made without any obvious principles of organisation in relation to the research question. It is widely used as it provides researchers with the ease of obtaining cases. However, it is subject to bias and external influences that make the findings less credible.

This study utilises the purposive sampling technique, particularly the heterogeneous sampling as the selection of crowdfunding projects is subject to compliance with a few predetermined selection criteria. In order to prepare the required sample that meets the criteria, the sample selection process is carried out in two phases as depicted in Figure 5.3-1.

Figure 5.3-1 Sample Selection and Data Processing Procedures



In order to select a sample that represents the total population for this study, a few sampling procedures were employed. The first phase deals with the extraction of raw data directly from the Kickstarter platform. In order to perform the extraction, the study first begins with the identification of a list of *uniform resource locators* (URLs) or the web addresses for all projects, which can be referred to as the sampling frame for this study. The sampling frame containing the list of URLs for the crowdfunding campaigns is crucial in the web data extraction process to avoid any error related to the data access process. Basically, there were two alternatives available for the researcher to obtain the required data. The first alternative was by extracting the URLs directly from the primary source of data, which is the Kickstarter platform itself. This alternative could have been more appropriate as it would lead to data reliability due to the extraction made from the direct source. However, Kickstarter restricts the total number of projects a user can view on its platform (i.e., only 2,000 projects for each search filter, mostly from recent projects), thus limits the number of URLs needed for the sampling frame. However, it should be noted that although Kickstarter limits the viewing of projects, users can still access all the projects' campaign pages if they have the URLs.

Another alternative is using a third party service that can provide the required information. One of such providers is Web Robots (https://webrobots.io), a start-up company founded in October 2013. The company provides the service by running a periodical web data extraction from the Kickstarter platform and all of the data is free to download from its website. The data contains useful information such as projects' web address, location, category, funding goal, the amount raised, and funding outcomes, which are encoded in JavaScript Object Notation (JSON) format. The current study could have simply used a dataset from this provider, however, the reliability issue may have been pivotal and questioned since the source of data would have been from a third party. Importantly, the risk information for each project, which is the focus of this study, was unavailable in the dataset. Therefore, to adhere to the reliability and missing information issue, the study acquired only particular information, which was the projects' URLs from the third party's dataset. In order to collect the URL of each project, the JSON files provided by Web Robots were decoded by writing a source code developed in PHP: Hypertext Pre-processor (PHP) programming language. The decoding process successfully returned a total of 280,166 projects' URLs from the dataset and was included in the sampling frame for this study. This sampling frame consists of projects that were posted on Kickstarter from April 2009 to September 2016.

Once the list of projects' web addresses were collected, the study started the next procedure, which was obtaining additional required information. The information needed for this study includes the project's name, number of funders, amount raised, funding goal, funding period in days, project's launch and end date, availability of video pitches, linked social media account, number of backed projects by the project creator, number of projects created by the project creator, and risk disclosure information. The list of the URLs was then loaded into a web extraction program called Octoparse and the extraction of other information directly from the Kickstarter platform commenced. Web data extraction,

particularly its application on a Social Web level, allowed this study to gather a large amount of information, disseminated by Web 2.0, and offered vast opportunities for research on human behaviour on a very large scale (Ferrara et al. 2014). The sample identification up to the download or extraction process took about three months to complete. To cope with the heavy load of multitasking activities (i.e., to speed up the data extraction process, information from 20 projects were downloaded concurrently in each session) and the constant use of the computer (i.e., five days nonstop), a more powerful computer was purchased and utilised. After the dataset had been successfully extracted, all of the information extracted was tabulated and saved into two separate files (in Microsoft Office Excel format – .xls file type) categorised as successful and failed projects.

The second phase involves the process of screening the raw data and preparation for data analysis. First, projects that were suspended by Kickstarter, or cancelled by the entrepreneurs, were dropped from the sample. Kickstarter, through its integrity team, has the right to suspend any project that violates Kickstarter's rules. The integrity team will act based on reports received from the Kickstarter community (the platform's registered users) or through their review of projects that have been flagged by the platform's algorithm scanner. Once the team identifies a project that has violated one or more of Kickstarter's rules, the project is suspended. The funding process for that project is stopped and all the accumulated money is returned to the backers. Additionally, Kickstarter also gives entrepreneurs the option of whether to continue or cancel their crowdfunding campaign during the funding period (i.e., this usually happens in the early days of the campaign period). From the initial sample of 280,166, a total of 25,889 projects from the failed category were either suspended or cancelled by Kickstarter or the entrepreneurs, hence, this reduced the sample to 254,277 projects (see Table 5.3-3).

Table 5.3-3 Summary of Sampling Procedures and the Net Sample Size

Data Processing Level	No. of Projects	Sample Size
Raw data (gross sample)		280,166
Successful projects	106,842	
Failed projects	173324	
Less: Cancelled/Suspended projects	25,889	
Total projects to be classified (successful and failed projects)		254,277
Less: Projects without risk information 1. Projects before Oct 2012[2] 2. Projects after Oct 2012[3]	 64,603 196	
Total projects with risk information		189,478
Less: Projects not in the range of funding goal between USD1000 – USD1 million	25,933	
Net Sample		**163,545**

Thirdly, the study further screened and removed projects that had disclosed little or no information about risk. Because this study focuses on crowdfunding campaigns that disclose information about potential risks and challenges, only projects that contained such information were selected. By using this screening criterion, it was expected that projects listed before September 2012 would be removed from the sample. It should be noted that Kickstarter started to impose the disclosure requirement on 21st September 2012; therefore, projects that were launched before that date were excluded. Additionally, the study also observed that a few entrepreneurs had explicitly stated in the disclosure section that their project involved no or little risk. Therefore, projects that had only one or a few words to describe risk (e.g., "none" and "without risks"), as well as those that contained only symbols (e.g., full stop ".", exclamation mark "!", question mark "?", dash

[2] Kickstarter had introduced the new policy that requires entrepreneurs or project creators to communicate risk information concerning their projects in a specific section called "Risks and Challenges" on 21st September 2012.

[3] Although all of projects were required to discuss possible risks and challenges in the section, some projects only input a symbol(s) such as full stop, exclamation mark, question mark or hyphen so were excluded. Some projects also only put a letter or a numeral in the section, and therefore, were excluded from the sample.

"–", and hyphen "-"), were excluded as they contain ambiguity and little or no information on risk (Krippendorff 2004). Fourthly, in order to increase the reliability of the research findings, the study eliminated outlier projects similar to the procedure employed by Mollick (2014) and Skirnevskiy, Bendig and Brettel (2017). According to Mollick (2014), this procedure helps to remove non-serious entrepreneurs who are generally the creators of low-quality projects. In this procedure, the researcher removed projects that had a funding goal of less than $1,000 and above $1 million, thus reducing the sample to 163,545 projects (consists of 62,952 successful projects and 100,593 failed projects).

From the 163,545 projects, the study identified the most successful and the failed group based on the projects' funding performance (i.e., funding amount received divided by funding goal of each project) for each project category. Funding performance has been used to measure crowdfunding success in recent research (e.g., Kim, Buffart & Croidieu 2016; Zheng et al. 2014; Zheng et al. 2016) and can represent how successful the entrepreneurs are in convincing potential investors to invest in their project (Kim, Buffart & Croidieu 2016). In order to reduce bias in the analysis, an equal sample size from both groups was selected (successful and failed), by stipulating an equal number of projects from each category (i.e., 1000). However, three project categories did not pass this criterion. Thus all the available projects within the categories were selected. The final sample available for analysis was 28,312, which is 14,156 projects for each group. It should be noted here that the primary objective of the sampling process is to generate a sample that consisted of two contrasting groups, which would enable the study to identify the key differentials between the groups in their risk disclosure strategy. Furthermore, by utilising this procedure, this study can further examine the varying effects of the different strategies.

5.3.2 Data Analysis

5.3.2.1 Co-word Analysis and KH Coder

This study uses co-word analysis to explore the main content of risk disclosures communicated by the most successful and the failed group of crowdfunding projects posted on the Kickstarter platform. The purpose of this analysis was to answer the Research Question 3 (RQ3) of this study. RQ3 is: What are the main risk information categories in the disclosures which are communicated by the most successful and the failed group of crowdfunding projects on the Kickstarter platform? As Krippendorff (2004) pointed out, “written text is not just a collection of words; rather, it is sequenced discourse, a network of narratives that can be read variously.” For example, if the network shows the co-occurrence of three words (co-word) “hard”, “manage” and “people” in the textual data, it can be assumed that the theme of human resource management or team risk is present in the data.

For this study, the co-word networks were produced by using the *KH coder* program. The program helps to visualise the structure of the textual data into a network of connected words. The lines that connect each word can be referred to as “edges” that represent the strength of their relationship by the thickness of the line. The relationship strengths for each word are computed using the cosine similarity index. Cosine similarity index is based on set-theoretic measures and can be defined as direct similarity measures that find the cosine of the angle between two words (Van Eck & Waltman 2009). This study calculates cosine coefficient similar to the work of Salton and McGill (1983) and Leydesdorff (2008), and as discussed, by its promising usage in accounting and finance research by Loughran and McDonald (2016), as the formula:

$$\text{cosine similarity } (d_1, d_2) = \frac{\sum_i x_i y_i}{\sqrt{\sum_i x_i^2 \ \sum_i y_i^2}}.$$

Cosine coefficient can range between -1 and 1, however, for textual data, the range is between 0 and 1 because the word counts are always non-negative. A value of 0 implies that the two words do not co-occur in the two documents (the angle between the two words is 90 degrees) and a value between 0 and 1 implies that there is a degree of similarity between the words. The advantage of cosine similarity is that it normalises the measurement, so therefore, it is useful to make the measurement proportional to document length which is relevant to risk disclosures in crowdfunding. Entrepreneurs are fully responsible for how much information they include in the disclosures, hence, the text data or the document of risk disclosure in crowdfunding is varied in length. However, researchers are only able to discuss the relationship between words since it is difficult to interpret the results due to a lack of scale (Loughran & McDonald 2016).

Before the co-word network for both groups (most successful and most failed projects) were produced, this study took into consideration words that tended to be largely or commonly used in text data; such as the word “a”, “the”, “as” and “to”. These words are known as “stop words” and were eliminated in the analysis, together with proper nouns. Elimination of the stop words is a standard procedure when dealing with textual analysis or text mining (Henry & Leone 2014; Jegadeesh & Di Wu 2013; Van Den Besselaar & Heimeriks 2006). The list of stop words can be referred to in Appendix 1.

5.4 Results

This section presents the results obtained in the first phase of Study 2. The section starts with a descriptive analysis of the selected sample from both groups. Then, the results from the co-word network analysis are reported. The analysis of co-word networks is presented in two subsections. In the first section, the analysis of co-words for both groups is aimed at finding what or which terms were mostly used by each group. For the second section, the analysis of the contents of the risk disclosure based on co-word networks (i.e., co-occurrence between words, their relationship and clusters) from the 15 categories of the projects are explored.

5.4.1 Descriptive Statistics of the Textual Data

Table 5.4-1 presents the selected summary statistics for the frequency of terms or words (TF) and frequency of documents (DF) that occurred for the most successful and failed group of crowdfunding projects (for the full statistics of TF and DF, please see Appendix 2). Term frequency or simply TF measures the frequency that each term occurred in the text data while the document frequency or DF measures the number of cases or documents (i.e., risk disclosure statements) that contained each term. The number of sentences and paragraphs which emerged from the most successful group (MS) were 102,895 sentences and 42,276 paragraphs, while the most failed group (MF) were 73,604 sentences and 33,343 paragraphs. From all the cases, there were 44,769 terms for MS group, and 41,444 terms for the MF group available and targeted for analysis. These terms are the total number of a variety of terms used by entrepreneurs after excluding the stop words. On the one hand, the results showed an average of about 22 terms (actual mean of TF = 22.10) which occurred in the MS group and about 17 terms (actual mean of TF = 16.69) which occurred in the MF group. On the other hand, the average number of DF for the MS and MF groups were about 17 (Mean of DF for MS = 16.97) and 13 (Mean of DF

for MF= 13.10) cases, respectively. These results suggest that the MS group had discussed risk information in more detail than the MF group as evidenced by the higher number of sentences, paragraphs and words. The MS group also had a higher average number of terms used as well as an average number of cases that contained each term.

For the MS group, a total number of 24,079 terms occurred once (TF = 1), which indicates 24,079 unique terms had occurred in all of the cases (i.e., 14,156 projects). The number of terms that occurred two, three, four and five times was reduced to 6,293, 2,935, 1,715, and 1,171 terms, respectively. The number of terms which occurred were substantially reduced to 9 (TF = 100), 5 (TF = 200), 2 (TF = 300), and 1 (TF = 1,011) as the TF value increased. The highest TF value recorded for the MS group was 83,750. This value indicates that there is one specific term that was highly used by entrepreneurs in the MS group. The high usage of this specific term also suggests that the term is commonly used by entrepreneurs when disclosing risk information for the MS group. The study searched the term from the frequency list output generated by the KH Coder program. It was found that the specific term that had occurred 83,750 times in the MS group was “we”, which implies most of the projects in the MS group were launched by a group of individuals or a team. With regard to DF values, there were 26,611 terms which had occurred in at least one or a single case (DF = 1). Additionally, the highest number of cases that contained one term is 10,509 (DF = 10,509) for the MS group which indicates that a specific term had been used by 10,509 crowdfunding projects in their risk disclosure statements. Also, based on the results output, this term was found to be “we”, which indicates that most of the projects or about 76% of the total projects (i.e., 10,509 out of 14,156 projects) were launched by a group of individuals or entrepreneurial teams.

Table 5.4-1 Summary Statistics for Frequency of Terms (TF) and Frequency of Cases (DF) for the Most Successful and Failed Group of Crowdfunding Projects

Most successful projects (MS)						**Most failed projects (MS)**					
Cases / documents (risk disclosure statements) = 14156 Sentences = 102895 Paragraphs = 42276 Total type of terms (n) = 44769						Cases / documents (risk disclosure statements) = 14156 Sentences = 73604 Paragraphs = 33,343 Total type of terms (n) = 41444					
Mean of TF = 22.10			Mean of DF = 16.97			Mean of TF = 16.69			Mean of DF = 13.10		
TF	**Number of Terms**	**Cumulative Number of Terms**	**DF**	**Number of Terms**	**Cumulative Number of Terms**	**TF**	**Number of Terms**	**Cumulative Number of Terms**	**DF**	**Number of Terms**	**Cumulative Number of Terms**
1	24079	24079	1	26611	26611	1	23201	23201	1	25149	25149
2	6293	30372	2	5405	32016	2	5561	28762	2	4867	30016
3	2935	33307	3	2478	34494	3	2536	31298	3	2248	32264
4	1715	35022	4	1445	35939	4	1512	32810	4	1365	33629
5	1171	36193	5	1020	36959	5	1070	33880	5	955	34584
10	343	38990	10	314	39413	10	317	36480	10	293	36887
20	109	40964	20	128	41274	20	112	38191	20	93	38453
30	70	41820	30	56	42042	30	54	38944	30	45	39142
40	39	42285	40	32	42468	40	40	39382	40	35	39564
50	27	42637	50	24	42774	50	32	39700	50	22	39844
100	9	43415	100	13	43523	100	8	40391	100	11	40501
200	5	43979	200	4	44054	200	4	40867	200	2	40950
300	2	44234	300	2	44300	301	5	41080	300	3	41136
500	2	44460	501	1	44496	501	1	41238	501	1	41270
1011	1	44623	1006	1	44648	1003	1	41357	1004	1	41381
83750	1	44769	10509	1	44769	34772	1	41444	6927	1	41444

Table 5.4-1 also shows the selected cumulative frequency of terms for both TF and DF values. These cumulative values are important in determining the appropriate number of terms that need to be included in the analysis. For example, if one decides only to analyse terms that occurred five times or less, then the total number of terms that are available for analysis is equal to 8,576 (44,769 minuses 36,193). By looking at the cumulative frequency of terms for TF, the total number of terms that were available for analysis if they occurred 10 times or less (TF =< 10), 50 times or less (TF =< 50), 100 times or less (TF =< 100), 300 times or less (TF =< 300), 500 times or less (TF =< 500), and 1,011 times or less (TF =<1,011) were equal to 5,779, 2,132, 1,354, 535, 309 and 146 terms, respectively. In addition, by looking at the cumulative frequency of terms for DF, the number of terms available for analysis, if one decides to include only terms that occurred in at least 10 cases or less (DF =<10), 50 cases or less (DF =< 50), 100 cases or less (DF =< 100), 300 cases or less (DF =< 300), 501 cases or less (DF = < 501), and 1,006 cases or less (DF =< 1,006), were 5,356, 1,995, 1,246, 469, 273 and 121 terms, respectively.

For the MF group, a total number of terms that occurred once and were unique to the group is 23,201 (TF = 1). The number of terms further reduced to 5,561 (TF = 2), 2,536 (TF = 3), 1,512 (TF = 4), and 1,070 (TF = 5) as the TF value increases. The highest number of TF for the MF group was 34,772 occurrences for a term. This TF value was about 46% lower than the highest TF value (72,631) for the MS group. From the list of terms generated by the KH Coder program, the study observed that the most marked term used by the MF group was also the term “we” which had occurred for 34,772 times throughout all cases. Additionally, by referring to DF values, the highest number of terms that had occurred in a single case was 25,149. The DF values also showed that there is one term that has been largely used by 6,927 crowdfunding projects (DF = 6,927) when discussing risk information, in which the term was observed to be “we”. The results suggest that out of 14,156 failed crowdfunding projects, 6,927 projects (about 49%) were launched by

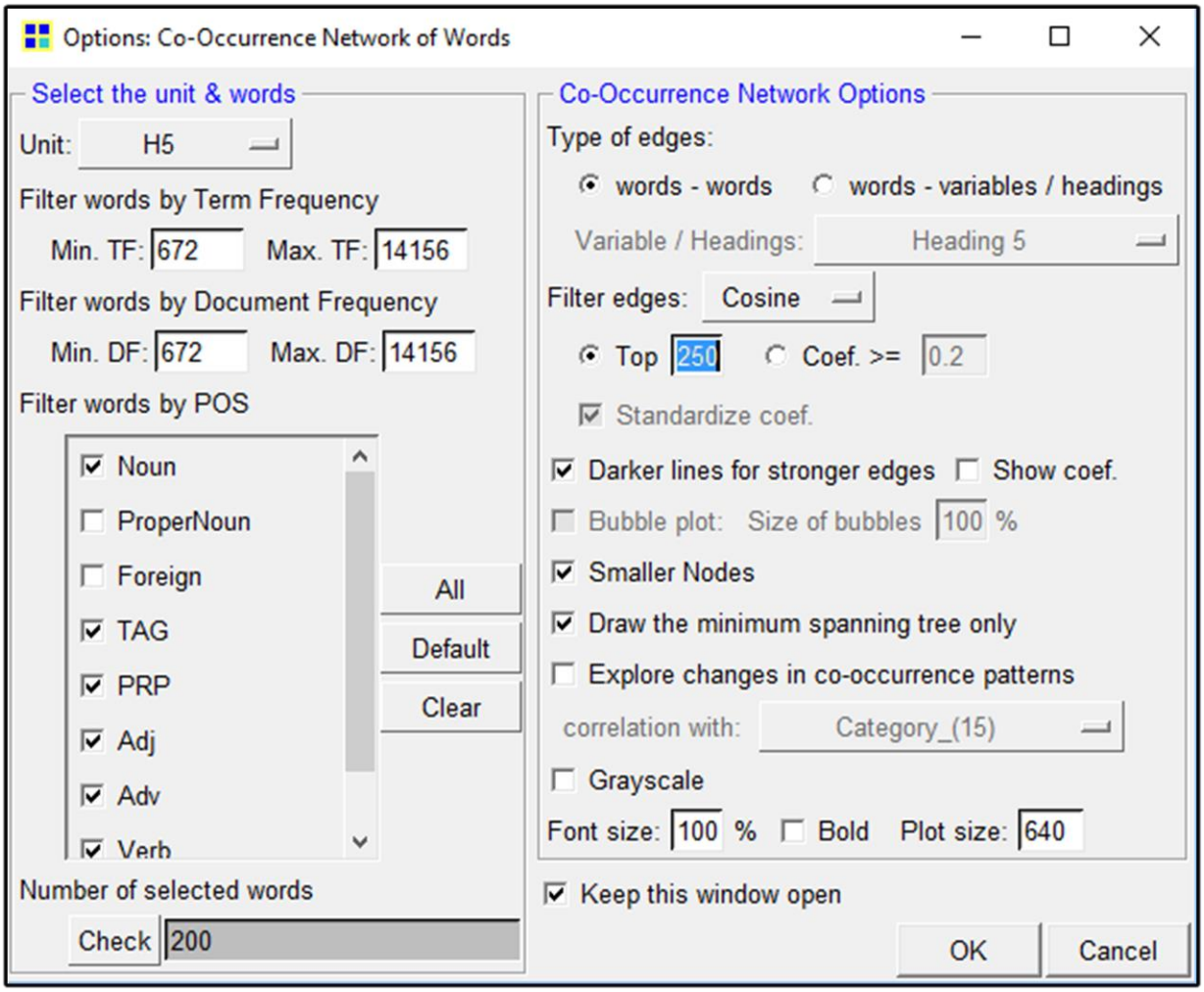
entrepreneurial teams. The results also intuitively indicate that more than half of the MF group was launched by a single individual or entrepreneur.

By referring to the cumulative frequency of terms for TF for the MF group, one may decide to focus only on terms that occurred 5 times or less (TF =< 5), 10 times or less (TF =<10), 20 times or less (TF =<20), 100 times or less (TF =< 100), 200 times or less (TF =< 200), 300 times or less (TF =< 300), and 1,003 times or less (TF =< 1,003), the number of terms subjected for analysis were 6,208 (39,151 minus 32,943), 4,791 (39,151 minus 34,360), 3,130 (39,151 minus 36,021), 1,043 (39,151 minus 38,108), 561 (39,151 minus 38,590), 364 (39,151 minus 38,787), and 91 (39,151 minus 39,060), respectively. Similarly, by looking at the cumulative frequency of terms for DF, if one decided to select terms that occurred 5 times or less (DF =< 5), 10 times or less (DF =< 10), 20 times or less (DF =< 20), 100 times or less (DF =< 100), 200 times or less (DF =< 200), 302 times or less (DF =<302), and 1,013 times or less (DF =< 1,013), then the number of terms subjected for analysis were 6,630 (39,151 minus 32,521), 4,425 (39,151 minus 34,726), 2,916 (39,151 minus 36,235), 925 (39,151 minus 38,226), 493 (39,151 minus 38,658), 313 (39,151 minus 38,838), and 64 (39,151 minus 39,087), respectively.

5.4.2 Results from the Co-word Network for the Most Successful Group

In order to produce the co-word network for the MS group, this study restricted the data to only the top 200 terms. To realise this aim, the study set the maximum and the minimum number of term occurrences. First, it was decided that the maximum number of times a word occurred, known as the term frequency (TF) and the document frequency (DF) should not be higher than the total number of cases, which is 14,156 projects. This approach is similar to the binary counting method used in another study, (Van Eck & Waltman 2014), in which the study restricted the occurrences attribute (i.e., the number of cases that a term or word occurs) and made the maximum equal to the total number of cases. This procedure also helps to reduce bias from the highly occurring words because the number of times that a term occurs in the risk disclosure of a crowdfunding project plays no role. Next, in order to populate the top 200 words, the study restricted the minimum number for both the TF and DF to 672. Additionally, the study also filtered the number of edges (i.e., lines that indicate the relationship between the terms) to be displayed in the network to only 250 edges. To produce a more intuitive and simple network, the study also used the option “draw the minimum spanning tree only”, in which the program will maintain or include only edges that formed the minimum set of edges that connected all the vertices (i.e., terms). This is important to avoid producing a cluttered co-word network (Higuchi 2016). For a review of all the settings and options used to generate the co-word network, see the following Figure 5.4-1.

Figure 5.4-1 A review of the settings and options for co-word network for the MS group



After the co-word network had been produced, the study adopted the *betweenness centrality* measure developed by Freeman (1977) for the colour option when viewing the co-word network. The main idea of betweenness centrality is that an actor (a term) is the key player (key term) if it is located in between many other pairs of actors (terms) (Tayebi & Glässer 2016). It describes how meaningful a term is (i.e., its influence) as a link between the different networks of other terms (Kaati 2018). This is aligned with the objective of the study, which is to explore the main content of risk disclosures.

Figure *5.4-2* shows the co-word network of risk disclosures for the most successful (MS) group posted on the Kickstarter platform after all the restrictions and options were performed and selected. This finalised co-word network for MS group consists of the top 110 terms that are highly co-occur together with the total number of edges (total strongest lines that connect each term) at 106 and the minimum value of cosine the coefficient of 0.17. The size of the bubbles represents the total number of term occurrences with larger bubbles indicating the higher occurrences of a term. Based on the network, it is observed that seven terms have more than 5000 occurrences;, namely, the terms “make”, “time”, “challenge”, “get”, “risk”, “production” and “work”. The colour of the bubbles indicates the centrality of a term, in which blue indicates bubbles with the highest value of betweenness centrality, while yellow bubbles indicate the lowest level of betweenness centrality. The highest centrality value is about 3000. Based on the centrality colour, there are about ten key terms (i.e., terms such as make, time, deliver, product, manufacturing, process, production, delay, challenge, and get – the terms were sorted in descending order) in the networks that have a betweenness centrality value of more than 1000.

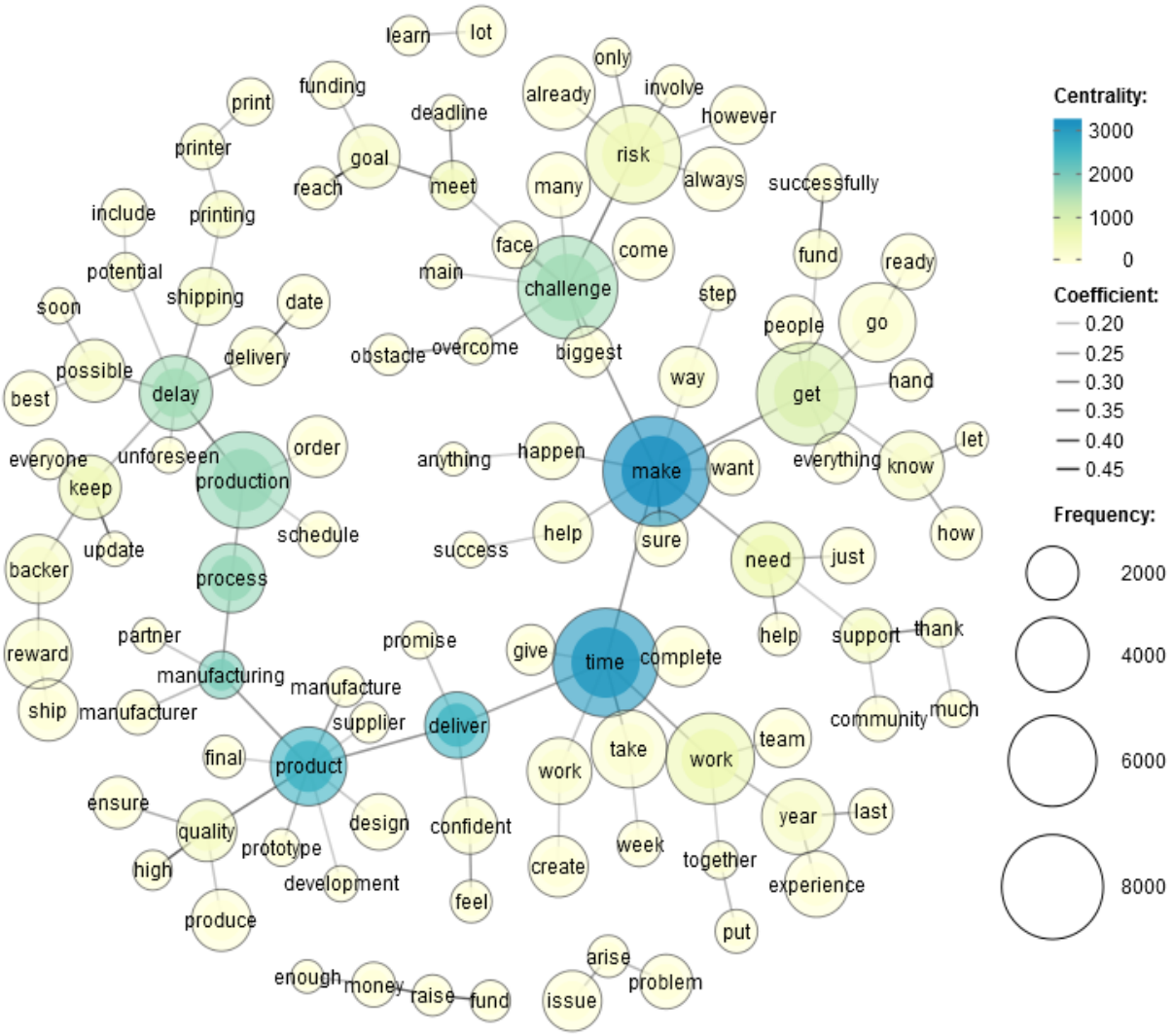


Figure 5.4-2 Co-word network for the most successful (MS) group visualized using the betweenness centrality measure (note: terms = 110; edges = 106; minimum cosine coefficient = 0.17; and maximum cosine coefficient = 0.46)

From the network, several patterns of term usage in risk disclosures were identified for the MS group which included the discussion of risk related to the key operational activities and processes of crowdfunding projects, team risk and risk related to the funding and business process. These types of risk, communicated by the entrepreneurs in their risk disclosures, are discussed in the following subsections:

5.4.2.1 Operational and Process Risk

Risk related to the key operations and processes

The first pattern observed, relates to risk factors communicated by the projects in the MS group which associated with the key operations or processes of the projects. The network shows how the key terms “product”, “manufacturing”, “process”, and “production” are connected to each other. Furthermore, the key term “product” is also connected to the term “development”, “manufacture”, “prototype”, and “design”. This further suggests that the MS group had discussed the main risks pertinent to the key processes involved in their project, such as, risk in product development, manufacturing, and the production process. The following projects highlight a few of these processes.

Example 1.

“I'd like to say now that we 've done this once, I have no concerns about doing it again - but that wouldn't be entirely accurate. ***Anytime you deal with a new product, you have associated product development risks****”.*

Example 2.

“This is a very low risk project. The funds will allow us to buy raw materials, but since ***we control 100 % of the manufacturing process and own our shop****, once the materials are sourced there is virtually no risk. We are confident we can meet our shipping deadlines, and we have measures in place so that we can do so even in the event of overwhelming demand or extenuating circumstances”.*

Example 3.

*“****We are pushing the manufacturing process to its limits*** *and there may be some components that need adjustment and certain quantities may need to be re-assessed if there are* ***problems at the manufacturing stage****”.*

Example 4.

“Our goal with Mistfall is to produce the game within 60 days from the campaign end, and to deliver before the end of September 2015. We already have a detailed production and shipping plan in place. Our main manufacturer is located in Poland, which ***allows us to supervise the production process personally on an almost daily basis in order to ensure that the game comes with the highest quality components, and that is manufactured in a timely manner****”.*

The key term “product” is also connected to the term “supplier” which suggests that identifying and coordinating the supplier to supply materials needed to produce the product is an important process in the MS group. Furthermore, the key term “manufacturing” is connected to “partner” and “manufacturer” which also suggests that projects in the MS group, particularly from the technology, design, and fashion category, were partnering with a manufacturer to manufacture their products. This also suggests that outsourcing activities are a common project operation discussed in risk disclosures for the MS group. For example, projects in the MS group wrote these statements in their risk disclosures:

Example 1.

*“**We have identified a strong manufacturing partner**. Assuming we are successful*

*we'll travel to meet with them and finalise the manufacturing schedule in the 3 weeks following the completion of the Kickstarter completion. We also have strong **relationships with other factories** if required”.*

Example 2.

*“We've spent the last 11 months **sourcing the highest quality materials and selecting the most experienced partners**. We have worked with many of the **best manufacturers in California** and met the owners as well as workers on the floor personally. We know first hand that they are committed to quality, reliability and on time production”.*

Example 3.

*"**We have secured our manufacturers, shippers and fulfillment centers**, all of whom are waiting for us to give them the green light! **All of our partners have over 5 decades of experience**. Our manufacturers are professional, precise and ethical".*

In a similar fashion, projects related to producing a book, such as those in comics and the publishing category also discussed operational processes related to each project category, such as, writing, printing, publishing, and the shipping process. This pattern can be observed through the connections between the term "book" with "write", "print", "printer", "finish", and "printing", while the term "printing" is also connected to "shipping". A few examples are as follows:

Example 1.

*"Our biggest risks and challenges when we started The Sunday Comics was **the potential for delays in printing and artist submissions**. We've luckily now avoided those risks by **staying a month ahead of schedule and printing** the `ZERO' Issue of The Sunday Comics and having the first years worth of `The Sunday Comics' lined up and ready for the printer".*

Example 2.

*"**In regards to printing** and fulfillment, we've got an editorial team made up of people with professional publishing experience in both design and production, and **who understand what it takes to make and ship a book**. All of our goals have been carefully coordinated **to match our printing and shipping fees**!"*

Example 3.

*"**A big challenge in this project is shipping**. In the case for all graphic novel projects, **there can be delays in both the printing and shipping processes**. But I've used Print Ninja before to print out Chapters 1 and 2 and the books look awesome!"*

Example 4.

*"**The greatest risks in any printing project are delays relating to printing** and distribution. All our art is finished, we have our printers lined up for books & amp; backer rewards, and all that's left to do is put the book together and go to print. If any delays do occur, we will make sure to notify backers as soon as we can".*

Risk related to product delivery

Another element related to key processes or operations of the MS projects is shown by the relationship of the key term “deliver” to the key term “product”, which implies the risk in the delivery process of the rewards (i.e., products) to backers which is a crucial element in project operations. Similarly, the network also shows that the connection between the term “ship”, “reward”, and “backer” is related to the delivery process. These suggest that entrepreneurs in the MS group are concerned about the risks involved in the logistics process, particularly in the delivery or shipping of products to backers. For example, some of them discussed the following:

Example 1.

“We have a strong plan for *manufacturing in Taiwan / outside of Hong Kong and* ***shipping to our backers around the world****. We 've studied the details of taking a product to market and have already solidified the partnerships required to do so, including factories in Asia, US fulfillment houses,* ***international shippers****, global insurance companies, and a crack team of experts to tackle specific challenges like raw material sourcing, engineering, and retail management”.*

Example 2.

*“****There is always a logistical risk involved when just trying to get everything organised and ready to ship to everyone****. We have done a lot of research in finding the best vendors for our rewards and plan to have everything shipped by the end of the months listed, if not before”.*

Example 3.

*"**Shipping in large quantities is, perhaps, the hardest aspect of completing a project. We have taken steps to expedite the shipping process**: Squishable will ship some product directly to backers. All other shipments will be shipped from our home, using the Endicia system. All shipments will include tracking at no additional cost".*

Delay risk

The main risk attributed to the key processes of projects by entrepreneurs was highlighted as the delay risk which was the most common risk in their projects. The word "delay", which is connected to "production", suggests that delay risk is mostly related to the production process. The delay risk is also related to shipping and delivery arrangements made by entrepreneurs as observed in the connection between the words "delay" and "shipping", and "delay" with "delivery". Furthermore, the combination of the word delay with "anticipate", "problem", "arise" and "issue" and where "delay" is also connected to "potential" and "include", reveal that delay is one of the common risks, problems or issues faced by projects in the MS group. Also, the word "anticipate" and "unforeseen", when related to "delay", suggest that unforeseen problems may cause delay risk which should be anticipated and expected by backers. Examples from the original risk disclosure messages are as follows:

Example 1.

*"**Like all product based Kickstarter campaigns, production delays are the biggest challenge**. We plan to spend more time on manufacturing, as we used the feedback from our last campaign to improve further on our product".*

Example 2.

"Shinedown Productions is a well-established company for manufacturing plushies. However, like any collaborative project, production delays with the factory or shipping delays may occur, especially for overseas manufacturing. If these should happen, I will notify all backers through updates here and by email".

Example 3.

*"With a production of this size, sometimes **customs clearance delays can be an issue as well**. We 're experienced in resolving these challenges and have done our best to plan ahead to keep us on the production/fulfilment schedule".*

Example 4.

*"We've already manufactured our first 100 prototype boxes of 1x1, and we are ready to enter full-scale manufacturing. We are confident that we can deliver 1x1 to our backers. **There is always the potential for unforeseen problems that could cause delays**. Whatever comes up, our experience and problem-solving skills will allow us to adapt and make 1x1 a reality".*

Risk related to time constraints

Another risk discussed by the entrepreneurs that can be observed from the network is risk related to the time constraints which can greatly affect project plans or the project's timeline. The connections between the word "time" and "take" or "week", "time" and "month", as well as "time" and "complete" suggest that some processes such as the production and manufacturing processes take time to complete. Crowdfunding campaigns on Kickstarter or any other platforms require entrepreneurs to provide the expected delivery date of a project's rewards which is basically their promised timeline to follow. If they cannot adhere to the timeline after their campaigns are successfully funded, it could impact the projects' or entrepreneurs' credibility. Therefore, highlighting the timeline's challenges and limitations which may affect the projects' fulfilment should be one of the risk disclosures in crowdfunding campaigns. Following are a few examples of the text data:

Example 1.

*"**Kickstarter Projects take a lot of time** and energy, and that will be cutting into my actual High Heavens production. To minimize risk here, I **am setting the timeline to only two weeks to try to reduce down-time** on the project and have enlisted some assistance".*

Example 2.

*"**Another variable is the time it takes the CDs to be manufactured after mastering**. We believe that a one month lead time from mastering allows us enough time to meet our May 2013 deadline".*

Example 3.

“While much has already been done to validate our assumptions wherever possible, there is always the possibility of something unexpected cropping up. ***Games take time to create and we don't always know which challenges are going to the most time consuming****. Our project managers have taken this into consideration, but there is always the risk it may not be enough”.*

Example 4.

“Although I believe the design work is very near complete, changes to the design might be desirable if the project backers suggest improvements. As I learned in my first project, ***design changes take time to get right. If any design changes are needed, it could potentially delay the start of manufacturing****. I have factored some extra time into the project for this possibility”.*

Given the crucial role of time constraints in the key operations and processes of crowdfunding projects, entrepreneurs tend to specifically highlight that they had developed a production schedule. This can be observed from the relationship between the key term “production” and the term “schedule”. This disclosure behaviour by the entrepreneurs might be to assure the backers that timely delivery of the product should be expected under normal circumstances which, in turn communicates that the delay risk is minimal. A few examples of the disclosure behaviour related to the production schedule are as follows:

Example 1.

“With this campaign, we really want to get others involved in the process and help make it even bigger than we could on our own. ***Naturally there might be some delays along the way. We 've made a production schedule and we'll do our best to stick to it****. If you'd like to get some of the first series of The Melty Misfits, either for your collection, or to see the quality of the finished product, you may order them at themeltymisfits.com.”*

Example 2.

“We have warehouses in the US and UK, a great book designer and premium printer and customer service teams waiting to get started. ***Most importantly, we've also started the production phases and have detailed schedules in place that will allow us to get your book to you on time****. We are serious when we say that YOU will love every single page of this book or YOU get your money back.!”*

Example 3.

“I am able to design, develop and manufacture my ideas because of the affordability of CAD, EDM and CNC machining cost and the technology China has to offer, especially the excellent service, trust and friendship. ***I have done my best to schedule production and delivery dates based on my experience with previous batches of Hooks I have made. As with anything in life, unexpected occurrences may delay production or delivery****. If that happens, I will update the project with a new schedule”.*

Example 4.

“Wrapping up a 6-month development process in which we scrutinized material for the perfect combination of durability and feel, as well as the long process of vetting manufacturers with the capability to produce our unique design. We've got a production schedule and are confident in our suppliers and vendors for delivering on time. We do not expect any technical risks, and our team has worked extremely hard to get all the pieces in order before launching this campaign”.

Example 5.

*“We encourage you to review our prior projects - you'll see we have an excellent track record of delivering high-quality tools per our schedule commitments****. I have done my best to schedule production and delivery dates based on estimates. Unexpected occurrences may delay production or delivery****. If that happens, I will update the project with a new schedule****”.*

Therefore, it can be seen that the main content of risk information communicated by the entrepreneurs, when discussing risk disclosures for the MS group, is about key operations and processes, which include the crucial roles of product delivery, delay risk and time constraints involved in their projects. Analyses suggests that this information is communicated to the potential backers to make them aware of the key operations and processes involved that might pose risks to the project’s fulfilment.

5.4.2.2 Team Risk

The discussion of risk disclosures in the MS group also encompassed a discussion of risk related to people behind the project. The connections between the key term “work” and the term “team” and “together”, suggest that entrepreneurs in the MS group were discussing risk related to their team, particularly on the ability of the team to complete the project. This is a common risk associated with an entrepreneurial team, in which the capacity of the team, to execute and manage their entrepreneurial ventures, is often a crucial factor in influencing the success of entrepreneurial projects or ventures. For example, a team or people involved (or to be involved) in a project that have had experience working together in previous entrepreneurial projects, would carry a lower team risk as their past experience together is perceived to give them a higher capacity to complete the project successfully again as compared to a team with no previous experience. The following examples showed how entrepreneurs highlighted the team risk involved in their projects:

Example 1.

*“For the Smart module, **our team has spent the last year working with our partners** on the interface technology. Now this technology is finally ready to begin beta testing and certification. While these stages are still ahead of us, we are confident that we can take YOUMO into production with a successful Kickstarter campaign”.*

Example 2.

With any innovative creative venture, there are inherent risks in doing something that hasn't been done before. ***Having mounted a successful workshop of the project last year and secured a remarkable team*** *to mount the new production, we are confident about its potential".*

Example 3.

"As the Barefoot shop occupies the former site of this boatbuilding school, we thought this was an appropriate time to launch. Six months is a short time to build a boat of this type, but ***the Barefoot/Roberts builder-designer team has years of experience working together****".*

Example 4.

"Although we have set the bar high to create an instant camera that is so advanced, ***we are an enthusiastic team with over 20 years of experience*** *in producing analogue cameras, including our own instant camera range. We are absolutely ready for this exciting challenge!"*

The network also showed the connections between the key term “year” with the terms “last” and “experience”, and between the key terms “work” and “year”, which indicate that the projects specifically illustrated their team’s successful experiences in previous crowdfunding projects. A few examples of how entrepreneurs wrote their risk disclosures with the aim of showing a lower level of team risk are as follows:

Example 1.

“We already have 2 successful Kickstarter campaigns under our belt, and will be ***using all the experience we gained from our previous kickstarters*** *to help with the Star Traveller project”.*

Example 2.

“Every campaign is bound to have its snags, delays, and learning curves. ***However, I feel so blessed that we have had previous successful campaigns prior to this, including the original AKO DICE****. We have learned a lot from deliver over 6,500 rewards to our backers and we are confident that we will finish the project this time too”.*

Example 3.

*“****We also have experience with Kickstarter, having run 5 successful campaigns*** *for Plague The Card Game, Zogar 's Gaze, Tasnia, Neptune, and Four Tribes. We feel that this experience gives us a good advantage if and when any issues arise. All of our* ***previous*** *projects have been shipped to backers with the exception of Four Tribes which is not due until September”.*

Example 4.

“Furthermore, in this Kickstarter we will be using a super-fast, tracked delivery service for International backers and recorded delivery for all UK backers, to ensure your rewards get to you quickly and efficiently. ***We are experienced in shipping worldwide and have successfully delivered 3000 Kickstarter rewards in our previous campaigns****”.*

These examples showed that entrepreneurs were using their previous experience to cause potential backers to see their capacity to complete their projects. Additionally, the connections between the key term “deliver” with the terms “promise” and “confident” showed that they were confident to deliver their products, as promised, to the backers.

Example 1.

“The lion 's share of material for the comic is already finished. ***Other than delays in our production schedule causing delays in printed comics I think we've fulfilled reward obligations pretty well for previous Kickstarts and this team has the experience to deliver the project as promised.*** *We've allowed ourselves a bit of a longer period of time for production to coincide with the start of the new school year in September and that will allow us more time to get the finished book ready”.*

Example 2.

“This is our third Kickstarter, and we 've successfully completed two projects prior to this one. ***We're very confident that we'll be able to meet the proposed goal and deliver the proposed awards****. We've got the shipping process down and are comfortable and confident working with large shipping orders”.*

Example 3.

“As some of you may already know this is not our first foray into crowdfunding and we learned a lot through that experience. In addition, based on the feedback and results of our first campaign we've been able to secure a lower minimum order quantity with our manufacturer, which has allowed us to decrease our funding goal. With all of those factors combined, ***we feel confident that we will be able to run a great campaign, complete this project and deliver your rewards to you****”.*

Example 4.

“We will keep everyone up to date and ***we are confident that we will be able to overcome potential problems****, deliver on everything that we have promised and keep everyone happy”.*

The previous examples also show the connections between the word “manufacturing” and “partner” which could also suggest the presence of team risk. It is apparent from the network that entrepreneurs had discussed their team capacity, or ability, to complete the proposed projects with the intention of showing that the team risk was low, and to convince backers to support their projects.

5.4.2.3 Funding Risk

Other content in risk disclosures discussed by the entrepreneurs was about funding risk, which is risk related to the funding process itself, and the outcome of the funding. This type of risk can be observed from the connections between the key term “challenge” and the term “face”, the term “face” and the term “meet”, the term “meet” and the key term “goal”, and the key term “goal” with both the terms “reach” and “funding”. Furthermore, the links between the key terms “challenge” and “risk”, and the key term “challenge” and the term “biggest” suggest that funding risk is one of the inherent challenges faced by all entrepreneurs when launching a crowdfunding campaign. Entrepreneurs accentuate the funding risk by highlighting the probability that the project will not reach its funding goal before the campaign ends and explain how it can affect their project (e.g., in the production process). Entrepreneurs in the MS group highlighted funding risk as the main risk they had to face in the following examples:

Example 1:

*"**The biggest risk to BLACK is not reaching its funding goal**. We've assembled a dedicated team of comics veterans who can deliver this project. We've also hired a fulfillment company to handle delivery of all rewards".*

Example 2.

*"**The main risk I foresee is not reaching the funding goal which will delay the publication**. I am producing all the work myself and squeezing this in around a day job, so please be patient. I will be doing my best to complete all the extra rewards at the higher funding tiers as quickly as possible, so will hopefully have everything ready before Christmas".*

Example 3.

"*The end goal is to publish a literary photo book. As with all creative and culturally sensitive/important projects this one is not without its risks. We are working hard, and drawing on our pooled experience, to mitigate against these risks such as locked-in printing quotes and a simple distribution plan. **Our biggest risk is that funding is not secured. We need to meet our funding target of $7,650 or we get nothing**. So please give what you can".*

Example 4.

*"**The biggest risk is not meeting the funding goal. Kickstarter is an all or nothing deal**. **If we don't raise as much as we set out to, then nobody gets anything** - I don't get my funding, and you don't get the goodies you were so looking forward to. Bummer, right? This is why it's just as important for you to tell your friends about the campaign as it is to make your pledge. The more people we can get to chip in just a little bit, the more fun there is for everyone!"*

Additionally, it was also observed that entrepreneurs highlighted funding risk by saying that reaching or meeting the projects' funding goals before the deadline or the end of the campaign period would be one of the main challenges in crowdfunding campaigns. Some entrepreneurs also highlighted that the projects would be executed only if the funding goal was reached to show that they had done the preparation and the only challenge left was getting funds. For example:

Example 1.

*"We have spent the past year advancing our working prototypes to production quality. Prior to our Kickstarter campaign, they have been rigorously tested and we're confident that we'll meet or beat our projected delivery dates. **Our manufacturers stand ready to activate production as soon as we meet our Kickstarter funding goal**".*

Example 2.

“For those of you new to Kickstarter or crowdfunding in general, you should know that ***if the project does not meet its funding goal by the appointed time****,* ***no funding will be provided at all. I have already made a significant investment in the project, so the risk here is mine”.***

Example 3.

*“****Once the funding goal is reached, the work of setting up files to print the cards will commence and we will send this out to print the minute we receive the funding payments****. This means the quicker the funding goal is reached, the quicker we can start getting to work on the layout of the files to be sent to the printer”.*

Example 4.

*“****When the funding goal has been reached and we can confirm the project will be funded, I will begin on the 91 Paintings****. The drawings and paintings that I have done in preparation for the 91 Days, including the pieces you see on the site here, and on my blog, mbwilson.wordpress.com, will be available as rewards, as will the pieces done for the project”.*

Example 5.

"We have our content, we have our price quotes, and we've done our homework on the kinds of pitfalls Kickstarter campaigns can experience. Heck, we even have a lot of our reward items already present and accounted for. ***As long as we reach our minimal funding goal, this project is happening!****"*

Therefore, it is clearly observed that funding risk is one of the main risks disclosed and discussed by entrepreneurs in the MS group. Entrepreneurs highlighted this type of risk as the main and only obstacle left before they could start the next process in their projects' timeline.

5.4.3 Results from the Co-word Network for the Most Failed Group

In order to produce the co-word network for the most failed (MF) group, this study employed similar procedures as in the production of the co-word network for the most successful (MS) group. The aim was to restrict the data so only the top 200 terms would be included in the analysis. This was achieved by setting the minimum and the maximum number of times a word occurred, or the term frequency (TF); and a document occurred which was the document frequency (DF). The maximum number of TF and DF were restricted to 14,156 to reflect the total sample size for the MF group. As for the minimum TF and DF, this study assigned a value of 471 and 435, respectively. The reasons why these values are different from the MS group are: firstly, the number of term occurrences

for the MF group was lower than the MS group; and secondly, there were differences in the cumulative number of terms between the MF and MS group (see Table 5.4-1 for the comparison between the MS and MF group). The cumulative number of terms is crucial when deciding the number of terms to be included in the analysis (see Section 5.4.1 for the examples of how the targeted number of terms were to be analysed). The rest of the settings and options were similar as in the production of the co-word network of the MS group. Figure 5.4-3 summarises all of the adopted settings and options.

Figure 5.4-3 A review of the settings and options for the co-word network for the MF group

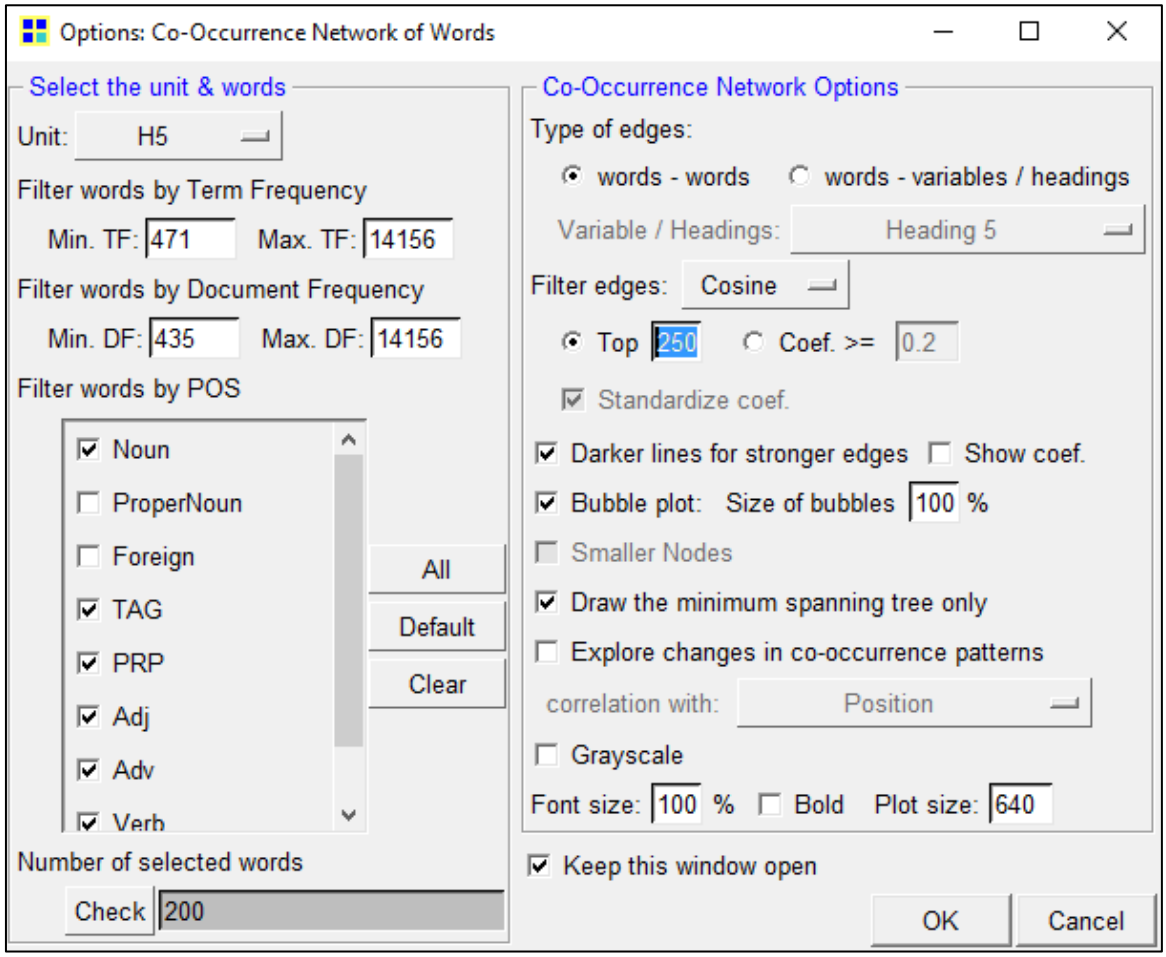


Figure 5.4-4 shows the co-word network of risk disclosures for the most failed (MF) group. The network consists of 105 of the most co-occurred words with a total number of edges (total strongest lines that connect each word) at 91. The highest and lowest outputs of the cosine coefficient value for this network are 0.74 and 0.12, respectively. The size of the bubbles indicates the number of term occurrences where larger ones are those for the highly occurring terms and vice versa. Based on the network, about five terms (challenge, risk, get, make and time) have more than 5000 occurrences (vs. 7 terms in the co-word network of the MS group). As for the colour option, the betweenness centrality was adopted to show how important a term (i.e., key term) is in linking other terms in the network. Terms with a higher value of betweenness centrality were in blue (highest centrality value is about 2000), while those with a lower value of betweenness centrality were in yellow. Based on the centrality colour, there were about four key terms that have a betweenness centrality value above 1000 (for comparison, there were ten key terms in the co-word network of the MS group that have a betweenness centrality of more than 1000). Based on the co-word network of the MF group, the study had also identified the same types of risk information discussed by the previous MS group, in which entrepreneurs in the MF group, also highlighted risks related to key operations and processes, team risk, and funding risk. The only difference was concerning the funding risk, where the entrepreneurs in the MF group associated the funding risk more in the context of a business process (i.e., business-oriented entrepreneurs), which is not the major focus of Kickstarter (i.e., creative-based platform).

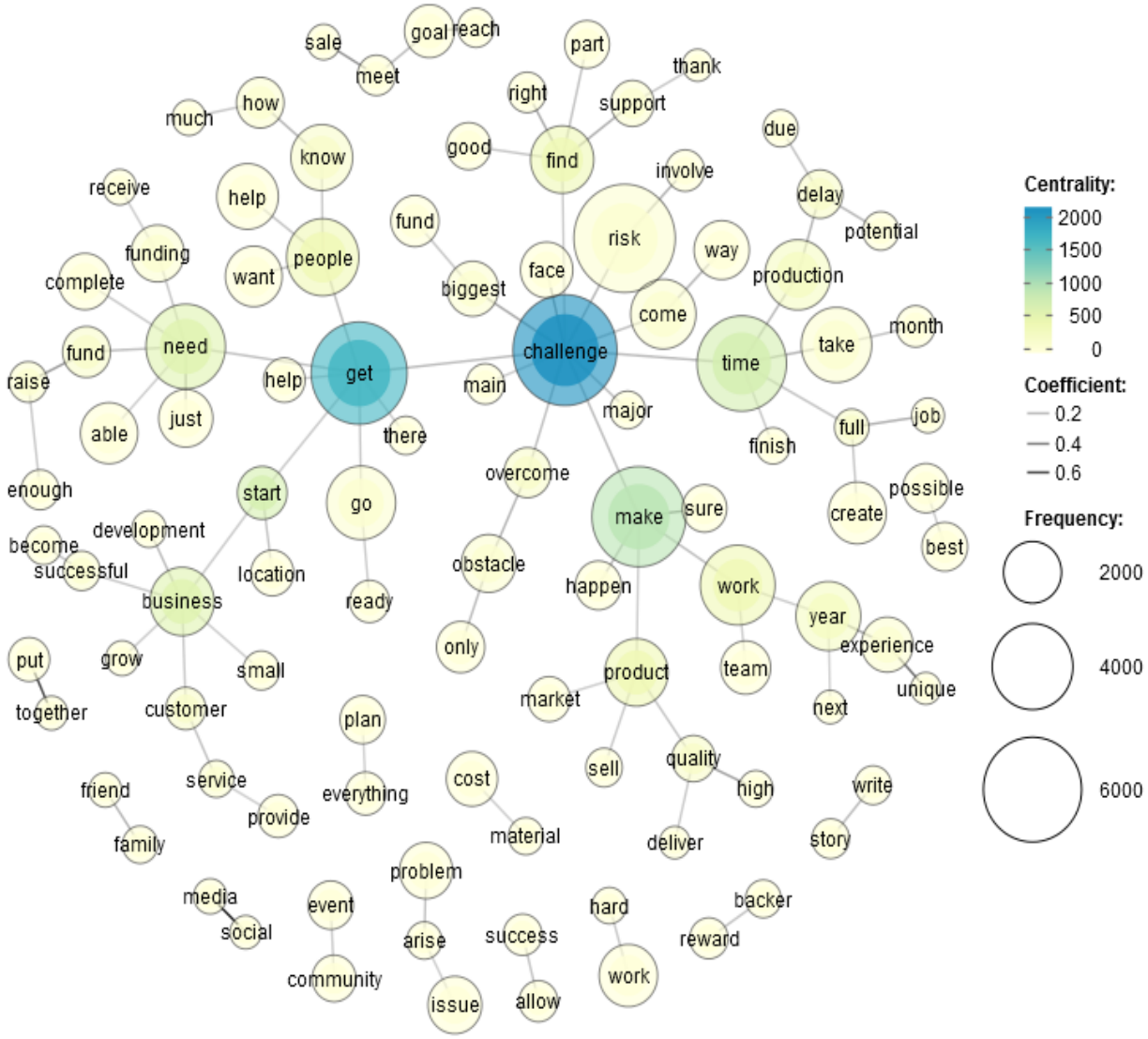


Figure 5.4-4 Co-word network for the most failed (MF) group visualized using the betweenness centrality measure (note: terms = 105; edges = 91; minimum cosine coefficient = 0.12; and maximum cosine coefficient = 0.74)

5.4.3.1 Operational and Process Risk

Similar to the MS group, entrepreneurs in the MF group had also discussed risk related to the key operations and processes of their projects, but in a less pronounced approach than the MS group. For example, the key term “production” is connected to another key term “delay”, and “delay” is connected to both terms “due” and “potential”. These connections suggest that entrepreneurs in the MF group had discussed the key process involved which was the production of their product, and attributed delay in this process as a potential risk that may affect the production process. For examples, some highlighted the production process and the risk of delay as follow:

Example 1.

“As usual with any project of this size there is the chance that a small error can cause a setback. ***There are always some risks in manufacturing, like busy production lines or out of stock fabrics and materials*** *that may cause delays”.*

Example 2.

“All projects come with risks. This is my first Kickstarter and I fully recognize that unforeseeable problems might pop up. ***From production delays to malfunctions with the printing press****, any number of setbacks could arise and push the delivery date of this project back”.*

Example 3.

“Probably the most practical risk of any venture is a 3rd party vendor ***delay****. I have been on the receiving end of more than a few myself. Most of my work involves my desks, computer, and art supplies.* ***However, my product is made and delivered by a host of other companies, any one of which may experience a production delay****”.*

Example 4.

*“****At the very worst case scenario, we might experience some delay during production****, but that is where updates come into play. Keeping you up to date with latest developments is vital with any project”.*

Similarly, entrepreneurs in the MF group also discussed finding a location to operate or execute their projects. This could be seen from the connection between the three key terms (challenge, get and start) and the term “location”. It may suggest that, for projects in the food, film and video, and dance category, finding a suitable location was a challenge in that they needed to consider many factors, such as the surrounding area, size, and affordability. For example, entrepreneurs in the MF group discussed the challenges of finding a location as follows:

Example 1.

*"**The risk is finding a building that can safely Ship, Receive, Recycle, Manufacture, and sell Glass... All at the same time ... Location is everything to this**. Marietta St. in Atlanta, Ga. is the prime spot to achieve this. There are alot of warehouses just sitting around for the taking, most of them are being turned into loft apts and restaurants... Perfect for a business such as Burner 's Bottle..."*

Example 2.

*"**A location will need to be secured along with permits, which will require that contact be made to find suitable locations**, once this has been done and a short list has been selected, a scouting trip will be required to select and secure the final location of the installation".*

Example 3.

"*Entering the retail market in London is a big challenge, and I 'm not pretending otherwise. I've worked up my business plan and model so that I can enter the market with the fewest overheads. **Getting the location right will be a big part of the success of IRPA, so I'm prepared to wait for the right premises in the right part of London**. Over the next six months I'm taking a course in business management to ensure I've not overlooked any of my responsibilities".*

Example 4.

*"**Of course London is a busy old place so finding the right locations may take time**, but this is part of the fun. Not only can you pledge but you can do some research yourselves into your local pubs and town halls to really get this project off the ground".*

Example 5.

*"**Our only major risk is location. The ideal spot is scary because we have seen business fail there**, but not because they weren't good ideas, but because they were single track businesses, they only offered one specific thing hoping that there was enough people that would be constant. We have a great street team that perform everywhere, at all festivals, and we always offer something new and great for the public".*

Time is also considered an important factor that could affect operations or processes of crowdfunding projects for the MF group, which is similar to situations in the MS group. From the network, the crucial aspects of time can be observed from the connection between the key term "challenge" and "time", the key term "time" connected to the key term "production", and the key term "production" linked to the term "delay". In addition, there are connections between two key terms (time and take) and the term "month", and between the key term "time" and the term "finish". These patterns of co-words indicate that time plays an important role in the key operations and processes of crowdfunding projects for the entrepreneurs in the MF group that may affect the fulfilment of their projects. The following are examples drawn from the sample of the MF group:

Example 1.

*"**The main risk is the time it takes to produce and package the portfolios of work**, which we aim to complete and sent to supporters of the project by the end of January 2016 at latest. If you wish to receive your portfolio or individual prints before Christmas 2015 please let us know when you make a contribution".*

Example 2.

*"**The biggest challenge will be the time it takes for the comic pages to be sketched** and then the **time for the editing and printing** before we have anything ready for everyone to see, also **the time frame for every item to get made and the time it takes for the suppliers to deliver them** to us before we can ship them to everyone".*

Example 3.

*"**Projects are very time consuming, and with a small team it may take some time to finish the entire project** since most of the time we spend trying to find funds instead of working on the project itself. Kickstarter gives us that opportunity to do that. This should be remedied with funding".*

Example 4.

*"**The biggest risk is the time it may take to implement some newer techniques** in the graphic design portion. I intend to bring on another member to the team that is specialized in graphic design".*

5.4.3.2 Team Risk

Risk related to the entrepreneurial team was also discussed in the MF group. This could be observed from the connections of the term “team” and the key term “work”, and key terms “work”, “year”, and “experience”. Similar to the MS group, the MF group also highlighted their teamwork, years of experience and effort, or hard work, to show their capacity and ability to complete the projects. Examples of the textual data taken from the MF group include:

Example 1.

“Scheduling and travel will be the biggest challenges we will face - and ***they will be met through the use of teamwork, organisation , and hard work****. We are committed to our music and bringing it to people across the country - and refuse to let setbacks get in the way of this mission”.*

Example 2.

“We will encounter some bugs along the way, or probably even have to change a few things to give users the best experience, but ***I have a team of experienced professionals who have participated in hundreds of software projects*** *helping me work on this, so I am confident that we can get through any obstacles thrown our way”.*

Example 3.

*"**My team has over twenty years of experience designing new energy systems** and of course recognize the inherent delivery delays of various components, the iteration phase of component integration and practical issues that arise during manufacturing and commissioning".*

Example 4.

*"Our challenge and biggest expense will be getting the tooling completed to manufacture the value components. This product will be manufactured offshore which opens us up for production delays and quality assurance issues. **Our team has previous experience with outsourced manufacturing so we feel we are capable of overcoming this potential obstacles**".*

5.4.3.3 Funding and Business Risk

The network also showed that entrepreneurs in the MF group emphasised funding risk in their risk disclosures. The co-word pattern between the three key terms (need, fund, raise) and the two key terms (need and funding) with the term "receive" implying that having a successful funding outcome was one of the major concerns for the entrepreneurs in the MS group. This situation also indicates that some of the entrepreneurs seemed to have a substantial dependency on the outcome of their crowdfunding campaign in order to start the projects. For example, entrepreneurs in the MF group wrote funding risk as follow:

Example 1.

*"**Our biggest challenge will be meeting the funding goal to get the T-Shirts Made**. We already have things in place to have the Shirts mass produced when funded. We already have things in place to have the Shirts mass produced when funded. As usual with any project of this size there is the chance that a small error can cause a setback".*

Example 2.

*"To those that are a little new to Kickstarter or crowd funding in general, **you should know that if the project does not meet its funding goal by the appointed time, no funding will be provided at all**. The people on board have already made a significant investment in the project, so the risk here is majorly ours and well understood".*

Example 3.

*"**I would say the biggest challenge is getting the required funding to turn my idea into a prototype**. Currently, I have a provisional patent for my Handy Stand. Reaching my goal will allow me to produce a prototype. Once my prototype is built, I can get started on making it a more finalized product. With your support , this will get me one step closer to making the Handy Stand become more than just a simple idea . It will allow my vision to become a reality. It always good to try to anticipate obstacles before they arise".*

Example 4.

*“This being a Kickstarter project**, the biggest risk is not meeting the funding goal and therefore not getting any of the pledges**! But as we go with this campaign everybody will be informed about progress and delivery. Printing is done in US and I hope that they are prompt”.*

Example 5.

*“To tackle these issues I have begun reaching out online for qualified agents and publishers to finish the more technical issues. **Hopefully the next step is raising enough funding to overcome the final hurdles** and bring the Maharal & amp; Golem of Prague to Market”.*

Other interesting content of the funding risk disclosures in the business process is related to budgeting activities in the MF group. Entrepreneurs attenuated the importance of funding to cover the costs and expenses of their projects. For example, the connection between term “cost” and “material”, suggests that entrepreneurs were discussing the budget of their projects;, such as funds, which they get from the campaign, would be used to cover the cost of materials, or any other costs or expenses related to the project (e.g., shipping costs, legal costs and hiring costs). The following examples are presented to show how entrepreneurs discussed the budgeting and revenue of their projects:

Example 1.

*"**The main challenge is essentially finding sufficient funds for the initial rent of rooms**, **for the costs of construction to making the local open, and the first operating expenses** for at least the first two months, when the gains will take shape".*

Example 2.

*"As far as we are concern, **the only problem that we could possibly encounter will be the costs of the materials** that we would be needing to complete the information needed to fill in the missing data of the story".*

Example 3.

*"**The costs of editing the pictures, publishing, and printing the book are figured into the budget of this project along with shipping costs, etc, for getting out the rewards**. I will also be publishing the bulk of the photographs onto a website and I will make this accessible to backers of the project".*

Example 4.

*"There are no real challenges in this project, it is pretty straight forward and challenges are very low. **Funding is needed for materials such as wood, shipping and other materials needed for making my Little Wooden Crosses**".*

Example 5.

*"**The risk and challenges I face with this project is the cost versus the selling price**, right now it cost more to make one than what is reasonable for an item like this to sell for. I plan to overcome this by 1st seeking funding to mass produce the item therefore bringing the cost down".*

The network also showed the connection between the term "meet" and "sale" and between the key term "product" and the terms "market" and "sell", which indicate the focus of some entrepreneurs in the MF group on the revenue aspect of their projects. Furthermore, the links between the key terms "business" to "customer" to "service" to the term "provide" suggest that some entrepreneurs in the MF group focused on one important aspect of the business which was revenue generation. The behaviour of focusing on business aspects in the risk disclosures also could be observed through the connections between the key term "business" and the terms "development", "successful", "small" and "grow". These connections of words suggest that entrepreneurs were focusing on how to make their businesses successful by highlighting their business development strategy (e.g. business plan), budgeting activity, and how to generate revenue. The following are examples taken from the MF group that highlight the business risk:

Example 1.

*"**We believe that in order to stay on top, we must constantly investigate new ways to increase revenues, increase profits, reduce costs, improve efficiency, improve customer relationships, increase productivity and grow our business**. Our idea is to build on our bright spots, and improving what we have, innovating and adding what we don't have, and protecting what we already have".*

Example 2.

*"**The profitability factor and chance for success depends so heavily on where you choose to locate and how well you market your business**, that it's hard to assign a risk potential. More than any other business, success is largely a matter of what you put into it. Right now we are in the process of finding potential sites and pictures to come once we settle on one".*

Example 3.

*"There is no other product out there like Q-Dry, **overall Q-Dry is expected to generate revenue with this newly designed enhanced product**. **Internet exposure will generate business and sells for Q-Dry, along with aggressive marketing** and soliciting new accounts to carry our product".*

Example 4.

*"**The biggest risk is lack of sales**. However, with our great location and all the events in Midland, I feel sales will be great! **In the event sales are not making it, I will review the pricing and feedback the shop is receiving to adjust what may be causing the low sales**. May it be the fashions in inventory, the prices or the hours of the store, all factors will be reviewed and adjusted as needed".*

Example 5.

*"We will build on this recipe for success by adding new and exciting products and services that we feel are needed, based on our years of experience in the restaurant business. We believe that in order to stay on top, **we must constantly investigate new ways to increase revenues, increase profits, reduce costs, improve efficiency, improve customer relationships, increase productivity and grow our business**".*

5.4.4 Conclusions from the Co-Word Analyses

Overall, the networks showed three types of risk information discussed in the risk disclosure by the MS and MF group. The summary of the risk categories is presented in Table 5.4-2. Firstly, this study found that the entrepreneurs had discussed the key operations and processes of the crowdfunding projects, particularly in the areas of product development, production, logistics and delivery. They also discussed the ways delay risk could affect the key operations or processes. They highlighted delay risk as a common risk in crowdfunding projects (Mollick 2014) which should be expected by backers.

Additionally, time was also considered an important factor that could affect the key processes, hence contribute to the delay or problems with fulfilment of the rewards. This was particularly true since most of the entrepreneurs participating in crowdfunding were those who had just started their venture and faced the problem of resource poverty (Thong, Yap & Raman 1996). One of the major classifications of resource poverty faced by small ventures is that they are operating their businesses under severe time constraints (Thong 2001).

Secondly, there was a discussion of team risk, which is the capacity of the team or people involved (or to be involved) to be able to complete the proposed projects successfully. The discussion mainly stated the teams' level of confidence and their ability to perform within the project timeline because of their experience. Experience was illuminated either by stating the teams' previous successful crowdfunding campaign or by stating how many years of experience they had had in the industry. The main purpose in justifying team risk was to make backers see entrepreneurs as trustworthy individuals with good track records, where the probability of not completing the project was low.

Table 5.4-2 Summary of risk information categories

Risk information category	Definition
Operational and process risk (OPR)	Discussion of risk information related to the key operational activities and processes planning involved in the area of product or project development, production, outsourcing, logistics, and delivery. OPR also includes the discussion of time constraints that may impact the project's timeline or plan in fulfilling the rewards.
Team risk (TR)	Discussion of risk information related to the team capacity and ability to handle and complete the project. TR deals with the qualities, capacity, expertise, passion, tasking, roles and responsibilities of team members or people involved in the project.
Funding and business risk (FBR)	Discussion of risk information related to the funding process, budgeting, revenue generation, and any related financial issues or monetary implications on the projects. The discussion also focuses more on business process, profitability, marketing, as well as, the dependency on the outcome of funding.

Thirdly, the MS group had discussed funding and business risk, which related to the funding process or outcome, budgeting, and revenue risk as one of the main challenges when launching a crowdfunding campaign. Funding risk can be considered as the dependency of the entrepreneurs on the outcome of crowdfunding campaigns. It is also about the probability, of a campaign, to be successful or to fail in reaching its funding goal at the end of the campaign period. It should be noted that most, if not all of the entrepreneurs were fully relying on the funding or amount raised (if the campaign was

successful) before they could proceed to the next level of their projects' timeline. For budgeting risk, it is about the budgeting activity of the project, as well as the probability that the budgeting and actual expenses of the project, differ after the campaign ended. The budgeting activity is important as it is directly related to the estimation of the funding goal which could affect the outcome of the crowdfunding campaign. Studies showed that the funding goal has a negative relationship to campaign success. If it is too high, the probability that the campaign will fail is higher. However, if the project succeeds, it must have enough funds to cover any cost differential or other unforeseen expenses, to reduce possible delay risk. If the funding goal is too low and the campaign turns out to be successful, entrepreneurs may experience problems if they did not consider potential circumstances with monetary implications on their project. They might end up borrowing or having to find additional funds from other resources to support their project which may lead to delay risk. As for revenue risk, it can be considered as a discussion of generating and securing revenue and profitability for the project. The discussion mostly deals with how entrepreneurs focus on creating a successful business or project by outlining, for example, their business development strategies and marketing plan.

PHASE 2: MEASURING THE ASSOCIATION BETWEEN THE RISK INFORMATION CATEGORIES OF RISK DISCLOSURES AND CROWDFUNDING SUCCESS

5.5 Theoretical Framework, Literature Review and Hypotheses Development

This section discusses the theoretical basis of hypotheses development for each of the content categories. The informational content categories in risk disclosures identified in Phase 1 of Study 2 reflect the discussion of the three main categories of risk information (see Table 5.4-2 for the operational definition of each category).

5.5.1 Costly Signalling Theory

The costly signalling theory originates from both strands of economics and biological literature (Cronk 2016; Hammerstein & Hagen 2005). In the economic strand, Spence (1973) developed a basic model of the job market signalling. He started his work by considering that hiring people is an investment decision made by employers due to the unknown productive capabilities of potential employees before, or immediately after, the employees are hired. Therefore, he argued that employers look at observable characteristics of the potential employees, which could be distinguished into indices and signals. According to him, indices are an individual's characteristics that are unalterable, such as sex and race, while signals are alterable, such as education and job experience. Spence focused on the signal, and using education as a signal cost, he showed that bad individuals (e.g., bad employees) would not invest in the signal if the cost to produce the signal was relatively costly, as compared to good individuals (e.g., good employees) who would invest in the signal, and thus suggested that education could be a reliable signal. This can be assumed as a credible signal because lower quality individuals would not be able to pay the costs or attempt the hardships of higher education (Connelly et al. 2011). However, doubts have been raised by other scholars (e.g., Barzel 1977; Layard &

Psacharopoulos 1974) about the viability of the costly signalling model proposed by Spence (1973), until Riley (1979) formalised the conditions and proved the existence of such costly signalling equilibria.

In the biological literature strand, the idea of costly signalling was first introduced by Zahavi (1975, 1977), who proposed the "handicap principle." The essence of Zahavi's work to the costly signalling approach was similar to Spence, which focused on the reliability issue in communication. Zahavi (1975, 1977) showed that the reliability of communication is positively correlated with the investment in the signal or advertisement. The classic example used in Zahavi's initial work is the extravagant tail of a peacock, which is assumed to produce a reliable signal of high quality in mate selection because only a high-quality peacock could afford the costs (e.g., vulnerability cost, increased energy expenditure and increased predation risk) of developing, maintaining and displaying it. Signalling a reliable and honest signal, in this case, is said to be on-off and the costs of such a signal are uniformly high (Fraser 2012). Later, Zahavi (1977) revised the handicap principle and acknowledged that the costs of signalling honest communication need not be referred to as high and low-quality individuals if they could still produce a reliable and honest signal at a lower intensity, which they could afford given their quality (Fraser 2012).

Signal costs can be distinguished as two different costs; namely, strategic costs and efficacy costs (Cronk 2016). Strategic costs are related to handicaps while efficacy costs are associated with delivering and ensuring that the signal is received by the receivers, and therefore not considered as part of the costly signalling theory (Cronk 2016). According to the costly signalling theory and the previous example, strategic costs are a necessary element in honest communication. However, a recent work by Számadó (2011) argued that the payment of realised strategic costs are not a necessary element of the honest signalling system, rather, honesty is maintained by the potential cost of cheating,

which is the cost that an individual pays for giving a false or inaccurate signal. Another condition of honest communication, besides the signal costs, is the confluence of interest between signaller and receiver (Bliege Bird & Smith 2005; Cronk 2016). Cronk (2016) showed an example from the context of a "job market signalling" where both employer and job applicant had a broad conflict of interest between categories (offering vs. seeking a job), and they may have a confluence of interest in the costly signalling system if the job applicant is genuinely of high quality.

Based on the costly signalling theory, there are two conditions that cause people to give financial support to the entrepreneurs even if risk is advertised in the campaign. First, entrepreneurs should convey reliable information associated with their projects when disclosing risk information in the disclosure. Reliable risk information is generally communicated by honest entrepreneurs who know, in detail, and are entirely involved in their project from the early stage of idea generation up to the point of launching a crowdfunding campaign where the risk disclosure needs to be communicated. The funding behaviour of backers, which is considered similar to consumers' online purchasing behaviour (Bi, Liu & Usman 2017), may penalise fake information in the disclosure produced by lower quality entrepreneurs. In fact, a study conducted by Wessel, Thies and Benlian (2015) suggested that fake information might create positive effects in the early phase of funding but only until backers start to notice a discrepancy in the quality of information disclosed and the overall project, which in turn, may decelerate the rate of funding and will negatively affect the campaign outcome.

Additionally, the amount of risk information communicated by entrepreneurs may expose them to stricter risk assessment by the backers (i.e., investors) but which will only benefit quality entrepreneurs. Risk information contained in the disclosures provides valuable signals for backers which they usually act upon as consumers in reward-based

crowdfunding to make informed funding decisions (Bi, Liu & Usman 2017). Backers will use the information for verification and risk assessment. Related to the crowdfunding context, Mavlanova, Benbunan-Fich and Koufaris (2012) provided evidence that high-quality online sellers disclose more information as compared to low-quality sellers. The information disclosed by quality sellers was also considered to be costly and hard-to-verify information (e.g., various policy and claims made by entrepreneurs such as their return policy, regulatory compliance, patent registration, consumer feedback, promised delivery date of rewards and product quality claim). Therefore, quality entrepreneurs may attempt to communicate as much as possible but use signals that are costly, reliable, and honest concerning the risks associated with the project.

Second, disclosing risk which contains signals needs to merge with the interest of the backers since they usually prefer quality projects over mediocre ones. Quality entrepreneurs should make sure that their disclosure contains appropriate information to ease the backers' risk assessment and to make themselves, or the project perceived by the backers, to be of high quality. The ease of information might be easily communicated by both low- and high-quality entrepreneurs, but the latter, communicating high quality, will likely be communicated by only high-quality entrepreneurs. In particular, as suggested by Connelly et al. (2011), there is a relationship between signals (e.g., risk information) with the signaller's unobservable characteristics. In simple words, the risk disclosures' messages communicated by quality entrepreneurs should reflect their unobservable characteristics of quality to produce a signal fit, hence creating a favourable outcome in their disclosure objectives.

5.5.2 The Association between the Operational and Process Risk (OPR) and Crowdfunding Success

The first risk category is known as *operational and process risk* (OPR) which relates to the key activities and processes involved in a crowdfunding project. The main goal of communicating this category of risk disclosure information, by the entrepreneurs, is to show that their projects have been well prepared and planned. This includes any prearrangement made with potential business partners such as suppliers, manufacturers, and delivery services providers. Such pre-arrangements may be considered strategic and sensitive information that are costly to disclose (Agrawal, Catalini & Goldfarb 2014). For example, Gleasure (2015) found that one of the factors that hinders entrepreneurs in raising capital through crowdfunding is the fear of disclosing sensitive information. By interviewing twenty entrepreneurs, Gleasure (2015) reported that disclosing operational details may expose them to imitation risk by the competitors, as well as to a potential risk of damaging a partner or customer relationship.

According to the costly signalling theory, if the cost of dishonesty (i.e., telling lies about their preparedness) is high or the signal is hard to imitate, only a quality signaller will be able to communicate the signal (Cronk 2016). Lying to potential backers, for example, may provoke moral outrage in the future, such as revenge and retaliation (Pollack & Bosse 2014). The situation may become even worse because of the nature of crowdfunding which connects entrepreneurs with online crowds. Negative opinions or evaluations on the entrepreneurs' projects may create unfavourable perceptions among other potential backers (Courtney, Dutta & Li 2017) and damage their professional image publicly (Gleasure 2015). Therefore, because the signal may appear to be costly, only quality or well-prepared entrepreneurs will produce an honest signal (i.e., communicate the OPR).

The level of preparation, or preparedness, is also an important indicator used by backers when making funding decisions. For example, Chen, Yao and Kotha (2009) and Cardon, Mitteness and Sudek (2017) showed that preparedness behaviour affects traditional investors' (e.g., angel investors and venture capitalists) evaluation positively. Preparedness has also been investigated in the crowdfunding context as a measure for project quality and has been reported to be a crucial factor in attracting online investors (Davis et al. 2017; Mollick 2014).

Taken all together, as suggested by Ley and Weaven (2011), that backers or funders need access to much of the sensitive information for risk assessment purposes, and the fact that there are positive effects related to the quality of the project, or the people behind it (e.g., projects or entrepreneurs with high degree of preparedness) on the successful outcome of crowdfunding campaign (Ahlers et al. 2015; Allison et al. 2017; Davis et al. 2017; Mollick 2014), the research hypothesizes that:

Hypothesis 1a: Entrepreneurs who discuss more information related to the operational and process risk in the risk disclosure will positively affect their crowdfunding campaign outcome on the Kickstarter platform.

5.5.3 The Association between Team Risk (TR) and Crowdfunding Success

The second category of risk information was identified as *team risk* (TR). Team risk is concerned with the probability of failure within the entrepreneurial team to execute the ideas or business plans successfully. Investors on crowdfunding platforms need to assess this category of risk in order to ascertain the ability and competency of the entrepreneurial

team to finish the project. However, most of the entrepreneurs soliciting funds from crowdfunding platforms are those of new ventures or start-ups (Mollick 2014). The problem becomes more crucial because the team may be freshly formed just before the funding application process started. Amason, Shrader and Tompson (2006) argued that because of their newness, new entrepreneurial teams, or ventures, face various liabilities or challenges in order to succeed. For example, in the early stage of entrepreneurial ventures, the members of the founding team may experience problems in assigning tasks among the team members and have difficulty in collaborating (Brinckmann, Grichnik & Kapsa 2010). They also need to learn new roles and skills quickly on the job, which can cause confusion and make them less efficient in their tasks (Amason, Shrader & Tompson 2006).

Since the new entrepreneurial team often faces various liabilities associated with their newness, potential funders need to evaluate them subjectively. One way of assessing the team is by measuring the *novelty of management* (Shepherd, Douglas & Shanley 2000). The *novelty of management*, according to Shepherd, Douglas and Shanley (2000) relates to the entrepreneurial teams' characteristics such as lack of business skills, experience and industry knowledge. Many follow-up studies have investigated how these characteristics positively affect the performance or successfulness of the new ventures (Amason, Shrader & Tompson 2006; e.g., Delmar & Shane 2006; Dencker, Gruber & Shah 2009; Franke et al. 2008; Gimmon 2008; Leary & DeVaughn 2009).

Assessing team risk by looking into the team characteristics is also one of the primary criteria used by venture capitalists when evaluating the team proposal (Amason, Shrader & Tompson 2006; Hsu 2007). Similarly, in the crowdfunding context, team characteristics such as level of education and industry-specific experience are the influential factors for successful crowdfunding campaigns (Ahlers et al. 2015; Allison et al. 2017; Piva & Rossi-

Lamastra 2018). Because of information asymmetries, Piva and Rossi-Lamastra (2018) proposed that entrepreneurs should share information related to their team characteristics in order to signal their ability and competency to finish the project.

In the lens of the costly signalling theory, in general, more quality entrepreneurs will likely send a signal about the ability and competency of their team, (Amit, Glosten & Muller 1990), because of the high cost invested in such a signal (e.g., obtaining a master degree). Furthermore, the signal cost may be heightened due to the signal being advertised in an environment where people are connected to each other despite their geographic location. This is what crowdfunding is based on, to utilize the internet in creating an online funding mechanism. The cost of cheating may be higher because backers can verify the team information disclosed by the entrepreneurs and share it publicly with other funders. Contrarily, the less able entrepreneurs may neglect to communicate this information and, rather, focus on other signals that are less costly to them. As the entrepreneurs face various challenges due to the newness of their team, the need to signal their ability and commitment to the project and the positive effects of such costly signals, the research hypothesises that:

Hypothesis 1b: Entrepreneurs who discuss team risk related information, in the risk disclosure, may create positive effects in the outcome of their crowdfunding projects on the Kickstarter platform.

5.5.4 The Association between Funding, and Business Risk (FBR), and Crowdfunding Success

The third category of risk information, which emerged from the findings in Phase 1, is *funding and business risk* (FBR). Funding and business risk is concerned with the risk related to funding dependency, budgeting constraints and challenges in the general business process of revenue generation. In crowdfunding, funding dependency reflects the extent to which the entrepreneurs rely on the projected capital from their crowdfunding campaigns (provided that the funding is successful) in order to commence the project's early operations or processes (e.g., designing, production, manufacturing). Entrepreneurs who have a higher dependency on funding success may also include more information on various constraints in their budgeting that could affect the project's activities (delay in production and delivery). By indicating their funding dependency, and disclosing how budgeting challenges may influence their project's activities, the entrepreneurs may send informative signals about their project's quality.

In a seminal paper by Leland and Pyle (1977), it was argued that one of the actions that entrepreneurs do which can send positive signals about their project's quality is by investing in the project. This behaviour is in line with the costly signalling theory in which the cost of producing such a signal (i.e., investment in their projects) was high (Spence 1973) and only quality entrepreneurs could afford it. Funders may interpret the signal as a decision signal when assessing the viability of the project (Prasad, Bruton & Vozikis 2000). In a study of angel investors' decision criteria, Prasad, Bruton and Vozikis (2000) showed that the value of the project could be determined by looking at the proportion of initial wealth invested by the entrepreneur in the project. Entrepreneurs who invest a larger proportion of their wealth were also more likely to succeed in the project (Frid, Wyman & Gartner 2015) and therefore sent a positive signal to the funders. Therefore, entrepreneurs who do the opposite (less quality entrepreneurs), by indicating a high level of dependency

on funding success, and attributing more financial challenges (budgeting constraints) to their project, may create unfavourable signals toward the project.

In regard to the business process risk, it is associated with the challenges faced by entrepreneurs to generate revenue for the crowdfunding project. Revenue generation is one of the crucial elements in a successful business model (Teece 2010). However, for a new venture seeking financing from outside funders, providing detailed information about revenue generation, or financial projections, is less meaningful to the funders. Sahlman (1997) argued that funders know that entrepreneurs face various unknown challenges and may just perceive such strategy (giving the details of financial projections) as an act of imagination. Simply put, all the figures presented in revenue or financial projections are just chimera.

Furthermore, besides the financial focus, funders may have different motives when funding a crowdfunding project. A study by Gerber and Hui (2013) showed that funders are motivated to support crowdfunding projects because they want to collect rewards, support causes, help others, and be part of a community. In examining the decisions within the prosocial behaviour of funders on a peer-to-peer lending-based crowdfunding platform, Allison et al. (2015) provided evidence that using more profit and business language (framing the narrative as a business opportunity rather than an opportunity to help others) decreased the likelihood of funding success. Specific to reward-based crowdfunding, funders or backers are more attracted to funding projects because of the rewards offered, and not because of the financial incentives (Cholakova & Clarysse 2015). Therefore, it can be seen that the use of business language may negatively affect the outcome of crowdfunding campaigns.

In view of all that has been mentioned so far, one may suppose that quality entrepreneurs are less likely to depend on funding success to start their project or to attribute financial challenges as factors that affect project performance. By discussing more information related to funding dependency, financial challenges, and business language, these strategies may decrease the probability of funding success. Hence, this research hypothesises that:

Hypothesis 1c: Disclosing more information related to funding and business risk will negatively impact the outcome of crowdfunding campaigns on the Kickstarter platform.

5.5.5 The interaction between Project Major Category and the Content Categories of Risk Information on Crowdfunding Success

Crowdfunding projects on the Kickstarter platform consist of 15 categories, which include *art*, *comics*, *crafts*, *dance*, *design*, *fashion*, *film and video*, *food*, *games*, *journalism*, *music*, *photography*, *publishing*, *technology*, and *theatre*. While Kickstarter platform has generally focused on creative crowdfunding projects (Agrawal, Catalini & Goldfarb 2014; Kuppuswamy & Bayus 2017), these 15 categories may be categorised further into two major categories, henceforth called the Project Major Category, which includes a technology-based and a creative-based group. Technology-based projects can be identified as projects that are related to innovation activity, rely on computing and information technology, and have a greater focus on electric or the electronic industry (Kazanjian & Drazin 1990; Lee, Lee & Pennings 2001; Yli-Renko, Autio & Sapienza 2001), while creative-based projects are those related to creative industries such as arts, media, and cultural industries (Caves 2000).

On Kickstarter, projects that can be directly related to the technology-based group are those in the technology, design, and games categories. These three categories are

associated with the technology group because most of the projects in the categories are focused on rewards tied to various technological products, such as those in communication (e.g., mobile phones and accessories), computing (e.g., software and games development), and printing or imaging (3D printing and cameras) technology. Furthermore, as noted by Roure and Keeley (1990), technology-based firms usually rely on a strategy base using the technological advantage they possess. The thought is similar to the context of crowdfunding, whereby projects in the technology-based group generally require some sort of initial investment in a conceptual idea of the product (i.e., prototypes), which in turn, demands that the project creator have a technological advantage (e.g., technological knowledge such as programming and designing skills) to finalise the ideas.

As for the creative-based group, the projects usually involve many types of rewards (or products), including but not limited to: copies of the actual product (e.g., album and photo book), creative collaborations in the project (e.g., a backer might be offered a character in the comic), creative experiences (e.g., a dinner with the cast and a visit to the film set), and creative mementos (e.g., a backer's name in the closing credit of the movie or written on the acknowledgement page of the comic) (Bi, Liu & Usman 2017). Therefore, project categories such as *art*, *comics*, *crafts*, *dance*, *fashion*, *film and video*, *food*, *journalism*, *music*, *photography*, *publishing*, and *theatre* usually promote those types of rewards and might be exclusively categorised as creative-based projects.

In order to appropriately disclose risk information (i.e., to create favourable effects on the campaign outcome), entrepreneurs or project creators of both creative and technology-based groups might have a different strategy when disclosing risk information in the disclosure, particularly regarding the OPR, TR, and FBR. As argued by Bi, Liu and Usman (2017), backers may require disparate information when considering funding a different kind of project. They further argued that backers who consider funding a technology-based

project tend to focus more on information related to production characteristics (e.g., product development and the production process). These production characteristics are analogous to the risk information category in the current study, which is risk information related to the operation and processes of crowdfunding projects (OPR). Another important aspect that is supplementary to the production characteristics, is the knowledge and experience (team characteristics) of the team (Deeds, Decarolis & Coombs 2000). Without knowledge and experience, entrepreneurs may not be able to explain the production characteristics appropriately, or they might just have rattled, or unnerved, backers by the wording in the disclosure. Therefore, it is important and beneficial for technology-based projects to disclose more about team characteristics to reflect this risk information category (i.e., TR) in the disclosure.

Conversely, for creative-based projects, backers may not be interested in the production characteristics (OPR) and team characteristics (TR) information but may rely more on information related to peripheral cues, such as online reviews, and comments when making a funding decision. Hence, disclosing more information about production characteristics, supported by the team's knowledge and experience, will create larger positive effects on crowdfunding success for technology-based projects as compared to those in the creative-based group. Therefore, two additional hypotheses are developed concerning OPR and TR as follows:

Hypothesis 1d: The project major category (creative based and technology based groups) moderate the relationship between operational and process risk (OPR), and crowdfunding success, with the positive effects of OPR on success higher for technology-based projects.

Hypothesis 1e: The project major category moderates the relationship between team risk (TR) and crowdfunding success, with the positive effects of team risk (TR) on crowdfunding success greater for technology-based projects.

In general, entrepreneurs who discuss more risk information related to the funding and business risk (i.e., FBR) have indicated that their project is more business or commercial-oriented (Allison et al. 2015). Since Kickstarter is focused more on creative projects (Kuppuswamy & Bayus 2017) and backers on Kickstarter are more attracted to projects that appear to be for a social cause rather than commercial-oriented projects (Calic & Mosakowski 2016), approaching risk disclosure using more business and commercial language may negatively influence crowdfunding success, either for creative or technology-based projects. Calic and Mosakowski (2016) argued that technology-based projects are usually launched by more entrepreneurs who have as their primary goal to commercialise the products. These commercially-oriented entrepreneurs seek to develop new products or services for consumer markets (Parhankangas & Renko 2017); hence their focus is more on profits rather than social causes. Because technology-based projects usually contain more business and commercial language than projects in the creative-based group, along with the behaviour of backers who penalise entrepreneurs who used more language related to business and commercial activities, the negative effects of such language in the risk disclosure will be greater for technology-based projects. Hence, this study further hypothesises that:

Hypothesis 1f: Major project categories moderate the relationship between funding and business risk (FBR), and crowdfunding success, where the negative effects of the funding and business risk (FBR) on crowdfunding success are stronger for the technology-based projects on Kickstarter

5.6 Methodology

5.6.1 Development of the LIWC Dictionary

Developing a dictionary that contains an exhaustive list of keywords is crucial when measuring the presence of a construct in the textual data. In general, researchers can choose either to develop their own dictionary or to use a pre-existing dictionary developed by others. For Study 2, however, a specific, tailor-made, dictionary was developed to measure the presence of the three risk categories (i.e., OPR, TR, and FBR) in the textual data. In order to develop a dictionary that was valid, this study followed the procedures suggested by Short et al. (2010). The procedures involved can be categorised into six (6) main phases which include the deductive content validity, inductive content analysis, assessing external validity, ensuring the reliability, assessing dimensionality, and assessing predictive validity.

5.6.1.1 Deductive content validity

The study started the deductive content validity phase by firstly identifying a formal definition of the risk categories. This first step was done in the previous section where this study created three risk categories. The risk categories have been appropriately defined based on the results of the co-word analysis. The next step involved finding a discrete and exhaustive list of keywords, which is very important in the deductive content validity phase (Short et al. 2010). In order to find the list of keywords for every risk category, the study used *The Synonym Finder* (ed. Rodale 1978). For example, the word “execution” that is related to the execution process of a crowdfunding project has these synonyms (production, completion, and finishing). The third step performed in this study was to validate the keywords list and assess rater reliability. This was done by carefully reviewing each of the words and comparing them to the working definition proposed by the study. In this step, it was recommended to get content experts to validate the keywords list.

However, since this is a research project carried out by a lone researcher, most of the work related to this process was done by the author with the help of supervisors. Nevertheless, in order to rectify this issue, the researcher utilised a language graduate to assess the keywords list.

Assessing rater reliability might be important when dealing with qualitative data whereby the subjectivity of the researchers dictates the interpretation of the textual data. However, this study focuses only on the usage of words in the risk disclosure (i.e., words as the recording units). Holsti p. 116 (1969) defined the recording units as “the specific segment of content that is characterised by placing it in a given category”. As pointed out by Krippendorff (2004), words are the smallest and least concerned of the recording units for the reliability issue. Furthermore, the study follows the systematic process of developing a dictionary, as propose by Short et al. (2010), which is crucial when conducting CATA analysis. Barbour (2001 p. 1116) noted that “whether this is carried out by a lone conscientious researcher, by a team, or by involving independent experts is immaterial: what matters is that a systematic process is followed and that this is rendered transparent in the written research project”.

5.6.1.2 Inductive content analysis

Inductive content analysis was performed to supplement the earlier deductive procedure. The first step in the inductive content analysis was to identify the commonly used words in the textual data using any computer-aided textual analysis (CATA) program. In this study, the KH Coder was utilised to generate a comprehensive list of words used by all the entrepreneurs in both the MS and MF group. KH Coder is very useful as it can generate the most frequently used words using the binary counting or document frequency method (i.e., number of word occurrences are treated as only once even if it had appeared repetitively in the same text). This allows the study to analyse only words that frequently

occurred within the sample. The study chose to analyse words that had at least 30 occurrences, which resulted in a total of 4003 words available for conducting the inductive analysis.

Additionally, the program can also generate a list of word clusters (i.e., the combination of two or more words). For example, “adequate experience” may be extracted as two words (adequate and experience). However, by using the word cluster function, the program can automatically combine the words into a single word cluster and assign a score, with highly scored clusters considered to be more reliable. These word clusters were useful when assigning words into their category because they increased the author’s understanding of the context of word usage, as well as the content of the risk disclosure. Moreover, the researcher could code the word clusters as a single segment (i.e., as one recording unit) and put it into any relevant risk category. The final list of keywords for each of the risk information categories is presented in Appendix 3.

5.6.1.3 Assessing the external validity

This study relied on the risk disclosure narratives extracted from the Kickstarter platform. To date, only Kickstarter has been enforcing a disclosure requirement to assist backers in performing project assessment before giving funds. Since this study was able to prepare a large sampling frame (i.e., consisting of 163,545 projects), it helps the study when another sample is created (i.e., out of sample) to assess the external validity. In order to create the out of sample group, the study first took out all of the projects that were used to generate the risk categories, as well as those in the deductive and inductive procedure, leaving the total projects in the sampling frame at 135,233. Then the study randomly selected 2000 projects (i.e., an equal number of successful and failed projects) in each project category (i.e., projects on Kickstarter are categorised into 15 categories). However, it should be noted that five project categories had less than 2000 projects.

Therefore, the study included all of the available projects. These procedures led the study to generate an out of sample group that consists of 20,772 projects.

For both samples, the study performed one sample *t*-tests for each risk category to examine the consistency of language to reflect the risk information category in the risk disclosure. Following Short et al. (2010), a zero result suggests that the consistency of language reflecting a content category, in the sample of projects' risk disclosure, is not present. As presented in Table 5.6-1, all of the three risk categories were significant, implying the consistency of language in reflecting the risk information category within the risk disclosure.

Table 5.6-1 Evidence of Language Reflecting Risk Information Category in the Risk Disclosure of the Sample and Out of Sample

	In Sample				Out of Sample			
	N	Mean	SD	*t* Test	*N*	Mean	SD	*t* Test
OPR	28312	8.53	5.05	284.09*	20772	8.84	5.10	249.86*
TR	28312	5.11	3.80	226.43*	20772	5.09	3.72	197.33*
FBR	28312	3.49	3.55	165.63*	20772	3.38	3.23	150.92*

Note: The results of this table were produced using the risk category dictionary developed based on the finalised list of keywords in Appendix 3.
OPR = operational and process risk; TR = team risk; and FBR = funding and business risk.
*p < 0.01.

5.6.1.4 Ensuring the reliability

The reliability issue is minimal when conducting content analysis using CATA as it relies on a computerized system, thus a reduction in human coders' errors (e.g., coder errors in a manual coding process are generally attributed to fatigue and lack of coder training). Furthermore, CATA is useful when dealing with a large dataset. Duriau, Reger and Pfarrer (2007) highlighted that the speed and reliability of CATA when performing analyses on

hundreds of documents offers researchers a significant advantage in organisation research. For this study, the Linguistic Inquiry and Word Count (LIWC) (Tausczik & Pennebaker 2010) were used to explore the presence of concepts (i.e., risk categories) in the textual data. LIWC has been used in previous crowdfunding research to focus on the linguistic features which produced interesting results (e.g., see Ciuchta & O'Toole 2016; Kim, Buffart & Croidieu 2016; McKenny et al. 2016; Parhankangas & Renko 2017).

5.6.1.5 Assessing the dimensionality

Short et al. (2010) proposed using the correlation matrix to examine the dimensionality of the constructs (i.e., risk categories). Unidimensional measures are where the measures or dimensions are associated with a single concept, while multidimensional measures are when each dimension is distinct but still related (Edwards 2001). In order to assess the multidimensionality, the study used the LIWC scores generated from the keywords list to measure the risk information categories. Table 5.6-2 displays the correlations between the risk information categories for the two samples. The results showed that two of the risk category (i.e., OPR and FBR) are significantly related at $p < 0.05$ or higher, except for TR. These results were similar in both samples, with all correlations lower than 0.10 in both samples suggesting multidimensional conceptualisation of risk information. If the correlation value is high, for example, more than 0.80, then there is a high probability that there is only one single measure of risk information (e.g., only OPR) should be investigated by the researcher. These results were as expected as the dictionary developed for measuring the three risk categories are distinct to one another (i.e., the researcher make sure that there is no overlap of keywords across the OPR, TR and FBR category).

Table 5.6-2 Correlation Matrix of Risk Information Categories for Assessing Dimensionality

	Risk Information Category	1	2	3
In Sample				
1	Operational and Process Risk (OPR)	1.000		
2	Team Risk (TR)	-0.0048	1.000	
3	Funding and Business Risk (FBR)	-0.0884*	0.0586*	1.000
Out of Sample				
1	Operational and Process Risk (OPR)	1.000		
2	Team Risk (TR)	-0.0009	1.000	
3	Funding and Business Risk (FBR)	-0.0879*	0.0579*	1.000

Note: *p < 0.05.

5.6.1.6 Assessing the predictive validity

Assessing the predictive validity involved conducting causal relationship analysis between the developed constructs, with the outcome variables, using regression analysis or any other relevant statistical technique (Short et al. 2010). This is the last phase of validating constructs using CATA. In order to assess the predictive validity, this study then identified the outcome variables that were previously used in crowdfunding research as well as several control variables to be fitted into the regression model. The identification of the outcome and control variables are discussed in the next section. The results of the relationship between the variables are then reported in the subsequent section.

5.6.2 Measurement of the Independent Variables

5.6.2.1 Operational and Process Risk

Operational and process risk (OPR) is measured by calculating the total number of words, used by entrepreneurs, to discuss matters related to the key operations, processes, or systems involved in the areas of product, or project, development, production, outsourcing, logistics, and delivery of rewards (e.g., produce, production, manufacture, partnership, deliver, and delay). The words used emphasise on the time constraints and how they may affect the project timeline or planning (e.g., plan, schedule, and timeline). The textual examples of how past entrepreneurs have communicated the OPR can be referred to in the previous Section 5.4.2.1 (MS group) and Section 5.4.3.1 (MF group). The calculation process and statistical values of OPR were generated using the LIWC program. The full list of words to measure OPR is presented in Appendix 3.

5.6.2.2 Team Risk

Team risk (TR) was measured by calculating the total number of words used to discuss the team's ability to handle and complete the project. To respond to the potential risks and challenges, entrepreneurs will emphasise the qualities, capacity, expertise, and passion of team members and the people involved (or to be involved) in the project, as well as, outline their roles and responsibilities in the project. The textual examples of how the entrepreneurs communicated team risk are shown in the previous Section 5.4.2.2 (MS group) and Section 5.4.3.2 (MF group). The calculation process and statistical values of TR were generated using the LIWC program. The full list of words used to measure TR is presented in Appendix 3.

5.6.2.3 Funding and Business Risk

Funding and business risk (FBR) was measured by calculating the total number of words used to discuss any issue related to the funding, budgeting, revenues, and any monetary implications of the projects. The discussion also focused more on business, profitability, marketing, as well as the successfulness of the project. The examples of textual data showing how the entrepreneurs disclosed FBR can be referred to in the previous Section 5.4.2.3 (MS group) and Section 5.4.3.3 (MF group). The list of words for FBR is the combination of a self-constructed dictionary and the "Money" category of the LIWC dictionary. The calculation process and statistical values of TR were generated using the LIWC program. The full list of words to measure FBR is presented in Appendix 3.

5.6.3 Measurement of the Dependent Variables: Crowdfunding Success

As discussed in Section 2.3, successful funding is one of the main factors which motivate entrepreneurs to participate in crowdfunding. Consistent with prior studies (Allison et al. 2015; Zheng et al. 2014), this study focuses on pitching or verbiage of crowdfunding projects and their campaign outcomes to demonstrate the influence of the risk information content and linguistic cues in risk disclosures at project level. The final outcomes of crowdfunding campaigns are either successful or failed. However, it should be noted that the dynamics of the crowdfunding process make the funding outcomes unique to each project. For example, the Kickstarter platform does not have any rules on the limit of the final funding amount that entrepreneurs can solicit from backers. Furthermore, entrepreneurs can freely set their funding goal based on their project budget. This makes the degree of difference that each successful campaign differs from one another. Some projects were able to hit their funding goal at the end of their funding period while others hit their target in just one day or just a couple of hours. Furthermore, projects that managed to reach their funding goal earlier tended to have a higher ratio (of the amount received to

the amount of the funding goal) as compared to projects that reached their funding goal at the end of the campaign period. Therefore, any attempt to measure crowdfunding campaign outcomes, either using single or multiple measurements, should be able to account for these differentials.

Previous studies measured crowdfunding campaign success or funding level by looking at the absolute funding outcome of either success or failed at the end of campaign period (Ahlers et al. 2015; Beier & Wagner 2015; Crosetto & Regner 2014; Cumming, Leboeuf & Schwienbacher 2014; Giudici, Guerini & Rossi-Lamastra 2018; Mitra & Gilbert 2014; Mollick 2014; Pitschner & Pitschner-Finn 2014), the total amount of funds received at the end of campaign (Ahlers et al. 2015; Belleflamme, Lambert & Schwienbacher 2013; Pitschner & Pitschner-Finn 2014), funding performance or the percentage of funds received against the funding goal (Belleflamme, Lambert & Schwienbacher 2013; Chen, Thomas & Kohli 2016; Colombo, Franzoni & Rossi-Lamastra 2015; Davidson & Poor 2015; Zheng et al. 2014), the total number of funding providers (Ahlers et al. 2015; Beier & Wagner 2015; Pitschner & Pitschner-Finn 2014), the speed of funding to reach the target goal (Ahlers et al. 2015), and the average amount of funding, which is a product of the total amount of funding divided by the total number of funding providers (Beier & Wagner 2015).

Following Ahlers et al. (2015), the current study uses four measures of crowdfunding campaign success as dependent variables. Each of the variables is explained as follows:

5.6.3.1 Funding performance

This variable is calculated by dividing the total funding amount received against the funding goal of each crowdfunding project.

5.6.3.2 Funding amount

This variable measures the total amount of funding received at the end of the campaign period in USD.

5.6.3.3 Number of backers

This variable is measured by counting the number of individual funders or backers (Kickstarter named these funding providers as project backers).

5.6.3.4 Fully funded

This binary variable takes a value of “1” if the project had achieved its funding goal and “0” if project had not achieved its funding goal at the end of campaign period.

5.6.4 Missing Data Analysis

Prior to performing data analyses, the study employed multiple imputation procedures to deal with missing data. Multiple imputation technique is a well-known procedure for generating multiple copies of the dataset using a regression-based technique (Enders 2010). The study uses the multivariate normal distribution (MVN) in the Stata 14 program to generate 40 imputed datasets. MVN is suggested to have the ability to generate reliable estimates in the case of violated normality assumptions provided the dataset contains a large or sufficient sample size (Demirtas, Freels & Yucel 2008). Below are the procedures for missing data analysis undertaken by this study.

a) Missing at random (MAR) mechanism

Before the study proceeded with multiple imputation procedures, the assumption of missing data mechanism should be reasonably clear as it governs the selection and performance of different missing data handling methods (Enders 2010). The study assumed that the incomplete data values in the dataset were missing at random (MAR). MAR means that one or a set of variables are somewhat related to the probability of missing data systematically. As suggested by Enders (2010), the multiple imputation technique is one of the appropriate methods that yield unbiased parameter estimates for MAR mechanism, especially when dealing with a very large sample. Additionally, he also noted that there is not a single technique available today to test the existence of MAR mechanism in the dataset. Therefore, the MAR mechanism was not tested in this study. It should also be noted that this study used a very large sample size (secondary data) which was downloaded directly from the Kickstarter platform using the web data extraction technique.

b) Tabulation of missing data

The study performed a descriptive analysis of missing values to identify the number of variables that have incomplete data. Table 5.6-3 reports the summary of the number and proportion of missing data. It appears that only one variable is incomplete in the dataset, which is one of the control variables representing the total number of friends on Facebook (*ln_fb friends*).

Table 5.6-3 Summary of the number and proportion of missing data

Variable	Missing	Total	Percent Missing
performance_ln	0	28,312	0.00
fundingamt_ln	0	28,309	0.00
backers_ln	0	28,310	0.00
fullyfunded	0	28,311	0.00
duration	0	28,312	0.00
fundinggoal_ln	0	28,312	0.00
videoposted_d	0	28,312	0.00
fbfriends_ln	13,287	28,312	46.93
serialentrep	0	28,312	0.00
social_distance	0	28,312	0.00
wordcount_ln	0	28,312	0.00
tone	0	28,312	0.00
excuses	0	28,312	0.00
exemplification	0	28,312	0.00
supplication	0	28,312	0.00
concreteness	0	28,312	0.00

Note: performance_ln = a log-transformed variable for funding performance; fundingamt_ln = a log-transformed variable for funding amount received; backers_ln = a log-transformed variable for number of funders; fullyfunded_d = a dummy variable that identifies whether a project is successful or not; duration = a variable for the length of campaign period for each project; fundinggoal_ln = a log-transformed variable for the target amount; videoposted_d = a dummy variable for projects that had posted a video on the campaign page; fbfriends_ln = a log-transformed variable for the total number of friends on Facebook; serialentrep = an ordinal variable for serial entrepreneur categories; projectcateg = a nominal variable for categorizing creative or technology-based projects; and wordcount_ln = a log transformed variable for the total number of words in risk disclosure section.

c) Imputation phase

The first step in the imputation phase is to identify the number of imputation models and what variables are to be included in the models. This study performed eight imputation models to produce the imputed datasets (4 imputation models include only the control variables while the other four imputation models include all the variables). The imputation models used were similar to those in the previous immediate section (i.e., Section 6.3.4). However, it should be noted that the missing variable, *fbfriends_ln* is a continuous variable.

In the second step, the study needed to identify the appropriate imputation technique and the number of datasets to be input before performing the imputation process. For the current study, one of the standard imputation techniques for multivariate or vector data, the multivariate normal (MVN) distribution has been utilised (Demirtas, Freels & Yucel 2008; ed. Wilks 2011b). Based on Table 5.6-3, the fraction of missing information (F) is quite high (i.e., about 47 %). However, in a simulation study by Demirtas, Freels and Yucel (2008), they concluded that multiple imputations based on the MVN assumption is an appropriate tool in handling missing data even when the normality assumption is violated, and the FMI is high, provided that the researcher has large samples. Another important consideration in the imputation process is to decide the number of imputations (i.e., number of imputed datasets). Enders (2010) suggested that the minimum number of imputed datasets is 20[4]. Meanwhile, other scholars had suggested that the minimum imputed datasets should be at least equal to the percentage of missing values (e.g., see Bodner 2008; White, Royston & Wood 2011). Since the

[4] The rule of thumb for minimum number of imputed datasets was suggested based on a simulation study by Graham, Olchowski and Gilreath (2007).

percentage of missing values is about to 47 %, the study chose to generate 50 imputed datasets, which is higher than the minimum threshold.

After all the pre-imputation procedures had been appropriately identified and setup, the study performed the imputation process for all of the eight imputation models using the *mi* (multiple imputation) module in the Stata 14.2 program. After the imputation process was finished, the study then performed diagnostics analyses to review the imputed datasets. In this study, a Stata module developed by Eddings and Marchenko (2012) was used. The module, known as *midiagplots* helps the researcher to examine the fit of the proposed imputation model by comparing the values between the imputed, observed, and completed data. The observed data are the values used in the imputation process to generate the imputed data, while the completed data is the combination of the observed and imputed data.

Figure 5.6-1 Diagnostic plot of one imputed dataset for the missing variable (fbfriends_ln), no of friends on Facebook for each of the control imputation models (Model 1, 2, 3, and 4)

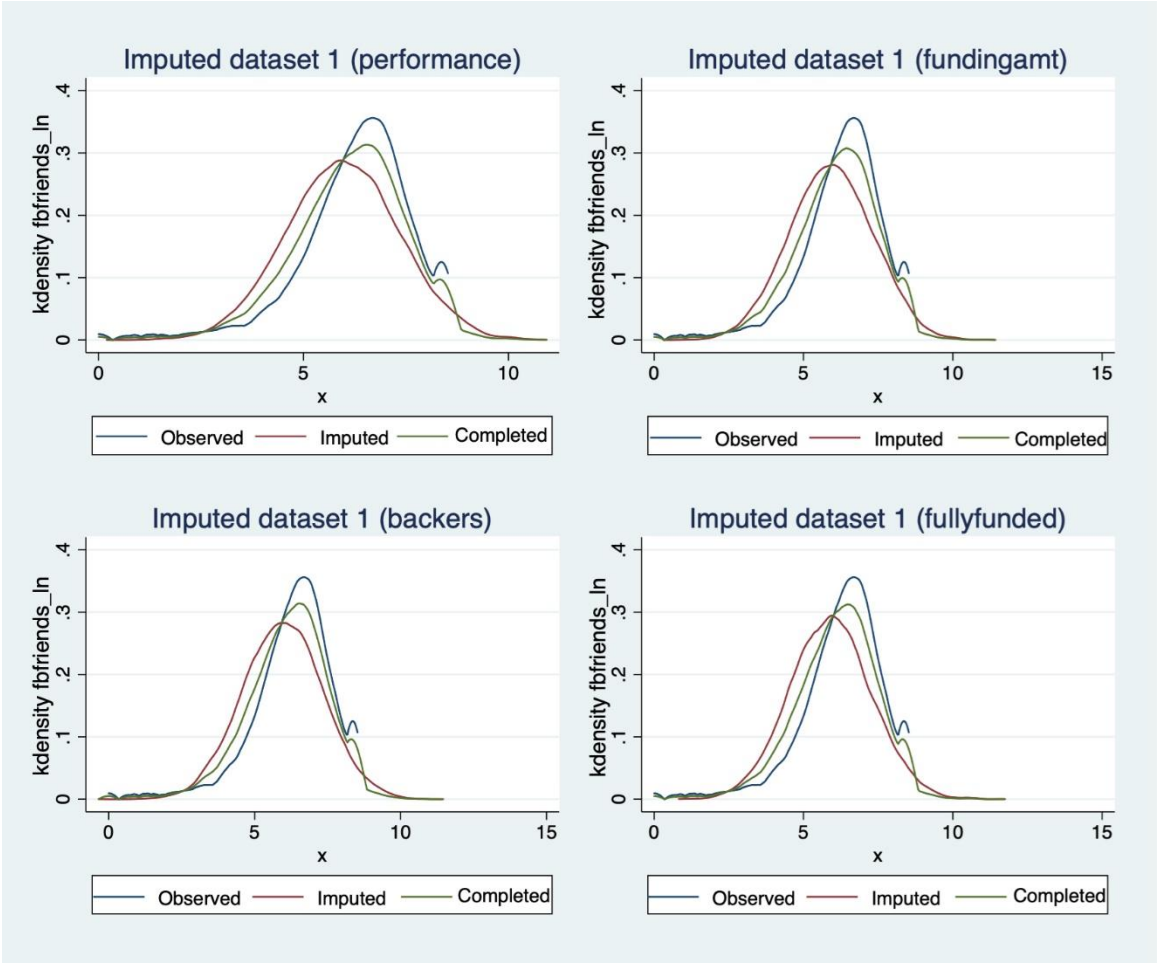
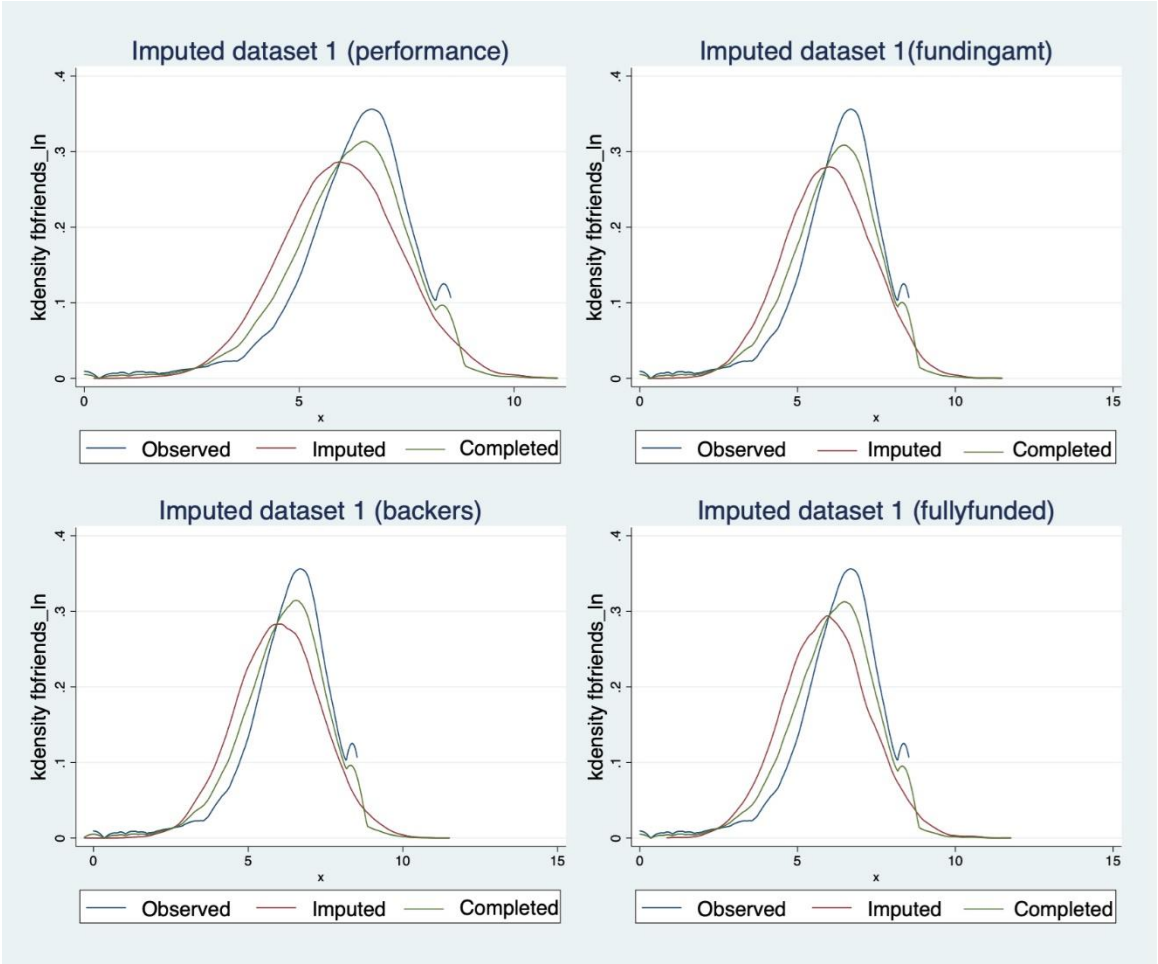


Figure 5.6-2 Diagnostic plot of one imputed dataset for the missing variable (fbfriends_ln), no of friends on Facebook for each of the full imputation models (Model 5, 6, 7, and 8)

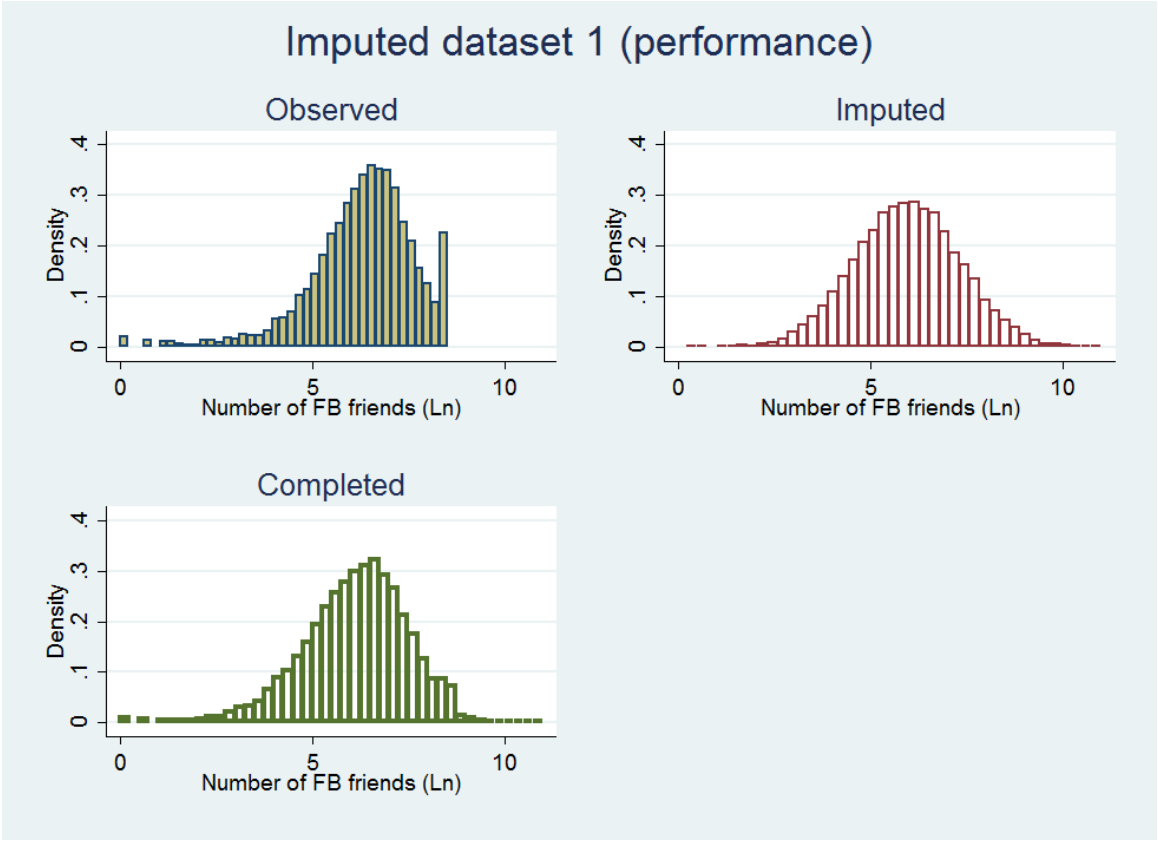


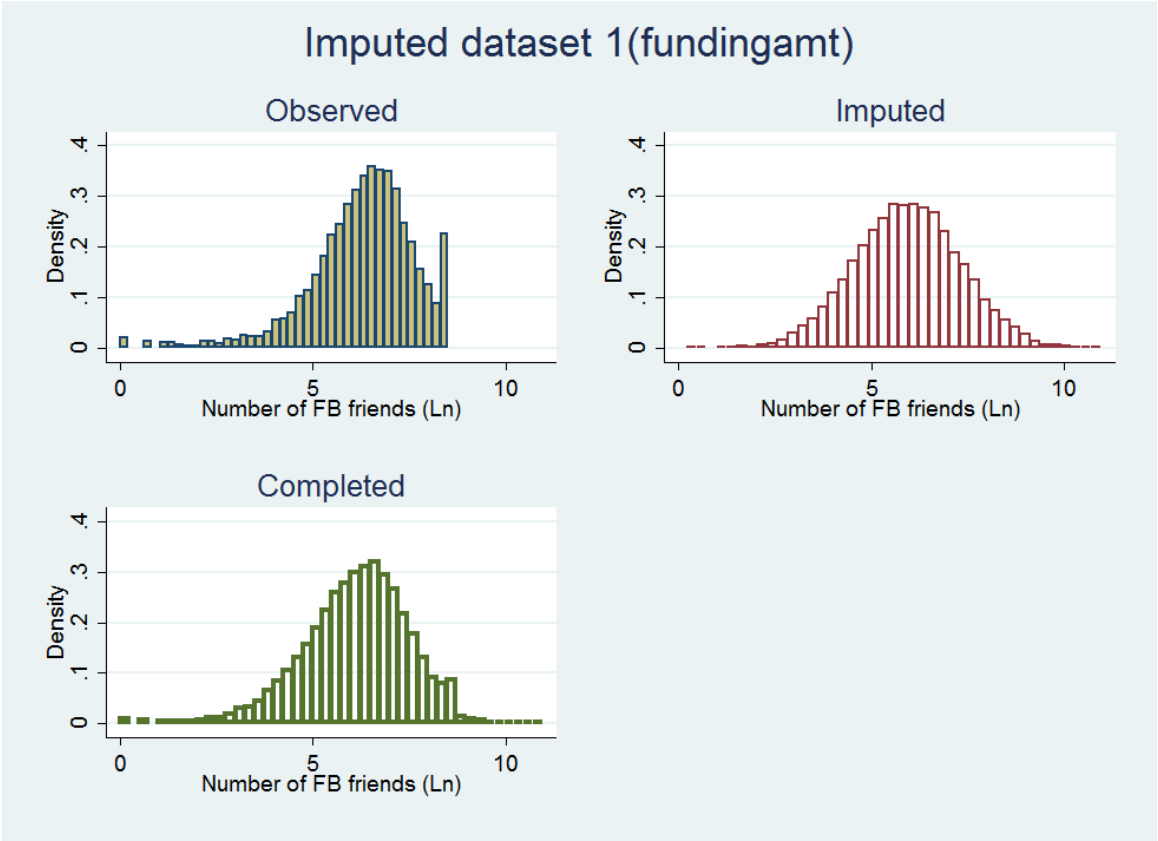
Firstly, the diagnostic was done by examining the kernel density plot produced by the module. Based on the diagnostic plot depicted in Figure 5.6-1 and Figure 5.6-2, the observed values for the number of Facebook friends (fbfriends_ln) are slightly bimodal, but the imputed values are unimodal across all the control and full models. Eddings and Marchenko (2012) noted that this scenario should be expected when using MVN as the imputation technique. However, it is necessary to stress here that the interest of this study lies in the association between crowdfunding success and linguistic cues in risk disclosure, but not in predicting missing values. Therefore, preserving the relationships between variables during the imputation

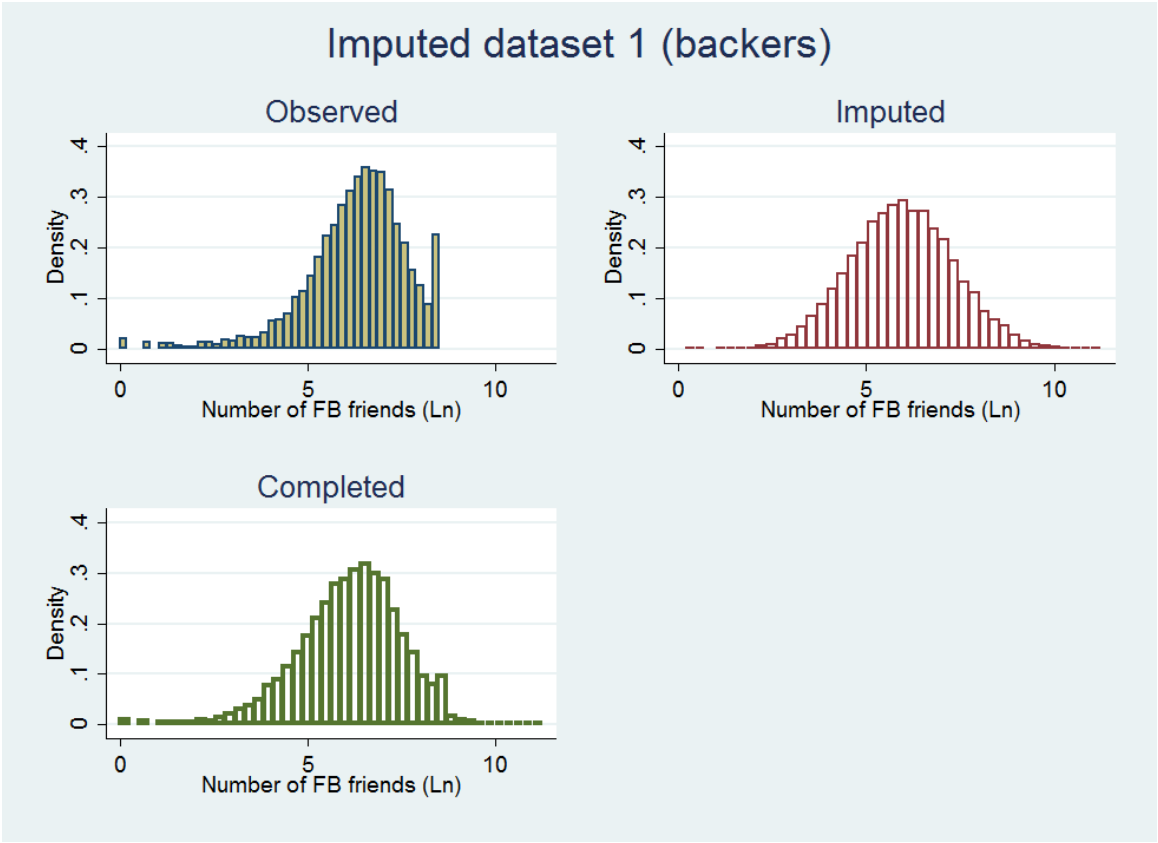
process are more important than in keeping the imputed datasets, to produce valid inference, in the presence of missing data (Nguyen, Carlin & Lee 2017).

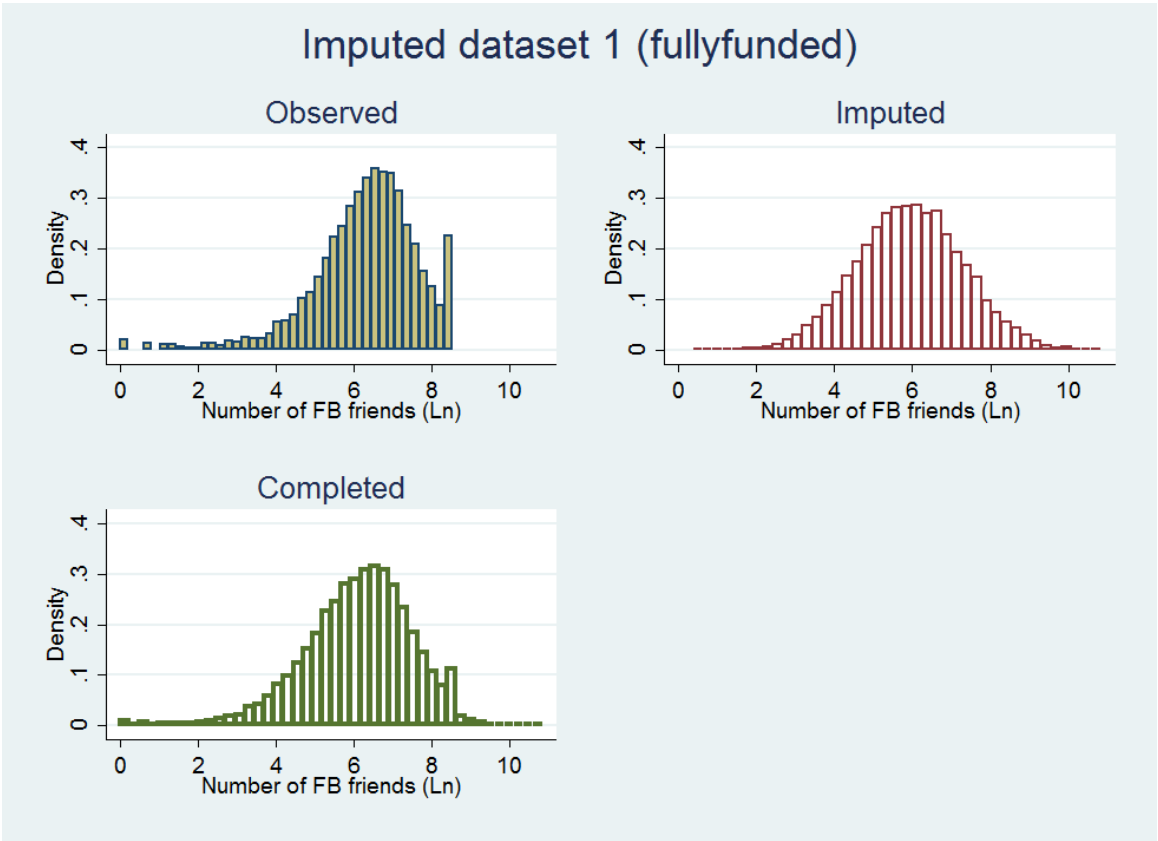
Besides using the kernel density plot, the study also diagnosed the imputed datasets by visualising the distribution values using the histogram graph function in the *midiagplots* module. Both kernel density and histogram plots are the recommended graphical diagnostics for comparing the distribution values between the observed and imputed data (Nguyen, Carlin & Lee 2017). Based on the histogram plots in Figure 5.6-3, the observed values are somewhat symmetric with some outliers at the far-right end of the histogram plots, while the imputed values demonstrate symmetric distribution across all the full spectrum of the imputation models. The symmetric distribution was expected as the study utilised the MVN imputation technique. Thirdly, the study used the combine graph function in the *midiagplots* module, to combine all of the kernel density plots of the 50 imputed datasets into a single graph for each of the full models. Because the graphs (i.e., 4 full models) are quite large, it is more convenient to show them in Appendix 4. Based on the combined density graphs, it was observed that the imputation process had produced the imputed datasets that were suitable for drawing statistical inferences.

Figure 5.6-3 Observed, imputed, and completed distribution values visualized in separate histogram plots for each of the full imputation model






Imputed dataset 1 (backers)
Observed
Imputed
Completed
Density
0
.1
.2
.3
.4
0
5
10
Number of FB friends (Ln)


Imputed dataset 1 (fullyfunded)
Observed
Imputed
Completed
Density
0
.1
.2
.3
.4
0
2
4
6
8
10
Number of FB friends (Ln)

a) Estimation phase

Overall, this study had appropriately adhered to standard procedures in order to achieve the goal of multiple imputations in handling missing data. To be specific, as the interest of multiple imputation lies in preserving the relationship between the variables, the discovered symmetric distribution plots between the observed and imputed data enables this study to proceed with the next step, which is to estimate the models and report the results.

5.6.5 Data Analysis and Control Variables

5.6.5.1 Linguistic Inquiry and Word Count (LIWC)

This study employed the Linguistic Inquiry and Word Count (LIWC, pronounced as “Luke”) software package, a program developed for computerised textual analysis, to explore the existence of constructs in risk disclosures based on the dictionaries. The basic underlying assumption of this program is that the way people use words, when communicating, can provide rich information about their psychological level or state (e.g., various cognitive processes and emotional states – insight, cause, positive emotion and negative emotion) which can predict their behavioural outcomes. The program uses the word count approach and classifies words based on predefined dictionary meanings derived from prior psychological research (Pennebaker et al. 2015). The output of LIWC is the percentage of words captured in each category of the dictionary against the total words in the textual data. LIWC makes it possible to process text faster and classifies multiple words into single categories, making these categories more stable across the textual data (Chung & Pennebaker 2012). The dictionary, which is the heart of LIWC and consists of more than 80 categories was developed and verified by psychologists (Tausczik & Pennebaker 2010).

5.6.5.2 Regression Analysis

Previous crowdfunding research that focused on campaign success used zero-inflated negative binomial regressions to measure (Allison et al. 2015), ordinary least square (OLS) regression (Allison et al. 2015; Beier & Wagner 2015; Belleflamme, Lambert & Schwienbacher 2013; Chen, Thomas & Kohli 2016; Pitschner & Pitschner-Finn 2014), logistic regression (Beier & Wagner 2015; Mollick 2014), Tobit regression (Belleflamme, Lambert & Schwienbacher 2013; Colombo, Franzoni & Rossi-Lamastra 2015), Probit regression (Colombo, Franzoni & Rossi-Lamastra 2015; Cordova, Dolci & Gianfrate 2015; Crosetto & Regner 2014; Cumming, Leboeuf & Schwienbacher 2015; Giudici et al. 2013), and Cox regression (Allison, McKenny & Short 2013) to examine the association between the independent variables and dependent variables.

The current study (Study 2), utilized OLS regression and logistic regression (the Logit model) to examine the effects of the linguistic features of risk disclosure messages on crowdfunding campaign success. The OLS regression examines the association between the independent variables (the risk information categories and linguistic cues of risk disclosure) and the dependent variables (number of funding providers, funding amount, and percentage of funds received). In order to examine the association between the independent variables and one of the dependent variables that uses binary values (Fully Funded: “1” for projects that have successfully reached the target funding and “0” for projects that have not reached the funding goal), Logit regression was used to examine their relationship.

5.6.5.3 Control Variables

Several control variables were used in this study to control the effect of the content categories on crowdfunding success. Following prior research, the researcher included

the funding duration, a natural log for funding goal, a dummy variable for videos posted by the entrepreneurs, a natural log for the number of friends on Facebook, a dummy variable for serial entrepreneurs, and a natural log for the total number of words in the risk disclosure (Butticè, Colombo & Wright 2017; Mollick 2014; Parhankangas & Renko 2017; Skirnevskiy, Bendig & Brettel 2017). To explore the interaction effects in further analyses, the researcher used serial entrepreneurs and project categories information. Serial entrepreneurs are those that have repeatedly launched crowdfunding campaigns on the same platforms (Butticè, Colombo & Wright 2017). As for the project categories information, the study identified and differentiated projects, based on their assigned category (on Kickstarter), into two major groups, namely, the creative-based and technology-based categories. The creative-based group included projects in the art, comics, craft, dance, mucic, and videos categories. While for the technology-based group, it was composed of design, technology, and games categories. Creative-based projects were assigned the value “0” while technology-based took the value “1”.

5.7 Results and Discussion

5.7.1 Descriptive Statistics and Correlation Analysis

Table 5.7-1 presents the summary statistics and correlations among the variables employed in this study, respectively. In total, the dataset consisted of 28,312 projects with both a successful and a failed group which each have an equal number of projects (Section 5.3.1.1, page 79, explains how the sampling process was conducted). The average amount of funding received was USD $35,739. However, there is a large variation between the groups with one successful project which successfully secured up to USD $20,338,987 on the platform, while projects in the failed group received nothing. Similarly, regarding the total number of backers supporting each project, a successful project succeeded in attracting support from 219,383 investors while some projects from the failed group did

not attract any. In terms of the number of successful and failed projects, as noted earlier the sample consisted of an equal number of projects for each group (i.e., each successful and failed group had 14,156 projects). The average campaign duration of the projects in the study dataset was 34 days, ranging from as short as 1 day to the maximum period allowed by Kickstarter of 60 days.

As described in the sampling procedures, the dataset was composed of projects that had funding goals ranging from USD $1,000 to USD $1,000,000 (see Section 5.3.1.1). These procedures led to the average amount asked for by projects of USD $46,565. Looking at the usage of video in the description of projects, the majority of creators included at least one video on their campaign page (i.e., about 66%). Concerning the number of friends on Facebook, the average number was 1,035, with the lowest number of 1 and the highest of 5,038 people. However, it should be noted that only 15,025 out of 28,312 projects provided the link to their Facebook account on their campaign page. This study also included a measure for the serial entrepreneurs, which categorised the number of previous crowdfunding campaigns launched by the project creators. It was reported that the first-timer creators launched most of the projects on the Kickstarter platform (i.e., mean value of 1.51 or about 70% from the total sample – see Table 5.7-1). Another control variable used in this study was the major projects category (i.e., *projectcateg*) that measures which of the two major categories a project used on the platform, either it was technology-based (took a value of 0) or a creative-based (denoted as 0) project. The results showed that the mean value was 0.3, indicating that about 30% of the total sample were technology-based projects.

Turning now to the variables of interest, the results showed that the mean values for OPR, TR and FBR are 8.53, 5.11 and 3.49, respectively. These mean values are quite low which suggest that most of the projects included less than 8% of the risk information related to

these three risk categories. However, by looking at the maximum values, the results indicate that the dictionary for OPR and FBR had been able to identify 100% of the risk information related to these categories in some of the projects. As for TR, the dictionary was able to identify the usage of this type of risk information used by some projects to a maximum value of 67%.

Concerning the amount of risk information disclosed by the entrepreneurs, an average of 115 words was used to discuss risk, with quite a divergent word count ranging from a minimum of only one word and a maximum of 5,333 words. Our dataset suggests that on the one hand, some entrepreneurs only reported there is no risk associated with their projects, by using words or acronyms such as “none” or “NA”. On the other hand, some of them discussed risk in a more detailed fashion by using thousands of words.

Table 5.7-1 Summary Statistics and Correlation Matrix Focusing the Content Categories of Risk Disclosure

		Mean	Std. Dev.	Min	Max	1	2	3	4	5	6	7	8	9	10	11	12	13
1	performance_ln	2.34	5.14	-13.1	878	1.00												
2	fundingamt_ln	35739	4.62	0.0	20338987	0.97*	1.00											
3	backers_ln	373	2.69	0.0	219383	0.90*	0.94*	1.00										
4	fullyfunded	0.5	0.50	0	1	0.91*	0.89*	0.90*	1.00									
5	duration	34	11.46	1	60	-0.19*	-0.13*	-0.13*	-0.19*	1.00								
6	fundinggoal_ln	46565	1.57	6.9	1000000	-0.62*	-0.38*	-0.34*	-0.51*	0.24*	1.00							
7	videoposted_d	0.7	0.47	0	1	0.54*	0.54*	0.50*	0.49*	-0.10*	-0.29*	1.00						
8	fbfriends_ln	1035	1.38	0.0	5038	0.33*	0.33*	0.32*	0.33*	-0.09*	-0.17*	0.20*	1.00					
9	serialentrep	1.51	1.02	1.0	6	0.30*	0.29*	0.34*	0.28*	-0.07*	-0.17*	0.13*	0.06*	1.00				
10	projectcateg	0.30	0.45	0	1	-0.03*	0.04*	0.12*	-0.00	0.06*	0.21*	-0.11*	-0.16*	0.13*	1.00			
11	wordcount_ln	115	0.83	0	5333	0.27*	0.27*	0.27*	0.30*	-0.06*	-0.15*	0.14*	0.10*	0.10*	0.05*	1.00		
12	OPR	8.53	5.05	0	100	0.21*	0.23*	0.26*	0.21*	-0.03*	-0.04*	0.16*	0.01	0.12*	0.18*	0.07*	1.00	
13	TR	5.11	3.80	0	67	0.14*	0.17*	0.15*	0.13*	0.01	0.01	0.08*	0.09*	0.01	0.03*	0.03*	-0.01	1.00
14	FBR	3.49	3.55	0	100	-0.17*	-0.17*	-0.19*	-0.17*	0.04*	0.08*	-0.08*	-0.05*	-0.06*	-0.01	-0.06*	-0.09*	-0.06*
	N			28,312														
	Mean VIF			1.35														
	Maximum VIF			2.74														

Note: *p-value significant at $p < 0.05$; performance_ln = a log-transformed variable for funding performance; fundingamt_ln = a log-transformed variable for funding amount received; backers_ln = a log-transformed variable for number of funders; fullyfunded_d = a dummy variable that identifies whether a project is successful or not; duration = a variable for the length of campaign period for each project; fundinggoal_ln = a log-transformed variable for the target amount; videoposted_d = a dummy variable for projects that had posted a video on the campaign page; fbfriends_ln = a log-transformed variable for the total number of friends on Facebook; serialentrep = an ordinal variable for serial entrepreneur categories; projectcateg = a nominal variable for categorizing creative or technology-based projects; wordcount_ln = a log transformed variable for the total number of words in risk disclosure section; OPR = operational and process risk; TR = team risk; FBR = funding and business risk; and VIF = variance inflation factors. For easier interpretation, the mean, minimum and maximum values for performance_ln, fundingamt_ln, backers_ln, fundinggoal_ln, fbfriends_ln, and wordcount_ln are reported in their actual values.

In terms of correlations, overall, there are weak or moderated correlations for all independent variables. Although most of the correlations were significant at $p < 0.05$, the highest correlation value was only 0.29, suggesting that a multicollinearity problem will not affect the subsequent analyses. To further assess multicollinearity in the dataset, the variance inflation factors (VIFs) were also reported (see Table 5.7-1). The values for both mean VIF (1.35) and maximum VIF (2.74) are well below the acceptable limit of 10.0 for multivariate regression (Hair et al. 2014). The values thus confirmed that a multicollinearity problem does not exist in the dataset that will impair the results of subsequent analyses.

5.7.2 Association between the Content Categories and Crowdfunding Success

Before performing the final regressions, the Breusch-Pagan test was conducted, in which the results showed the existence of heteroskedasticity (significant at $p < 0.05$). Therefore, for hypotheses testing, this study used robust regression (robust standard errors) in dealing with heteroskedasticity that may introduce bias in the standard errors. The robust standard error is a form of heteroskedasticity-consistent covariance matrix (HCCM) approach to correct any heteroskedasticity problem in the dataset (Kaufman 2013). This study performed OLS regression and binary logistic regression using two phases of data analysis involving two datasets, namely the observed and completed (i.e., the combination of the observed and imputed dataset) dataset, which consisted of 15,025 and 28,312 projects, respectively (see Table 5.7-2 and Table 5.7-3). The steps taken on both datasets were similar, in which this study seeks to examine and compare the estimates yielded from the datasets in order to appropriately establish the association between the variables. The regression analysis study firstly regressed only the control models before the full models were regressed in the next step.

5.7.2.1 Results from the Observed Dataset

In the first phase of data analysis using the observed dataset, the first step involved was to conduct the regressions that included only the control variables against all the dependent variables (see Panel A in Table 5.7-2 – Model 1, Model 2, Model 3 and Model 4). In general, the results showed that all of the control variables were associated with the four measures of crowdfunding success with the p-value less than 1% ($p < 0.01$). From the seven control variables, two were negatively associated with crowdfunding success, namely the funding duration (*duration*) and funding goal (*fundinggoal_ln*). The rest of the control variables were found to be positively related to crowdfunding success (i.e., *videoposted_d*, *fbfriends_ln*, *serialentrep*, *projectcateg*, and *wordcount_ln*). These significant results and their relationship directions were consistent across all four measures of crowdfunding success. In Model 1, the study regressed the control variables against funding performance (*performance_ln*). It appears that entrepreneurs that had posted a video to explain the project briefly could substantially boost the funding performance (Model 1, $\beta = 3.733$, p-value = <0.01). Entrepreneurs who had posted at least one video which explained their project were found to not only contribute to a notable increase in the funding performance, but also to increase the increments in the funding amount (Model 2, $\beta = 3.958$, p-value = <0.01), number of backers (Model 3, $\beta = 2.149$, p-value = <0.01), and the likelihood of funding success (Model 4, $\beta = 2.391$, p-value = <0.01). Contrarily, a variable that could largely reduce the funding performance was the funding goal (Model 1, $\beta = -1.563$, p-value = <0.01). The negative influence of the funding goal also can be observed on the funding amount (Model 2, $\beta = -0.621$, p-value = <0.01), number of backers (Model 3, $\beta = -0.303$, p-value = <0.01), and the likelihood of funding success (Model 4, $\beta = -0.925$, p-value = <0.01). Another variable that could impair the overall crowdfunding success was funding duration. The results showed that all four measures of crowdfunding success were least affected by the funding duration with the lowest beta coefficient of -0.009 (funding performance), -0.008 (funding amount), -0.007

(number of backers), and -0.023 (likelihood of funding success), their p values were highly significant at $p < 0.01$. The negative coefficients imply that projects with longer funding duration may reduce their ability to get higher funding performance, higher funding amounts, larger number of backers, and deteriorate the probability of funding success.

Table 5.7-2 The Effects of Risk Information Categories on Crowdfunding Success (Observed Dataset)

	OLS			Logit
	DV: performance_ln	**DV: fundingamt_ln**	**DV: backers_ln**	**DV: fullyfunded**
	Model 1	**Model 2**	**Model 3**	**Model 4**
Panel A				
duration	-0.009**	-0.008**	-0.007**	-0.023**
	(0.002)	(0.003)	(0.001)	(0.002)
fundinggoal_ln	-1.563**	-0.621**	-0.303**	-0.925**
	(0.020)	(0.021)	(0.012)	(0.021)
videoposted_d	3.733**	3.958**	2.149**	2.391**
	(0.062)	(0.067)	(0.037)	(0.056)
fbfriends_ln	0.628**	0.664**	0.394**	0.616**
	(0.020)	(0.021)	(0.012)	(0.024)
serialentrep	0.622**	0.654**	0.507**	0.642**
	(0.022)	(0.023)	(0.015)	(0.034)
projectcateg	1.099**	1.133**	1.073**	0.943**
	(0.066)	(0.070)	(0.043)	(0.065)
wordcount_ln	0.684**	0.725**	0.445**	0.808**
	(0.032)	(0.035)	(0.020)	(0.034)
Constant	0.703*	0.401	-0.918**	-0.939**
	(0.289)	(0.308)	(0.176)	(0.271)
N	15025	15025	15025	15025
Adjusted R-sq / Pseudo R-sq	0.613	0.453	0.443	0.482
RMSE	3.095	3.294	1.943	
AIC	76595.37	78469.48	62609.00	10730.69
BIC	76656.31	78530.42	62669.94	10791.63

	Model 5	Model 6	Model 7	Model 8
Panel B				
duration	-0.007*	-0.007*	-0.006**	-0.022**
	(0.002)	(0.002)	(0.001)	(0.002)
fundinggoal_ln	-1.560**	-0.619**	-0.298**	-0.986**
	(0.019)	(0.021)	(0.011)	(0.023)
videoposted_d	3.482**	3.695**	1.979**	2.305**
	(0.062)	(0.066)	(0.036)	(0.060)
fbfriends_ln	0.598**	0.633**	0.378**	0.624**
	(0.020)	(0.021)	(0.012)	(0.025)
serialentrep	0.576**	0.606**	0.474**	0.619**
	(0.021)	(0.022)	(0.015)	(0.035)
projectcateg	0.876**	0.900**	0.918**	0.740**
	(0.064)	(0.068)	(0.041)	(0.068)
wordcount_ln	0.643**	0.682**	0.415**	0.807**
	(0.031)	(0.034)	(0.019)	(0.036)
OPR	0.096**	0.099**	0.070**	0.090**
	(0.006)	(0.006)	(0.004)	(0.007)
TR	0.119**	0.127**	0.060**	0.086**
	(0.007)	(0.008)	(0.004)	(0.007)
FBR	-0.108**	-0.114**	-0.083**	-0.123**
	(0.010)	(0.010)	(0.007)	(0.009)
Constant	0.263	-0.055	-1.172**	-1.113**
	(0.287)	(0.306)	(0.174)	(0.287)
N	15025	15025	15025	15025
Adjusted R-sq / Pseudo R-sq	0.635	0.482	0.478	0.514
RMSE	3.007	3.203	1.880	
AIC	75730.51	77630.74	61621.39	10070.51
BIC	75814.31	77714.54	61705.18	10154.30

Note: * p<0.05; ** p<0.01
OLS = Ordinary least squares regression; DV = dependent variable; (ln) = log-transformed variables; (d) = dummy variables; standard error in parentheses.

As for the number of friends on Facebook (*fbfriends_ln*), the results showed that entrepreneurs who had a higher number of friends on their Facebook were helped to achieve higher funding performance (Model 1, β = 0.628, p-value = <0.01), received larger funding amounts (Model 2, β = 0.664, p-value = <0.01), attracted more backers (Model 3,

β = 0.394, p-value = <0.01), and increased the probability of funding success (Model 4, β = 0.616, p-value = <0.01). The study also included a variable that categorized serial entrepreneurs, whereby some of the entrepreneurs on Kickstarter had been identified to have launched previous crowdfunding campaigns on the platform (i.e., repeat creators). The results showed that the number of previously launched projects on Kickstarter assisted serial entrepreneurs to get higher funding performance (Model 1, β = 0.622, p-value = <0.01), larger funding amounts (Model 2, β = 0.654, p-value = <0.01), a higher number of backers (Model 3, β = 0.507, p-value = <0.01), and increased their chances of a successful campaign (Model 4, β = 0.642, p-value = <0.01).

Another noteworthy variable included in the control models was *projectcateg*, which categorised crowdfunding projects into two major categories, namely the creative-based and the technology-based categories. The results showed that *projectcateg* can greatly affect the total amount of funding received (Model 2, β = 1.133, p-value = <0.01), funding performance (Model 1, β = 1.099, p-value = <0.01), number of backers (Model 3, β = 1.073, p-value = <0.01), and the likelihood of funding success (Model 4, β = 0.943, p-value = <0.01). The last control variable that was highly related to the focus of this study, *wordcount_ln* was the total number of words used by the entrepreneurs when discussing risk information. The study observed that the total number of words used by the entrepreneurs positively affected all four measures of crowdfunding success. Entrepreneurs who used more words when discussing risk information increased their project's funding performance, funding amount, the number of backers, and the likelihood of funding success.

In order to assess whether the control models were a good fit, this study used the adjusted R-squared for OLS regression, while for logistic regression the Pseudo R-squared was used. The adjusted R-squared values for Model 1, Model 2, and Model 3 were 0.635,

0.482, and 0.478, respectively. These values indicated a good fit for each of the regression models with more than 45% variability in the funding performance, funding amounts received, and the number of backers which could be explained by the control variables. Additionally, the pseudo R-squared value for Model 4 of 0.514 suggested that the model has a good fit in predicting the probability of crowdfunding campaign success. In order to provide a relative comparison of which model has a superior fit, the root-square-mean-error (RMSE), Akaike information criterion (AIC), and Bayesian information criterion (BIC) were also reported. The RMSE, which is only available for OLS regression showed that Model 3 had the lowest RMSE value (1.880) suggesting its superiority over Model 1 (3.007) and Model 2 (3.203). Similar to the RMSE estimator, the AIC and BIC also provided a model comparison. The lower the AIC and BIC value, the stronger the evidence became that the model had superior quality over the other models. As reported in Table 5.7-2, Model 4 was superior as compared to the other three models. However, when the study compared the quality on the OLS regression models only, Model 3 appeared to be of higher quality than Model 1 and Model 2.

In the second step, the study regressed all the control variables and risk information categories (full models) against the four measures of crowdfunding success. The results of the full model regression are reported in Panel B of Table 5.7-2. Based on the results, the study observed that all the control variables in the full models were significant at $p<0.05$, with relatively similar coefficient strength and relationship direction as in the control models. Two control variables were significant and negatively (i.e., funding duration and funding goal) associated with funding performance, the funding amount, the number of backers, and the likelihood of funding success. Meanwhile, variables that were positively associated with the four measures of crowdfunding success were *videoposted_d*, *fbfriends_ln*, *serialentrep*, *projectcateg*, and *wordcount_ln*.

Moving now to the risk information categories or the variables of interest in this study, the reported results showed that OPR, TR, and FBR were associated with crowdfunding success at p<0.01. Both OPR and TR had a positive relationship with all four measures of crowdfunding success, while FBR was found to be negatively related to crowdfunding success. The results for the first risk information category, OPR, indicated that entrepreneurs who give more details on the key operational activities and processes of the project enable them to get higher funding performance (Model 5, β = 0.096, p-value = <0.01), get larger funding amounts (Model 6, β = 0.099, p-value = <0.01), attract more backers (Model 7, β = 0.070, p-value = <0.01), and have a higher likelihood of campaign success (Model 8, β = 0.090, p-value = <0.01). These results hence supported Hypothesis 1a, which states that entrepreneurs who discuss more information related to the operational and process risk in the risk disclosure will positively affect their crowdfunding campaign outcome on the Kickstarter platform.

The second risk information category, the team risk (TR) was also found to be positively associated with all four measures of crowdfunding success, thus supported Hypothesis 1b. The results suggested that entrepreneurs who discuss information related to team risk in the disclosure help to increase their project's funding performance (Model 5, β = 0.119, p-value = <0.01), funding amounts (Model 6, β = 0.127, p-value = <0.01), number of backers (Model 7, β = 0.060, p-value = <0.01), and the probability of campaign success (Model 8, β = 0.086, p-value = <0.01). The study also found support for Hypothesis 1c, which states that disclosing more information related to funding and business risk (FBR) will negatively affect the outcome of crowdfunding campaigns. FBR is the last risk information category examined in this study, where the results showed that entrepreneurs who accentuate the risk with more risk disclosure information related to FBR may reduce their project's funding performance (Model 5, β = -0.108, p-value = <0.01), the amount of funding received (Model 6, β = -0.114, p-value = <0.01), the number of potential backers

(Model 7, β = -0.083, p-value = <0.01), and the probability of funding success (Model 8, β = -0.123, p-value = <0.01).

As for the assessment of model fit, the adjusted R-squared (or pseudo R-squared for logistic regression) values for Model 5, Model 6, Model 7, and Model 8 ranged from 0.48 to 0.64, which suggests a good fit. In terms of identifying the relative quality of the models, the study observed that Model 3 was of relatively higher quality when compared to other OLS regression-based models (Model 5 and Model 6). However, when the AIC and BIC measure were used, the study observed that Model 8 was more superior to all the models.

To summarize the results, the full models fit with the coefficient estimates, and using the observed dataset, are shown below:

Model 5: performance_ln = 0.263 – 0.007 (duration) – 1.560 (fundinggoal_ln) + 3.482 (videoposted_d) + 0.598 (fbfriends_ln) + 0.576 (serialentrep) + 0.876 (projectcateg) + 0.643 (wordcount_ln) + 0.096 (OPR) + 0.119 (TR) – 0.108 (FBR)

Model 6: fundingamt_ln = -0.055 – 0.007 (duration) – 0.619 (fundinggoal_ln) + 3.695 (videoposted_d) + 0.633 (fbfriends_ln) + 0.606 (serialentrep) + 0.900 (projectcateg) + 0.682 (wordcount_ln) + 0.099 (OPR) + 0.127 (TR) – 0.114 (FBR)

Model 7: backers_ln = -1.172 – 0.006 (duration) – 0.298 (fundinggoal_ln) + 1.979 (videoposted_d) + 0.378 (fbfriends_ln) + 0.474 (serialentrep) + 0.918 (projectcateg) + 0.415 (wordcount_ln) + 0.070 (OPR) + 0.060 (TR) – 0.083 (FBR)

Model 8: fullyfunded = -1.113 – 0.022 (duration) – 0.986 (fundinggoal_ln) + 2.305 (videoposted_d) + 0.624 (fbfriends_ln) + 0.619 (serialentrep) + 0.740 (projectcateg) + 0.807 (wordcount_ln) + 0.090 (OPR) + 0.086 (TR) – 0.123 (FBR)

5.7.2.2 Results from the Completed Dataset

In the second phase of data analysis, this study conducted regression analysis using the completed dataset (28,312 projects), which is a dataset that combines the observed (15,025 projects) and imputed dataset (13,287 projects). The second Table 5.7-3 reports the estimates of the relationship between risk information categories and crowdfunding campaign success. Overall, the results showed that all the control variables and risk information categories were associated with the four measures of crowdfunding success at $p < 0.01$; with similar relationship directions in the observed dataset (see Panel A of Table 5.7-2 and Table 5.7-3 for the comparison). The consistency of the obtained results was expected because this study adopted the multiple imputation technique using the multivariate normal distribution method.

Table 5.7-3 The Effects of Risk Information Categories on Crowdfunding Success (Completed Dataset)

	OLS			**Logit**
	DV: performance_ln	**DV: fundingamt_ln**	**DV: backers_ln**	**DV: fullyfunded**
	Model 1	**Model 2**	**Model 3**	**Model 4**
Panel A				
Duration	-0.006**	-0.006**	-0.005**	-0.018**
	(0.002)	(0.002)	(0.001)	(0.002)
fundinggoal_ln	-1.558**	-0.615**	-0.296**	-0.892**
	(0.014)	(0.015)	(0.009)	(0.016)
videoposted_d	3.798**	4.034**	2.186**	2.443**
	(0.044)	(0.048)	(0.028)	(0.044)
fbfriends_ln	0.648**	0.680**	0.403**	0.618**
	(0.019)	(0.019)	(0.011)	(0.021)
Serialentrep	0.690**	0.727**	0.546**	0.700**

	(0.020)	(0.021)	(0.012)	(0.026)
Projectcateg	1.239***	1.280***	1.129***	1.028***
	(0.046)	(0.048)	(0.028)	(0.047)
wordcount_ln	0.717***	0.762***	0.462***	0.814***
	(0.024)	(0.026)	(0.015)	(0.025)
Constant	0.001	-0.338	-1.334***	-1.645***
	(0.220)	(0.233)	(0.135)	(0.211)
N	28312	28312	28312	28312
Average RVI	0.139	0.138	0.119	0.145
Largest FMI	0.430	0.412	0.398	0.433
Adj. R-sq / Pseudo R-sq	0.616	0.46	0.451	0.485

	Model 5	**Model 6**	**Model 7**	**Model 8**
Panel B				
Duration	-0.005**	-0.005**	-0.004**	-0.018**
	(0.002)	(0.002)	(0.001)	(0.002)
fundinggoal_ln	-1.552**	-0.608**	-0.288**	-0.951**
	(0.013)	(0.014)	(0.008)	(0.018)
videoposted_d	3.526**	3.743**	2.000**	2.346**
	(0.043)	(0.046)	(0.027)	(0.046)
fbfriends_ln	0.612**	0.648**	0.385**	0.621**
	(0.018)	(0.019)	(0.011)	(0.021)
Serialentrep	0.651**	0.684**	0.516**	0.681**
	(0.019)	(0.020)	(0.012)	(0.027)
Projectcateg	0.980**	1.012**	0.948**	0.791**
	(0.045)	(0.048)	(0.028)	(0.049)
wordcount_ln	0.677**	0.718**	0.433**	0.823**
	(0.023)	(0.025)	(0.015)	(0.026)
OPR	0.093**	0.096**	0.069**	0.086**
	(0.004)	(0.004)	(0.003)	(0.004)
TR	0.124**	0.132**	0.066**	0.092**
	(0.005)	(0.006)	(0.003)	(0.005)
FBR	-0.104**	-0.109**	-0.075**	-0.119**
	(0.005)	(0.006)	(0.003)	(0.006)
Constant	-0.429*	-0.819**	-1.622**	-1.825**
	(0.217)	(0.230)	(0.132)	(0.231)
N	28312	28312	28312	28312
Average RVI	0.104	0.109	0.099	0.126
Largest FMI	0.399	0.426	0.364	0.418
Adj. R-sq / Pseudo R-sq	0.637	0.490	0.486	0.519

Note: * p<0.05; ** p<0.01
OLS = Ordinary least squares regression; DV = dependent variable; (ln) = log-transformed variables; (d) = dummy variables; standard error in parentheses.

The results for the variables of interest in the risk information categories provide additional support to Hypothesis 1a, Hypothesis 1b and Hypothesis 1c. Consistent with the previous results for the observed dataset, the first two variables (OPR and TR) in the completed dataset were positively associated to funding performance, the amount of funds received, the number of backers, and the likelihood of campaign success at $p < 0.01$ (see Panel B of Table 5.7-3). In a similar fashion, the FBR was also found to be negatively associated with the four measures of crowdfunding success.

In terms of the model fit, the study used the adjusted R-squared for the OLS regression and pseudo R-squared for logistic regression. The estimation of R-squared for multiple imputed datasets was not directly accessible and calculated through the multiple imputation process (i.e., estimation phase in the multiple imputation process). Therefore, this study used the *mibeta* module or package developed by Harel (2009) to compute the adjusted R-squared for OLS regressions (e.g., Model 5, Model 6, and Model 7). As for the pseudo R-squared (e.g., Model 8), the study adopted a code suggested in the Stata user forum operated by the company (StataCorp LLC 2016). Overall, the results showed that all of the models had a good fit where the values of the adjusted R-squared (or pseudo R-squared for logistic) ranged from 0.49 to 0.64. To summarise the results, the study has shown that the risk information categories were associated with crowdfunding success, either in the observed or completed dataset (see Table 5.7-4 for the explanation of the estimates between the observed and completed dataset). The results thus lend support to the hypothesis, which suggest that risk disclosure in crowdfunding campaigns contains useful information for the risk assessment process and helps backers to make informed funding decisions.

Table 5.7-4 Summary of the explanation of the estimates between the observed and completed dataset for risk information categories

Model	Risk information category	Explanation of the full model equation	
		Observed Dataset	**Completed Dataset**
Model 5: performance_ln	OPR	An increase of one-unit in the concreteness level would results in approximately 10.1% increase in funding performance, provided that other variables are held constant	An increase of one-unit in the concreteness level would results in approximately 9.75% increase in funding performance, provided that other variables are held constant
	TR	An increase of one-unit in tone would results in approximately 12.6% increase in funding performance, provided that other variables are held constant	An increase of one-unit in tone would results in approximately 13.2% increase in funding performance, provided that other variables are held constant
	FBR	An increase of one-unit in excuses would results in approximately 11.4% increase in funding performance, provided that other variables are held constant	An increase of one-unit in excuses would results in approximately 11% increase in funding performance, provided that other variables are held constant
Model	**Risk information category**	**Explanation of the full model equation**	
		Observed Dataset	**Completed Dataset**
Model 6: fundingamt_ln	OPR	An increase of one-unit in the concreteness level would results in approximately 10.4% increase in funding amount received, provided that other variables are held constant	An increase of one-unit in the concreteness level would results in approximately 10.1% increase in funding amount received, provided that other variables are held constant

	TR	An increase of one-unit in tone would results in approximately 13.5% increase in funding amount received, provided that other variables are held constant	An increase of one-unit in tone would results in approximately 14.1% increase in funding amount received, provided that other variables are held constant
	FBR	An increase of one-unit in excuses would results in approximately 11.4% increase in funding amount received, provided that other variables are held constant	An increase of one-unit in excuses would results in approximately 11.5% increase in funding amount received, provided that other variables are held constant
Model	**Risk information category**	**Explanation of the full model equation**	
		Observed Dataset	**Completed Dataset**
Model 7 backers_ln	OPR	An increase of one-unit in the concreteness level would results in approximately 7.3% increase in the number of backers supporting the project, provided that other variables are held constant	An increase of one-unit in the concreteness level would results in approximately 7.1% increase in the number of backers supporting the project, provided that other variables are held constant
	TR	An increase of one-unit in tone would results in approximately 6.2% increase in the number of backers supporting the project, provided that other variables are held constant	An increase of one-unit in tone would results in approximately 6.8% increase in the number of backers supporting the project, provided that other variables are held constant

	FBR	An increase of one-unit in excuses would results in approximately 8.7% increase in the number of backers supporting the project, provided that other variables are held constant	An increase of one-unit in excuses would results in approximately 7.8% increase in the number of backers supporting the project, provided that other variables are held constant
Model	**Risk information category**	**Explanation of the full model equation**	
		Observed Dataset	**Completed Dataset**
Model 8: fullyfunded	OPR	An increase of one-unit in the concreteness level would results in approximately 0.09 increase in the log-odds of funding success, provided that other variables are held constant	An increase of one-unit in the concreteness level would results in approximately 0.086 increase in the log-odds of funding success, provided that other variables are held constant
	TR	An increase of one-unit in tone would results in approximately 0.086 increase in the log-odds of funding success, provided that other variables are held constant	An increase of one-unit in tone would results in approximately 0.092 increase in the log-odds of funding success, provided that other variables are held constant
	FBR	An increase of one-unit in excuses would results in approximately 0.123 decrease in the log-odds of funding success, provided that other variables are held constant	An increase of one-unit in excuses would results in approximately 0.119 decrease in the log-odds of funding success, provided that other variables are held constant

5.7.3 The Interaction Effects Between Project Major Category and the Content Categories of Risk Information on Crowdfunding Success

Table 5.7-5 (a, b, and c) reports the interaction analysis between two predictors, which are the project major category (creative and technology-based groups) and the three risk information categories (OPR, TR, and FBR) on crowdfunding success. To assess the interaction effects, the study regresses the project major category and OPR against the three measures of crowdfunding success, namely funding performance, funding amount, and the number of backers. The regression was conducted using robust standard error. As shown in Table 5.7-5a, the interaction effect between project major category and OPR (*projectcateg#c.OPR*) on funding performance, funding amount and the number of backers was significant at $p<0.01$, suggesting that the slopes were significantly different.

To provide a more understandable analysis of the results, the study further used the adjusted predictions and marginal effects analysis in the Stata program using the *marginsplot* command. Figure 5.7-1 shows the results of the *marginsplot* which illustrates how the slopes are significantly different between creative (funding performance = 0.136; funding amount = 0.126; and the number of backers = 0.09) and technology-based (funding performance = 0.402; funding amount = 0.376; and the number of backers = 0.230) projects. All the slopes were positive and significant for both groups, with the technology group found to be a steeper slope than the creative group. The results suggest that the positive effects of OPR on crowdfunding success are more pronounce for the technology-based projects, thus providing additional support for Hypothesis 1d.

Table 5.7-5 Analysis of the main and interaction effects between project major category and risk information categories on crowdfunding success

a. Main and interaction effects of project's major category and operational and process risk (OPR)

DV: Funding Performance (performance_ln)	Coefficient	Std. error	P > t	Decision
Main Effect				
Technology	-3.269	0.135	0.000	
OPR	0.136	0.007	0.000	
Interaction Effect (projectcateg#c.OPR)				
Technology	0.266	0.013	0.000	
DV: Funding Amount (fundingamt_ln)				
Main Effect				
Technology	-2.376	0.121	0.000	Accept Hypothesis 1d
OPR	0.126	0.007	0.000	
Interaction Effect (projectcateg#c.OPR)				
Technology	0.250	0.011	0.000	
DV: Number of Backers (backers_ln)				
Main Effect				
Technology	-0.911	0.070	0.000	
OPR	0.085	0.004	0.000	
Interaction Effect (projectcateg#c.OPR)				
Technology	0.145	0.007	0.000	

b. Main and interaction effects of project's major category and team risk (TR)

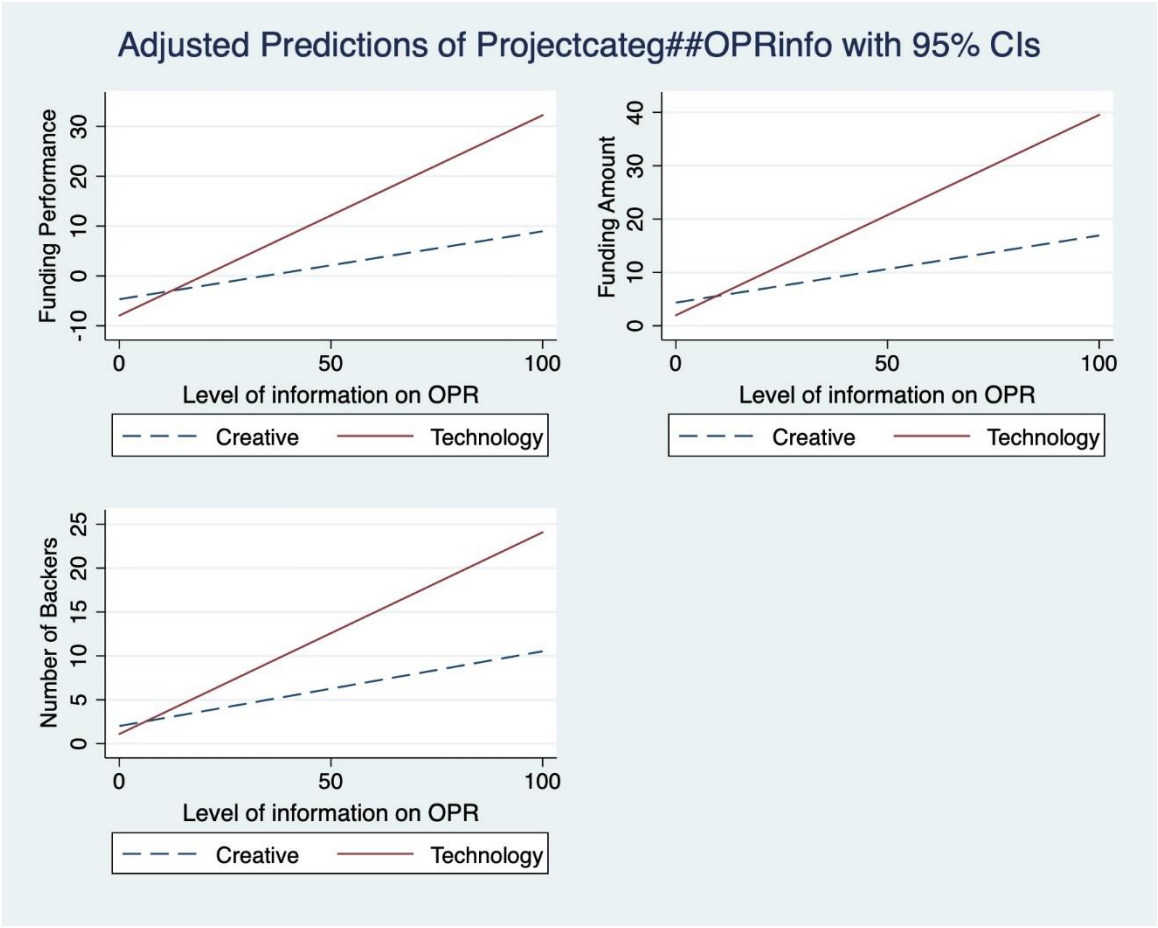
DV: Funding Performance (performance_ln)	Coefficient	Std. error	P > t	Decision
Main Effect				
Technology	-1.176	0.115	0.000	
TR	0.152	0.009	0.000	
Interaction Effect (projectcateg#c.TR)				
Technology	0.147	0.018	0.000	
DV: Funding Amount (fundingamt_ln)				
Main Effect				Accept Hypothesis 1e
Technology	-0.457	0.103	0.000	
TR	0.164	0.008	0.000	
Interaction Effect (projectcateg#c.TR)				
Technology	0.146	0.016	0.000	
DV: Number of Backers (backers_ln)				
Main Effect				
Technology	0.129	0.060	0.000	

TR	0.079	0.005	0.000	
Interaction Effects (projectcateg#c.TR)				
Technology	0.103	0.009	0.000	

c. Main and interaction effects of project's major category and funding and business risk (FBR)

DV: Funding Performance (performance_ln)	Coefficient	Std. error	P > t	Decision
Main Effects				
Technology	0.721	0.095	0.000	
FBR	-0.166	0.010	0.000	
Interaction Effects (projectcateg#c.FBR)				
Technology	-0.317	0.020	0.000	
DV: Funding Amount (fundingamt_ln)				
Main Effects				
Technology	1.322	0.085	0.000	Accept Hypothesis 1f
FBR	-0.153	0.009	0.000	
Interaction Effect (projectcateg#c.FBR)				
Technology	-0.283	0.018	0.000	
DV: Number of Backers (backers_ln)				
Main Effect				
Technology	1.276	0.050	0.000	
FBR	-0.098	0.005	0.000	
Interaction Effect (projectcateg#c.FBR)				
Technology	-0.170	0.102	0.000	

Figure 5.7-1 The Interaction Effects of Creative Versus Technology-Based Projects on the Relationship between the Operational and Process Risk (OPR) and Crowdfunding Success



Note: The slopes for the two groups (creative vs. technology-based projects) interacting with OPR for the three measures of crowdfunding success are as follow:

1) funding performance: creative = 0.136*; technology = 0.402*;
2) funding amount: creative = 0.126*; technology = 0.376*; and
3) number of backers: creative = 0.09*; technology = 0.230*

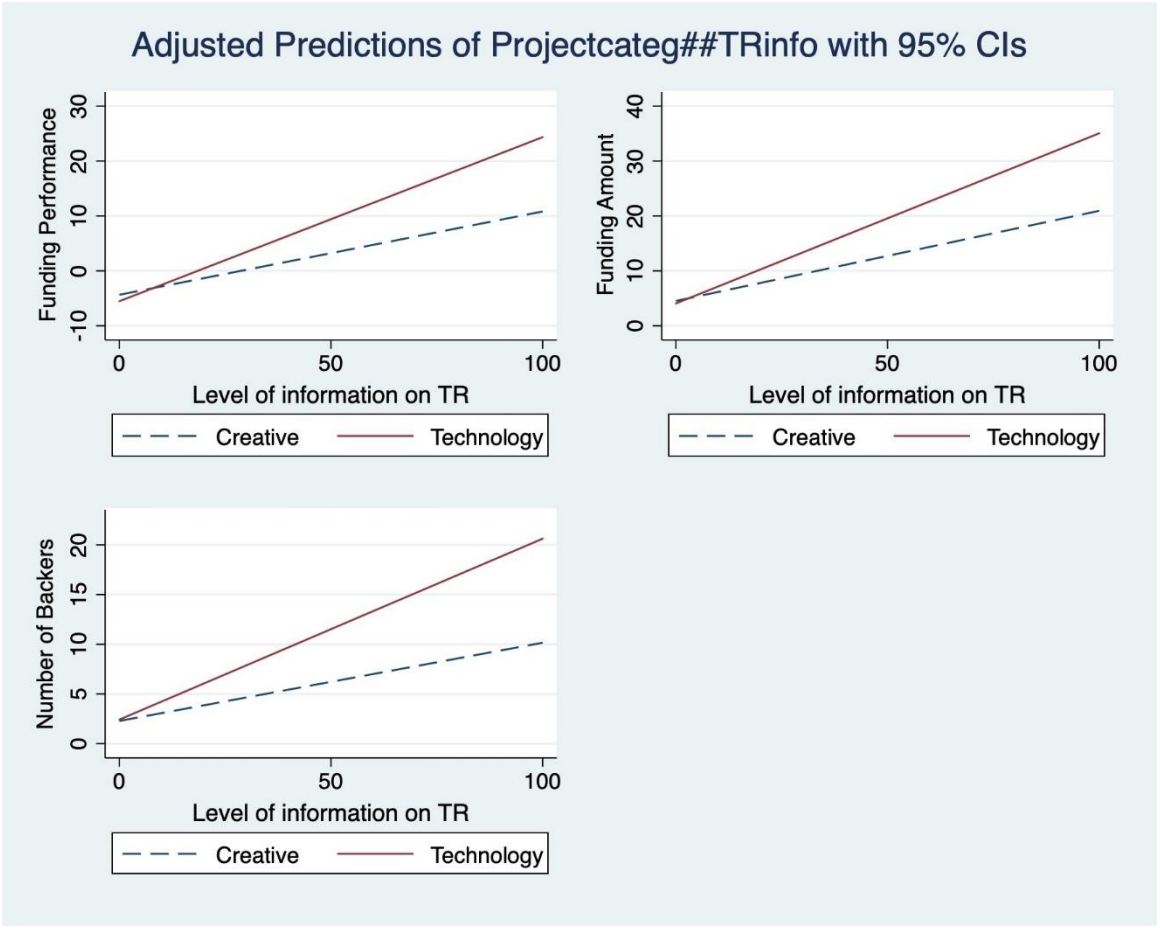
*p<0.01

Similar to the OPR results, both the main and interaction effects between the project major category and team risk (TR) were significant at p<0.01 for all three measures of crowdfunding success (see Table 5.7-5b). The results thus partially support Hypothesis 1e. Additionally, the positive slopes for both groups of the project major category (creative

vs. technology), as shown in Figure 5.7-2, were significantly different. Both groups had significant slopes at $p<0.01$, with the values of the three slopes for creative (funding performance = 0.152; funding amount = 0.164; and the number of backers = 0.08) much lower than the slopes for the technology-based (funding performance = 0.299; funding amount = 0.310; and the number of backers = 0.182) group. The steeper or higher slope values for technology group implied that the positive effects of discussing information related to team risk are greater for technology-based projects, consistent with the prediction of this study as stated in Hypothesis 1e.

As for the interaction analysis related to funding and business risk (FBR), the study also found support of the interaction effects of the project major category on the relationship between the predictor (FBR) and crowdfunding success (see Table 5.7-5c). The interaction effects were found to be significant for all three measures of crowdfunding success at $p<0.01$. These results suggested that there were interaction effects between the project major category and FBR in influencing crowdfunding success; hence it partially supported Hypothesis 1f. Figure 5.7-3 further illustrated how the project major category moderates the relationship between FBR and crowdfunding success. As shown in Figure 5.7-3, the negative slopes for both groups were significant and different to one another. The three slopes for technology group (funding performance = -0.483; funding amount = -0.436; and the number of backers = -0.268) were steeper than the creative group (funding performance = -0.166; funding amount = -0.153; and the number of backers = -0.10). These results provided additional support for Hypothesis 1f, which predicted that the negative effects of disclosing more information related to funding and business risk are greater for technology-based projects.

Figure 5.7-2 The Interaction Effects of Technology Versus Creative Based Projects on the Relationship between the Team Risk (TR) and Crowdfunding Success

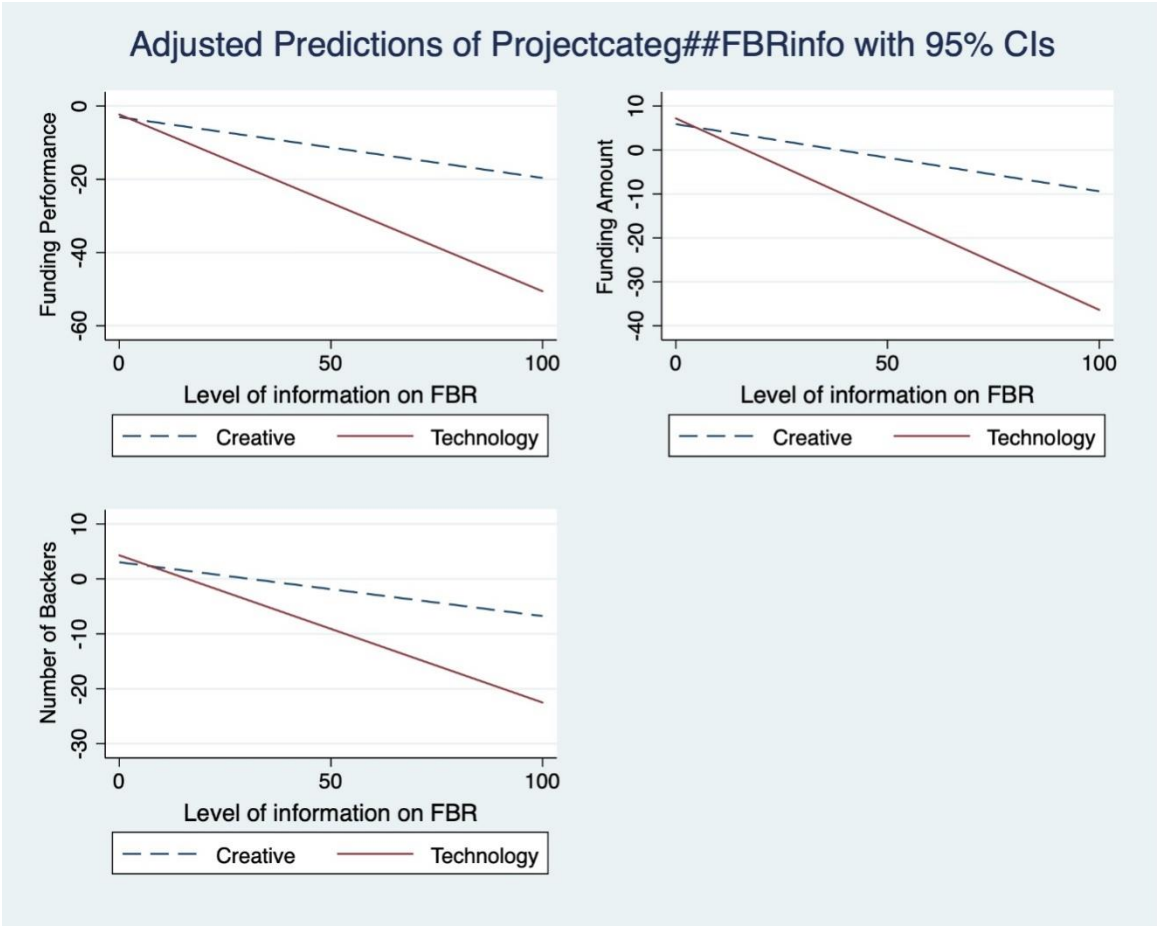


Note: The slopes for the two groups (creative vs. technology-based projects) interacting with TR for the three measures of crowdfunding success are as follow:

1) funding performance: creative = 0.152*; technology = 0.299*;
2) funding amount: creative = 0.164*; technology = 0.310*; and
3) number of backers: creative = 0.08*; technology = 0.182*

*p<0.01

Figure 5.7-3 The Interaction Effects of Technology Versus Creative Based Projects on the Relationship between the Funding and Business Risk (FBR) and Crowdfunding Success



Note: The slopes for the two groups (creative vs. technology-based projects) interacting with FBR for the three measures of crowdfunding success are as follow:

1) funding performance: creative = -0.166*; technology = -0.483*;
2) funding amount: creative = -0.153*; technology = -0.436*; and
3) number of backers: creative = -0.100*; technology = -0.268*

*p<0.01

5.8 Chapter Summary

Drawing from the costly signalling theory, entrepreneurs can send various signals to potential backers as a strategy to persuade backers to fund their project. On Kickstarter, one strategy is to use the risk disclosure section, which is a specific section imposed by the platform to discuss, or disclose, risks and challenges associated with the project. The disclosure is mandatory for any entrepreneur who wishes to launch a crowdfunding campaign; hence entrepreneurs should be able to plan a strategy for the types of risk information needed so that potential backers can interpret the disclosure as quality signals and eventually create favourable effects on the campaign outcome. Therefore, this study explores the types of risk information to be communicated by the entrepreneurs from both groups (i.e., successful and failed) and how this communication is associated with crowdfunding success. By investigating the practice of risk disclosure specific to a crowdfunding context, this study contributes to the understanding of the mechanisms of crowdfunding success by exploring the types of risk information communicated and discussed by entrepreneurs in the risk disclosures and how the disclosures influence the outcome of crowdfunding campaigns. To do so, this study employed a computer-aided text analysis approach on a comprehensive dataset derived from Kickstarter. Overall, the main findings suggest that there are three main risk information categories communicated by the entrepreneurs. The first category relates to key operations and process risk which was found to be positively associated with crowdfunding success. The second category deals with the ability of the team to complete the project and deliver their promises, hence denoted as team risk. This type of risk was also found to affect crowdfunding success positively. The last type of risk is said to be related to the funding and business risk, which indicates an entrepreneur who has a high dependency on the outcome of the campaign and those who regard this project as business-oriented. This is the only type of risk information communicated by the entrepreneurs that had influenced crowdfunding success negatively.

CHAPTER 6

STUDY 3: THE ROLE OF LINGUISTIC CUES IN RISK DISCLOSURES ON CROWDFUNDING SUCCESS

6.1 Introduction

This chapter focuses on investigating the role of linguistic cues embedded in risk disclosures on crowdfunding success through two theoretical lenses, language expectancy theory (LET) and impression management (IM). First, the chapter discusses relevant literature and develops hypotheses drawn from the language expectancy theory and impression management strategy. Second, the methodology adopted is presented, particularly the measurement of the variables and the data analysis techniques. It should be noted that this study performed data analysis using the observed and completed dataset. Because of the missing data values in one of the control variables, the observed dataset was imputed to get the completed dataset. Several multiple imputation phases were conducted to ensure that the imputed dataset met the interests of this study. Third, the results for the effects of language concreteness and impression management strategies are presented. The following section will discuss the findings and conclude the chapter.

6.2 Literature Review and Hypotheses Development

6.2.1 Language Expectancy Theory

The language expectancy theory (LET) was first introduced by Burgoon and Chase (1973) with an objective to develop a model of resistance to persuasion. The main focus of LET is on the expectancies, which are the norms or shared understanding of how people should communicate appropriately in a given situation or social context (Burgoon 1993). In a review of the theory, Burgoon, Denning and Roberts (2002) described that LET attempts to explain the language of persuasion based on three propositions. The first proposition is concerned with traditional passive message reception where a persuader communicates the message to a target audience with the main objective of changing the audience's attitudes and/or behaviours. Second is a proposition for a situation that occurs in the active participation paradigm, where both parties exchange and/or communicate messages. In this situation, individuals are assumed to be self-persuaded and who usually produce messages that are different from their privately held attitudes, which subsequently influence them to change their privately held attitudes into behaviour. The final situation is concerned with how the relationships between the language and expectancy violations influence the resistance to persuasion model. As a result, the expectations of communication are assumed to be affected by three factors, namely the communicator (e.g., related to the communicator's characteristics such as gender, social status, and credibility), the relationship between the communicators (e.g., between a subordinate with a superior, between a seller with a potential buyer, and between an entrepreneur with a potential investor), and the context of the situation (e.g., in a meeting room, during an interview, and during a business or seller's pitch). In short, the theory suggests that the social language communication involves a rule-based system, in which people are expected to produce messages that are appropriate or which conform to the norms or shared understanding of a given social context or situation.

6.2.2 The Association Between Language Expectancy of Risk Disclosures and Crowdfunding Success

In this study, the language expectancy theory (LET) has been further applied to explain the effects of language style used by entrepreneurs when disclosing risk information on a crowdfunding campaign's success. The study argues that LET is highly relevant in helping one understand the role of risk disclosure in crowdfunding campaigns from both the entrepreneurs' (sender) and the funders' (receiver) perspectives for two reasons. Firstly, communication research suggests that the reaction of receivers depends on how the information was presented to them (e.g., Allison, McKenny & Short 2014). In Kickstarter campaigns, entrepreneurs are under an obligation to communicate risk information in the last section of the project description; however, despite this requirement, entrepreneurs have the discretion of what and how much risk information they disclose to the potential funders, and they decide the appropriate style of language used in the risk disclosure section. Experienced entrepreneurs would take this opportunity to persuade funders that the level of risk in their project is low and to signal that they are fully prepared. Furthermore, as mentioned in the previous section, entrepreneurs pitch their business proposal or project ideas directly to potential funders, who are the receivers of the information. This opportunity allows entrepreneurs to use various communication strategies to attract potential funders and help their campaign to succeed (e.g., Ahlers et al. 2015; Courtney, Dutta & Li 2017; Kim, Buffart & Croidieu 2016; Mollick 2014).

Secondly, backers who back crowdfunding projects are also considered to be consumers in the pre-ordering scheme (reward-based crowdfunding). Belleflamme, Lambert and Schwienbacher (2014) have defined and divided these consumers into two groups: 1) "crowdfunders", who support the project by pre-purchasing the product; and 2) "regular" consumers, who wait for the product to be released before they purchase it. The first group of consumers or crowdfunders is also known as backers, funders, investors, and sponsors.

These terms were used interchangeably in crowdfunding research by scholars who used datasets originated from reward-based crowdfunding platforms (e.g., Belleflamme, Omrani & Peitz 2015; Courtney, Dutta & Li 2017; McKenny et al. 2017; Mollick 2014; Mollick & Nanda 2016; Skirnevskiy, Bendig & Brettel 2017). In order to provide consistency, this study refers to the crowdfunders as backers, as the term is not only used widely for reward-based crowdfunding by the academic community, but also by the Kickstarter platform itself. Given that the funding process in crowdfunding usually involves the evaluation and judgement of backers based on information communicated by entrepreneurs, LET is subsequently seen to be highly relevant to crowdfunding research. Furthermore, LET has been discussed as a promising theory in understanding the effects of using appropriate language in an online setting (Jensen et al. 2013) so that the effects of risk disclosure language on backers' funding decisions are positive.

Based on the language expectancy theory, entrepreneurs are assumed to communicate information using a certain language that is appropriate or matched to the potential backers' expectations. Any violations in the language expectations by the entrepreneurs may reduce the persuasion effect of the communicated messages. In the context of risk disclosures in entrepreneurial settings, risk is generally understood as a likelihood or probability of failure in the opportunity exploitation process (Forlani & Mullins 2000). As such, risk disclosure is generally viewed as communicating negative information to the potential backers. Specific to the context of risk disclosure on the Kickstarter platform, entrepreneurs were recommended to disclose any risks or challenges they face in the project and to suggest an action plan to mitigate those risks or challenges (Strickler, Chen & Adler 2012). Based on this specific context and LET, potential backers may expect the risk disclosure to contain two pieces of information. Firstly, by assuming that the quality of the entrepreneurs is held equal, their risk disclosures should have an appropriate level of risk information. Second, given the negative nature of risk disclosure, the entrepreneurs

should use persuasive language particularly related to their proposed strategy to mitigate such risks, which could cause the backers to believe that they have more control in the project.

The study argues that persuasive language is expected to be used by the entrepreneurs as a concrete language. Language concreteness may provide two signals of hypotheticality to the backers such as the hypotheticality of risk information itself and the hypotheticality of the proposed strategies. The hypotheticality of risk information is when the entrepreneurs are assumed to have the required or previous experience and knowledge to deal with the risks. Furthermore, it is said that experienced entrepreneurs have a better position, especially in delineating risks associated with their ventures (Allison, McKenny & Short 2014). For the hypotheticality of proposed strategies, the entrepreneurs may discuss proposed strategies using less hypothetical language written as: “we have secured two suppliers who have worked with us before to supply the hardware components at the stipulated time. So, rest assured that production delay is not our major concern”. This language is concrete and does not bring up additional questions in the backers’ minds. Entrepreneurs should not employ highly hypothetical language such as “we have identified three potential suppliers from China, and we will contact them once this campaign hits the funding goal”. This example is not concrete and would cause backers to wonder about or question the supply chain. Also, as implied by Lermer et al. (2016), entrepreneurs with a more risk-averse strategy tend to develop concrete thinking and therefore communicate less hypothetical information in their risk mitigation strategies. Clearly, potential backers expect the entrepreneurs to use more concrete language in risk disclosures, so that, entrepreneurs who approach risk disclosure using this strategy are at an advantage when persuading the backers to fund their project.

In evaluating the feasibility of crowdfunding projects, funders may assess the information and form judgments based on the choice of words and language used by the entrepreneurs. Words and language are the essence of communication and have been utilized by psychology and communication researchers as the medium to understand the psychological aspects of human beings (Tausczik & Pennebaker 2010). This includes the use of words to determine the concreteness of the language. Therefore, this study suggests that the concreteness of risk disclosure language in crowdfunding campaigns is reflected in funders' decisions to fund the projects, which in turn may result in the final projects' campaign outcomes (successful vs. failed projects).

Risk disclosure that is construed as using more concrete and less hypothetical language helps funders better comprehend and simplifies the evaluation process. Parhankangas and Renko (2017) claimed that by using concrete language in describing crowdfunding projects, it allowed funders to develop a faster and deeper understanding of the projects as opposed to abstract language. Furthermore, when evaluating risk disclosure information, concrete language is suggested to facilitate venture evaluation by helping funders to conveniently use their own abilities in the evaluation process which increases their willingness to give funds (Elliott, Rennekamp & White 2015). Allison, McKenny and Short (2014) indicated that using concrete language when disclosing risk in the information memoranda was positively associated with the amount of funding received. Specific to a crowdfunding context, they concluded that concrete language, in general, facilitates the funding process of crowdfunding projects which is irrelevant to the types of project concerned (social vs. commercial-focused projects). Furthermore, the persuasion strategy of a written communication describing future events was more likely to use a higher degree of concrete language (e.g., Bhatia & Walasek 2016). Collectively, using concrete language is expected to signal competency, preparedness, and the precautionary behaviour of

entrepreneurs, and to assist their funding process. It can, therefore, be conceivably hypothesised that:

Hypothesis 2a: Risk information construed as using a higher degree of language concreteness in the disclosure is positively related to crowdfunding success.

6.2.3 The Moderating Influence of Temporal and Social Distance

Because the dimensions of psychological distance, of the CLT, are suggested to be interconnected to each other (Trope & Liberman 2010), the researcher further explored the role of temporal and social distance in influencing the effect of hypotheticality on backers' decisions. Related to the concept of temporal distance, entrepreneurs need to decide the funding duration of their crowdfunding campaign. The funding duration is based on the entrepreneurs' discretion, in which they can set it to end in one day or up to the maximum period of sixty days. Wakslak (2012) pointed out that hypothetical judgement is influenced by temporal distance. By using an experimental research design, Wakslak (2012) showed that people match hypotheticality with temporal distance by associating hypothetical events to happen at some distant future time, and associating less hypothetical events to take place in the near future. Another study by Bhatia and Walasek (2016) also supported the positive relationship between language concreteness and temporal distance. They suggested that when senders match language concreteness with temporal distance, it will have a greater influence on the receivers' judgment by using more concrete language for proximal events and abstract language for distant events. In the context of risk disclosure in crowdfunding campaigns, therefore, it can be seen that the positive effects of language concreteness will be stronger for projects which end the funding period in the near future. Hence, this study hypothesises that:

Hypothesis 2b: Temporal distance moderates the relationship between the degree of language concreteness and crowdfunding success, with the positive effects of language concreteness being greater for projects that target the funding period to conclude in the near future.

Besides the temporal distance, social distance is also suggested as being psychologically related to hypotheticality. Studies have shown that people generally relate less hypotheticality to someone who is close to them (Bar-Anan, Liberman & Trope 2006; Berson et al. 2015; Darke et al. 2016). In their experimental design study, Bar-Anan, Liberman and Trope (2006) showed that by using an implicit association test on seventeen psychology students, it was easier and faster for the participants to associate concrete concepts with social proximity.

Berson et al. (2015) further reviewed the applicability of different language concreteness and social distance to a study on the effects of visions and goals communication toward followers' motivational effectiveness. Their findings suggested that social distance moderates the relationship between the different levels of message concreteness (i.e., visions are relatively communicated using more abstract language than goals communication which is more concrete) and followers' motivation. A study by Darke et al. (2016) elicited results implying that physically distant or virtual retailers could improve trust and purchase intention by reducing social distance (e.g., using websites, sharing pictures and business addresses). Similar to crowdfunding campaigns, backers are usually distant from entrepreneurs both socially and spatially (Agrawal, Catalini & Goldfarb 2014). Therefore, we see that entrepreneurs who try to reduce the social distance of potential backers in a campaign could positively affect their campaign success. Consequently, this study hypothesises that:

Hypothesis 2c: Social distance moderates the relationship between the degree of language concreteness and crowdfunding success, with the positive effects of language concreteness greater for projects with low social distance.

6.2.4 Impression Management Theory

Impression Management (IM) is a goal-directed process of performing any behaviour, by people who seek to influence the attributes and impressions others have of them, in a favourable way (Parhankangas & Ehrlich 2014; Tedeschi 1981). Leary and Kowalski (1990a) argued that managing impressions is important as it will influence how others perceive, evaluate, and treat a person. According to Leary and Kowalski (1990a), impression management involves two phases. The first phase is a person who needs to be motivated to create an impression, which is known as “impression motivation”. It is the strength of a person’s motivational factors and their desire to achieve a specific goal. Tedeschi (1981), in his comprehensive discussion of impression management, provided classifications, and explanations into the six main factors of why people manage impressions. People are said to manage impression when they want to play social roles in a symbolic interaction, to avoid blame and gain credit, to maintain self-esteem, to perform strategic self-presentation, to exert power and social influence, and to create connotative impressions. Leary and Kowalski (1990a) further included additional motivational factors such as the goal-relevance of impressions, the value of desired goals, and the discrepancy between the desired and the current image.

The second phase of impression management is to create the impression, which Leary and Kowalski (1990a) defined as the “impression construction”. Once people are motivated to create certain impressions, they may adjust or develop their behaviours to influence others’ impressions of them. This can be done effectively by deciding and strategising how they will create the desired impression. For example, they need to decide

and strategise whether to create the desired impression through their self-description, through verbal behaviour or through their nonverbal behaviour (Leary & Kowalski 1990a).

In the context of crowdfunding and risk disclosure, entrepreneurs are motivated to create the intended impression in order to obtain financial support from the investors. This is particularly important when dealing with the solicitation of funds in an online funding environment such as crowdfunding where the entrepreneurs may find that it is difficult to not think of the impressions funders form about them and the project (Leary & Kowalski 1990b). This motivation alone justifies the need to use impression management when communicating risk-related information in a way that can influence the funders by using various impression management strategies.

6.2.5 The Association between Impression Management Strategies in Risk Disclosure and Crowdfunding Success

Since crowdfunding campaigns are principally involved in solicitation and marketing communication strategies through the communication between entrepreneurs and potential backers (Tirdatov 2014), they are surrounded with the effects of persuasion and impressions when presenting risk information in a favourable way. Parhankangas and Ehrlich (2014) argued that one of the pre-eminent challenges faced by entrepreneurs is to make the investors believe in their idea by presenting it favourably and persuasively. Clercq and Voronov (2009) proposed that one of the success factors in acquiring resources is the ability of an entrepreneur to stand out as an innovator through their impression management strategies. Therefore, it is expected that entrepreneurs will use related impression management strategies in disclosing risk publicly so that the negative nature of risk information will be suppressed or overthrown by the intended favourable impressions.

According to Cialdini (1989), impression management strategies can be categorised into direct and indirect strategies. Direct strategies involve “presenting information about one’s traits, abilities, and accomplishments” while indirect techniques deal with the enhancement or protection of “one’s image by managing information about the people and things with which one is simply associated” (Cialdini 1989). As the focus of this study is risk information (risk messages) communicated by entrepreneurs on their crowdfunding campaign page, direct strategies are more relevant since the techniques show how entrepreneurs could design and present risk information concerning their projects using verbal behaviours. Verbal behaviour can be defined as the use of spoken or written words by people to create and manage their desired impressions (Bolino et al. 2008). Four impression strategies that are relevant to entrepreneurs’ risk communication in soliciting funds from crowdfunding are tone management, excuses, exemplification, and supplication.

6.2.5.1 Tone

Emotion has been considered an important aspect of human communication and the decision-making process (Loewenstein 2000), which has influenced the cognitive processing of a message (Burleson & Planalp 2000). Emotions are also argued to be as equally important as the cognitive aspect of the ELM model and play a more central role in information processing since it could lead to a stable and longer change of attitude (Morris, Woo & Singh 2005). In the impression management theory, one of the motivating factors that lead people to manage the impressions of others is to create connotative impressions (Tedeschi 1981) which can be achieved by using certain emotional words which have positive, negative or neutral meaning (connotation). Empirically, Guo (2014) showed that the use of emotional language by top managers, when presenting the company’s past and future performance at conferences, had a significant influence on investors’ decision-making.

In the context of crowdfunding, entrepreneurs might disclose or frame risk information differently. Entrepreneurs tend to be overconfident and more optimistic about the probable outcomes of their entrepreneurial ventures (Carsrud & Brännback 2009), and therefore, might frame the risk message in quite different ways from non-entrepreneurs. Furthermore, in contrast to the quality of risk disclosure (disclosing more risk information to backers), the use of more emotional words in risk disclosure is virtually cost-free to entrepreneurs.

From the economic perspective, the use of emotional language in a corporate narrative by managers might be interpreted as “cheap talk” and ignored, or cause a negative reaction from the investors (mostly by the sophisticated investors). However, in crowdfunding, most funding providers are the general public, which Stemler (2013) showed to be unsophisticated investors. They are socially cautious and participate in crowdfunding activity only to be connected with the community and to support others (Agrawal, Catalini & Goldfarb 2014). Early qualitative study that had investigated the emotional aspect of crowdfunding by Tirdatov (2014) proposed that entrepreneurs use a higher degree of emotional (*phatos*) and rational (*logos*) language based on Aristotle’s three appeals in the 13 most funded projects’ descriptions posted on Kickstarter. Therefore, stated formally:

Hypothesis 2d: The tone of the entrepreneurs in communicating risk information positively influence crowdfunding campaign outcomes.

6.2.5.2 Excuses

Impression management strategy through excuses is used by people to remove or relieve their responsibility when bad circumstances happen (Bolino et al. 2008; Schlenker 1978; Scott & Lyman 1968) and protect themselves from negative publicity (Hassan 2012).

According to Scott and Lyman (1968), when people are questioned about their involvement in an accident, they may relieve their responsibility by “pointing to the generally accepted hazards in the environment and the human incapacity to control all the motor response.” In the context of corporate reporting, companies tend to react and use excuses by attributing negative organisational outcomes to external factors (Merkl-Davies & Brennan 2007). Aerts (2005) pointed out that many studies have documented and provided robust support for such managers’ behaviour. Companies tend to attribute negative company outcomes, for example bad financial performance, to uncontrollable external business factors such as inflation, government policy, currency fluctuation, and other economic factors (Aerts 2005). Merkl-Davies and Brennan (2007) argued that people or companies that fear to face public failure will be motivated to use excuses to repair their damaged image.

In the corporate reporting context, excuses could be used to repair a damaged image due to bad or poor past performance, however, excuses in the context of acquiring resources in entrepreneurial finance, may provide a different perspective. Despite using excuses as reactive impressions management strategies, entrepreneurs could also use them proactively by indicating the common potential risks and challenges associated with a new ventures. In the crowdfunding context, for example, delay risk has been considered common among crowdfunding projects where most of projects have reported experiencing such risk (Mollick 2014). In communicating this risk information, entrepreneurs may attribute the potential delay to external factors such as having problems with their suppliers or manufacturers, the unavailability of components, issues with certification, and other unforeseen events. Entrepreneurs that discuss such risk might have the specific aim of imparting the belief that the high level of risk is a norm and should be expected and is acceptable in crowdfunding. Therefore, the study hypothesises that:

Hypothesis 2e: The excuses strategy used by entrepreneurs in communicating risk information generates positive effects on crowdfunding campaign outcomes.

6.2.5.3 Exemplification

Exemplification involves any behaviour that a person exhibits to portray themself as dedicated, focused, virtuous, and industrious (Bolino et al. 2008; Connolly-Ahern & Broadway 2007; Nagy et al. 2012). Exemplification strategies are primarily used to create a favourable and positive impression of oneself (Bolino & Turnley 1999, 2003). In a study of corporate impression strategies on corporate websites, Connolly-Ahern and Broadway (2007), found that most of the study's sample used the exemplification strategies to create a positive online impression. In the context of crowdfunding, entrepreneurs may try to persuade backers by pointing out that they have put a significant amount of effort and time into the project and as a result this should reduce the projected risks. In a related study by Parhankangas and Ehrlich (2014), it was found that using exemplification can increase the chance of entrepreneurs to be invited by business angels to present their investment proposals, hence increase their chances to get angel funding. Although no empirical evidence to date has proved a link between exemplification strategies in communicating risk and the success of a crowdfunding campaign, it seems sensible that such a linkage exists. Therefore, the study hypothesises that:

Hypothesis 2f: Using the exemplification strategy by portraying their dedication, focused, virtuousness, and industry in the risk disclosure provides positive effects on the outcome of the entrepreneurs' crowdfunding campaigns.

6.2.5.4 Supplication

Supplication is considered the last resort behaviour that people use to construct impression management (Tedeschi 1981). Supplication strategies involve presenting information to create an impression of neediness by describing one's dependencies and limitations in order to obtain help from others (Bolino et al. 2008; Bolino & Turnley 2003; Parhankangas & Ehrlich 2014; Tedeschi 1981). The purpose of supplication is to solicit attention and sympathy from socially responsible people (Tedeschi 1981). This strategy assumes people are generally bound by the norms of social responsibility and will help others who are perceived to be in need. In the context of entrepreneurs' solicitation of money through crowdfunding, they may use supplication strategies to communicate risk by indicating or emphasising that, for example, the money, and not the potential risk, is the main or only obstacle preventing them from making their project dreams and ideas into reality . Therefore, the study hypothesises that:

Hypothesis 2g: The supplication strategy used by entrepreneurs to create an impression of neediness when communicating risk information positively affects crowdfunding campaign outcome.

6.3 Methodology

This section presents the methods employed for Study 3. The section starts with the measurements for the linguistic variables and the dependent variables. The following discussion proceeds with the procedures and techniques undertaken for data analysis

6.3.1 Measurement of Language Concreteness

In order to measure the *language concreteness* of risk disclosure, the study adopts a similar work by Craig, Mortensen and Iyer (2013) in measuring the positivity of language. The concreteness of language in risk disclosure was calculated to be the difference between the percentage of usage of concrete and abstract words from the total word counts, divided by the sum of the percentage of usage of concrete and abstract words from the total word counts:

Concreteness = (Percentage of Concrete Words – Percentage of Abstract Words) /

(Percentage of Concrete Words + Percentage of Abstract Words)

By using the above, the formula will eliminate measurement bias by including both the concrete and abstract words to examine language concreteness. For example, Parhankangas and Renko (2017) measured concrete language by taking the sum of a number of articles, prepositions, and quantifiers to measure concrete language, ignoring the potential usage of abstract language by the entrepreneurs and its effects on crowdfunding success. This one-sided measurement introduced bias into the analysis and made the inferred conclusion incomplete. Entrepreneurs might use a higher degree of concrete words when disclosing risk while at the same time using a considerably higher amount of abstract words as well. An abstract language might affect the communication process either in a positive or negative way. For example, it was reported that abstract

language could also lead to positive signals that show the power of the communicator (e.g., Wakslak, Smith & Han 2014) and could convey more information about the communicators' personality (Beukeboom, Tanis & Vermeulen 2013). This will increase the effect of the concrete language. Conversely, abstract language was also subjected to negative effects which impeded the ability to assess risk as the information was less verifiable and disputable, thus reduced the effect of the concrete language. Therefore, by including both the concrete and abstract words into the measure, it provides a complete picture of understanding of the impacts of linguistics management in risk disclosure on crowdfunding success. In order to measure the number of concrete words used in the risk disclosure, this study used the combination of the LIWC dictionary and the verbs from the linguistic category model (LCM). For the LIWC dictionary, the study used the same measure as Larrimore et al. (2011) and Parhankangas and Renko (2017) by totalling the number of articles, prepositions and quantifiers. Because risk is generally viewed as the probability of failure in the opportunity exploitation process (Forlani & Mullins 2000), the study further included an additional category of *certainty* to the measure. *Certainty* words signal the extent to which the entrepreneurs are confident of the risks involved, their proposed strategies, and what has been accomplished to mitigate the risks (e.g., *certainty* words include "assure", "factual", "complete", and "proof"). For LCM, the study included two categories of verbs – "*descriptive action verb*" (DAVs) and "*interpretative action verb*" (IAVs). DAVs and IAVs are considered to be more concrete in the language category model. DAVs (e.g., acquire) and IAVs (e.g., adopt) provide references to a single behavioural event as well as references to specific objects and situations (Semin & Fiedler 1991). For this construct, the higher values indicate more usage of concrete language.

To study the usage of abstract words, this study measures the concept by totalling the number of words in the "*tentative*" category in the LIWC dictionary and the "*state verb*" (SVs) category of the linguistic category model. *Tentative* words are the opposite of

certainty, which signal the extent to which entrepreneurs are uncertain about risks they may encounter, unclear about what to do when such risks appear, and when the proposed strategies to face the risks are indefinite (e.g., words such as “seem”, “might”, “somehow”, and “suppose”). As for the linguistic category model, SVs are the most abstract action verbs (e.g., appreciate) that correspond to mental or emotional states and which do not have a clear beginning or end (Semin & Fiedler 1991). Higher values of this construct suggest a greater usage of abstract language.

6.3.2 Measurement of Impression Management Strategies

6.3.2.1 Tone

This study measured the tone used by entrepreneurs in disclosing risk information by classifying it into positive and negative emotions. In order to measure positive and negative language, this study used the previously validated measures from Pennebaker et al. (2015) in the LIWC2015 program. After the positive and negative words were identified and measured, the tone of the text was computed according to the formula proposed by Craig, Mortensen and Iyer (2013).

$$Tone = \frac{(Positive\ word\ count - Negative\ word\ count)}{(Positive\ word\ count + Negative\ word\ count)}$$

Below are examples of risk disclosure statements that contain higher levels of positive and negative words.

Positive words:

“The biggest risk is making sure that we make the best possible book and get it to you on time. We learned alot from our last project and have gained alot of experience. We also have a great network of top industry artists that we 've worked with before and who can get great work to us on time! We 've also set up an awesome logistics and production system so we can get all phases of your book completed and get it to you as quickly as possible. We have warehouses in the US and UK, a great book designer and premium printer and customer service teams waiting to get started. Most importantly, we 've also started the production phases and have detailed schedules in place that will allow us to get your book to you on time. We are serious when we say that YOU will love every single page of this book or YOU get your money back. Thanks!”.

Negative words:

“My challenge is that I face a lot of obstacles personally. Family issues, financial instability, fear of overall failure. This will be a very rough transition for me. As of now, I’m looking for a job to supplement me while I complete this goal. But I do feel that entering the culinary field will bring me to the next level in my life. I feel that my biggest obstacle will be if things fall through for me financially. To be honest, this is a huge wall for me to overcome. Once this is settled everything else will fall into place. I will have a better understanding of how to organise myself this week when I go and pick out my classes. I also have a select group of people that are my support group through this transition”.

6.3.2.2 Excuses

Excuses were measured by counting the total number of words used by entrepreneurs to change the subject focus and relieve their responsibility from the risks and challenges of the project to the generally accepted risks, challenges, threats from any external environment factors, and by attributing risks in the external environment factors that have or could negatively affect their projects' performance and outcomes. To measure the excuses strategy used by entrepreneurs in discussing risk information in a crowdfunding campaign, this study used the previously validated measure by Pennebaker et al. (2015) in the LIWC2015 program. The measurement for the excuses strategy is a combination of the three psychological measures in LIWC2015, namely the "Risk", "Common Adverbs", and "Causation" category as well as some self-constructed words. Examples of words for the "Risk" category include: averse, careful, cautious, difficult, fail, fault, and problem. Words from the "Common Adverbs" category include; apparently, commonly, generally, fortunately, however, nevertheless, nonetheless, and from the "Causation" category include; because, cause, effect, affect, depend, factor, force, influence, and lead. An example of a risk disclosure statement that contains the excuses strategy is as follows:

"Though it's difficult to plan for every unforeseen circumstance, such as climatic or political events that delay production, we've invested significant ground work in contingency plans should these type of problems arise. Nonetheless, we are certain to face unexpected challenges throughout this journey and will do our best to solve them efficiently. We've pinpointed the top factories capable of handling this type of highly customized luggage production and have backup suppliers in case our chosen partner falls through. We pledge to keep our backers well informed throughout the entire production process and commit to doing everything in our power to deliver Trunkster without significant delay".

6.3.2.3 Exemplification

The exemplification strategy was measured by counting the total number of words used by entrepreneurs to communicate his/her (team/venture's) efforts which attempted to appear dedicated, passionate, focused, virtuous, and industrious. The main objective was to show readiness and preparedness in the entrepreneurial venture. In order to measure the exemplification strategy with the perspective of risk disclosures in a crowdfunding campaign, this study used two previously validated measures for the "Achievement" and "Time Orientations" category in LIWC2015 program by Pennebaker et al. (2015). Examples of words for the "Achievement" category are; able, achieve, actualize, attain, attained, beat, confidently, determined, driven, excellent, fully, success, successful, work, and working, and for the "Time Orientations" category include; ago, did, talked, done, today, now, believe, may, will, and soon. An example of a risk disclosure message that contains words associated with the exemplification strategy is as follows:

"We have a fully functioning and fully tested design that is ready to go. We only need your support to manufacture and ship the first production run. We are confident that it will take us 5 to 7 weeks to produce our first production run and feel good that we will ship in the end of September. Nonetheless, we have chosen to state that we are shipping in October so we cannot just meet our customer's expectations but beat them".

6.3.2.4 Supplication

This study measured the supplication strategy by counting the number of words used by entrepreneurs to portray himself/herself (his/her team or venture) as dependent individuals to create an impression of neediness in which to obtain funds from the crowd. To measure the supplication strategy, a combination of a self-constructed dictionary which includes words, that are related to the act of asking for assistance; such as accommodate, afford,

assist, back, help, need, please, seek, lend, and support, and words from the “Social” category in LIWC2015 were used. The following is an example of the supplication strategy used in a risk disclosure:

“*This event will be truly unforgettable , but we need your assistance getting it on its feet. If you care about seeing more thought-provoking, boundary-breaking, highly-curated performance art productions in the Ann Arbor area, please lend us your support in this endeavor. This event's success could open the door to future magnificent productions brought to you by this ground-breaking team, as well as functioning as an inspirational springboard for other up-and-coming creatives in the area. We hope that our efforts will lead to a new standard for curation and production value in our local performing arts scene and beyond*”.

6.3.3 Measurement of Crowdfunding Success

As in Study 1, Study 2 used the same measures for crowdfunding success, namely, fully funded, number of funding providers, the funding amount, and funding performance. The definitions for all of the variables can be found in Section 5.6.3.

6.3.4 Data Analysis and Control Variables

Similar to the previous study (Study 2), this study (Study 3) also employed OLS regression and the Logit model to examine the effects of linguistic cues in risk disclosure messages on crowdfunding campaign success. The OLS regression examines the association between the independent variables (linguistic features of risk disclosure messages) and the dependent variables (number of funding providers, the funding amount, and funding performance). In order to examine the association between the independent variables and one of the dependent variables that use binary values (Fully Funded: “1” for projects that

have successfully reached the target funding and “0” for projects that have not reached the funding goal), logistic regression was used to examine their relationship.

Several control variables were used in this study to control the effect of the language concreteness on crowdfunding success. Following prior research, this study included the funding duration, the natural log of the funding goal, a dummy variable for videos posted by the entrepreneurs, the natural log of the total number of Facebook friends, a dummy variable for entrepreneurs that had previously launched crowdfunding campaigns (serial entrepreneurs), an ordinal variable for social distance, and the natural log of the total number of words in the risk disclosure (see Bornemann & Homburg 2011; Butticè, Colombo & Wright 2017; Mollick 2014; Parhankangas & Renko 2017). It should be noted that the natural log transformation on the control variables (e.g., funding goal) was employed to correct the skewness in the data.

A control variable to account for the fixed effects of crowdfunding categories (i.e., *projecateg*) was not included because two additional dummy variables have been introduced, namely the *serialentrep* and *social_distance*. First, a nominal control variable *serialentrep* was included to examine the effect of serial entrepreneur categories (entrepreneurs or creators who have more than one campaigns launched). Another nominal control variable *social_distance* was introduced to measure the degree of social distance between the creators and potential backers. When these two variables were included in the model, the researcher had to drop the *projectcateg* used in Study 2 because one of the four regression models was having a convergence problem. The convergence was not achieved for the logit model. In order to address this problem, one of the control variables was suggested to be omitted (Allison, 2008). The issue was solved when *projectcateg* was omitted.

Below are the regression models employed in this study:

Control Models

Model 1: performance_ln = $\beta_0 + \beta_1$(duration) + β_2(fundinggoal_ln) + β_3(videoposted_d) + β_4(fbfriends_ln) + β_5(serialentrep) + β_6(social_distance) + β_7(wordcount_ln) + ε

Model 2: fundingamt_ln = $\beta_0 + \beta_1$(duration) + β_2(fundinggoal_ln) + β_3(videoposted_d) + β_4(fbfriends_ln) + β_5(serialentrep) + β_6(social_distance) + β_7(wordcount_ln) + ε

Model 3: backers_ln = $\beta_0 + \beta_1$(duration) + β_2(fundinggoal_ln) + β_3(videoposted_d) + β_4(fbfriends_ln) + β_5(serialentrep) + β_6(social_distance) + β_7(wordcount_ln) + ε

Model 4: fullyfunded = $\beta_0 + \beta_1$(duration) + β_2(fundinggoal_ln) + β_3(videoposted_d) + β_4(fbfriends_ln) + β_5(serialentrep) + β_6(social_distance) + β_7(wordcount_ln)

Full Models

Model 5: performance_ln = $\beta_0 + \beta_1$(duration) + β_2(fundinggoal_ln) + β_3(videoposted_d) + β_4(fbfriends_ln) + β_5(serialentrep) + β_6(social_distance) + β_7(wordcount_ln) + β_8(concreteness) + β_9(tone) + β_{10}(excuses) + β_{11}(exemplification) + β_{12}(supplication) + ε

Model 6: fundingamt_ln = β_0 + β_1(duration) + β_2(fundinggoal_ln) + β_3(videoposted_d) + β_4(fbfriends_ln) + β_5(serialentrep) + β_6(social_distance) + β_7(wordcount_ln) + β_8(concreteness) + β_9(tone) + β_{10}(excuses) + β_{11}(exemplification) + β_{12}(supplication) + ε

Model 7: backers_ln = β_0 + β_1(duration) + β_2(fundinggoal_ln) + β_3(videoposted_d) + β_4(fbfriends_ln) + β_5(serialentrep) + β_6(social_distance) + β_7(wordcount_ln) + β_8(concreteness) + β_9(tone) + β_{10}(excuses) + β_{11}(exemplification) + β_{12}(supplication) + ε

Model 8: fullyfunded = β_0 + β_1(duration) + β_2(fundinggoal_ln) + β_3(videoposted_d) + β_4(fbfriends_ln) + β_5(serialentrep) + β_6(social_distance) + β_7(wordcount_ln) + β_8(concreteness) + β_9(tone) + β_{10}(excuses) + β_{11}(exemplification) + β_{12}(supplication)

Specific to the analysis focusing on the effect of language concreteness on crowdfunding success, this study also investigated the interaction effects of other psychological distance dimensions (*temporal distance* and *social distance*). In order to see the interaction effects, the study used information such as *funding duration*, *linked Facebook accounts*, *number of posts of any website or links used for further information*, and the *number of projects that have been backed by the entrepreneurs*. The *temporal distance* was measured by creating two items to imply the shortest and longest range of funding duration and utilized a point of average of 34 days. Therefore, the study used 30-days as a cut off point for projects to represent those ending in the near future and 40-days for projects that represent those ending in the distant future. Although this measure did not consider the timing of funding (i.e., backers might be funding a project that has 10 days left of its 30-day duration), it should be sufficient to explore the interactions between the temporal distance and language concreteness on crowdfunding success. Referring to the *social*

distance, the researcher argued that entrepreneurs who seek to be more familiar, transparent and socially connected with potential backers may provide related information in their campaigns to reduce social distance. Therefore, entrepreneurs who have linked their Facebook account, uploaded at least one video, provided any website addresses or links for further information, and have backed other crowdfunding projects are assumed to have low social distance. Conversely, entrepreneurs who have not provided any of that information are supposed to have high social distance.

6.4 Results for Measures of Linguistic Cues

6.4.1 Descriptive Statistics and Correlations between Variables

Table 6.4-1 and Table 6.4-2 presents the summary statistics and correlations among the variables employed in this study, respectively. Because this study utilised the same dataset as in the previous study (i.e., Study 2), most of the descriptive values reported were similar except for the additional measures of social distance and the measures for impression management strategies. Therefore, this study reported only the results of these additional measures. For the social distance measure, it was observed that the majority of the project creators (about 71%) had linked or provided at least two pieces of information, out of four (i.e., Facebook account, a dedicated project's webpage, uploaded more than one video, and had previously backed or funded other projects – see Table 6.4-4)

Moving to the linguistic cue variables, the study observed that the majority of the project creators discussed risk information using more abstract words, as indicated by the negative mean value of the variable *concreteness* (-0.224). Furthermore, the minimum value of -1 (vs. maximum value of 1) indicates that some creators have discussed risk information using either mostly abstract or some concrete words. For the four measures of impression management strategies, namely, the *tone*, *excuses*, *exemplification,* and

supplication, the mean value is 0.51, 6.012, 8.5, and 9.672, respectively. The average value of 0.51 for *tone* indicates that there is a balanced level of positive and negative word usage among the projects. Similar to the *concreteness*, the tone also had a minimum and maximum value of -1 and 1, suggesting that some creators had completely used either negative or positive words in the risk disclosure.

As for the *excuses*, *exemplification*, and *supplication* strategy, the average usage of these strategies was lower than 10% from the total words in the risk disclosure with the lowest value coming from the *excuses* strategy. *Excuses* also had the lowest maximum value of only 50% as compared to the *exemplification,* and *supplication* strategy, which both had 100% of maximum usage values. Similar to the *tone*, some creators did not use the excuses, exemplification or supplication strategy when discussing risk information.

In terms of overall correlations, there were weak or moderated correlations for all independent variables in respect to the multicollinearity problem. To further assess multicollinearity in the dataset, the variance inflation factors (VIFs) were also reported (see Table 6.4-1). The values for both mean VIF (1.40) and maximum VIF (3.15) are well below the acceptable limits of 10.0 for multivariate regression (Hair et al. 2014). The values thus confirmed that subsequent analyses employed on the dataset were free from the multicollinearity problem.

Table 6.4-1 Summary Statistics

Variable	Observation	Mean	Std. Dev	Min	Max
performance_ln	28,312	2.343	5.144	0	878
fundingamt_ln	28,312	35,739	4.624	0	20,338,987
backers_ln	28,312	373	2.693	0	219,383
fullyfunded	28,312	0.5	0.50	0	1
duration	28,312	34	11.461	1	60
fundinggoal_ln	28,312	46,565	1.569	1,000	1,000,000
videoposted_d	28,312	0.664	0.473	0	1
fbfriends_ln	15,025	1,035	1.376	1	5,038
serialentrep	28,312	1.508	1.017	1	6
social_distance	28,312	1.965	0.923	0	4
wordcount_ln	28,312	115	0.826	1	5,333
concreteness	28,312	-0.224	0.215	-1	1
tone	28,312	0.510	0.523	-1	1
excuses	28,312	6.012	3.424	0	50
exemplification	28,312	8.500	4.257	0	100
supplication	28,312	9.672	5.580	0	100
Mean VIF	1.40				
Maximum VIF	3.15				

Note: Std. Dev. = standard deviation; and VIF = variance inflation factors.

Table 6.4-2 Correlation Matrix

	Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	performance_ln	1.000														
2	fundingamt_ln	0.961*	1.000													
3	backers_ln	0.905*	0.948*	1.000												
4	fullyfunded	0.911*	0.897*	0.909*	1.000											
5	duration	-0.172*	-0.119*	-0.113*	-0.169*	1.000										
6	fundinggoal_ln	-0.610*	-0.368*	-0.322*	-0.489*	0.233*	1.000									
7	videoposted_d	0.544*	0.539*	0.502*	0.496*	-0.093*	-0.284*	1.000								
8	fbfriends_ln	0.317*	0.315*	0.314*	0.341*	-0.072*	-0.164*	0.203*	1.000							
9	serialentrep	0.303*	0.298*	0.341*	0.290*	-0.089*	-0.157*	0.139*	0.077*	1.000						
10	social_distance	0.577*	0.577*	0.549*	0.540*	-0.099*	-0.286*	0.743*	0.265*	0.192*	1.000					
11	wordcount_ln	0.268*	0.266*	0.270*	0.294*	-0.049*	-0.138*	0.128*	0.101*	0.103*	0.150*	1.000				
12	concreteness	0.079*	0.084*	0.089*	0.080*	-0.002	-0.023*	0.050*	0.021*	0.072*	0.071*	0.023*	1.000			
13	tone	0.085*	0.085*	0.084*	0.089*	-0.014*	-0.044*	0.034*	0.032*	0.035*	0.046*	0.153*	0.017*	1.000		
14	excuses	0.060*	0.061*	0.059*	0.065*	-0.010*	-0.026*	0.011*	0.026*	0.031*	0.032*	0.046*	0.002	-0.027*	1.000	
15	exemplification	0.030*	0.029*	0.028*	0.038*	-0.014*	-0.015*	-0.002	0.016*	0.014*	0.005*	-0.075*	-0.019*	0.150*	0.054*	1.000
16	supplication	0.128*	0.134*	0.142*	0.153*	-0.017*	-0.046*	0.046*	0.022*	0.054*	0.057*	0.111*	-0.002	0.096*	0.014*	0.020*

Note: *p-value significant at the 5% level; performance_ln = a log-transformed variable for funding performance; fundingamt_ln = a log-transformed variable for funding amount received; backers_ln = a log-transformed variable for number of funders; fullyfunded_d = a dummy variable that identifies whether a project is successful or not; duration = a variable for the length of campaign period for each project; fundinggoal_ln = a log-transformed variable for the target amount; videoposted_d = a dummy variable for projects that had posted a video on the campaign page; fbfriends_ln = a log-transformed variable for the total number of friends on Facebook; serialentrep = an ordinal variable for serial entrepreneur categories; social_distance = an ordinal variable that measures the degree of social distance between project creators and potential backers; wordcount_ln = a log transformed variable for the total number of words in the risk disclosure section; concreteness = a continuous variable to measure the concreteness of risk disclosure language; tone = a continuous variable to measure the tone management between positive and negative language in risk disclosure; excuses = a continuous variable to measure the degree of excuses language in risk disclosure; exemplification = a continuous variable to measure the degree of exemplification or self-sacrifice language in risk disclosure; and supplication = a continuous variable to measure the supplication or neediness language in risk disclosure

Table 6.4-3 Proportion of the Serial Entrepreneur Categories by the Number of Previously Launched Projects

No. of Projects Launched	Frequency	Percentage	Cumulative Percentage
1 project	19,786	69.89	69.89
2 or 3 projects	5,735	20.26	90.14
4 or 5 projects	1,261	4.45	94.6
6 or 7 projects	591	2.09	96.68
8 or 9 projects	329	1.16	97.85
More than 10 projects	610	2.15	100
Total	28,312	100	

Table 6.4-4 Proportion of the Social Distance Measure

Social Distance	Frequency	Percentage	Cumulative Percentage
0	2,143	7.57	7.57
1	6,046	21.35	28.92
2	10,887	38.45	67.38
3	9,136	32.27	99.65
4	100	0.35	100
Total	28,312	100	

Note: The measure for social distance of 0 indicates projects that have not linked a Facebook account, a dedicated project webpage, uploaded more than one video, and no records of backing other projects, while the value 4 indicates projects that have linked a Facebook account, a dedicated project webpage, uploaded at least a video, and have previously backed or funded other projects.

6.4.2 The Association between Linguistic Cues in Risk Disclosure and Crowdfunding Campaign Success

Before performing the final regressions, the Breusch-Pagan test was conducted, in which the results showed the existence of heteroskedasticity. Therefore, for hypotheses testing, this study used robust standard errors in dealing with heteroskedasticity that may introduce bias in the standard errors. The robust standard error is a form of the heteroskedasticity-consistent covariance matrix (HCCM) approach to correct heteroskedasticity problems in a dataset (Kaufman 2013). This study performed OLS regression and binary logistic regression using two levels of analysis by using two datasets, namely the observed and imputed dataset, which consisted of 15,025 and 28,312 projects, respectively (see Table 6.4-5 and Table 6.4-6). The steps taken on both datasets were similar, in which this study sought to examine and compare the estimated yields from the datasets in order to appropriately establish the association between the variables. First, the study conducted the regressions using the observed dataset that included only the control variables against all the dependent variables (see Panel A in Table 6.4-5 – Model 1, Model 2, Model 3 and Model 4). In general, the results showed that all of the control variables were associated with the four measures of crowdfunding success with the p-value less than 1%.

Five out of seven control variables were positively related to the measures of crowdfunding success. In Model 1, the study regressed the control variables against *performance_ln*, which is the percentage of funds received over the funding goal. The results showed that the *social_distance*, which measures the distance (vs. proximity) between the project creators and potential backers, was the most influential factor to affect their project's funding performance (Model 1, $\beta = 1.981$, p-value = <0.01). The dominant effect of socially proximate entrepreneurs was also observed across the other three outcome variables, which positively affected the amount of funding received (Model 2, $\beta = 2.097$, p-value =

<0.01), attracting more potential backers (Model 3, β = 1.264, p-value = <0.01), and increased the likelihood of campaign success (Model 4, β = 1.837, p-value = <0.01). The more proximate entrepreneurs (i.e., socially proximate) showed higher funding performance, they attracted more backers, and, therefore, had a higher likelihood of campaign success.

Table 6.4-5 Estimates of the Association between Linguistic Cues in Risk Disclosure and Crowdfunding Success (Observed Dataset)

	OLS			**Logistic**
	DV: performance_ln	**DV: fundingamt_ln**	**DV: backers_ln**	**DV: fullyfunded**
Panel A				
	Model 1	**Model 2**	**Model 3**	**Model 4**
duration	-0.008***	-0.007***	-0.006***	-0.022***
	(0.002)	(0.002)	(0.001)	(0.002)
fundinggoal_ln	-1.429***	-0.482***	-0.193***	-0.871***
	(0.020)	(0.021)	(0.012)	(0.021)
videoposted_d	1.437***	1.529***	0.662***	0.469***
	(0.098)	(0.105)	(0.055)	(0.083)
fbfriends_ln	0.510***	0.541***	0.304***	0.519***
	(0.020)	(0.021)	(0.012)	(0.023)
serialentrep	0.607***	0.636***	0.523***	0.588***
	(0.021)	(0.022)	(0.015)	(0.033)
social_distance	1.981***	2.097***	1.264***	1.837***
	(0.067)	(0.072)	(0.039)	(0.069)
wordcount_ln	0.681***	0.720***	0.458***	0.835***
	(0.032)	(0.034)	(0.020)	(0.036)
Constant	-2.838***	-3.337***	-3.304***	-3.953***
	(0.309)	(0.328)	(0.190)	(0.297)
N	15025	15025	15025	15025
Adj. R-sq	0.628	0.474	0.448	
Pseudo R-sq				0.508
RMSE	3.035	3.230	1.934	
AIC	76013.01	77876.40	62467.39	10187.44
BIC	76073.95	77937.34	62528.33	10248.38

Panel B

	Model 5	**Model 6**	**Model 7**	**Model 8**
duration	-0.007***	-0.007***	-0.006***	-0.022***
	(0.002)	(0.003)	(0.001)	(0.002)
fundinggoal_ln	-1.425***	-0.477***	-0.190***	-0.887***
	(0.019)	(0.021)	(0.012)	(0.021)
videoposted_d	1.449***	1.542***	0.670***	0.497***
	(0.097)	(0.105)	(0.055)	(0.084)
fbfriends_ln	0.507***	0.538***	0.302***	0.519***
	(0.019)	(0.021)	(0.012)	(0.023)
serialentrep	0.585***	0.613***	0.508***	0.577***
	(0.021)	(0.022)	(0.015)	(0.034)
social_distance	1.937***	2.050***	1.234***	1.835***
	(0.067)	(0.072)	(0.038)	(0.071)
wordcount_ln	0.628***	0.665***	0.422***	0.807***
	(0.032)	(0.035)	(0.020)	(0.037)
concreteness	0.991***	1.043***	0.664***	0.878***
	(0.131)	(0.140)	(0.079)	(0.140)
tone	0.234***	0.246***	0.151***	0.208***
	(0.050)	(0.053)	(0.031)	(0.050)
excuses	0.021***	0.022***	0.015***	0.030***
	(0.007)	(0.008)	(0.005)	(0.008)
exemplification	0.026***	0.027***	0.019***	0.039***
	(0.006)	(0.006)	(0.004)	(0.006)
supplication	0.047***	0.049***	0.032***	0.059***
	(0.005)	(0.005)	(0.003)	(0.005)
Constant	-3.192***	-3.710***	-3.572***	-4.674***
	(0.317)	(0.338)	(0.195)	(0.319)
N	15025	15025	15025	15025
Adj. R-sq	0.633	0.482	0.458	
Pseudo R-sq				0.522
RMSE	3.011	3.205	1.916	
AIC	75777.67	77647.90	62192.27	9894.86
BIC	75876.70	77746.93	62291.30	9993.89

Note: * p<0.10, ** p<0.05, *** p<0.01; standard error in parentheses; OLS = ordinary least squares regression; DV = dependent variable; (ln) = Log-transformed variables; (d) = dummy variables; RMSE = Root Mean Square Error; AIC = Akaike information criterion; and BIC = Bayesian information criterion.

Entrepreneurs who include at least one video in their project proposal pitch appeared to have had the second most prominent factor to positively affect funding performance (Model 1, β = 1.437, p-value = <0.01), funding amount (Model 2, β = 1.529, p-value = <0.01), and the number of backers (Model 3, β = 0.662, p-value = <0.01). The next two variables that had a positive association with crowdfunding success were the number of friends on Facebook (*fbfriends_ln*) and the entrepreneurs who had previously launched crowdfunding campaigns on Kickstarter (*serialentrep*). Overall, the positive and significant relationships of the four previously reported control variables corresponded to the results of the previous studies (e.g., see Anglin et al. 2018; Butticè, Colombo & Wright 2017; Courtney, Dutta & Li 2017; Mollick 2014). Nevertheless, the study also found that one control variable that was directly related to the focus of this study was the number of words used in risk disclosures which was positively associated to crowdfunding success. This result is somewhat counterintuitive as disclosing risk is predominantly comprised of negative information.

The control variables that negatively predicted crowdfunding success were the *duration* and *fundinggoal_ln*. The results were consistent across all four models, in which both *duration* and *fundinggoal_In* were negatively associated with funding performance, the amount of funding received, the number of backers, and a likelihood of funding success. The funding goal had the largest negative impact on funding performance and the least effect on the number of backers. Entrepreneurs who set their target funding amount relatively high compared to others were more likely to end their campaign with a lower funding performance (Model 1, β = -1.429, p-value = <0.01), lower funding amount (Model 1, β = -0.482, p-value = <0.01), a low number of backers (Model 1, β = -0.193, p-value = <0.01), and a reduced likelihood of funding success (Model 1, β = -0.871, p-value = <0.01). As for the campaign duration, this variable had the biggest effect on the likelihood of campaign success and the lowest impact on the number of backers. By choosing a longer

funding duration, it appeared to negatively affect the funding performance (Model 1, β = -0.008, p-value = <0.01), amount of funds received (Model 1, β = -0.007, p-value = <0.01), number of backers (Model 3, β = -0.006, p-value = <0.01), and the likelihood of funding success (Model 5, β = -0.022, p-value = <0.01).

To assess the fitness of the control models that employed the OLS regression technique, the study used the adjusted R-squared and root-mean-square-error (RMSE), while for the logistic model the pseudo R-squared model was utilised. The results showed that the variance in funding performance, funding amount, and the number of backers could be explained by the control variables at 62.8%, 47.4%, and 44.8%, respectively. Furthermore, the McFadden pseudo R-square value of 50.8% for Model 4 (*fullyfunded_d*) suggests that the model had a good model fit in predicting the likelihood of a crowdfunding campaign to be successful. In order to further examine which of the control models worked best in predicting crowdfunding success, the root-square-mean-error (RMSE), Akaike information criterion (AIC), and Bayesian information criterion (BIC) were also reported in Panel A of Table 6.4-5. These model selection criteria provided a relative quality comparison between the models, in which smaller values of these criteria indicated a higher quality model. However, it should be noted that the RMSE was unavailable for logistic regression (Model 4). On the one hand, based on the AIC and BIC values, Model 4 was preferable as it had the lowest AIC and BIC compared to the other rest three models (Model 1, Model 2, and Model 3). On the other hand, when using the RMSE criterion, Model 3 appeared to be a superior model as opposed to the other OLS regression models (Model 1 and Model 2). Nevertheless, it should be highlighted that choosing the best model was not the primary objective of the study, but rather to examine the role of linguistic cues on campaign success which will be reported next.

In the second step, the study regressed all the predictors including the linguistic cues variables against the four outcomes. The estimates of the full models using the observed dataset (i.e., Model 5, Model 6, Model 7, and Model 8) are depicted in Panel B of Table 6.4-5. The estimates for the control variables were all highly significant with the reported coefficients just slightly reduced from the control models reported earlier. The degree of social distance or proximity remained the dominant factor in influencing funding performance, funding amount, the number of backers and the likelihood of funding success. Furthermore, the control variables in the full models also exhibited similar relationship directions, with five of them positively associated to crowdfunding success while the other two had a negative relationship.

The variables, that measured the five linguistic cues used in risk disclosure, are of significant interest. Overall, the study found that all the linguistic cue variables were significantly associated with crowdfunding success measures. The first linguistic cue was language concreteness of risk information, which measured the *concreteness* level of the risk disclosure. Based on Table 6.4-5 (Panel B), it showed that the *concreteness* of the risk disclosure is positively associated with funding performance, the funding amount received, the number of backers, and the likelihood of the funding outcome to be successful. The results indicated that entrepreneurs who discussed risk information using a higher amount of concrete words over negative words may increase their project funding performance (Model 5, $\beta = 0.991$, p-value = <0.01), receive more funding (Model 6, $\beta = 1.043$, p-value = <0.01), attract more backers (Model 7, $\beta = 0.664$, p-value = <0.01), and have a higher probability of funding success (Model 5, $\beta = 0.878$, p-value = <0.01). The study also observed that *concreteness* was the strongest linguistic cue variable to influence the four measures of crowdfunding success, thus supporting Hypothesis 2a.

The study also found support to Hypothesis 2d, which stated that the tone of the entrepreneurs in communicating risk information positively influenced crowdfunding campaign outcomes. *Tone* was one of the four impression management strategies investigated in this study. The tone management strategy used by entrepreneurs helps their project to get higher funding performance (Model 5, β = 0.234, p-value = <0.01), get a higher funding amounts (Model 6, β = 0.246, p-value = <0.01), attract more backers (Model 7, β = 0.151, p-value = <0.01), and to have a higher chance of getting funded (Model 8, β = 0.208, p-value = <0.01). The results suggested that using a higher degree of positive words over negative words acted favourably on the successfulness of their crowdfunding campaign.

Another impression management strategy was *excuses*, where entrepreneurs aimed to impart the belief that investing in crowdfunding involved uncertainty which should be expected and which was acceptable in crowdfunding. Based on the results, it appeared that the excuses strategy provided positive effects on funding performance (Model 5, β = 0.021, p-value = <0.01), the amount of funds received (Model 6, β = 0.022, p-value = <0.01), the number of backers (Model 7, β = 0.015, p-value = <0.01), and the likelihood of funding success (Model 8, β = 0.030, p-value = <0.01). The results showed that the excuses strategy helped to diminish or possibly offset the negative effects of risk information. The results thus lend support to Hypothesis 2e which stated the "excuses strategy used by entrepreneurs in communicating risk information generate positive effects on crowdfunding campaign outcomes."

The next impression management strategy focused on in this study was *exemplification*, where entrepreneurs aim to create a favourable and positive impression by portraying themselves as dedicated, focused, virtuous, and industrious. The study developed a hypothesis relating to the *exemplification* strategy (Hypothesis 2f), which explicitly stated

"using the exemplification strategy by portraying their dedication, focus, virtuousness, and industry in the risk disclosure provides positive effects on the outcome of entrepreneurs' crowdfunding campaigns". The results showed that the *exemplification* strategy apparently contributed to a higher level of funding performance (Model 5, β = 0.026, p-value = <0.01), the funding amount received (Model 6, β = 0.027, p-value = <0.01), the number of backers (Model 7, β = 0.019, p-value = <0.01), and the likelihood of funding success (Model 8, β = 0.059, p-value = <0.01), hence supporting Hypothesis 2f.

The last impression management strategy investigated in this study was the *supplication* strategy. The results showed that the hypothesis developed pertaining to this strategy were fully supported (Hypothesis 2g). The study hypothesized that the "supplication strategy used by entrepreneurs to create an impression of neediness when communicating risk information positively affects crowdfunding campaign outcomes". Based on Table 6.4-5, the supplication strategy increased the projects' funding performance (Model 5, β = 0.047, p-value = <0.01), funding amount (Model 6, β = 0.049, p-value = <0.01), number of backers (Model 7, β = 0.032, p-value = <0.01), and the probability of funding success (Model 8, β = 0.059, p-value = <0.01). To conclude the results of regression analyses performed on the observed dataset, all of the estimates were highly significant at p-value less than one percent (99% confidence level) in explaining the association between the variables and consistent with the researcher's prediction position based on previous studies. Furthermore, all of the linguistic cue variables positively affected the outcome of crowdfunding campaigns (crowdfunding success), which was measured by four dependent variables namely the funding performance, the amount of funding received, the number of backers supporting the project, and a binary variable for funding success or a failed result. Below are the full models fitted within the coefficients' estimates:

Model 5: performance_ln = -3.192 – 0.007 (duration) – 1.429 (fundinggoal_ln) + 1.449 (videoposted_d) + 0.507 (fbfriends_ln) + 0.585 (serialentrep) + 1.937 (social_distance) + 0.628 (wordcount_ln) + 0.991 (concreteness) + 0.234 (tone) + 0.021 (excuses) + 0.026 (exemplification) + 0.047 (supplication)

Model 6: fundingamt_ln = -3.710 – 0.007 (duration) – 0.477 (fundinggoal_ln) + 1.542 (videoposted_d) + 0.538 (fbfriends_ln) + 0.613 (serialentrep) + 2.050 (social_distance) + 0.665 (wordcount_ln) + 1.043 (concreteness) + 0.246 (tone) + 0.022 (excuses) + 0.027 (exemplification) + 0.049 (supplication)

Model 7: backers_ln = -3.572 – 0.006 (duration) – 0.190 (fundinggoal_ln) + 0.670 (videoposted_d) + 0.302 (fbfriends_ln) + 0.508 (serialentrep) + 1.234 (social_distance) + 0.422 (wordcount_ln) + 0.664 (concreteness) + 0.151 (tone + 0.015 (excuses) + 0.019 (exemplification) + 0.032 (supplication)

Model 8: fullyfunded = -4.674 – 0.022 (duration) – 0.887 (fundinggoal_ln) + 0.497 (videoposted_d) + 0.519 (fbfriends_ln) + 0.577 (serialentrep) + 1.835 (social_distance) + 0.807 (wordcount_ln) + 0.878 (concreteness) + 0.208 (tone) + 0.030 (excuses) + 0.039 (exemplification) + 0.059 (supplication)

Table 6.4-6 Estimates of the Association between Linguistic Cues in Risk Disclosure and Crowdfunding Success (Completed Dataset)

	OLS			Logistic
	DV: performance_ln	**DV: fundingamt_ln**	**DV: backers_ln**	**DV: fullyfunded**
Panel A				
	Model 1	**Model 2**	**Model 3**	**Model 4**
duration	-0.005***	-0.005***	-0.004***	-0.017***
	(0.002)	(0.002)	(0.001)	(0.002)
fundinggoal_ln	-1.430***	-0.480***	-.1966***	-0.796***
	(0.014)	(0.014)	(0.009)	(0.015)
videoposted_d	2.757***	2.916***	1.557***	1.695***
	(0.057)	(0.060)	(0.036)	(0.052)
fbfriends_ln	0.562***	0.595***	0.335***	0.489***
	(0.020)	(0.021)	(0.013)	(0.020)
serialentrep	0.711***	0.745***	0.590***	0.676***
	(0.020)	(0.021)	(0.012)	(0.025)
social_distance	0.810***	0.869***	0.473***	0.656***
	(0.031)	(0.033)	(0.020)	(0.030)
wordcount_ln	0.746***	0.790***	0.497***	0.846***
	(0.024)	(0.026)	(0.015)	(0.025)
Constant	-1.330***	-1.785***	-2.238***	-2.321***
	(0.223)	(0.237)	(0.145)	(0.210)
N	28312	28312	28312	28312
Average RVI	0.187	0.187	0.211	0.190
Largest FMI	0.468	0.470	0.501	0.495
Adj. R-sq	0.617	0.464	0.433	
Pseudo R-sq				0.487
Panel B				
	Model 5	**Model 6**	**Model 7**	**Model 8**
duration	-0.005***	-0.005***	-0.004***	-0.018***
	(0.002)	(0.002)	(0.001)	(0.002)
fundinggoal_ln	-1.430***	-0.475***	-0.193***	-0.812***
	(0.014)	(0.014)	(0.009)	(0.015)
videoposted_d	2.741***	2.899***	1.546***	1.726***
	(0.056)	(0.060)	(0.036)	(0.053)
fbfriends_ln	0.559***	0.592***	0.334***	0.493***
	(0.018)	(0.019)	(0.012)	(0.020)
serialentrep	0.685***	0.717***	0.572***	0.668***
	(0.020)	(0.021)	(0.013)	(0.026)
social_distance	0.795***	0.852***	0.462***	0.654***
	(0.031)	(0.033)	(0.020)	(0.030)

wordcount_ln	0.691***	0.732***	0.461***	0.824***
	(0.024)	(0.026)	(0.015)	(0.026)
concreteness	0.911***	0.958***	0.614***	0.813***
	(0.091)	(0.097)	(0.058)	(0.091)
tone	0.197***	0.210***	0.121***	0.170***
	(0.038)	(0.040)	(0.024)	(0.037)
excuses	0.031***	0.032***	0.019***	0.038***
	(0.006)	(0.006)	(0.004)	(0.006)
exemplification	0.026***	0.027***	0.017***	0.037***
	(0.005)	(0.005)	(0.003)	(0.005)
supplication	.054***	0.057***	0.037***	0.063***
	(0.003)	(0.004)	(0.002)	(0.003)
Constant	-1.866***	-2.349***	-2.594***	-3.174***
	(0.223)	(0.237)	(0.144)	(0.221)
N	28312	28312	28312	28312
Average RVI	0.114	0.113	0.124	0.121
Largest FMI	0.379	0.376	0.459	0.443
Adj. R-sq	0.624	0.473	0.443	
Pseudo R-sq				0.503

Note: * p<0.10, ** p<0.05, *** p<0.01; standard error in parentheses; OLS = ordinary least squares regression; DV = dependent variable; (ln) = log-transformed variables; (d) = dummy variables; RVI = relative increases in variance; FMI = fraction of missing information; standard error in parentheses.

For the second level of data analyses, this study performed regression analyses utilising the completed dataset, which was a combination of the observed and imputed dataset. The completed dataset was made up of 28,312 projects which resulted from the imputation process. Overall, the estimates for the controlled and linguistic cue variables were as expected because of the multiple imputation techniques employed and based on multivariate normal distribution. Table 6.4-6 reports the estimates obtained from the regression analyses of the completed dataset. The reported results, where only the control variables were included in the regression models, were consistent with the results from the previous data analyses for the observed dataset (see Panel A of Table 6.4-5 and Panel A of Table 6.4-6).

Of significant interest, in general, the study found further support for all of the hypotheses developed in investigating the role of linguistic cues in risk disclosure on crowdfunding success. The results showed that the relationships and the significant effects of the five linguistics cues also recurred for the completed dataset. All the predictors (*concreteness*, *tone*, *excuses*, *exemplification*, and *supplication*) were positively associated with the four measures of crowdfunding success (performance, funding amount, number of backers, and the probability of funding success) at a p-value less than 0.01 (see Panel B, Table 6.4-6). Table 6.4-7 provides a comparison of the estimates of linguistic cue variables and their explanations between the observed and completed dataset. The results suggest that the study has successfully preserved the key features of the observed dataset into the completed dataset, which provided valid inferences in hypothesis testing.

In order to assess the goodness of fit of the full models using the completed dataset, the adjusted R-squared and pseudo R-squared were used. The estimation of R-squared for multiple imputed datasets was not directly accessible but calculated through the multiple imputation process (i.e., estimation phase in the multiple imputation process). Therefore, this study used the *mibeta* module or the package developed by Harel (2009) to compute the adjusted R-squared for OLS regressions (e.g., Model 5, Model 6, and Model 7). As for the pseudo R-squared (e.g., Model 8), the study adopted a code developed by a Stata user and shared in the Stata user forum provided by the company (StataCorp LLC 2016). The code was developed with the help of a Stata technician team. As reported in Table 6.4-6, the results indicated that there was overall a good fit for all the full models in explaining the variance of crowdfunding success for the completed dataset. The adjusted R-squared (or pseudo R-squared for logistic regression) value for Model 5, Model 6, Model 7, and Model 8 were 62.4 % , 47.3 % , 44.3 % , and 50.3 % respectively.

To conclude the association results, it was confirmed that crowdfunding success was associated with the linguistic cues embedded in the risk disclosure. The results were consistent in both the observed and completed dataset; hence, all the hypotheses related to the linguistics were fully supported.

Table 6.4-7 Summary of the explanations of the estimates between the observed and completed dataset for the linguistic cue variables

Model	Linguistic cue variable	Explanation of the full model equation	
		Observed Dataset	**Completed Dataset**
Model 5: performance_ln	Concreteness	An increase of one-unit in the concreteness level would results in approximately 169% change in funding performance, provided that other variables are held constant	An increase of one-unit in the concreteness level would results in approximately 149% change in funding performance, provided that other variables are held constant
	Tone	An increase of one-unit in tone would results in approximately 26% change in funding performance, provided that other variables are held constant	An increase of one-unit in tone would results in approximately 22% change in funding performance, provided that other variables are held constant
	Excuses	An increase of one-unit in excuses would results in approximately 2.12% change in funding performance, provided that other variables are held constant	An increase of one-unit in excuses would results in approximately 3.15% change in funding performance, provided that other variables are held constant

	Exemplification	An increase of one-unit in exemplification would results in approximately 2.63% change in funding performance, provided that other variables are held constant	An increase of one-unit in exemplification would results in approximately 2.63% change in funding performance, provided that other variables are held constant
	Supplication	An increase of one-unit in supplication would results in approximately 4.81% change in funding performance, provided that other variables are held constant	An increase of one-unit in supplication would results in approximately 5.55% change in funding performance, provided that other variables are held constant
Model	**Linguistic cue variable**	**Explanation of the full model equation**	
		Observed Dataset	**Completed Dataset**
Model 6: fundingamt_ln	Concreteness	An increase of one-unit in the concreteness level would results in approximately 184% change in funding amount received, provided that other variables are held constant	An increase of one-unit in the concreteness level would results in approximately 161% change in funding amount received, provided that other variables are held constant
	Tone	An increase of one-unit in tone would results in approximately 28% change in funding amount received, provided that other variables are held constant	An increase of one-unit in tone would results in approximately 23% change in funding amount received, provided that other variables are held constant
	Excuses	An increase of one-unit in excuses would results in approximately 2.22% change in funding amount received, provided that other variables are held constant	An increase of one-unit in excuses would results in approximately 3.25% change in funding amount received, provided that other variables are held constant

	Exemplification	An increase of one-unit in exemplification would results in approximately 2.74% change in funding amount received, provided that other variables are held constant	An increase of one-unit in exemplification would results in approximately 2.74% change in funding amount received, provided that other variables are held constant
	Supplication	An increase of one-unit in supplication would results in approximately 5.02% change in funding amount received, provided that other variables are held constant	An increase of one-unit in supplication would results in approximately 5.87% change in funding amount received, provided that other variables are held constant
Model	**Linguistic cue variable**	**Explanation of the full model equation**	
		Observed Dataset	**Completed Dataset**
Model 7 backers_ln	Concreteness	An increase of one-unit in the concreteness level would results in approximately 94.3% change in the number of backers supporting the project, provided that other variables are held constant	An increase of one-unit in the concreteness level would results in approximately 84.8% change in the number of backers supporting the project, provided that other variables are held constant
	Tone	An increase of one-unit in tone would results in approximately 16.3% change in the number of backers supporting the project, provided that other variables are held constant	An increase of one-unit in tone would results in approximately 12.9% change in the number of backers supporting the project, provided that other variables are held constant
	Excuses	An increase of one-unit in excuses would results in approximately 1.51% change in the number of backers supporting the project, provided that other variables are held constant	An increase of one-unit in excuses would results in approximately 1.92% change in the number of backers supporting the project, provided that other variables are held constant

	Exemplification	An increase of one-unit in exemplification would results in approximately 1.92% change in the number of backers supporting the project, provided that other variables are held constant	An increase of one-unit in exemplification would results in approximately 1.71% change in the number of backers supporting the project, provided that other variables are held constant
	Supplication	An increase of one-unit in supplication would results in approximately 3.25% change in the number of backers supporting the project, provided that other variables are held constant	An increase of one-unit in supplication would results in approximately 3.77% change in the number of backers supporting the project, provided that other variables are held constant
Model	**Linguistic cue variable**	**Explanation of the full model equation**	
		Observed Dataset	**Completed Dataset**
Model 8: fullyfunded	Concreteness	An increase of one-unit in the concreteness level would results in approximately 0.878 increase in the log-odds of funding success, provided that other variables are held constant	An increase of one-unit in the concreteness level would results in approximately 0.813 increase in the log-odds of funding success, provided that other variables are held constant
	Tone	An increase of one-unit in tone would results in approximately 0.208 increase in the log-odds of funding success, provided that other variables are held constant	An increase of one-unit in tone would results in approximately 0.170 increase in the log-odds of funding success, provided that other variables are held constant
	Excuses	An increase of one-unit in excuses would results in approximately 0.030 increase in the log-odds of funding success, provided that other variables are held constant	An increase of one-unit in excuses would results in approximately 0.038 increase in the log-odds of funding success, provided that other variables are held constant

	Exemplification	An increase of one-unit in exemplification would results in approximately 0.039 increase in the log-odds of funding success, provided that other variables are held constant	An increase of one-unit in exemplification would results in approximately 0.037 increase in the log-odds of funding success, provided that other variables are held constant
	Supplication	An increase of one-unit in supplication would results in approximately 0.059 increase in the log-odds of funding success, provided that other variables are held constant	An increase of one-unit in supplication would results in approximately 0.063 increase in the log-odds of funding success, provided that other variables are held constant

6.4.3 The Interaction Effects of Temporal Distance and Social Distance on Crowdfunding Success

Since the dimensions of psychological distance can influence one another, this study examined the interaction effect between the temporal distance (near future vs distant future) and the degree of language concreteness of risk disclosure, and between the social distance (low vs. high) and the degree of language concreteness of risk disclosure on crowdfunding success. To assess the interaction effects of these psychological distance dimensions, the study developed two hypotheses for each dimension. Table 6.4-8a reports the main and interaction effects between the temporal distance and language concreteness on crowdfunding success, while the main and interaction effects between the social distance and language concreteness on crowdfunding success were reported in Table 6.4-8b. Overall, the results suggested that the temporal distance and social distance moderate the relationship between concreteness of risk disclosure language and crowdfunding success, hence, they supported both Hypothesis 2b and Hypothesis 2c.

Table 6.4-8 Summary of the Main and Interaction Effects of Psychological Distance Dimensions and the Degree of Language Concreteness of Risk Disclosure on Crowdfunding Success

a. The Main and Interaction Effects of Temporal Distance and Language Concreteness on Crowdfunding Success

DV: Funding Performance (performance_ln)	Coefficient	Std. error	P > t	Decision
Main Effects				
Near Future	2.706	0.110	0.00	
Concreteness	1.276	0.299	0.00	
Interaction Effects (temporaldist#c.concreteness)				
Near future	1.051	0.338	0.00	
DV: Funding Amount (fundingamt_ln)				
Main Effects				
Near Future	1.961	0.100	0.00	Accept Hypothesis 2b
Concreteness	1.243	0.270	0.00	
Interaction Effects (temporaldistance#c.concreteness)				
Near future	1.007	0.305	0.00	
DV: Number of Backers (backers_ln)				
Main Effects				
Near Future	1.176	0.058	0.00	
Concreteness	0.729	0.157	0.00	
Interaction Effects (temporaldist#c.concreteness)				
Near future	0.674	0.178	0.00	

b. The Main and Interaction Effects of Social Distance and Language Concreteness on Crowdfunding Success

DV: Funding Performance (performance_ln)	Coefficient	Std. error	P > t	Decision
Main Effects				
Low social distance	5.719	0.077	0.00	
Concreteness	0.574	0.166	0.00	
Interaction Effects (socialdistance#c.concreteness)				
Near future	1.824	0.246	0.00	
DV: Funding Amount (fundingamt_ln)				
Main Effects				
Low social distance	5.133	0.070	0.00	Accept Hypothesis 2c
Concreteness	0.560	0.150	0.00	
Interaction Effects (socialdistance#c.concreteness)				
Near future	1.859	0.222	0.00	
DV: Number of Backers (backers_ln)				
Main Effects				
Low social distance	3.025	0.041	0.00	
Concreteness	0.342	0.087	0.00	
Interaction Effects (socialdistance#c.concreteness)				
Near future	1.207	0.129	0.00	

Hypothesis 2b suggests that temporal distance moderates the relationship between the degree of language concreteness and crowdfunding success when such positive effects of language concreteness are stronger for projects that set the funding period to conclude in the near future (shorter funding duration). This hypothesis was further supported because the results showed that the degree of concrete language wields a greater impact on funding performance ($\beta = 1.051$, $p<0.01$), the amount of funding received ($\beta = 1.007$, $p<0.01$), and the number of backers ($\beta = 0.674$, $p<0.01$) when funding duration is set to conclude in the near future (i.e., short duration). Overall, these results indicate that there is a construal fit between the language concreteness of the risk disclosure and temporal distance (short vs. long duration of campaign period) which will have a greater impact on crowdfunding success, as graphically illustrated in Figure 6.4-1.

Figure 6.4-1 The Moderating Effects of Temporal Distance on the Association between the Degree of Concreteness of Risk Disclosure Language and Crowdfunding Success

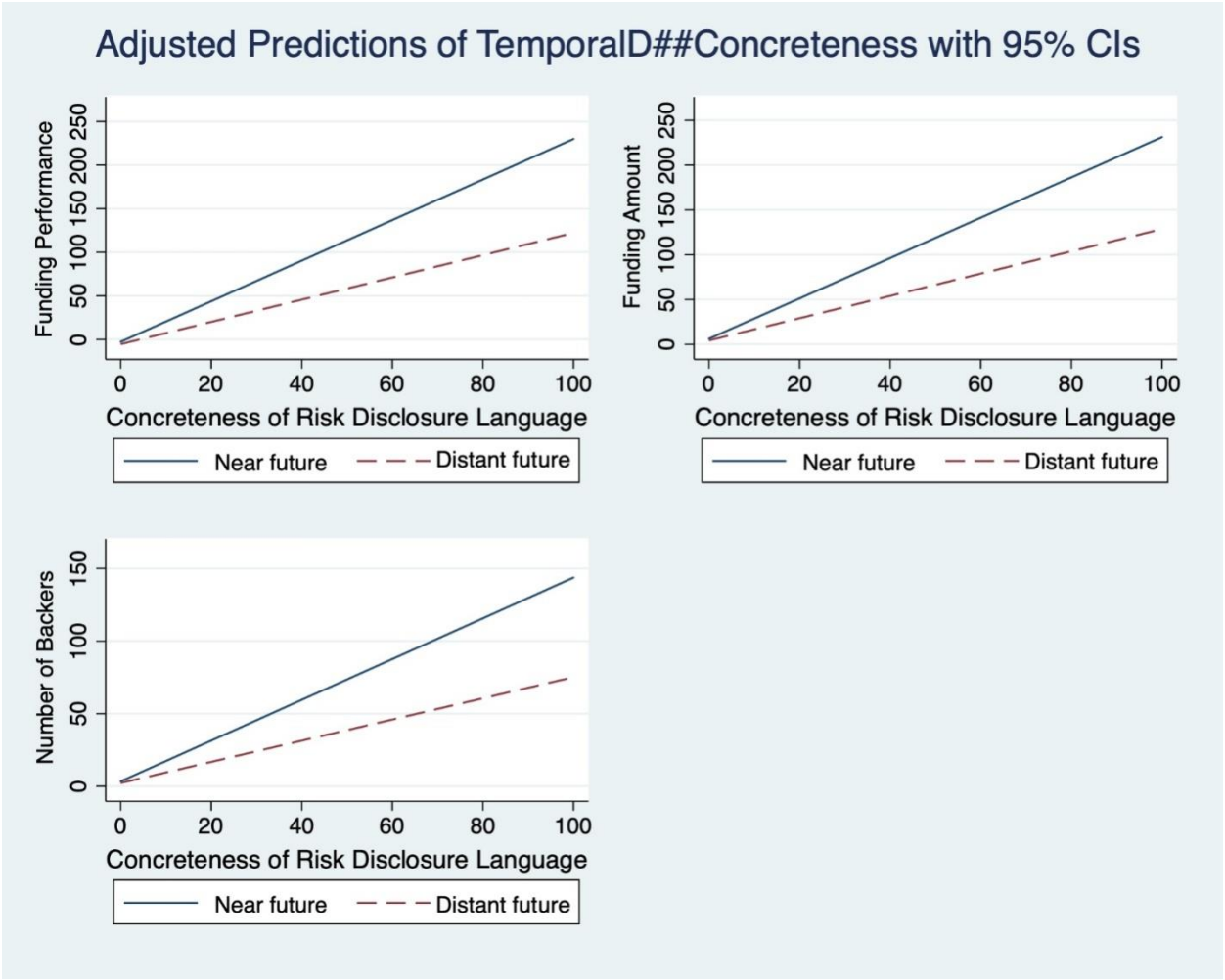
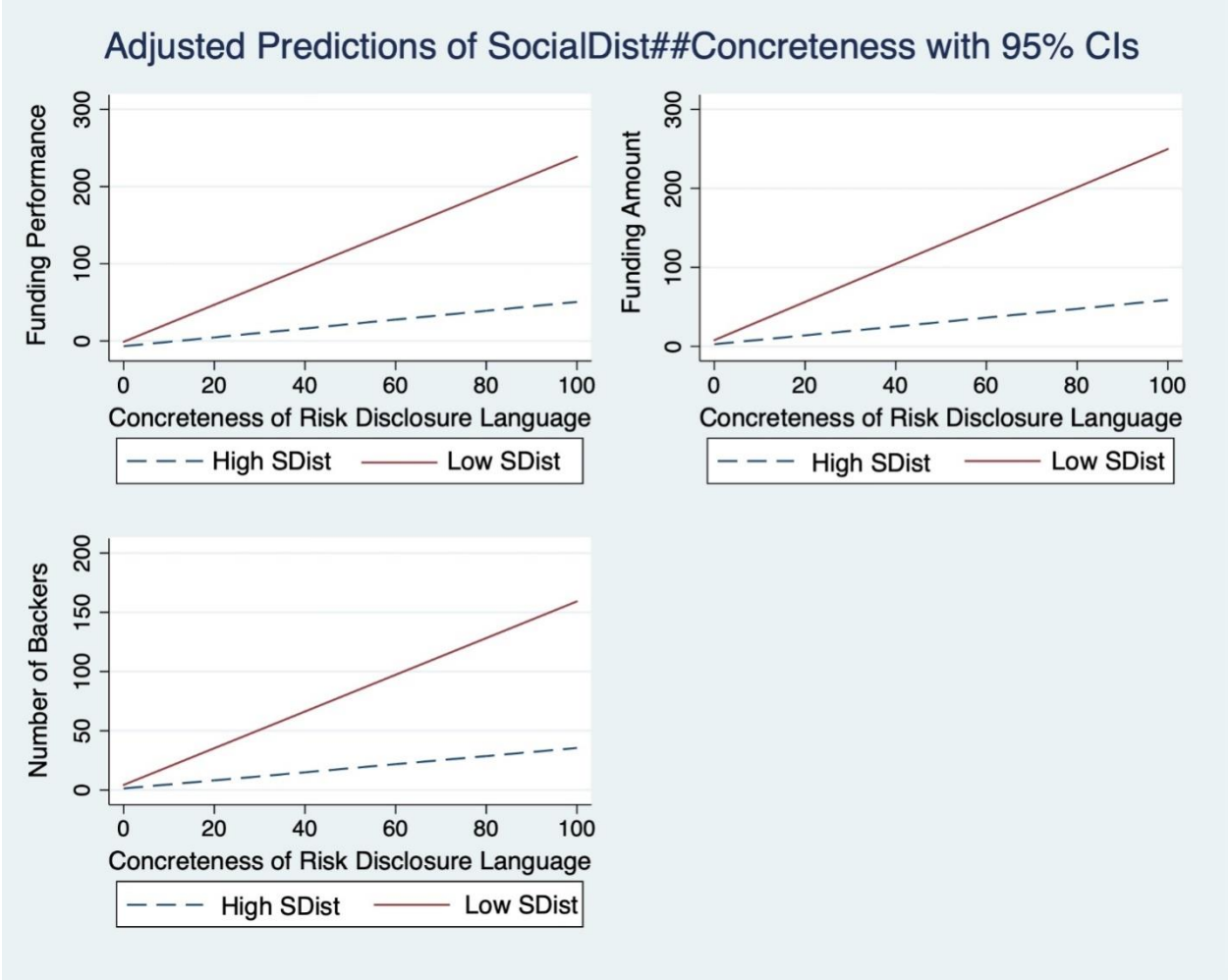


Figure 6.4-2 The Moderating Effects of Temporal Distance on the Association between the Degree of Concreteness of Risk Disclosure Language and Crowdfunding Success



Turning now to the interaction effects between social distance and language concreteness, this study found evidence of significant interactions between social distance and language concreteness in influencing crowdfunding success. The measure of social distance is the effort made by entrepreneurs to be more familiar and accepted by potential backers by providing their social and project information on the online campaign page. Entrepreneurs who uploaded at least one video, linked their Facebook account, posted any website address or links for further information, and backed others' projects are assumed to have low social distance. As shown in Table 6.4-8b, this study found evidence of interactions between socially proximate (low social distance) and language concreteness in influencing funding performance ($\beta = 1.824$, $p<0.01$), the amount of funds

received (β = 1.859, p<0.01), and the number of backers (β = 1.207, p<0.01). Additionally, the study also found support for Hypothesis 2c where the results showed that the positive effects of language concreteness are stronger for entrepreneurs with low social distance, or socially proximate entrepreneurs (see Figure 6.4-2).

6.5 Discussion

Drawing from the language expectancy theory and impression management, this study further contributes to the understanding of the determinants of crowdfunding success, which was accomplished by exploring language concreteness and impression management strategies (tone, excuses, exemplification, and supplication) embedded in risk disclosures which influenced the outcome of crowdfunding campaigns. To achieve this goal, this study again employed the similar approach of using computer-aided text analysis.

In general, the study found that both language concreteness and impression management strategies in risk disclosure were crucial factors for crowdfunding success. Concerning the language expectancy theory, it was observed that the concreteness of language in risk disclosures increased the overall crowdfunding success. In line with the findings from Parhankangas and Renko (2017), this study contributes to the understanding of the impact of using concrete language on crowdfunding success. However, with the focus on risk disclosure and the applied measurement of the language concreteness, the study further showed the benefits of using the expected language (i.e., backers expect the entrepreneurs to use more concrete language) when communicating risk information in crowdfunding campaigns. Entrepreneurs gain an advantage when they are able to effectively persuade potential backers by using more concrete language when discussing risk information. Being more specific and giving details of the project enables investors to have a better understanding of any given project, which in turn, increases the amount of

investment, attracts more backers, and increases investment inclination. These results also supported the general positive effects of using concrete language when dealing with potential funders in a study by Allison, McKenny and Short (2014), in which they showed that concrete language in memoranda (i.e., memos, letters, and email messages communicated by entrepreneurs to venture capitalists) positively associated with the amount of funds received. Furthermore, the findings also unveiled that by using a less concrete language, although it is useful for entrepreneurs to explain risk information in a simpler, less ambiguous and more coherent way (Trope & Liberman, 2010), this could reduce the persuasion effects and thus lower crowdfunding success.

Additionally, the study also observed that other psychological distance dimensions, namely the temporal and social distance moderate the relationship between language concreteness and crowdfunding success. Interestingly, the temporal distance, measured by the project's campaign duration was found to have significant interaction effects with language concreteness while influencing success. Entrepreneurs who used more concrete language to explain risk information and to set the campaign duration to a relatively shorter timeframe than others would generate a greater positive effect on their campaign success. In a similar fashion, the positive effects of using more concrete language in risk disclosures were greater for relatively socially proximate entrepreneurs. These results suggest risk aversion behaviour among the backers whereby they prefer more concrete rather than abstract language in the risk disclosure. The stronger effects of concreteness for socially proximate entrepreneurs further indicates the risk aversion behaviour of backers where they are more likely to give funds to those entrepreneurs, who appeared to be more trustworthy (Rivera, Soderstrom & Uzzi 2010). Overall, the results somewhat showed also that when there was a fit between the attributes of risk disclosure (language concreteness) and the attributes of the situation or context (temporal and social distance), it would create a stronger positive effect on crowdfunding success. The results

also suggested that backers would be able to identify a project as less risky without engaging in heavy cognitive processing if the risk information disclosed by the entrepreneurs was in congruence with temporal distance or other psychological distance dimensions. This position appears to be valid as most of the backers were risk averse (Zhao-Der, Wang & Chen 2017) and considered to be unsophisticated investors (Pesok 2014), who usually possess a relatively lower cognitive ability and were most likely to be impatient individuals (Dohmen et al. 2010). Hence, these risk-averse, unsophisticated and impatient backers would be more likely to give more funds to a project that matched the situation (e.g., shorter duration and socially proximate) with the expected attributes of the risk disclosure message (i.e., more concrete language).

As for the impression management strategies, the study also found evidence of the usage of impression management by the entrepreneurs in the risk disclosures. All four strategies were found to be positively associated with crowdfunding success. The results were consistent with the notion of impression management, where the entrepreneurs who are involved in impression management have a primary goal of influencing backers' perceptions (i.e., positive impressions) towards themselves in the pursuit of favourable campaign outcomes. The first strategy, tone, involved the management of positive and negative language usage since successful campaigns are those launched by entrepreneurs who know that most people are generally risk averse (Kahneman & Lovallo 1993), and who know to communicate risk information using more negative language may reduce the backers' inclination to fund the entrepreneurs' project.

The second strategy is about how the entrepreneurs attempt to impose the belief that funding a reward-based crowdfunding project involves uncertainty so backers should expect that risk is prevalent in most if not all of the projects. The goal was to generate an impression that risk is a generally accepted element of the crowdfunding community and

backers should not make risk the most important decision criteria, but rather focus on other criteria such as objectivity signals of the project or team quality (Darley & Smith 1993), and the creativeness or innovativeness of the product (Chan & Parhankangas 2017). The third impression management strategy, investigated in this study, was exemplification which is a strategy used by entrepreneurs to portray themselves as a dedicated and virtuous team that has the capacity to deliver all promises. The basic idea is that entrepreneurs need to show in the exemplifiers a reflection that they have done more than necessary within the project (Bolino et al. 2008), thus demonstrating their dedication in the project's fulfilment (Bolino 1999). By showing that they have put a considerable amount of effort in the project (e.g., time, energy and money) and have a strong dedication to complete the project, the results appeared to show a positive influence on the outcome of the crowdfunding campaign. However, previous research concerning the exemplification strategy also suggested that this strategy could create an unfavourable outcome if the receivers saw the exemplifier as an act of hypocrisy (Turnley & Bolino 2001). Notwithstanding, entrepreneurs might be able to avoid such negative effects by relating the exemplifiers to verifiable claims such as past accomplishments (e.g., previously successful crowdfunding campaigns) and endorsements from third parties (e.g., any conferred awards or acknowledgments received by the team or product). In this case, some backers are presumed to have the initiative to investigate and verify these claims.

The last strategy is about the supplication strategy where the entrepreneurs try to make an impression of neediness (i.e., they need the funding and support from backers to realise their goal) by broadcasting their weaknesses, shortcoming, and disadvantages (i.e., either in terms of team or project). Although this strategy is considered as the most negative of the impression management strategies (Bolino & Turnley 1999), the results of this study showed that supplication produces positive effects on crowdfunding success. An explanation for this might be because of the intrinsic motivation of backers to fund a

reward-based crowdfunding project. Gerber and Hui (2013) provided evidence that the collection of the rewards (i.e., product) was not the sole motivation of backers when giving funds, but rather backers also wanted to help others (e.g., pure charitable act), be involve in the creative community (e.g., giving recommendations to improve the products), and support a cause that was consistent with their identity (e.g., funding of projects that can bring social impact).

6.6 Chapter Summary

Although crowdfunding has generated much interest among scholars since its inception, only a few studies have empirically investigated the linguistic effects on crowdfunding success. Our study extends this literature by examining the language of risk disclosure. Drawing on the language expectancy theory, this study found that the language concreteness, as well as psychological distance, plays an important role in risk communication for entrepreneurs seeking funds using crowdfunding. Furthermore, by extending the application of impression management strategies in the context of risk disclosure of a crowdfunding campaign, the study shows support that managing the impressions within the risk disclosure information generates positive effects on success.

CHAPTER 7

CONCLUSIONS

7.1 Introduction

This chapter outlines the research questions and the method in which they were addressed. In the next section, several contributions and implications of the research are highlighted. The last section summarises the thesis.

7.2 Addressing the Research Questions based on the Main Findings

Research Question 1: How has crowdfunding been accepted as a topic across various research areas?

Research Question 1 (RQ1) was answered by conducting a co-citation analysis on a bibliometric dataset downloaded from a leading research database provider, Web of Science Core Collection. Based on the co-citation network analysis, it was found that the topic of crowdfunding has attracted various areas of research interest, which areas can be grouped into four clusters: (1) the fundamentals of entrepreneurship and new business development; (2) the application of economic theories, problems, and mathematical models in functional business areas; (3) marketing and understanding of consumer behaviour; and (4) organisational management and strategy. The journals in these four clusters have mostly published articles on the empirical analyses of the crowdfunding phenomenon within specific research areas. However, it should be noted that some sources outside the four clusters also investigated crowdfunding topics such as the potential of crowdfunding as an alternative form of financing. Crowdfunding is also considered to support other initiatives that are not focused on entrepreneurial causes such

as education (e.g., Antonenko, Lee & Kleinheksel 2014; Colasanti, Frondizi & Meneguzzo 2018), health (e.g., Kaplan 2013; Renwick & Mossialos 2017), and cultural and social development (e.g., Bernardino & Santos 2018; Simeoni & Crescenzo 2018).

Research Question 2: What are the main research themes and the latest trends in crowdfunding research based on the most cited topics?

Research Question 2 (RQ2) was answered by using co-word network analysis to reveal the structure and trend in crowdfunding research. Based on the findings, it was observed that crowdfunding research could be categorised based on their funding models such as the reward model, equity model, and debt or peer-to-peer lending model. The study also observed that most of the published articles on the reward and peer-to-peer models were focused on the determinants of crowdfunding success. This supports the arguments of entrepreneurship scholars that crowdfunding research has mostly been centred on determining success factors (Kaartemo 2017; Kuppuswamy & Bayus 2018; Short et al. 2017). Furthermore, publications focusing on the topic of success factors received more citations than other publications that centred on other topics. The study also showed that peer-to-peer lending publications were another research interest in crowdfunding, with most publications providing empirical findings utilising US-based crowdfunding platforms, but an increasing trend in publications on China could be observed.

Research Question 3: What are the main categories of risk information in the disclosure section communicated by the most successful to the most unsuccessful, or failed group, of crowdfunding projects on Kickstarter?

In addressing Research Question 3 (RQ3), the findings from the first phase of Study 2 were used. These findings showed that there are three main categories of risk information

communicated by both the successful and unsuccessful groups of projects. By using the co-word network analysis, the study found three main clusters or categories of risk disclosure information. The three main categories of risk information are related to the key operations and processes of crowdfunding projects, the ability or capacity of the team to complete the project, and funding dependency, as well as the portrayal of project risks in terms of business-oriented projects.

Research Question 4: To what extent does the content of the risk disclosure information affect crowdfunding success on Kickstarter?

Overall, for Research Question 4 (RQ4), the results suggest that the content of risk disclosure information indeed influenced crowdfunding success. The first risk information category relates to the operations and processes of crowdfunding, which were found to be positively associated with crowdfunding success. Similarly, the positive effects of risk information content, relating to the ability of the team to complete the project, was also observed in the dataset.

Research Question 5: How does the expected language used in risk disclosure influence crowdfunding success on Kickstarter and how does psychological distance moderate this relationship?

In answering Research Question 5 (RQ5), it was found that the backers expect entrepreneurs to communicate risk information using more concrete language. Furthermore, the findings revealed that the relationship between language concreteness was moderated by two psychological distance dimensions i.e. temporal distance and social distance. The findings also suggest that the positive influences of the concreteness

of risk disclosure language were stronger for projects that were set to conclude in the near future and for projects that appeared to be more socially proximate with potential backers.

Research Question 6: Is there any relationship between impression management strategies, namely tone management, excuses, exemplification, and supplication embedded in the risk disclosure information, and crowdfunding success on Kickstarter?

The results for Research Question 6 (RQ6) suggest that impression management strategies generate favourable outcomes for crowdfunding campaigns. This research found that impression management strategies positively affected crowdfunding success even for the supplication strategy, which is considered to be the most negative persuasion technique of all the available techniques.

7.3 Implications of the Research

This section provides the research implications of the three studies conducted in this thesis. Overall, the three studies contributed to the body of work on crowdfunding literature, particularly on the determinants of crowdfunding success. The specific implications of each study are discussed in the following subsections.

7.3.1 Implications of Study 1

Through bibliometric analysis, the researcher was able to provide a different review of past crowdfunding research by studying the structures and trends of such research. First, this study discovered that the variety of topics on crowdfunding could be grouped into four major areas of research. The academic community has investigated a variety of topics on crowdfunding and have published works in various journals. By using bibliometric analysis, this study explored the connections between the documents (i.e. research articles) and the sources (i.e., scientific journals). Then, by mapping their networks or connections, the researcher identified the main areas of crowdfunding research. The study found that the multidisciplinary structure of crowdfunding research currently involved four research areas, namely, (1) entrepreneurship and new business development; (2) economics and functional business areas; (3) marketing and information systems; and (3) organisational management and strategy.

When analysing the trends in crowdfunding research, this study found further support that crowdfunding research is still in its infancy, particularly equity crowdfunding. Furthermore, it was found that most publications focused on investigating the motivational aspects contributing to the backers' funding decisions i.e. the determinants of crowdfunding success. The research was comparable to publications that focused on reward-based and peer-to-peer lending-based crowdfunding. Most publications focused on crowdfunding

success, which also received higher citation numbers. Based on the findings, this study expects research surrounding crowdfunding success to continue and to evolve as more data becomes available in the near future, especially from reward-based and equity crowdfunding. Therefore, Study 1 provides a strong basis for studying various potential factors that affect crowdfunding success, which may contribute to the growing body of knowledge and increase researchers' understanding of the crowdfunding phenomenon.

7.3.2 Implications of Study 2

Study 2 provides both theoretical and practical implications. Theoretically, this study contributes to the understanding of the role of information content in the risk disclosure of reward-based crowdfunding. The content of risk disclosure, in the context of reward-based crowdfunding, might be strongly affected by the participants of crowdfunding (i.e., the entrepreneurs, funders, and crowdfunding platforms). The platform itself promotes good intentions in imposing disclosure requirements to reduce information asymmetries and to assist funders in the project evaluation process. However, entrepreneurs (especially unsophisticated entrepreneurs) might view the disclosure as just a trivial aspect of the crowdfunding campaign, without knowing that it could be used to create a favourable impact on the project. Even worse, entrepreneurs who fail to consider the importance of disclosure might report any and all risks associated with the project without the knowledge of how this could lead to an unfavourable outcome. By investigating the risk information content, this study offers insights into the types or categories of risk information content, which have been communicated by entrepreneurs and how the content is associated with crowdfunding success. As for reward-based crowdfunding platforms, risk disclosure might be viewed as an insignificant effort in governing the platform. Based on the researcher's observation, only Kickstarter has imposed a disclosure requirement. However, this study also observed that entrepreneurs that have launched their crowdfunding campaign on another popular platform, Indiegogo, had voluntarily included a section to disclose their

risks and challenges although the platform did not require such disclosure from entrepreneurs. Nevertheless, the risk disclosure requirement may be unique to Kickstarter while other platforms have intentionally refrained from imitating their competitors' strategies in dealing with information asymmetry.

Another implication is based on the findings of the two-phased research of Study 2. In the first phase, three categories of risk information emerged from the co-word analysis. The study first identified the risk information categories and appropriately defined each. Then, the second phase started with the development of measurement for each category and continued with the prediction of crowdfunding success. The first category was identified as risk information related to key operations and processes (OPR) in crowdfunding projects, which was found positively associated with success. The second category was team risk (TR), which corresponded to risk information related to the ability of entrepreneurs to complete a project. This category was also found positively associated with success. The last category of risk information was identified as funding and business risk (FBR), where the results showed that this was the only category that could harm the outcome of a crowdfunding campaign. Additionally, the study also found that the effects of the three risk information categories were stronger for technology-based projects compared to creative-based projects.

This study identified several practical implications that could be relevant to entrepreneurs, backers, and crowdfunding platforms. The results indicate that high-quality entrepreneurs should discuss risk information, as this could objectively signal the quality of their project and team to the masses. However, they should avoid discussing risk information that may signal their funding dependency or that their primary goal of launching the crowdfunding campaign was for commercial or business purposes. As for backers, the results suggest that they should not ignore the risk disclosure section when considering funding a

crowdfunding project. The situation could become more crucial if the project that they have an interest in is in the early days of the campaign period. During this period, assessing project quality might require them to conduct extra research because of the unavailability or lack of other peripheral signals (e.g., current accumulated funding amount and the number of backers), which could help them make quick and presumably informed funding decisions. Furthermore, from the perspective of an information cascade situation, early backers might be seen as the important decision-makers in the crowdfunding environment whereas others (later backers) will tend to follow their lead to fund the project (Parker 2014). Information cascades generally lead to herd behaviour in crowdfunding (Belleflamme, Omrani & Peitz 2015; Zhang & Liu 2012), which is particularly crucial for amplifying the funds received in reward-based crowdfunding (Li et al. 2018).

The findings related to the content of risk disclosure also provide implications for crowdfunding platforms. For crowdfunding platforms, information asymmetries pose challenges to the design and governance of the platform (Belleflamme, Omrani & Peitz 2015). When designing the platform, the developers have to consider a design that includes all relevant information available on the platforms (i.e., a risk disclosure section) including information that is highly valued by the users (i.e., number of backers), which eventually may improve the governance of the platforms. However, this study also observed a crucial issue when conducting the data collection process related to the quality of risk disclosures. It seems that the platform (i.e., Kickstarter) does not monitor the content or quality of risk disclosure. Additionally, the study found that some entrepreneurs only put one or two words (e.g., “none” and “no risk”) or a symbol (“!”, “?”) in the disclosure. Although these entrepreneurs are presumably low-quality ones; the platform should monitor the risk disclosure section and provide a guide or base-level standard to the entrepreneurs. The platforms can develop an algorithm to screen out these low-quality entrepreneurs or, better yet, help them reduce information asymmetries.

7.3.3 Implications of Study 3

Study 3 makes several contributions to both theory and practice. Firstly, the findings add to the nascent crowdfunding literature on the determinants of campaign success specific to linguistic effects. More specifically, this study explores how linguistic cues embedded in risk disclosure are related to the outcomes of crowdfunding campaigns. Secondly, the study advances the application of two theories relevant to linguistic effects: the Language Expectancy Theory and Impression Management Theory. This study explored the effects of language expectancy in risk disclosures and its relationship with other psychological distance dimensions in influencing crowdfunding success; hence providing further insight on how the fit between language expectancy and psychological distance enhances success. Furthermore, this study advances understanding on the effect of concrete language on crowdfunding success, as reported by Parhankangas and Renko (2017), which investigated the role of concrete language in crowdfunding by examining the general pitch of crowdfunding campaigns. In the current study, the researcher further isolated the usage of concrete language specific to risk information in the disclosure and how it affects the overall success of a campaign.

As for impression management, the study extended the limited application of the Impression Management Theory in crowdfunding. To the best of the author's knowledge, there are very limited studies on the importance of impression management in crowdfunding campaigns. For example, Gleasure (2015) showed how impression management-related concerns could deter entrepreneurs from participating in crowdfunding using the impression management perspective while Moritz, Block, and Lutz (2015) demonstrated that the overall impression of the team (i.e., their perceived sympathy, openness, and trustworthiness) helped reduce the perceived informational asymmetries of funders in equity-based crowdfunding. Therefore, this study enriches the

body of knowledge on the importance of impression management with a specific application of entrepreneurs' risk disclosure language in reward-based crowdfunding.

Finally, this study offers practical implications for entrepreneurs, backers, and crowdfunding platforms. Because backers are giving funds in a highly information-challenged environment (Agrawal, Catalini & Goldfarb 2014), entrepreneurs can use the opportunity to disclose risk information by using language that addresses the backers' concerns, namely by using more concrete language, which enables backers to process risk information easier and faster. Entrepreneurs should also be able to create appropriate impressions in the disclosure that signal their project or team quality, which may overcome any information asymmetries. As for backers, they may use risk disclosure as a basis to make an early assessment of the entrepreneurs' ability to complete the projects. This is useful for generating an early picture of the risks involved in the project and could help prevent major risks in reward-based crowdfunding (i.e., delay risk). Lastly, crowdfunding platforms may benefit by understanding the importance of transparency in risk disclosure, which can help reduce information asymmetries. As previously mentioned in Study 2, information asymmetries are considered to be a common occurrence in crowdfunding and pose challenges to the platforms, especially when it comes to information dissemination as well as encouraging information gathering by the backers (Belleflamme, Omrani & Peitz 2015). Therefore, the results put forward in this study may inform the respective entrepreneurs and backers of the importance of risk disclosure for assessing the viability of crowdfunding projects, which could reduce the predicament of providing more good governance for the platform. For example, the platform may focus on the aspect of risk disclosure quality through establishing a disclosure standard as one of the measures for good governance.

7.4 Research limitations

This thesis has several limitations. First, the bibliometric dataset used for Study 1 was collected from a single provider—the Web of Science (WoS) Core Collection. Consequently, the results reported in the bibliometric study are only applicable to the WoS dataset. Generalising the results and applying the implications of the study to other sources of bibliometric data could prove unreliable. It is highly likely that the results would be different when using a bibliometric dataset from other databases.

Second, the results obtained in Study 2 and Study 3 are also limited to the context of reward-based crowdfunding and are only applicable in a Kickstarter setting. The current research used a single dataset to investigate the role of risk disclosure (i.e., content and linguistic features) in crowdfunding campaigns. As a result, the outcomes produced from the data collection process are confined to the Kickstarter environment and cannot be generalised to include other crowdfunding platforms.

Third, the thesis relied on two computer-aided text analysis (CATA) programmes to measure and identify the presence of risk information categories and linguistic cue variables in the textual data. These programmes are the KH Coder and Linguistic Inquiry and Word Count (LIWC). Although these programmes facilitated the process of textual analysis, the outcomes of data analysis could be different if other CATA programs were used instead. Notably, distinctive results could be produced especially if other analysis techniques provided by other CATA programs were used.

Fourth, the thesis used a co-word analysis as a single approach for identifying the risk information categories mostly communicated by entrepreneurs in Study 2. As a result, the study was able to identify three major categories of risk information, but only based on the

researcher's understanding of the context illustrated from the co-word networks. Fifth, the measurements of all the variables including the risk information categories (Study 2) and linguistic cues (Study 3) were based on the counting of words for measuring each variable. In order to use this approach, researchers must be certain that they have included all the relevant words associated with the variables. However, since this is a doctorate thesis where most of the works are performed and completed by a sole researcher, the measurements of the variables could be subjected to the researcher's own inferences. Furthermore, the word count method treats all the words as equal with no weightage consideration. This approach ignores the relative importance of each word, which could have affected the results produced.

Finally, there is a lack of comparable studies with the current one. This thesis, to the best of the researcher's knowledge, is an early study investigating the role of risk disclosure in ensuring crowdfunding campaign success from a reward-based crowdfunding context. Hence, whilst this thesis has concluded that risk information in the disclosure section influences crowdfunding success, this is still open to debate. It should be also noted that crowdfunding platforms are improving in terms of governance in order to stay competitive in the industry. They will seek for improvements and use their rivals as the benchmark. Therefore, there is a probability that governance mechanisms particularly related to risk disclosure could be revised and this will affect the interpretation of the current results obtained in this study as well as in the future studies.

7.5 Future Research Directions

In Study 1, the structure and trend in crowdfunding research using bibliometric analysis was investigated, particularly by employing the co-citation network and co-word network analysis technique. Future research can continue this study in a number of ways. First, a review crowdfunding research using other techniques or programmes available under bibliometric analysis is eminent. Techniques such as bibliographic coupling and co-authorship could provide different perspectives and interesting results. Bibliographic coupling could provide additional insight into the structure of scientific literature while co-authorship may help reveal the collaboration between authors (i.e., research collaboration). Second, this study used data solely from the WoS database. Although this is a common database used in bibliometric analysis because of data quality i.e., in terms of the journal classification system (Wang & Waltman 2016), this thesis suggests that by including other databases for comparison, new insights could arise and enrich the topic even further. For example, studies have shown that other databases such as Scopus and Google Scholar could provide more bibliographical information than WoS (Kulkarni & Yuan 2014; Norris & Oppenheim 2007), which could be useful in helping researchers obtain more accurate observations (Meho & Yang 2007). Future bibliometric analysis findings would likely contribute to the current knowledge of crowdfunding research and perhaps help predict its future.

Regarding Study 2, the main objective of the study was to explore the main content or categories of risk information, and how they are associated with crowdfunding success. Since this study is the first to explore the content of risk disclosures in a reward-based crowdfunding setting, it, therefore, provides a basis for how the content can be researched further. First, future works can investigate other risk information categories embedded in the risk disclosure section in reward-based crowdfunding. While this study was only able to identify three related categories, future research could explore further types of risk

information using other textual analysis (i.e., clustering) techniques such as hierarchical (e.g., agglomerative, dendrogram, and Ward's method) and non-hierarchical (e.g., K-Means and nucleated agglomerative method) cluster analyses (Wilks 2011a). These methods could bring in new discoveries as to how words are formed together into a cluster and connected to each other; hence enabling researchers to glean the main idea of the message.

Second, regarding data collection and sampling, it would be valuable if future research could include other risk disclosure data from other crowdfunding platforms. By comparing two or more datasets from different platforms, more interesting findings could be determined on the types of risk communicated by entrepreneurs across various platforms. Furthermore, if future studies were to compare the findings between voluntary and non-voluntary disclosures, fruitful insights could additionally be provided. For example, the researcher observed that some entrepreneurs on the Indiegogo platform had also disclosed risk information on their campaign page although the platform did not impose such requirements. It should be noted that Indiegogo is the closest rival of Kickstarter. Comparing these two sources of data should also provide valuable insights, not only on the content of risk disclosure, but also the language used when disclosing risk information, which is the focus of Study 3.

Another important research direction is to develop a comprehensive measure of risk disclosure quality. Despite the interesting findings of this study, future research could utilise Kickstarter or other sources of data to further explore the measures of risk disclosure. This would require the researcher to find and formulate a standard for disclosure, which could impact the quality of crowdfunding projects. In the crowdfunding environment and particularly in reward-based crowdfunding, there is no standard for disclosure as opposed to companies or corporations in a highly regulated environment.

Therefore, exploring the content or risk factors of the disclosure itself and developing a disclosure standard would constitute an interesting avenue for future research.

Study 3 investigated the role of linguistic cues on crowdfunding success. This study offered a number of opportunities for future research. Firstly, the use of risk disclosure data to assess the linguistic cues was limited to Kickstarter data. The study selected Kickstarter as a sample because of its specific requirements for risk disclosure. However, as mentioned earlier in Study 2, it would be interesting to investigate the role of linguistic features in risk disclosure using other data sources and to compare these findings with the current study.

In relation to the linguistic cue variables used in this study, future research can further include other moderating variables that might influence the effects of predictors of crowdfunding success. For example, specific to language concreteness, further investigations on the influence of another dimension of psychological distance, as well as spatial distance, would provide a complete understanding of the role of psychological distance in the relationship between language concreteness and crowdfunding success.

Secondly, this study demonstrated the usefulness of computerised textual analysis in identifying the constructs within textual data. However, this study adopted a “word count” approach for the measurement of variables. Although this approach allows for faster processing of large quantities of textual data with more efficacy, some information might have been missed due to the software lacking the capability to process natural language. Furthermore, this approach lacks the ability to recognise the context and qualitative content of a type of communication (Morris 1994). For this reason, the study suggests future research to prioritise developing an exhaustive list of keywords for each construct relevant to the concept if the researcher adopted a quantitative text analysis approach.

Furthermore, future research could combine the quantitative approach with qualitative text analysis, such as using key-word-in-context listings, to ensure that the keywords are consistent with the desired context.

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APPENDIXES

Appendix 1: List of Stop Words

a	go	not	them	why
about	goods	now	themselves	with
abstract	have	of	then	you
again	he	off	there	yourself
all	he'd	on	they	yourselves
also	he'll	once	they'd	
am	he's	or	they'll	
an	her	other	they're	
and	here	ought	they've	
any	here's	our	thing	
anyone	hers	ours	this	
app	herself	ourselves	those	
are	him	out	through	
aren't	himself	over	to	
as	his	own	too	
at	in	piece	until	
be	is	same	up	
become	isn't	saw	use	
before	it	say	very	
being	it's	see	want	
both	its	see	was	
bring	itself	shan't	wasn't	
by	just	she	were	
come	know	she'd	weren't	
do	let	she'll	what	
doing	let's	she's	what's	
down	like	so	when	
during	me	such	when's	
each	more	than	where	
etc	my	that	where's	
everyone	myself	that's	which	
for	need	the	who	
from	no	their	who's	
get	nor	theirs	whom	

Appendix 2: Full Descriptive Statistics for Term (TF) and Document Frequency (DF)

TF	Freq.	%	Cum. Freq.	Cum. %	DF	Freq.	%	Cum. Freq.	Cum. %
1	24079	53.78	24079	53.78	1	26611	59.44	26611	59.44
2	6293	14.06	30372	67.84	2	5405	12.07	32016	71.51
3	2935	6.56	33307	74.40	3	2478	5.54	34494	77.05
4	1715	3.83	35022	78.23	4	1445	3.23	35939	80.28
5	1171	2.62	36193	80.84	5	1020	2.28	36959	82.55
6	880	1.97	37073	82.81	6	743	1.66	37702	84.21
7	614	1.37	37687	84.18	7	565	1.26	38267	85.48
8	565	1.26	38252	85.44	8	466	1.04	38733	86.52
9	395	0.88	38647	86.33	9	366	0.82	39099	87.33
10	343	0.77	38990	87.09	10	314	0.70	39413	88.04
11	297	0.66	39287	87.75	11	266	0.59	39679	88.63
12	272	0.61	39559	88.36	12	269	0.60	39948	89.23
13	260	0.58	39819	88.94	13	242	0.54	40190	89.77
14	217	0.48	40036	89.43	14	196	0.44	40386	90.21
15	162	0.36	40198	89.79	15	180	0.40	40566	90.61
16	216	0.48	40414	90.27	16	163	0.36	40729	90.98
17	161	0.36	40575	90.63	17	147	0.33	40876	91.30
18	142	0.32	40717	90.95	18	135	0.30	41011	91.61
19	138	0.31	40855	91.26	19	135	0.30	41146	91.91
20	109	0.24	40964	91.50	20	128	0.29	41274	92.19
21	118	0.26	41082	91.76	21	109	0.24	41383	92.44
22	108	0.24	41190	92.01	22	96	0.21	41479	92.65
23	113	0.25	41303	92.26	23	91	0.20	41570	92.85
24	90	0.20	41393	92.46	24	77	0.17	41647	93.03
25	84	0.19	41477	92.65	25	88	0.20	41735	93.22
26	83	0.19	41560	92.83	26	71	0.16	41806	93.38
27	69	0.15	41629	92.99	27	66	0.15	41872	93.53
28	57	0.13	41686	93.11	28	60	0.13	41932	93.66
29	64	0.14	41750	93.26	29	54	0.12	41986	93.78
30	70	0.16	41820	93.41	30	56	0.13	42042	93.91
31	49	0.11	41869	93.52	31	51	0.11	42093	94.02
32	70	0.16	41939	93.68	32	48	0.11	42141	94.13
33	52	0.12	41991	93.79	33	31	0.07	42172	94.20
34	46	0.10	42037	93.90	34	50	0.11	42222	94.31
35	47	0.10	42084	94.00	35	37	0.08	42259	94.39
36	41	0.09	42125	94.09	36	44	0.10	42303	94.49
37	47	0.10	42172	94.20	37	43	0.10	42346	94.59
38	42	0.09	42214	94.29	38	49	0.11	42395	94.70
39	32	0.07	42246	94.36	39	41	0.09	42436	94.79
40	39	0.09	42285	94.45	40	32	0.07	42468	94.86
41	38	0.08	42323	94.54	41	35	0.08	42503	94.94
42	40	0.09	42363	94.63	42	41	0.09	42544	95.03
43	33	0.07	42396	94.70	43	28	0.06	42572	95.09
44	31	0.07	42427	94.77	44	33	0.07	42605	95.17
45	33	0.07	42460	94.84	45	26	0.06	42631	95.22
46	41	0.09	42501	94.93	46	31	0.07	42662	95.29
47	32	0.07	42533	95.01	47	33	0.07	42695	95.37
48	40	0.09	42573	95.09	48	25	0.06	42720	95.42

49	37	0.08	42610	95.18	49	30	0.07	42750	95.49
50	27	0.06	42637	95.24	50	24	0.05	42774	95.54
51	22	0.05	42659	95.29	51	26	0.06	42800	95.60
52	26	0.06	42685	95.34	52	20	0.04	42820	95.65
53	23	0.05	42708	95.40	53	27	0.06	42847	95.71
54	23	0.05	42731	95.45	54	27	0.06	42874	95.77
55	30	0.07	42761	95.51	55	28	0.06	42902	95.83
56	21	0.05	42782	95.56	56	22	0.05	42924	95.88
57	23	0.05	42805	95.61	57	23	0.05	42947	95.93
58	28	0.06	42833	95.68	58	27	0.06	42974	95.99
59	25	0.06	42858	95.73	59	19	0.04	42993	96.03
60	19	0.04	42877	95.77	60	21	0.05	43014	96.08
61	20	0.04	42897	95.82	61	18	0.04	43032	96.12
62	27	0.06	42924	95.88	62	19	0.04	43051	96.16
63	17	0.04	42941	95.92	63	13	0.03	43064	96.19
64	17	0.04	42958	95.95	64	16	0.04	43080	96.23
65	23	0.05	42981	96.01	65	14	0.03	43094	96.26
66	16	0.04	42997	96.04	66	18	0.04	43112	96.30
67	14	0.03	43011	96.07	67	15	0.03	43127	96.33
68	19	0.04	43030	96.12	68	21	0.05	43148	96.38
69	12	0.03	43042	96.14	69	17	0.04	43165	96.42
70	17	0.04	43059	96.18	70	15	0.03	43180	96.45
71	13	0.03	43072	96.21	71	16	0.04	43196	96.49
72	19	0.04	43091	96.25	72	16	0.04	43212	96.52
73	13	0.03	43104	96.28	73	10	0.02	43222	96.54
74	17	0.04	43121	96.32	74	18	0.04	43240	96.58
75	12	0.03	43133	96.35	75	11	0.02	43251	96.61
76	9	0.02	43142	96.37	76	10	0.02	43261	96.63
77	14	0.03	43156	96.40	77	11	0.02	43272	96.66
78	20	0.04	43176	96.44	78	14	0.03	43286	96.69
79	18	0.04	43194	96.48	79	15	0.03	43301	96.72
80	12	0.03	43206	96.51	80	10	0.02	43311	96.74
81	11	0.02	43217	96.53	81	11	0.02	43322	96.77
82	15	0.03	43232	96.57	82	11	0.02	43333	96.79
83	18	0.04	43250	96.61	83	11	0.02	43344	96.82
84	8	0.02	43258	96.62	84	14	0.03	43358	96.85
85	15	0.03	43273	96.66	85	13	0.03	43371	96.88
86	12	0.03	43285	96.69	86	12	0.03	43383	96.90
87	12	0.03	43297	96.71	87	9	0.02	43392	96.92
88	12	0.03	43309	96.74	88	10	0.02	43402	96.95
89	10	0.02	43319	96.76	89	14	0.03	43416	96.98
90	15	0.03	43334	96.79	90	12	0.03	43428	97.00
91	12	0.03	43346	96.82	91	8	0.02	43436	97.02
92	9	0.02	43355	96.84	92	5	0.01	43441	97.03
93	10	0.02	43365	96.86	93	11	0.02	43452	97.06
94	11	0.02	43376	96.89	94	8	0.02	43460	97.08
95	5	0.01	43381	96.90	95	10	0.02	43470	97.10
96	11	0.02	43392	96.92	96	10	0.02	43480	97.12
97	5	0.01	43397	96.94	97	12	0.03	43492	97.15
98	4	0.01	43401	96.94	98	9	0.02	43501	97.17
99	5	0.01	43406	96.96	99	9	0.02	43510	97.19
100	9	0.02	43415	96.98	100	13	0.03	43523	97.22

101	11	0.02	43426	97.00	101	7	0.02	43530	97.23
102	14	0.03	43440	97.03	102	13	0.03	43543	97.26
103	12	0.03	43452	97.06	103	12	0.03	43555	97.29
104	7	0.02	43459	97.07	104	8	0.02	43563	97.31
105	12	0.03	43471	97.10	105	10	0.02	43573	97.33
106	3	0.01	43474	97.11	106	8	0.02	43581	97.35
107	7	0.02	43481	97.12	107	6	0.01	43587	97.36
108	15	0.03	43496	97.16	108	8	0.02	43595	97.38
109	5	0.01	43501	97.17	109	11	0.02	43606	97.40
110	7	0.02	43508	97.18	110	5	0.01	43611	97.41
111	10	0.02	43518	97.21	111	5	0.01	43616	97.42
112	5	0.01	43523	97.22	112	7	0.02	43623	97.44
113	8	0.02	43531	97.23	113	7	0.02	43630	97.46
114	4	0.01	43535	97.24	114	12	0.03	43642	97.48
115	5	0.01	43540	97.25	115	9	0.02	43651	97.50
116	10	0.02	43550	97.28	116	10	0.02	43661	97.53
117	6	0.01	43556	97.29	117	4	0.01	43665	97.53
118	6	0.01	43562	97.30	118	5	0.01	43670	97.55
119	14	0.03	43576	97.34	119	7	0.02	43677	97.56
120	6	0.01	43582	97.35	120	11	0.02	43688	97.59
121	8	0.02	43590	97.37	121	7	0.02	43695	97.60
122	8	0.02	43598	97.38	122	5	0.01	43700	97.61
123	9	0.02	43607	97.40	123	6	0.01	43706	97.63
124	14	0.03	43621	97.44	124	8	0.02	43714	97.64
125	7	0.02	43628	97.45	125	11	0.02	43725	97.67
126	6	0.01	43634	97.46	126	4	0.01	43729	97.68
127	10	0.02	43644	97.49	127	6	0.01	43735	97.69
128	4	0.01	43648	97.50	128	3	0.01	43738	97.70
129	6	0.01	43654	97.51	129	8	0.02	43746	97.71
130	12	0.03	43666	97.54	130	7	0.02	43753	97.73
131	6	0.01	43672	97.55	131	7	0.02	43760	97.75
132	5	0.01	43677	97.56	132	9	0.02	43769	97.77
133	4	0.01	43681	97.57	133	10	0.02	43779	97.79
134	8	0.02	43689	97.59	134	7	0.02	43786	97.80
135	4	0.01	43693	97.60	135	4	0.01	43790	97.81
136	4	0.01	43697	97.61	136	6	0.01	43796	97.83
137	5	0.01	43702	97.62	137	4	0.01	43800	97.84
138	4	0.01	43706	97.63	138	4	0.01	43804	97.84
139	4	0.01	43710	97.63	139	4	0.01	43808	97.85
140	10	0.02	43720	97.66	140	5	0.01	43813	97.86
141	7	0.02	43727	97.67	141	4	0.01	43817	97.87
142	9	0.02	43736	97.69	142	2	0.00	43819	97.88
143	5	0.01	43741	97.70	143	5	0.01	43824	97.89
144	6	0.01	43747	97.72	144	4	0.01	43828	97.90
145	2	0.00	43749	97.72	145	5	0.01	43833	97.91
146	3	0.01	43752	97.73	146	9	0.02	43842	97.93
147	4	0.01	43756	97.74	147	4	0.01	43846	97.94
148	6	0.01	43762	97.75	148	5	0.01	43851	97.95
149	5	0.01	43767	97.76	149	2	0.00	43853	97.95
150	8	0.02	43775	97.78	150	4	0.01	43857	97.96
151	4	0.01	43779	97.79	151	3	0.01	43860	97.97
152	3	0.01	43782	97.80	152	6	0.01	43866	97.98

153	6	0.01	43788	97.81	153	5	0.01	43871	97.99
154	2	0.00	43790	97.81	154	7	0.02	43878	98.01
155	10	0.02	43800	97.84	155	8	0.02	43886	98.03
156	6	0.01	43806	97.85	156	3	0.01	43889	98.03
157	5	0.01	43811	97.86	157	4	0.01	43893	98.04
158	6	0.01	43817	97.87	158	6	0.01	43899	98.06
159	4	0.01	43821	97.88	159	1	0.00	43900	98.06
160	3	0.01	43824	97.89	160	6	0.01	43906	98.07
161	2	0.00	43826	97.89	161	2	0.00	43908	98.08
162	3	0.01	43829	97.90	162	2	0.00	43910	98.08
163	5	0.01	43834	97.91	163	7	0.02	43917	98.10
164	8	0.02	43842	97.93	164	3	0.01	43920	98.10
165	8	0.02	43850	97.95	165	4	0.01	43924	98.11
166	5	0.01	43855	97.96	166	6	0.01	43930	98.13
167	5	0.01	43860	97.97	167	9	0.02	43939	98.15
169	8	0.02	43868	97.99	168	6	0.01	43945	98.16
170	3	0.01	43871	97.99	169	5	0.01	43950	98.17
171	2	0.00	43873	98.00	170	2	0.00	43952	98.18
172	7	0.02	43880	98.01	171	7	0.02	43959	98.19
173	6	0.01	43886	98.03	172	6	0.01	43965	98.20
174	4	0.01	43890	98.04	173	2	0.00	43967	98.21
175	3	0.01	43893	98.04	174	4	0.01	43971	98.22
176	4	0.01	43897	98.05	175	2	0.00	43973	98.22
177	2	0.00	43899	98.06	176	1	0.00	43974	98.22
178	7	0.02	43906	98.07	177	2	0.00	43976	98.23
179	5	0.01	43911	98.08	178	4	0.01	43980	98.24
180	7	0.02	43918	98.10	179	3	0.01	43983	98.24
181	2	0.00	43920	98.10	180	4	0.01	43987	98.25
182	2	0.00	43922	98.11	181	4	0.01	43991	98.26
183	4	0.01	43926	98.12	182	4	0.01	43995	98.27
184	1	0.00	43927	98.12	183	4	0.01	43999	98.28
185	4	0.01	43931	98.13	184	3	0.01	44002	98.29
186	2	0.00	43933	98.13	185	3	0.01	44005	98.29
187	2	0.00	43935	98.14	186	1	0.00	44006	98.30
188	4	0.01	43939	98.15	187	4	0.01	44010	98.30
189	4	0.01	43943	98.15	188	3	0.01	44013	98.31
190	3	0.01	43946	98.16	189	2	0.00	44015	98.32
191	2	0.00	43948	98.17	190	2	0.00	44017	98.32
192	5	0.01	43953	98.18	191	4	0.01	44021	98.33
193	4	0.01	43957	98.19	192	5	0.01	44026	98.34
194	3	0.01	43960	98.19	193	4	0.01	44030	98.35
195	5	0.01	43965	98.20	194	4	0.01	44034	98.36
196	3	0.01	43968	98.21	195	4	0.01	44038	98.37
197	2	0.00	43970	98.22	196	1	0.00	44039	98.37
198	2	0.00	43972	98.22	197	4	0.01	44043	98.38
199	2	0.00	43974	98.22	198	2	0.00	44045	98.38
200	5	0.01	43979	98.24	199	5	0.01	44050	98.39
201	1	0.00	43980	98.24	200	4	0.01	44054	98.40
202	4	0.01	43984	98.25	201	5	0.01	44059	98.41
203	4	0.01	43988	98.26	202	3	0.01	44062	98.42
204	5	0.01	43993	98.27	203	2	0.00	44064	98.43
205	1	0.00	43994	98.27	204	2	0.00	44066	98.43

206	8	0.02	44002	98.29	206	4	0.01	44070	98.44
208	5	0.01	44007	98.30	207	3	0.01	44073	98.45
209	3	0.01	44010	98.30	208	3	0.01	44076	98.45
210	2	0.00	44012	98.31	209	1	0.00	44077	98.45
211	5	0.01	44017	98.32	210	3	0.01	44080	98.46
212	3	0.01	44020	98.33	211	1	0.00	44081	98.46
213	2	0.00	44022	98.33	212	3	0.01	44084	98.47
214	3	0.01	44025	98.34	213	2	0.00	44086	98.47
215	6	0.01	44031	98.35	214	3	0.01	44089	98.48
216	3	0.01	44034	98.36	215	2	0.00	44091	98.49
217	3	0.01	44037	98.36	216	2	0.00	44093	98.49
218	1	0.00	44038	98.37	217	5	0.01	44098	98.50
219	2	0.00	44040	98.37	218	2	0.00	44100	98.51
221	2	0.00	44042	98.38	219	5	0.01	44105	98.52
222	2	0.00	44044	98.38	220	5	0.01	44110	98.53
223	3	0.01	44047	98.39	221	3	0.01	44113	98.53
224	4	0.01	44051	98.40	222	2	0.00	44115	98.54
225	3	0.01	44054	98.40	223	2	0.00	44117	98.54
226	3	0.01	44057	98.41	224	3	0.01	44120	98.55
227	3	0.01	44060	98.42	225	2	0.00	44122	98.55
228	4	0.01	44064	98.43	226	1	0.00	44123	98.56
229	1	0.00	44065	98.43	227	3	0.01	44126	98.56
230	2	0.00	44067	98.43	228	4	0.01	44130	98.57
231	2	0.00	44069	98.44	229	2	0.00	44132	98.58
232	7	0.02	44076	98.45	230	1	0.00	44133	98.58
233	3	0.01	44079	98.46	231	3	0.01	44136	98.59
234	2	0.00	44081	98.46	232	3	0.01	44139	98.59
235	4	0.01	44085	98.47	233	4	0.01	44143	98.60
236	1	0.00	44086	98.47	234	2	0.00	44145	98.61
237	4	0.01	44090	98.48	235	2	0.00	44147	98.61
238	1	0.00	44091	98.49	237	5	0.01	44152	98.62
239	5	0.01	44096	98.50	238	1	0.00	44153	98.62
240	1	0.00	44097	98.50	239	3	0.01	44156	98.63
241	5	0.01	44102	98.51	240	3	0.01	44159	98.64
242	2	0.00	44104	98.51	241	2	0.00	44161	98.64
243	1	0.00	44105	98.52	242	5	0.01	44166	98.65
244	4	0.01	44109	98.53	243	2	0.00	44168	98.66
245	2	0.00	44111	98.53	244	6	0.01	44174	98.67
246	2	0.00	44113	98.53	245	1	0.00	44175	98.67
248	1	0.00	44114	98.54	246	2	0.00	44177	98.68
249	3	0.01	44117	98.54	247	3	0.01	44180	98.68
250	2	0.00	44119	98.55	248	2	0.00	44182	98.69
251	1	0.00	44120	98.55	249	1	0.00	44183	98.69
252	2	0.00	44122	98.55	250	3	0.01	44186	98.70
253	2	0.00	44124	98.56	251	5	0.01	44191	98.71
254	1	0.00	44125	98.56	252	1	0.00	44192	98.71
255	2	0.00	44127	98.57	253	5	0.01	44197	98.72
256	4	0.01	44131	98.57	254	1	0.00	44198	98.72
257	3	0.01	44134	98.58	256	3	0.01	44201	98.73
258	5	0.01	44139	98.59	257	6	0.01	44207	98.74
259	2	0.00	44141	98.60	258	1	0.00	44208	98.75
260	5	0.01	44146	98.61	259	3	0.01	44211	98.75

261	2	0.00	44148	98.61	260	1	0.00	44212	98.76
262	1	0.00	44149	98.62	261	4	0.01	44216	98.76
263	4	0.01	44153	98.62	262	2	0.00	44218	98.77
264	3	0.01	44156	98.63	263	6	0.01	44224	98.78
265	1	0.00	44157	98.63	264	2	0.00	44226	98.79
267	3	0.01	44160	98.64	265	6	0.01	44232	98.80
268	4	0.01	44164	98.65	266	5	0.01	44237	98.81
269	1	0.00	44165	98.65	267	2	0.00	44239	98.82
270	3	0.01	44168	98.66	268	5	0.01	44244	98.83
271	3	0.01	44171	98.66	269	2	0.00	44246	98.83
272	1	0.00	44172	98.67	270	3	0.01	44249	98.84
273	1	0.00	44173	98.67	271	4	0.01	44253	98.85
274	2	0.00	44175	98.67	274	3	0.01	44256	98.85
275	6	0.01	44181	98.69	275	3	0.01	44259	98.86
276	1	0.00	44182	98.69	276	2	0.00	44261	98.87
277	3	0.01	44185	98.70	277	6	0.01	44267	98.88
278	1	0.00	44186	98.70	278	3	0.01	44270	98.89
279	2	0.00	44188	98.70	279	3	0.01	44273	98.89
280	6	0.01	44194	98.72	280	2	0.00	44275	98.90
281	1	0.00	44195	98.72	281	2	0.00	44277	98.90
282	1	0.00	44196	98.72	282	1	0.00	44278	98.90
283	2	0.00	44198	98.72	284	2	0.00	44280	98.91
284	2	0.00	44200	98.73	285	3	0.01	44283	98.91
285	4	0.01	44204	98.74	286	2	0.00	44285	98.92
286	2	0.00	44206	98.74	287	1	0.00	44286	98.92
287	1	0.00	44207	98.74	289	2	0.00	44288	98.93
288	5	0.01	44212	98.76	290	2	0.00	44290	98.93
289	3	0.01	44215	98.76	291	1	0.00	44291	98.93
290	3	0.01	44218	98.77	294	1	0.00	44292	98.93
291	3	0.01	44221	98.78	295	3	0.01	44295	98.94
292	1	0.00	44222	98.78	297	1	0.00	44296	98.94
295	4	0.01	44226	98.79	298	1	0.00	44297	98.95
296	1	0.00	44227	98.79	299	1	0.00	44298	98.95
297	2	0.00	44229	98.79	300	2	0.00	44300	98.95
298	2	0.00	44231	98.80	301	3	0.01	44303	98.96
299	1	0.00	44232	98.80	302	1	0.00	44304	98.96
300	2	0.00	44234	98.80	304	1	0.00	44305	98.96
302	1	0.00	44235	98.81	305	3	0.01	44308	98.97
303	2	0.00	44237	98.81	306	3	0.01	44311	98.98
304	1	0.00	44238	98.81	308	1	0.00	44312	98.98
306	2	0.00	44240	98.82	311	4	0.01	44316	98.99
307	2	0.00	44242	98.82	312	1	0.00	44317	98.99
308	3	0.01	44245	98.83	313	3	0.01	44320	99.00
309	1	0.00	44246	98.83	314	1	0.00	44321	99.00
310	2	0.00	44248	98.84	315	4	0.01	44325	99.01
311	4	0.01	44252	98.85	316	1	0.00	44326	99.01
313	4	0.01	44256	98.85	317	3	0.01	44329	99.02
315	1	0.00	44257	98.86	318	3	0.01	44332	99.02
316	4	0.01	44261	98.87	319	2	0.00	44334	99.03
317	2	0.00	44263	98.87	320	1	0.00	44335	99.03
318	2	0.00	44265	98.87	321	2	0.00	44337	99.04
319	2	0.00	44267	98.88	323	1	0.00	44338	99.04

320	1	0.00	44268	98.88	324	2	0.00	44340	99.04
321	1	0.00	44269	98.88	325	2	0.00	44342	99.05
323	2	0.00	44271	98.89	326	1	0.00	44343	99.05
324	3	0.01	44274	98.89	327	1	0.00	44344	99.05
325	1	0.00	44275	98.90	328	1	0.00	44345	99.05
328	4	0.01	44279	98.91	329	1	0.00	44346	99.06
329	1	0.00	44280	98.91	330	2	0.00	44348	99.06
330	2	0.00	44282	98.91	331	1	0.00	44349	99.06
331	2	0.00	44284	98.92	332	2	0.00	44351	99.07
332	2	0.00	44286	98.92	336	4	0.01	44355	99.08
333	1	0.00	44287	98.92	337	1	0.00	44356	99.08
334	2	0.00	44289	98.93	341	2	0.00	44358	99.08
335	2	0.00	44291	98.93	343	1	0.00	44359	99.08
338	4	0.01	44295	98.94	344	2	0.00	44361	99.09
339	3	0.01	44298	98.95	345	2	0.00	44363	99.09
340	2	0.00	44300	98.95	346	2	0.00	44365	99.10
341	1	0.00	44301	98.95	347	2	0.00	44367	99.10
342	1	0.00	44302	98.96	350	2	0.00	44369	99.11
343	1	0.00	44303	98.96	351	1	0.00	44370	99.11
344	3	0.01	44306	98.97	352	1	0.00	44371	99.11
346	1	0.00	44307	98.97	353	1	0.00	44372	99.11
347	1	0.00	44308	98.97	354	2	0.00	44374	99.12
348	2	0.00	44310	98.97	355	1	0.00	44375	99.12
349	2	0.00	44312	98.98	357	1	0.00	44376	99.12
350	1	0.00	44313	98.98	358	2	0.00	44378	99.13
354	1	0.00	44314	98.98	359	1	0.00	44379	99.13
355	4	0.01	44318	98.99	360	2	0.00	44381	99.13
356	3	0.01	44321	99.00	361	1	0.00	44382	99.14
357	1	0.00	44322	99.00	362	2	0.00	44384	99.14
363	1	0.00	44323	99.00	366	3	0.01	44387	99.15
364	1	0.00	44324	99.01	367	2	0.00	44389	99.15
366	2	0.00	44326	99.01	369	1	0.00	44390	99.15
367	3	0.01	44329	99.02	370	1	0.00	44391	99.16
368	2	0.00	44331	99.02	371	1	0.00	44392	99.16
369	1	0.00	44332	99.02	372	2	0.00	44394	99.16
370	1	0.00	44333	99.03	373	3	0.01	44397	99.17
371	1	0.00	44334	99.03	374	1	0.00	44398	99.17
372	1	0.00	44335	99.03	376	2	0.00	44400	99.18
373	2	0.00	44337	99.04	377	1	0.00	44401	99.18
375	3	0.01	44340	99.04	380	1	0.00	44402	99.18
376	1	0.00	44341	99.04	382	1	0.00	44403	99.18
378	1	0.00	44342	99.05	383	4	0.01	44407	99.19
379	1	0.00	44343	99.05	385	1	0.00	44408	99.19
380	1	0.00	44344	99.05	386	1	0.00	44409	99.20
381	4	0.01	44348	99.06	388	2	0.00	44411	99.20
382	2	0.00	44350	99.06	389	1	0.00	44412	99.20
384	1	0.00	44351	99.07	392	1	0.00	44413	99.20
385	1	0.00	44352	99.07	393	1	0.00	44414	99.21
386	1	0.00	44353	99.07	394	1	0.00	44415	99.21
387	1	0.00	44354	99.07	395	1	0.00	44416	99.21
388	2	0.00	44356	99.08	396	1	0.00	44417	99.21
390	1	0.00	44357	99.08	397	1	0.00	44418	99.22

392	3	0.01	44360	99.09	398	2	0.00	44420	99.22
393	2	0.00	44362	99.09	401	1	0.00	44421	99.22
394	3	0.01	44365	99.10	403	2	0.00	44423	99.23
395	1	0.00	44366	99.10	404	2	0.00	44425	99.23
396	1	0.00	44367	99.10	405	1	0.00	44426	99.23
397	2	0.00	44369	99.11	406	1	0.00	44427	99.24
398	1	0.00	44370	99.11	407	2	0.00	44429	99.24
399	1	0.00	44371	99.11	408	4	0.01	44433	99.25
400	2	0.00	44373	99.12	410	2	0.00	44435	99.25
401	1	0.00	44374	99.12	411	1	0.00	44436	99.26
402	1	0.00	44375	99.12	412	1	0.00	44437	99.26
404	1	0.00	44376	99.12	415	1	0.00	44438	99.26
405	2	0.00	44378	99.13	416	1	0.00	44439	99.26
406	3	0.01	44381	99.13	418	1	0.00	44440	99.27
407	1	0.00	44382	99.14	419	2	0.00	44442	99.27
408	1	0.00	44383	99.14	422	1	0.00	44443	99.27
409	4	0.01	44387	99.15	423	2	0.00	44445	99.28
410	1	0.00	44388	99.15	424	2	0.00	44447	99.28
413	2	0.00	44390	99.15	426	2	0.00	44449	99.29
414	3	0.01	44393	99.16	427	3	0.01	44452	99.29
415	1	0.00	44394	99.16	428	1	0.00	44453	99.29
417	1	0.00	44395	99.16	432	1	0.00	44454	99.30
419	1	0.00	44396	99.17	433	1	0.00	44455	99.30
420	2	0.00	44398	99.17	434	2	0.00	44457	99.30
421	1	0.00	44399	99.17	435	1	0.00	44458	99.31
422	1	0.00	44400	99.18	438	1	0.00	44459	99.31
423	1	0.00	44401	99.18	439	1	0.00	44460	99.31
425	1	0.00	44402	99.18	440	1	0.00	44461	99.31
428	1	0.00	44403	99.18	441	2	0.00	44463	99.32
429	3	0.01	44406	99.19	444	1	0.00	44464	99.32
431	2	0.00	44408	99.19	448	3	0.01	44467	99.33
433	1	0.00	44409	99.20	451	1	0.00	44468	99.33
436	1	0.00	44410	99.20	452	1	0.00	44469	99.33
437	2	0.00	44412	99.20	455	1	0.00	44470	99.33
438	2	0.00	44414	99.21	456	1	0.00	44471	99.33
439	1	0.00	44415	99.21	457	1	0.00	44472	99.34
440	1	0.00	44416	99.21	459	1	0.00	44473	99.34
442	3	0.01	44419	99.22	462	1	0.00	44474	99.34
443	2	0.00	44421	99.22	464	1	0.00	44475	99.34
446	1	0.00	44422	99.22	466	3	0.01	44478	99.35
452	1	0.00	44423	99.23	467	1	0.00	44479	99.35
453	1	0.00	44424	99.23	468	1	0.00	44480	99.35
454	1	0.00	44425	99.23	469	1	0.00	44481	99.36
456	1	0.00	44426	99.23	470	2	0.00	44483	99.36
458	2	0.00	44428	99.24	472	1	0.00	44484	99.36
459	1	0.00	44429	99.24	475	1	0.00	44485	99.37
461	2	0.00	44431	99.25	479	2	0.00	44487	99.37
462	2	0.00	44433	99.25	481	1	0.00	44488	99.37
464	2	0.00	44435	99.25	482	1	0.00	44489	99.37
466	1	0.00	44436	99.26	484	1	0.00	44490	99.38
467	2	0.00	44438	99.26	488	2	0.00	44492	99.38
469	2	0.00	44440	99.27	489	1	0.00	44493	99.38

470	2	0.00	44442	99.27	494	1	0.00	44494	99.39
472	1	0.00	44443	99.27	499	1	0.00	44495	99.39
475	1	0.00	44444	99.27	501	1	0.00	44496	99.39
480	1	0.00	44445	99.28	505	2	0.00	44498	99.39
481	2	0.00	44447	99.28	509	1	0.00	44499	99.40
484	1	0.00	44448	99.28	512	1	0.00	44500	99.40
486	2	0.00	44450	99.29	516	1	0.00	44501	99.40
487	3	0.01	44453	99.29	520	2	0.00	44503	99.41
491	2	0.00	44455	99.30	522	1	0.00	44504	99.41
492	1	0.00	44456	99.30	525	1	0.00	44505	99.41
495	1	0.00	44457	99.30	527	1	0.00	44506	99.41
497	1	0.00	44458	99.31	528	1	0.00	44507	99.41
500	2	0.00	44460	99.31	530	1	0.00	44508	99.42
502	1	0.00	44461	99.31	535	1	0.00	44509	99.42
503	1	0.00	44462	99.31	537	1	0.00	44510	99.42
504	1	0.00	44463	99.32	538	1	0.00	44511	99.42
505	1	0.00	44464	99.32	540	1	0.00	44512	99.43
506	1	0.00	44465	99.32	545	1	0.00	44513	99.43
508	1	0.00	44466	99.32	549	2	0.00	44515	99.43
510	1	0.00	44467	99.33	550	1	0.00	44516	99.43
512	1	0.00	44468	99.33	555	1	0.00	44517	99.44
514	1	0.00	44469	99.33	559	1	0.00	44518	99.44
516	2	0.00	44471	99.33	562	1	0.00	44519	99.44
518	1	0.00	44472	99.34	564	1	0.00	44520	99.44
520	1	0.00	44473	99.34	567	1	0.00	44521	99.45
524	1	0.00	44474	99.34	570	2	0.00	44523	99.45
525	1	0.00	44475	99.34	573	1	0.00	44524	99.45
526	1	0.00	44476	99.35	574	1	0.00	44525	99.45
527	1	0.00	44477	99.35	578	2	0.00	44527	99.46
528	1	0.00	44478	99.35	580	1	0.00	44528	99.46
532	1	0.00	44479	99.35	584	1	0.00	44529	99.46
533	1	0.00	44480	99.35	585	3	0.01	44532	99.47
534	2	0.00	44482	99.36	588	1	0.00	44533	99.47
536	1	0.00	44483	99.36	589	1	0.00	44534	99.48
540	1	0.00	44484	99.36	590	1	0.00	44535	99.48
542	1	0.00	44485	99.37	592	2	0.00	44537	99.48
544	2	0.00	44487	99.37	598	2	0.00	44539	99.49
547	2	0.00	44489	99.37	602	1	0.00	44540	99.49
551	1	0.00	44490	99.38	612	2	0.00	44542	99.49
553	1	0.00	44491	99.38	614	1	0.00	44543	99.50
554	1	0.00	44492	99.38	618	1	0.00	44544	99.50
556	1	0.00	44493	99.38	620	1	0.00	44545	99.50
562	1	0.00	44494	99.39	621	2	0.00	44547	99.50
564	2	0.00	44496	99.39	622	1	0.00	44548	99.51
570	1	0.00	44497	99.39	623	1	0.00	44549	99.51
575	1	0.00	44498	99.39	629	1	0.00	44550	99.51
577	1	0.00	44499	99.40	630	1	0.00	44551	99.51
579	1	0.00	44500	99.40	631	1	0.00	44552	99.52
583	1	0.00	44501	99.40	632	3	0.01	44555	99.52
585	1	0.00	44502	99.40	636	1	0.00	44556	99.52
586	1	0.00	44503	99.41	643	2	0.00	44558	99.53
591	1	0.00	44504	99.41	647	1	0.00	44559	99.53

593	1	0.00	44505	99.41	648	1	0.00	44560	99.53
594	1	0.00	44506	99.41	654	1	0.00	44561	99.54
598	1	0.00	44507	99.41	656	1	0.00	44562	99.54
604	1	0.00	44508	99.42	661	1	0.00	44563	99.54
605	2	0.00	44510	99.42	665	1	0.00	44564	99.54
611	1	0.00	44511	99.42	666	2	0.00	44566	99.55
615	1	0.00	44512	99.43	671	1	0.00	44567	99.55
618	1	0.00	44513	99.43	672	1	0.00	44568	99.55
624	1	0.00	44514	99.43	676	1	0.00	44569	99.55
628	1	0.00	44515	99.43	679	2	0.00	44571	99.56
629	1	0.00	44516	99.43	683	1	0.00	44572	99.56
630	1	0.00	44517	99.44	692	1	0.00	44573	99.56
632	1	0.00	44518	99.44	693	2	0.00	44575	99.57
633	1	0.00	44519	99.44	694	1	0.00	44576	99.57
637	1	0.00	44520	99.44	695	1	0.00	44577	99.57
640	2	0.00	44522	99.45	700	1	0.00	44578	99.57
641	1	0.00	44523	99.45	704	1	0.00	44579	99.58
642	3	0.01	44526	99.46	712	1	0.00	44580	99.58
643	1	0.00	44527	99.46	715	2	0.00	44582	99.58
644	1	0.00	44528	99.46	717	1	0.00	44583	99.58
645	1	0.00	44529	99.46	723	1	0.00	44584	99.59
646	1	0.00	44530	99.47	726	1	0.00	44585	99.59
657	1	0.00	44531	99.47	729	1	0.00	44586	99.59
659	1	0.00	44532	99.47	731	1	0.00	44587	99.59
661	1	0.00	44533	99.47	733	1	0.00	44588	99.60
665	1	0.00	44534	99.48	735	2	0.00	44590	99.60
667	1	0.00	44535	99.48	738	1	0.00	44591	99.60
670	1	0.00	44536	99.48	739	1	0.00	44592	99.60
678	1	0.00	44537	99.48	743	1	0.00	44593	99.61
679	1	0.00	44538	99.48	750	1	0.00	44594	99.61
682	2	0.00	44540	99.49	755	1	0.00	44595	99.61
683	1	0.00	44541	99.49	762	2	0.00	44597	99.62
686	1	0.00	44542	99.49	772	1	0.00	44598	99.62
692	1	0.00	44543	99.50	775	1	0.00	44599	99.62
698	2	0.00	44545	99.50	776	1	0.00	44600	99.62
700	1	0.00	44546	99.50	778	1	0.00	44601	99.62
702	1	0.00	44547	99.50	782	1	0.00	44602	99.63
703	1	0.00	44548	99.51	786	1	0.00	44603	99.63
706	1	0.00	44549	99.51	797	2	0.00	44605	99.63
712	1	0.00	44550	99.51	798	1	0.00	44606	99.64
718	1	0.00	44551	99.51	799	1	0.00	44607	99.64
720	1	0.00	44552	99.52	800	1	0.00	44608	99.64
723	1	0.00	44553	99.52	803	1	0.00	44609	99.64
725	1	0.00	44554	99.52	806	1	0.00	44610	99.64
727	1	0.00	44555	99.52	811	1	0.00	44611	99.65
731	1	0.00	44556	99.52	815	2	0.00	44613	99.65
732	1	0.00	44557	99.53	817	2	0.00	44615	99.66
735	2	0.00	44559	99.53	820	2	0.00	44617	99.66
742	1	0.00	44560	99.53	833	1	0.00	44618	99.66
744	1	0.00	44561	99.54	839	1	0.00	44619	99.66
745	2	0.00	44563	99.54	841	1	0.00	44620	99.67
751	1	0.00	44564	99.54	843	1	0.00	44621	99.67

758	1	0.00	44565	99.54	852	1	0.00	44622	99.67
764	1	0.00	44566	99.55	855	1	0.00	44623	99.67
767	1	0.00	44567	99.55	861	1	0.00	44624	99.68
768	1	0.00	44568	99.55	871	1	0.00	44625	99.68
781	1	0.00	44569	99.55	875	1	0.00	44626	99.68
782	1	0.00	44570	99.56	877	1	0.00	44627	99.68
783	1	0.00	44571	99.56	883	1	0.00	44628	99.69
784	1	0.00	44572	99.56	889	1	0.00	44629	99.69
785	3	0.01	44575	99.57	890	1	0.00	44630	99.69
787	1	0.00	44576	99.57	899	1	0.00	44631	99.69
790	1	0.00	44577	99.57	903	1	0.00	44632	99.69
796	1	0.00	44578	99.57	907	1	0.00	44633	99.70
798	1	0.00	44579	99.58	908	1	0.00	44634	99.70
800	1	0.00	44580	99.58	934	2	0.00	44636	99.70
802	1	0.00	44581	99.58	937	2	0.00	44638	99.71
804	1	0.00	44582	99.58	942	1	0.00	44639	99.71
805	1	0.00	44583	99.58	944	1	0.00	44640	99.71
808	1	0.00	44584	99.59	959	1	0.00	44641	99.71
825	1	0.00	44585	99.59	960	2	0.00	44643	99.72
826	1	0.00	44586	99.59	968	1	0.00	44644	99.72
839	1	0.00	44587	99.59	972	1	0.00	44645	99.72
840	1	0.00	44588	99.60	980	1	0.00	44646	99.73
847	1	0.00	44589	99.60	992	1	0.00	44647	99.73
857	1	0.00	44590	99.60	1006	1	0.00	44648	99.73
859	1	0.00	44591	99.60	1016	1	0.00	44649	99.73
864	1	0.00	44592	99.60	1029	1	0.00	44650	99.73
865	1	0.00	44593	99.61	1040	1	0.00	44651	99.74
866	1	0.00	44594	99.61	1043	1	0.00	44652	99.74
880	2	0.00	44596	99.61	1044	1	0.00	44653	99.74
882	1	0.00	44597	99.62	1046	1	0.00	44654	99.74
883	1	0.00	44598	99.62	1047	1	0.00	44655	99.75
886	1	0.00	44599	99.62	1048	1	0.00	44656	99.75
892	2	0.00	44601	99.62	1061	2	0.00	44658	99.75
900	1	0.00	44602	99.63	1063	1	0.00	44659	99.75
907	2	0.00	44604	99.63	1068	1	0.00	44660	99.76
909	1	0.00	44605	99.63	1082	1	0.00	44661	99.76
914	1	0.00	44606	99.64	1083	1	0.00	44662	99.76
916	1	0.00	44607	99.64	1085	1	0.00	44663	99.76
917	2	0.00	44609	99.64	1091	1	0.00	44664	99.77
920	1	0.00	44610	99.64	1105	1	0.00	44665	99.77
923	1	0.00	44611	99.65	1115	1	0.00	44666	99.77
928	1	0.00	44612	99.65	1119	1	0.00	44667	99.77
937	1	0.00	44613	99.65	1134	1	0.00	44668	99.77
955	1	0.00	44614	99.65	1135	1	0.00	44669	99.78
959	1	0.00	44615	99.66	1152	1	0.00	44670	99.78
968	1	0.00	44616	99.66	1154	1	0.00	44671	99.78
969	1	0.00	44617	99.66	1158	1	0.00	44672	99.78
970	1	0.00	44618	99.66	1159	1	0.00	44673	99.79
971	1	0.00	44619	99.66	1161	1	0.00	44674	99.79
977	1	0.00	44620	99.67	1181	1	0.00	44675	99.79
983	1	0.00	44621	99.67	1182	1	0.00	44676	99.79
986	1	0.00	44622	99.67	1194	1	0.00	44677	99.79

1011	1	0.00	44623	99.67	1201	1	0.00	44678	99.80
1019	1	0.00	44624	99.68	1208	1	0.00	44679	99.80
1021	1	0.00	44625	99.68	1212	1	0.00	44680	99.80
1026	1	0.00	44626	99.68	1213	1	0.00	44681	99.80
1028	1	0.00	44627	99.68	1217	1	0.00	44682	99.81
1043	1	0.00	44628	99.69	1235	1	0.00	44683	99.81
1044	1	0.00	44629	99.69	1236	2	0.00	44685	99.81
1047	1	0.00	44630	99.69	1240	3	0.01	44688	99.82
1059	1	0.00	44631	99.69	1314	1	0.00	44689	99.82
1064	1	0.00	44632	99.69	1324	1	0.00	44690	99.82
1068	1	0.00	44633	99.70	1335	2	0.00	44692	99.83
1070	1	0.00	44634	99.70	1343	1	0.00	44693	99.83
1075	1	0.00	44635	99.70	1362	1	0.00	44694	99.83
1078	1	0.00	44636	99.70	1371	1	0.00	44695	99.83
1100	1	0.00	44637	99.71	1388	1	0.00	44696	99.84
1108	1	0.00	44638	99.71	1405	1	0.00	44697	99.84
1112	1	0.00	44639	99.71	1417	1	0.00	44698	99.84
1118	1	0.00	44640	99.71	1443	1	0.00	44699	99.84
1130	2	0.00	44642	99.72	1464	1	0.00	44700	99.85
1141	1	0.00	44643	99.72	1465	1	0.00	44701	99.85
1145	1	0.00	44644	99.72	1481	1	0.00	44702	99.85
1157	1	0.00	44645	99.72	1499	1	0.00	44703	99.85
1161	1	0.00	44646	99.73	1531	1	0.00	44704	99.85
1168	1	0.00	44647	99.73	1538	1	0.00	44705	99.86
1171	1	0.00	44648	99.73	1539	1	0.00	44706	99.86
1194	1	0.00	44649	99.73	1547	1	0.00	44707	99.86
1205	1	0.00	44650	99.73	1565	1	0.00	44708	99.86
1216	1	0.00	44651	99.74	1588	1	0.00	44709	99.87
1225	1	0.00	44652	99.74	1607	1	0.00	44710	99.87
1237	1	0.00	44653	99.74	1624	1	0.00	44711	99.87
1251	2	0.00	44655	99.75	1640	1	0.00	44712	99.87
1258	1	0.00	44656	99.75	1678	1	0.00	44713	99.87
1262	1	0.00	44657	99.75	1682	1	0.00	44714	99.88
1265	1	0.00	44658	99.75	1701	1	0.00	44715	99.88
1274	1	0.00	44659	99.75	1748	1	0.00	44716	99.88
1277	1	0.00	44660	99.76	1758	1	0.00	44717	99.88
1295	1	0.00	44661	99.76	1771	1	0.00	44718	99.89
1317	1	0.00	44662	99.76	1773	1	0.00	44719	99.89
1322	1	0.00	44663	99.76	1790	1	0.00	44720	99.89
1327	1	0.00	44664	99.77	1865	2	0.00	44722	99.90
1335	1	0.00	44665	99.77	1875	1	0.00	44723	99.90
1353	1	0.00	44666	99.77	1885	1	0.00	44724	99.90
1357	1	0.00	44667	99.77	1898	1	0.00	44725	99.90
1365	1	0.00	44668	99.77	1911	1	0.00	44726	99.90
1385	1	0.00	44669	99.78	1924	1	0.00	44727	99.91
1391	1	0.00	44670	99.78	1926	1	0.00	44728	99.91
1399	1	0.00	44671	99.78	1940	1	0.00	44729	99.91
1402	1	0.00	44672	99.78	2005	1	0.00	44730	99.91
1414	2	0.00	44674	99.79	2037	1	0.00	44731	99.92
1415	1	0.00	44675	99.79	2038	1	0.00	44732	99.92
1421	1	0.00	44676	99.79	2058	1	0.00	44733	99.92
1423	1	0.00	44677	99.79	2075	1	0.00	44734	99.92

1434	1	0.00	44678	99.80	2086	1	0.00	44735	99.92
1448	1	0.00	44679	99.80	2111	1	0.00	44736	99.93
1461	1	0.00	44680	99.80	2122	1	0.00	44737	99.93
1473	1	0.00	44681	99.80	2146	1	0.00	44738	99.93
1477	1	0.00	44682	99.81	2168	1	0.00	44739	99.93
1482	1	0.00	44683	99.81	2171	1	0.00	44740	99.94
1514	1	0.00	44684	99.81	2260	1	0.00	44741	99.94
1536	1	0.00	44685	99.81	2286	1	0.00	44742	99.94
1546	2	0.00	44687	99.82	2288	1	0.00	44743	99.94
1556	2	0.00	44689	99.82	2370	1	0.00	44744	99.94
1558	1	0.00	44690	99.82	2371	1	0.00	44745	99.95
1597	1	0.00	44691	99.83	2373	1	0.00	44746	99.95
1626	1	0.00	44692	99.83	2408	1	0.00	44747	99.95
1649	1	0.00	44693	99.83	2434	1	0.00	44748	99.95
1654	1	0.00	44694	99.83	2474	1	0.00	44749	99.96
1661	1	0.00	44695	99.83	2495	1	0.00	44750	99.96
1690	1	0.00	44696	99.84	2604	1	0.00	44751	99.96
1715	1	0.00	44697	99.84	2619	1	0.00	44752	99.96
1734	1	0.00	44698	99.84	2666	1	0.00	44753	99.96
1743	1	0.00	44699	99.84	2891	1	0.00	44754	99.97
1744	1	0.00	44700	99.85	3105	1	0.00	44755	99.97
1748	1	0.00	44701	99.85	3110	1	0.00	44756	99.97
1776	1	0.00	44702	99.85	3113	1	0.00	44757	99.97
1808	1	0.00	44703	99.85	3142	1	0.00	44758	99.98
1841	1	0.00	44704	99.85	3369	1	0.00	44759	99.98
1851	1	0.00	44705	99.86	3443	1	0.00	44760	99.98
1859	1	0.00	44706	99.86	4181	1	0.00	44761	99.98
1896	1	0.00	44707	99.86	4264	1	0.00	44762	99.98
1943	1	0.00	44708	99.86	4951	1	0.00	44763	99.99
1973	1	0.00	44709	99.87	5034	1	0.00	44764	99.99
1991	1	0.00	44710	99.87	5183	1	0.00	44765	99.99
2010	1	0.00	44711	99.87	5558	1	0.00	44766	99.99
2039	1	0.00	44712	99.87	5605	1	0.00	44767	100.00
2057	1	0.00	44713	99.87	5609	1	0.00	44768	100.00
2069	1	0.00	44714	99.88	10509	1	0.00	44769	100.00
2087	1	0.00	44715	99.88					
2102	1	0.00	44716	99.88					
2160	1	0.00	44717	99.88					
2163	1	0.00	44718	99.89					
2223	1	0.00	44719	99.89					
2236	1	0.00	44720	99.89					
2274	1	0.00	44721	99.89					
2315	1	0.00	44722	99.90					
2329	1	0.00	44723	99.90					
2340	1	0.00	44724	99.90					
2350	1	0.00	44725	99.90					
2371	1	0.00	44726	99.90					
2374	1	0.00	44727	99.91					
2401	1	0.00	44728	99.91					
2418	1	0.00	44729	99.91					
2440	1	0.00	44730	99.91					
2539	1	0.00	44731	99.92					

2570	1	0.00	44732	99.92					
2575	1	0.00	44733	99.92					
2612	1	0.00	44734	99.92					
2639	1	0.00	44735	99.92					
2649	1	0.00	44736	99.93					
2684	2	0.00	44738	99.93					
2691	1	0.00	44739	99.93					
2769	1	0.00	44740	99.94					
2796	1	0.00	44741	99.94					
2840	1	0.00	44742	99.94					
2910	1	0.00	44743	99.94					
2926	1	0.00	44744	99.94					
2983	1	0.00	44745	99.95					
3078	1	0.00	44746	99.95					
3127	1	0.00	44747	99.95					
3145	1	0.00	44748	99.95					
3375	1	0.00	44749	99.96					
3383	1	0.00	44750	99.96					
3395	1	0.00	44751	99.96					
3461	1	0.00	44752	99.96					
3939	1	0.00	44753	99.96					
4020	1	0.00	44754	99.97					
4045	1	0.00	44755	99.97					
4056	1	0.00	44756	99.97					
4364	1	0.00	44757	99.97					
4456	1	0.00	44758	99.98					
4503	1	0.00	44759	99.98					
5993	1	0.00	44760	99.98					
6800	1	0.00	44761	99.98					
7047	1	0.00	44762	99.98					
7100	1	0.00	44763	99.99					
7700	1	0.00	44764	99.99					
7742	1	0.00	44765	99.99					
8638	1	0.00	44766	99.99					
8904	1	0.00	44767	100.00					
25862	1	0.00	44768	100.00					
83750	1	0.00	44769	100.00					

Appendix 3: List of Keywords Used to Measure Risk Information Category

Risk Information Category	
Operational and Process Risk	3rd part*, access*, accurac*, analysis, area*, assembl*, asset*, authoring, availability, beta, betas, beta-test*, blend*, build*, built, calibrat*, circuit*, client*, coding, compatib*, complet*, complex*, complicate*, component*, computer*, construct*, consultant*, contract, contracting, contracts, construction*, conversion*, convert*, costuming, courier*, courier*, creating, creation*, customis*, customiz*, deadline*, delay*, deliver*, dependenc*, deploy*, design, designed, designing, designs, develop*, disaster*, dispatch*, distance*, distant, distribut*, diy, domestic*, draft*, drawing*, due date, duplicating, edit*, effective*, electrical, electronic*, element*, engineered, engineering, equipment*, experiment*, export*, exterior*, external*, fabricat*, facilities, facility, factories, factory, feasibility stud*, feature*, filming, firmware*, formulat*, framing, franchis*, freight*, functional*, functioned, functioning, generator*, goal*, groundwork*, hardware*, headquarter*, hosting, illness*, import, imported, importing, imports, incident*, industr*, infrastruct*, ingredient*, in-house, innovate, innovating, innovation, input*, install*, interior*, international*, invent, invented, inventing, invention*, inventories, inventory*, lab, laborator*, labs, layout*, lead, time*, location*, logistics, machin*, maintenance, manufactur*, manuscript*, material*, mechanical*, mechanism*, merchandis*, modeling, modelling, models, module*, molding, mould*, office*, official, operate*, operating, operation*, organisation *, organize, organizer*, outlet*, output*, outsource*, outsourcing, ownership, pack*, part, parts,

	perfected, perfecting, perfection, performance, performing, phase*, pipeline*, plan*, platform*, play test*, postage, post-production, practitioner*, preproduction, pre-production, print*, process*, procurement*, produce*, producing, product*, programming, project*, prototyp*, publish*, quality, quantit*, r&d, rate*, rating*, recipient*, record*, redesign*, re-design*, redistribut*, region*, reinvent*, re-invent*, reject*, renovat*, repair*, reschedul*, research*, resource*, restriction*, restructur*, review*, rework*, re-work*, rewrit*, sample*, sampling, scalab*, scarce, schedul*, self-publish*, server*, setup*, set-up*, ship*, shoot*, shortage*, showcas*, site*, sizable, size*, sizing, slide*, software*, source*, sourcing, spec, specification*, stage*, step*, stock*, storage*, store*, storyboard*, storyline*, structur*, subscrib*, supervision*, supplier*, supplies, supply, supply chain*, survey*, suspend*. suspension*, system*, technical*, techniq*, template*, test, tested, testing, tests, third part*, third-part*, time frame*, time period, timeframe*, time-frame*, timeline, timing, tool, tooling, tools, trade, trades, trading, transaction*, transit*, transport*, trial*, turnaround, valuation*, warehous*, workshop*
Team Risk	abilit*, able, academic*, accountab*, active, actor*, actress*, adept*, administ*, adviser*, advisor*, affiliat*, agent*, ambassador*, ambiti*, architect, architects, artist*, aspiration*, assistan*, associate*, attentiv*, author, authors, brain, brave*, bright*, brillian*, candidate*, capab*, capacit*, captain*, career*, celebrit*, chief*, clever*, coach*, co-creator*, coder*, co-director*, co-founder*, collaborat*, colleague*, commander*, commit*, communicat*, companion*, compassion*, competen*, composer*, confidence, confident*, connection*, consultant, consultants, contact*, contractor*, contributor*,

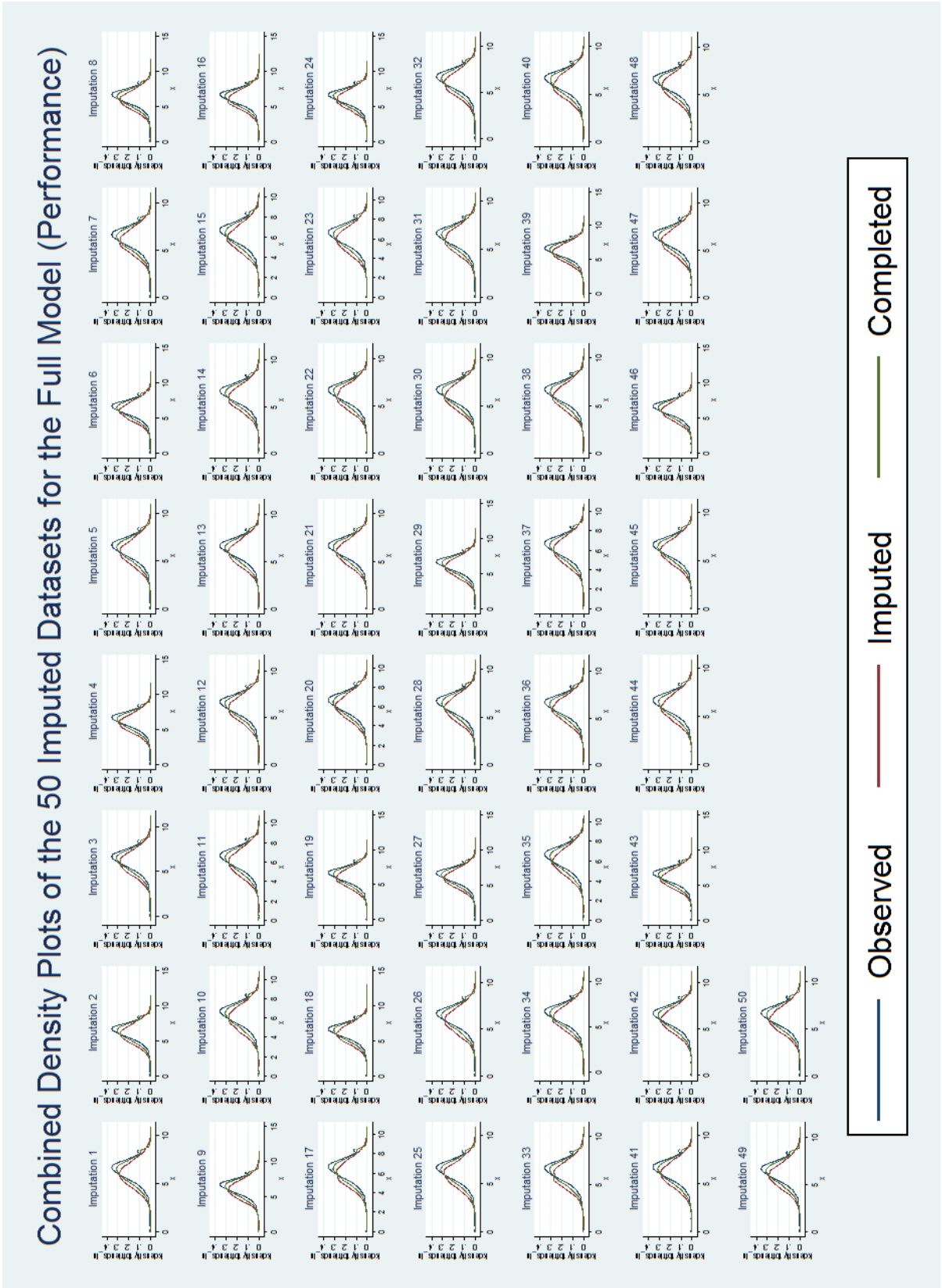
convinced, cooperate*, cooperating, coordinator*, co-producer*, courage*, co-worker*, craftsman*, creativ*, creator*, credib*, crew*, dealer*, decisive, dedicat*, delegat*, designer*, determination, determine, determined, developer*, devote*, devotion*, dexterious, dexterit*, director*, discipline*, distinguished, driven, duties, dutiful, duty, eager, edit*, editor*, educated, educator*, effort*, electrician*, employee*, employee*, encouraged, energetic, engage*, engineer, engineers, enterprising, entertainer*, enthu*, entrepreneur*, ethic*, executive*, experience*, expert*, fabricator*, facilitator*, fearless*, first-time*, flair*, focused, former*, forwarder*, founder*, founding, full time, full-time, genius*, gifted, graduat*, handiness*, hardworking, hire*, hiring, historian*, honest*, independen*, industrious, ingenuity, innovative, innovative*, inspector*, inspir*, instructor*, integrity, intellect*, intelligence, intelligent, intermediar*, intern, interns, inventive*, job, jobs, keen*, knew how, know how, know-how, knowledg*, knows how, labor*, labour*, leader, leaders, leadership, logistician*, managing, manpower*, mechanic, mechanics, member, members, mentality, mentor*, motivated, motivation*, movie maker*, moviemaker*, movie-maker*, musician*, narrator*, network*, notorious, obligat*, observant, opennes*, operator*, optimist*, organize*, participative, partner*, passion*, patron, patrons, perserv*, persisten*, personality, personnel*, phd, photographer*, planner*, player*, portfolio*, proactive*, pro-active*, problem solv*, problem-solv*, producer*, productive, profession*, professor*, proficien*, programmer*, prolific, provider*, publisher*, qualification*, qualified, rapport, reactive, relentless*, renown, represent*, reputa*, repute*, researcher*, resilien*, resourceful*, responsib*, restles*,

	role*, savvy, scholar, scholars, scientist*, senior*, shipper*, skill*, smart, speciali*, specialt*, staff*, steadfast*, strategist*, strength, strive*, striving, strong*, superior*, supervisee*, supervisor*, talent*, task*, team*, technician*, tenacious, tenacity, tireless*, trader*, trained, translator*, trustworth*, unrelenting, uphill*, vendor*, vision*, well-equipped, well-established, well-informed, well-known, well-prepared, well-respected, well-versed, willingness, wisdom, wise, wisely, worked up, worker*, workforce*, workload*, writer*
Funding and Business Risk	account*, accrue*, acquir*, ad, ads, advertis*, afford*, affordable, all-or-nothing, allowance, asset*, atm, atms, auction*, audit, audited, auditing, auditor, auditors, audits, backed, backing, balance*, bank*, bargain*, beggar*, begging, bet, bets, betting, bill, billed, billing*, bills, bitcoin, bonus*, borrow*, bought, brand*, broker*, buck, bucks, budget*, business*, buy*, capital, careless*, cash, cashed, cashes, cashflow*, cashflow*, cashing, cent, cents, challenge*, charge, charged, charges, charit*, cheap, cheapen*, cheaper, cheapest, checkbook*, chequ*, claim*, coin, coins, commerc*, commission*, companies, company, compensat*, competit*, consumer*, corporat*, cost, costed, costing, costly, costs, coupon*, cover, credit card*, credit*, currenc*, customer relation*, customer service*, customer*, debt*, deficit*, demand, demands, deposit*, dime, dimes, disburse*, discount*, dividend*, dollar*, donate, donated, donates, donating, donation*, dues, earned, earning, earnings, ecommerc*, e-commerc*, econ*, economi*, economy, equities, equity, euro, euros, excess, exchang*, expenditure*, expense, expenses, expensive, factoring, fail, failed, failing, fails, fee, fees, financ*, fiscal, fluctuat*, for free, forex, fortune*, franc, franchis*, francs, free, fund, funded, funding, funds,

	goal*, incentive*, income*, inexpensive, invest*, is free, landlord*, lease*, leasing, lend*, liabilit*, loan, loss*, low-budget*, margin*, market*, membership*, monetar*, money, not free, not free, over fund*, overfund*, over-fund*, oversight*, owe, owed, owes, owing, paid, pay*, pennies, penny, perk, perks, pledg*, price*, pricing, pricing, prize*, profit*, promo, promos, promot*, public relation*, publicit*, purchas*, quote*, raise, raised, raising, rate, rates, recoup*, recover*, redeem*, refund*, reimburs*, reinvest*, rent*, repay*, retail*, revenue*, reward*, royalties, royalty, salaries, salary, sale, sales, saving, seize*, self fund*, self-fund, self-fund*, sell*, shareholder*, shop, shops, social media*, sold, solicit*, spend*, spent, sponsor*, stakeholder*, succeed*, success, successes, successful, successfully, surpass*, tax*, trade, traded, trades, trading, transaction*, unpaid, usd, value*, wallet*

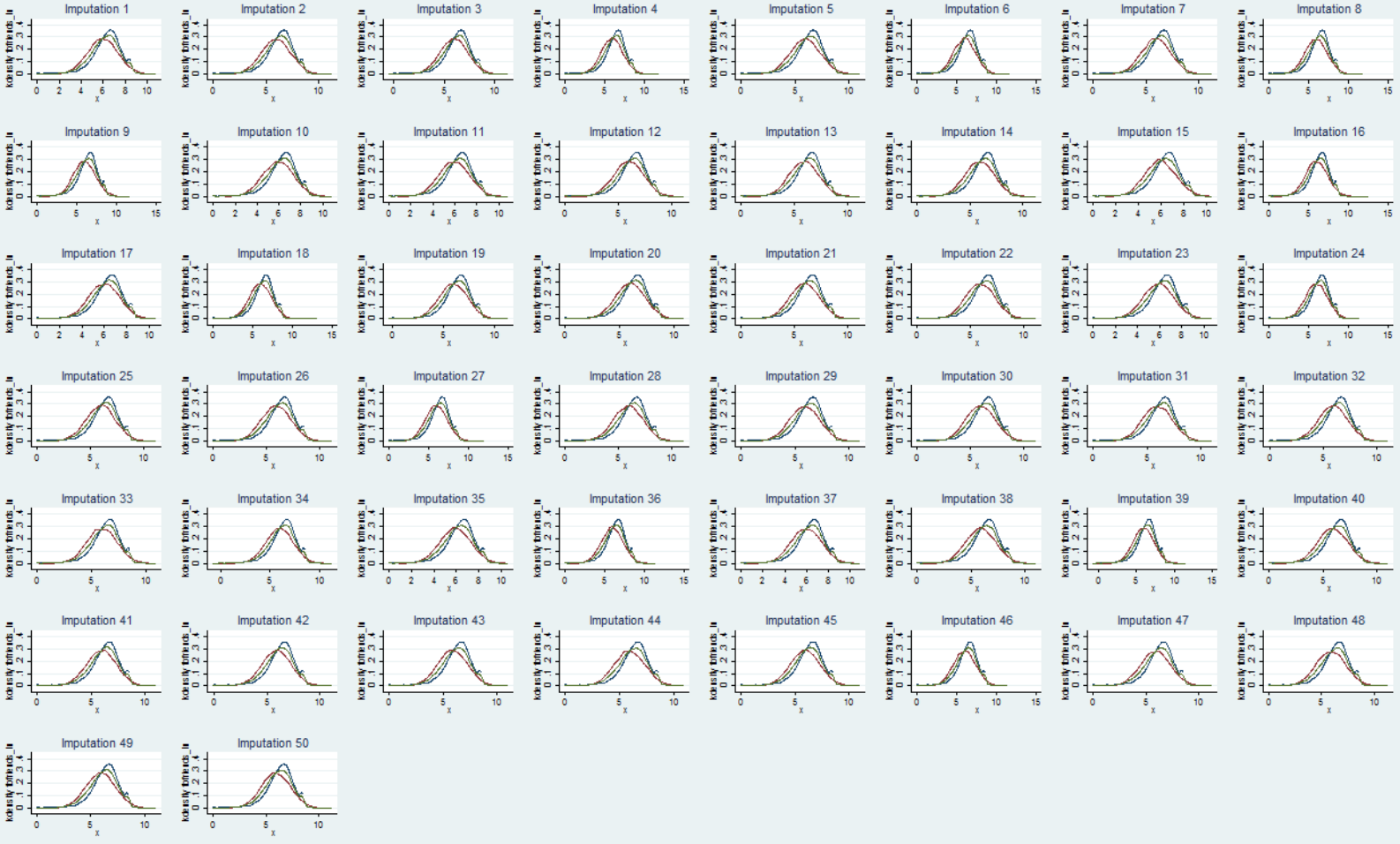
Note: Asterisk (*) is used at the end of word or word stem to ignore all subsequent letter. For example, “finance*” will count the words “finance”, “financial”, and “financing”. Word phrases (two or more words), for an example “third party” are counted as single word, rather than two separate word (“third” and “party”).

Appendix 4: The Combined Density Plots Graphs for each of the Full Model



Combined Density Plots of the 50 Imputed Datasets for the Full Model (Funding Amount)

Combined Density Plots of the 50 Imputed Datasets for the Full Model (Fully Funded)



Combined Density Plots of the 50 Imputed Datasets for the Full Model (No of Backers)