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MS. Dissertation in Engineering

**Analysis of Reward-based Crowdfunding
Participation Intention
: Perceived Risk Perspective**

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Abstract

Analysis of Reward-based Crowdfunding Participation Intention

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As an alternative to the traditional funding methods, crowdfunding has been attracting great attention from the public lately. However, despite its growing popularity, crowdfunding still lacks academic research, and funder's general participation mechanism is greatly under-studied. Moreover, current regulations and guidelines are insufficient and have limitation in handling the arising problems, especially in reward-based setting. Therefore, to implement proper mediations and invigorate the industry, deeper understanding of consumer behavior and their problem recognition are needed.

Using technology acceptance model (TAM) extended with perceived risk facets, this paper aims to investigate the factors affecting user's participation intention, their paths and magnitudes. Financial, performance, social, psychological, time, and privacy risks are selected as key risk facets. Total 445 samples are collected through online survey system

and analyzed through structural equation model. The result shows that each of risk dimensions contributes users' general risk perception, which in turn negatively impacts their participation intention, directly and indirectly. Furthermore, the result suggests that the path how perceived risk affects participation intention greatly differs depending on the user's past funding experience. Perceived risk has both direct and indirect effect in experienced group, while it has only indirect effect through attitude toward crowdfunding in inexperienced group. As a conclusion, managerial and political implications are discussed based on the findings.

Keywords: Crowdfunding, User acceptance, Technology acceptance model, Perceived risk, Structural equation modeling, Social funding

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Chapter 1. Introduction

With dramatic progress of technology, we are observing the whole change of funding process recently, especially in terms of early-stage funding for startups and individuals. Countless firms and organizations have raised great amount of funding without the help of traditional sources, such as banks, angel investors or venture capitalists. Rather, they have successfully gathered those funding from the “crowd”.

This new phenomenon is called ‘Crowdfunding’. The basic concept of crowdfunding is to raise fund money from a large number of audiences (“crowd”) with relatively small amount of contribution, through internet-based platform (Bradford 2012; Belleflamme et al. 2014). Unlike traditional funding process, crowdfunding does not require financial intermediaries such as banks or underwriter (Verstein 2011). Instead, crowdfunding platform serves as a hub to connect those who seek for financing and those who are interested in investment (Verstein 2011).

Although its relatively short history, worldwide trend shows that crowdfunding is not a mere fad, but an important social phenomenon that continuously gathering public attention. Since 2012, global fundraising volume through crowdfunding has grown more than double each year, and is estimated to reach \$34.4 billion in 2015 (Massolution 2015). This trend seems to continue, and the volume is expected to surpass that of venture capital in 2016 (2015).

This worldwide enthusiasm for crowdfunding derives from its unique value creation,

which fulfills demands that traditional methods could not address. In firm's perspective, it serves as a bridge to fill an early stage funding gap by connecting capital-seeker with vast number of potential investors (Collins and Pierrakis 2012). In terms of investors, it enables them to search and fund promising firms (or projects) even with a small amount of contribution. By participating in crowdfunding, investors can yield intrinsic values (e.g. enjoyment, altruism), extrinsic benefits (e.g. monetary rewards, products and services), or both (Ryu and Kim 2016).

Crowdfunding can be categorized into four different types, depending on the benefit that investors get as a return for their contribution: Donation-based (no specific reward), Reward-based (goods or services), Lending-based (interest on loans), and Equity-based (shares). Among these, reward-based crowdfunding is the one with the highest public participation (Kuppuswamy and Bayus 2015). The two most famous crowdfunding platforms, *Kickstarter* and *Indiegogo*, fall into these category.

Reward-based crowdfunding has particular strength in facilitating innovation. Various innovative products have emerged as a result of reward-based crowdfunding project. To name a few, *Pebble* smartwatch, *Oculus Rift* virtual-reality headset, *Formlabs* 3D Printer are all outcomes of reward-based crowdfunding (Schroter, 2014). Among these, *Pebble* smartwatch is regarded as one of the most successful reward-based crowdfunding cases. After failing to gather funding from venture capitalists, Eric Migicovsky, the founder and CEO of Pebble Technology, began crowdfunding project at *Kickstarter* in 2012, hoping to collect necessary finance to make his prototype smartwatch into actual production. The

initial goal of the project was \$100,000, with a final product as a reward for every \$120 pledge investors make. Surprisingly, the initial goal was met within 2 hours after project launching, and the final funding volume reached more than \$10 million from 68,929 investors. After successfully raising fund, and demonstrating market needs for their product, Pebble could raise additional \$15 million from conventional venture capitalists. This is the most distinctive example of how innovation in the early-stage finance through crowdfunding could have huge economic impact (Agrawal et al. 2013).

However, there also exists negative outcomes resulting from reward-based crowdfunding. *Asylum Playing Cards*, *Kreyos Meteor* smartwatch, *Eyez* HD video recording glasses are the examples of such cases (Kim and Choi 2016). These projects involve poor communication with investors, poor product quality that does not meet the proposed product detail, and extensively late product delivery or even non-delivery of final product (2016). Notably, Altius Management, the company that raised over \$25,000 from *Asylum Playng Cards* crowdfunding project, was accused of fraud in 2014, which was the first crowdfunding-related accusation case (Gonzalez, 2014).

These negative outcomes are the result of innate risks of Crowdfunding (Kim and Choi 2016). Especially, risks of incompetence of fundraiser, fraudulent activities, and project failure work as disincentives for investors, which are more exacerbated by particularly high information asymmetry between fundraisers and capital providers in crowdfunding (Agrawal et al. 2013). These are more prevalent in reward-based crowdfunding, and becoming more distinct as the industry grows (Kim and Choi 2016).

The risks and problems associated with reward-based crowdfunding not only work as disincentives for investing, but also decrease the overall reputation of crowdfunding industry. As all types of crowdfunding has same transaction structure except returns, consumers often do not distinguish each type of crowdfunding as different (Yun 2014). Therefore, the negative reputation formed in reward-based crowdfunding can be spread over other types of crowdfunding, and be a potential threat that collapses crowdfunding ecosystem (Kim and Choi 2016). However, currently reward-based crowdfunding platforms are showing very passive attitude in solving problems arise between fundraisers and investors¹. As a result, investors should bare a large burden of dealing with the problems².

However, despite wide public attention and the problems associated with crowdfunding, academic research regarding crowdfunding is still scarce. Especially, the majority of empirical studies mainly focus on finding project's or fundraiser's characteristics that lead to successful fundraising, and only few addresses the risks associated with crowdfunding (Kuppusuwamy and Bayus 2015; Gierczak et al. 2016; Mortiz and Block 2016). Also, consumer's decision making process in crowdfunding, especially how they decided to engage in crowdfunding industry in the first place, is still

¹ For example, Kickstarter replied to the backer of Eyez project that "it's the creator's responsibility to communicate and complete the project as promised", and they cannot offer refunds for the investment. (<https://www.kickstarter.com/projects/zioneyez/eyeztm-by-zioneyez-hd-video-recording-glasses-for/comments>)

² For example, Kickstarter clearly state in its terms of use that backers are solely responsible for any resulting damage or loss from the project investment. (<https://www.kickstarter.com/terms-of-use?ref=footer>)

largely understudies.

Therefore, investigating in what process users (investors) decide to participate (or not) in crowdfunding, and how the risks (weakness) associated with crowdfunding take a role in this process are very important academic topics to remedy the weaknesses of crowdfunding and facilitates the continuous growing of the industry. Also, even though the total number of new participants are growing, the proportion of repeated investors seems relatively low, showing around 30%³. Therefore, investigating the participation intention for existing users would be another important topic as well. Utilizing Technology Acceptance Model framework extended with concept of perceived risk, this paper addresses these questions.

The remainder of this paper is organized as follows: in chapter 2, a review of previous academic literature regarding crowdfunding and related concepts (perceived risk and TAM) is provided. In the following chapter, conceptual model and hypotheses are discussed. Methodology utilized and analysis results are discussed subsequently. Finally, the major implication from this paper, limitations and future study directions are presented.

³ Kickstarter provides statistical figures regarding its crowdfunding projects on its website (<https://www.kickstarter.com/help/stats>). The proportion of repeated investors is calculated by dividing 'Repeat backers' with 'Total backers', as of November 23, 2016.

Chapter 2. Literature Review

2.1 Crowdfunding

2.1.1 General Concept

The basic concept of crowdfunding is to collect small amount of contribution from general public. However, as a new phenomenon, there still is a continuous debate how to define crowdfunding as an academic term (Mollick 2014). Schwienbacher and Larralde (2010) defined crowdfunding as a broad concept, which is “an open call, essentially through the Internet, for the provision of financial resources either in form of donation or in exchange for some form of reward and/or voting rights in order to support initiatives for specific purposes.” However, this definition is criticized by Mollick (2014) that even with this broad definition, it could potentially leave out what is considered as “crowdfunding” by scholars in various fields, such as fundraising effort initiated by fans of music group (Burkett 2011) and internet-based peer-to-peer lending (Lin and Viswanathan 2013). Mollick (2014) suggested that rather than broad conceptualization, a narrower definition is preferable for academic research in new ventures and entrepreneurial finance. However, even with a debate how to precisely define crowdfunding, there is some consensus among researchers about the crucial factors in crowdfunding: 1) it should involve fundraising for some specific purpose, 2) the funding should be collected by the voluntary contribution from the public, and 3) the fundraising

activity should be conducted via the internet (Schweinbacher and Larralde 2010; Ordanini 2011; Bradford 2012; Mollick 2014, Belleflamme et al. 2014).

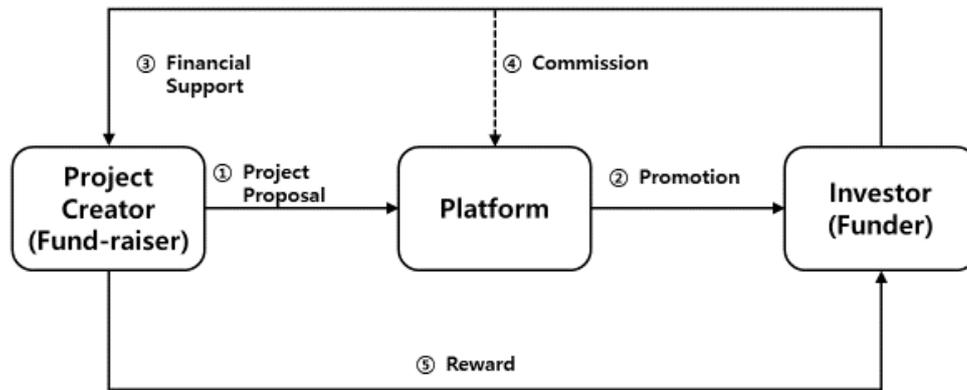
The idea of crowdfunding has its roots on crowdsourcing (Ordanini 2011; Bradford 2012; Bellelamme et al. 2014). Crowdsourcing refers to a collective efforts of community (or general public) that shares ideas in order to solve a problem or creative new values for the community, which often takes place online (Ordanini 2011, Belleflamme et al. 2014). Crowdsourcing and crowdfunding shares their core components, as they both involve collective efforts of general public conducted through internet. However, they are distinguished in terms of the crowd's role and the distribution of outcome. In crowdfunding, the main role of the crowd is to support the already proposed idea of fundraiser thorough the collective financial supporting, even though idea provision may affect the detail of potential outcome (Ordanini 2011). Also, while the outcome of collective efforts is often distributed to all members in community or the public in crowdsourcing, the resource collected through crowdfunding and its final outcome are usually limited to the firm and investors (Belleflamme et al. 2014). Therefore, crowdfunding should be understood as a narrower and more specific phenomenon than crowdsourcing.

There are mainly three players that are involved in crowdfunding (Ordanini 2011). The first is the fundraisers, who propose ideas and/or projects to be funded. The motivation for the fundraiser is not only limited to the collecting of funds, but also stems to attracting public attention and building relationships with community (Gerber et al.

2012; Mortiz and Block 2016).

The next player is the crowd, or investors that support the projects (Ordanini 2011). They find crowdfunding projects through online, and decide which project to support based on their self-interest (2011). The main motivation for the investors to support the project is a material or financial return they get from the project, but other intrinsic motivations such as participating in community, supporting for the cause, and enjoyment play an important role as well (Ordanini 2011; De Buysere et al. 2012; Mollick 2014; Lin et al. 2014, Ryu and Kim 2016). The motivations to participate in crowdfunding are heterogeneous, and dependent on the crowdfunding model (Ordanini 2011; Lin et al. 2014; Mortiz and Block 2016).

The final player in crowdfunding model is crowdfunding platforms, which connects the fundraiser and investors through their website (Ordanini 2011). They support other two players by promoting the projects, facilitating investors' project searching, providing financial transaction means, and offering a communication tool for both parties (Ordanini 2011; Bradford 2012; Jo 2013). Usually crowdfunding platforms receive some proportion of fund raised as a commission, typically 4-5% of the total amount (Agrawal 2013). The basic concept and the role of each player is described in Figure 1.

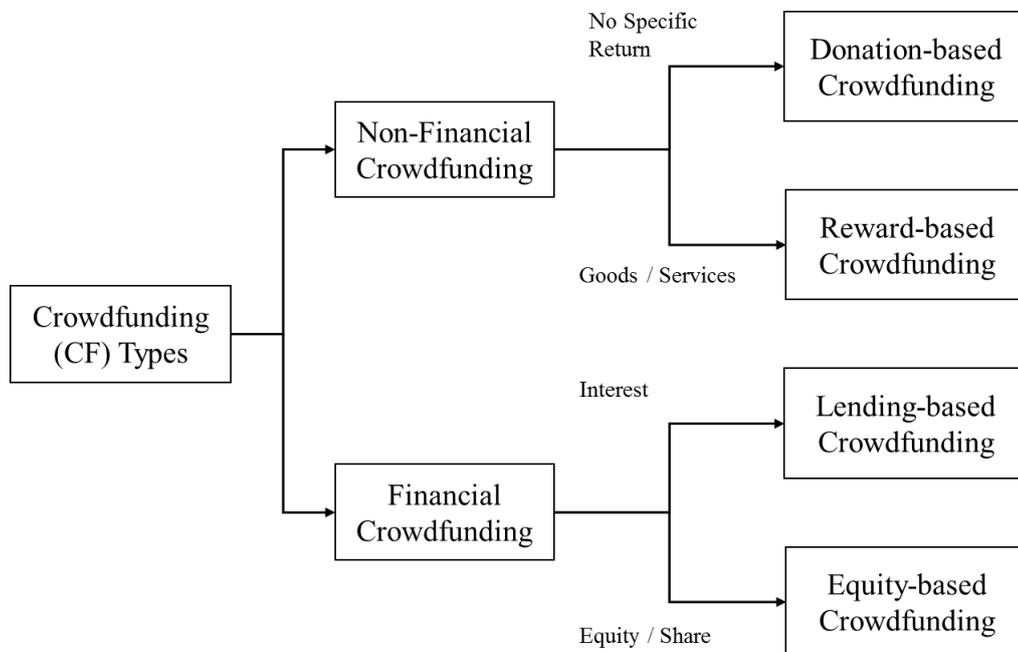


[Figure 1] Basic concept and each player's role in crowdfunding. Adapted from Jo (2013)

2.1.2 Types of Crowdfunding

Crowdfunding can be categorized into several different types, depending on the return that investors receive for their contribution (Bradford 2012; De Buysere et al. 2012; Jo 2013). Initially, it can be categorized into financial or non-financial types (jo 2013). This can be further categorized into 4 different types of crowdfunding models: Donation-based, Reward-based, Lending-based, and Equity-based crowdfunding (Bradford 2012; Jo 2013). Donation-based crowdfunding does not offer existential reward, and the contribution is made for charitable cause in general (Bradford 2012; De Buysere et al. 2012). Reward-based-crowdfunding offers some goods or services as a return to the contribution that investor made, often depending on the contribution size that each individual made (De

Buyser 2012; Agrawal 2013). Lending-based crowdfunding, which is often called peer-to-peer lending, provides investors a return in the form of interest on their loan (Bradford 2012). The final form of crowdfunding, equity-based crowdfunding, offers investors a share of profits or equity (shares) depending on the contribution they made (Bradford 2012; De Buyser et al. 2012). Figure 2 summarizes the categorization of crowdfunding types, and the return that each type offers for the contribution.



[Figure 2] Crowdfunding types and returns. Adapted from Jo (2013) & Yun (2014)

2.1.3 Reward-based Crowdfunding vs. E-commerce and Source of Risks

Reward-based crowdfunding shares many similarities with e-commerce, especially, pre-sales, as both involve customer (investors) receives new goods or services in exchange of money paid in advance (Bradford 2012; De Buysere et al. 2012).

However, crowdfunding can be distinguished from e-commerce in terms of its particularly high degree of information asymmetry (Agrawal et al. 2013). Traditionally, e-commerce and e-service in general has been considered to be associated with higher risks compared with traditional channel of shopping, and therefore risk associated research has been widely conducted by researchers (Zheng et al. 2012). However, reward-based crowdfunding involves not only the same risk sources present in e-commerce context, but also additional sources of risk unique to its own (Agrawal et al. 2013).

In their research, Agrawal et al. (2013) specifies the main sources of risks associated with crowdfunding into several categories: creator incompetence, vulnerability to fraudulent activity, inherent risky nature of venture projects, and potential for opportunistic behavior. These could result in the risks such as dissatisfactory quality of the final outcome, too much delay, or failure for the project completion and delivery, financial loss from fraudulent activities, and misuse of collected funding (2013). Moreover, they claimed that these weaknesses are further exacerbated by high degree of information asymmetry in crowdfunding environment, and market failure could occur if not treated correctly (2013).

Bradford (2012) also makes a similar statement. He points out that investors in crowdfunding must deal with the agency cost and opportunistic behavior arises from uncertainty and information asymmetry, and when the problem arises, the cost of solving it far exceeds the benefit, which may cause people to leave the market as a result (2012).

However, regardless of these concerns surrounding the crowdfunding, risk associated research is largely overlooked in the field, and only few empirical researches are existing currently. Considering reward-based crowdfunding as one form of e-commerce (and e-service in general), following sections would discuss the related concepts focusing on the perspective of e-commerce.

2.2 Perceived Risk

2.2.1 General Concept

The concept of perceived risk was first introduced by Bauer (1960), and has been widely used to explain the consumer behavior. The notion of perceived risk is in contrast with that of objective risk, as the former refers to subjective risk that consumers feel while the latter refers to “real world” risk (Mitchell 1999). Objective risk has its obvious limitation in explaining consumer behavior as it is almost impossible for consumers to accurately estimate the risk of purchasing goods/services as they do not possess full information of them, especially when they are completely new purchases (1999). Even though they could correctly figure out the objective risk, it is their subjective impression of risk that really motivates their behavior (1999). Thus, the introduction of perceived risk

concept has not only changed researchers' and marketers' viewpoints, but also paved a new way for risk-oriented academic research (1999).

In the consumer behavior literature, perceived risk has been defined in many different ways. Some earlier researchers claimed that perceived risk is a combination of two factors, which are the probability of (or subjective feeling of certainty about) negative consequences due to specific action, and magnitude (or severity) of such negative consequences (Kogan and Wallach 1964; Cunningham 1967; Cox 1967). The overall perceived risk is often calculated as the product of these two factors. However, these definitions have been criticized by several authors. For instance, Sjoberg (1980) claimed that risk is rather ambiguous term, and these economics-inspired definition of risk (i.e. adding up the products of each negative consequence and its probability) could be quite misleading. Other authors defined perceived risk as a subjective expectation of loss resulted from decision making (e.g. Peter and Ryan 1974; Stone and Gronhaug 1993; Featherman and Pavlou 2003; Laroche et al. 2004). Compared to the normative expectancy-value definition that has its roots on mathematics and economics, this definition is psychological-driven and much more appropriate in consumer behavior domains (Mitchell 1999). In this definition, the greater the probability of the loss, the greater the risk exist for the individual (1999). Stone and Winter (1987) empirically compared these two definitions, and found the latter (i.e. risk as a subjective expectation of loss) showed much greater negative correlation with behavioral intentions and attitude.

The universal applicability and versatility of the concept have attracted both

researchers and market practitioners across numerous industries and products types (Mitchell 1999). Especially, the fact that consumers are more motivated to minimize risk than to maximize utility makes the theory a powerful explanation tool for consumer research (1999). Among the areas, e-service and e-commerce are the domains where perceived risk concept plays an important role (Zheng et al. 2012). Compared with a traditional means of shopping (i.e. shopping at “brick and mortar” stores), purchasing through internet involves much higher degree of risk (Akaah and Korgaonkar, 1988). The risk arises as consumers cannot inspect products when purchasing (Cox and Rich, 1967); it is often difficult for consumers to return the purchased items when they have faults (Spence et al. 1970); and consumers may feel anxiety about trading with a “faceless” retailers (Darlan 1987). Therefore, understanding how consumer perceives risk and figuring out the risk reduction strategy becomes the great concern among researchers, as well as marketers (Zheng et al. 2012).

2.2.2 Dimensions of Perceived Risk

There is a general consensus among consumer researchers that overall perceived risk can be categorized in to several different risk dimensions (Dholakia 2001). Kaplan et al. (1974) were one of the first researchers to empirically examine the multi-dimensionality of perceived risk. They classified consumer’s perceived risk into five different categories: financial, performance, physical, psychological and social. Their study showed the independency of each dimension, and exhibited the different risk dimension hierarchies

exist among different product types (1974).

Following their work, several other risk dimensions have been introduced or modified to explain the perceived risk in various areas. Notably in e-service and e-commerce contexts, privacy risk is deemed to be particularly salient (Lee et al. 2001; Featherman and Pavlou 2003; Crespo et al. 2009). On the other hand, physical risk is considered to be minor in e-service domains, as it rarely involves with a threat to human life (Featherman and Pavlou 2003). The summary of perceived risk dimensions and their definitions in e-service domain is provided in Table 1.

Investigating perceived risk facets has several academic and practical meanings. First of all, it gives us the deeper understanding of consumer behavior. Multidimensionality of perceived overall risk suggests that the source of each risk facet is different (Lim 2003). Also, existing literatures have shown that the significance of each risk facet differs depending on its context (e.g. product/service types, demographics, etc.) (2003). Therefore, analyzing consumer behavior in terms of perceived risk dimensions provides us not only profound understanding of consumer decision making process, but also enables us to compare different consumer behaviors in different fields. Another importance of the analysis is that it helps resource allocation decision making (Mitchell 1999). By analyzing the significance of each risk dimension, managers can decide where to put their resources to reduce those risks. This further helps developing marketing strategies such as brand-image development, targeting, positioning and segmentation (1999).

[Table 1] Description of perceived risk dimensions in e-service domain.

Dimension	Definition	Related Literatures
Financial Risk	Potential loss of current cost as well as additional charges in the future (e.g., possibility that the product may need to be repaired, delivery risk)	McCorkle (1990), Jarvenpaa and Todd (1996), Cases (2001), Featherman and Pavlou (2003), Ko et al. (2004), Crespo et al. (2009), Comegys et al. (2009)
Performance Risk	Potential loss incurred when a product/service does not perform as expected	McCorkle (1990), Jarvenpaa and Todd (1996), Cases (2001), Featherman and Pavlou (2003), Ko et al. (2004) Crespo et al. (2009), Comegys et al. (2009)
Psychological Risk	Potential loss of self-esteem (ego loss) from frustration at not achieving a buying goal.	Featherman and Pavlou (2003), Ko et al. (2004) Crespo et al. (2009), Comegys et al. (2009)
Physical Risk	Potential chance of incurring damage to one's body or health.	Ko et al. (2004), Comegys et al. (2009)
Social Risk	Potential loss of status in one's social group as a result of purchasing a product or service.	McCorkle (1990), Jarvenpaa and Todd (1996), Cases (2001), Featherman and Pavlou (2003), Ko et al. (2004) Crespo et al. (2009), Comegys et al. (2009)
Time Risk	Possibility of time wasted researching information and purchasing when the purchase turn out bad.	McCorkle (1990), Jarvenpaa and Todd (1996), Cases (2001), Featherman and Pavlou (2003), Ko et al. (2004) Crespo et al. (2009), Comegys et al. (2009)
Privacy Risk	Personal information will be collected without their consent when giving one's credit card number online or use of cookies and web bugs.	Jarvenpaa and Todd (1996), Cases (2001), Featherman and Pavlou (2003), Ko et al. (2004) Crespo et al. (2009), Comegys et al. (2009)

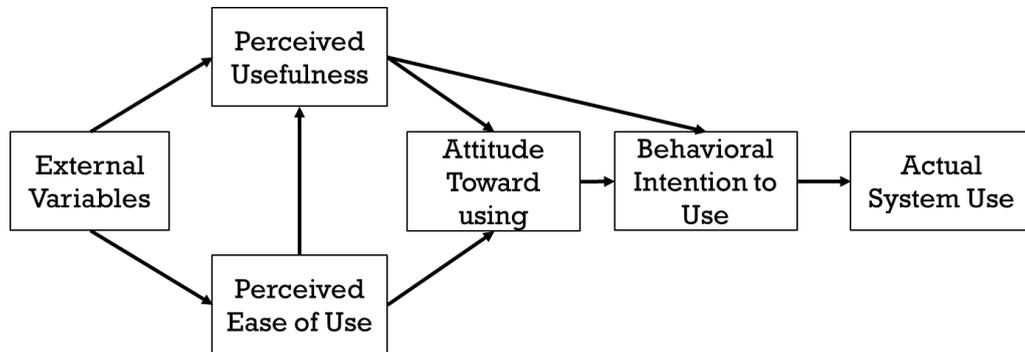
Source: Adapted from Zheng et al. (2012)

2.3 TAM

2.3.1 General Concept

Technology Acceptance Model(TAM) is a conceptual model to explain user acceptance of information system (Davis et al. 1989). TAM adopted the concept of the Theory of Reasoned Action (Ajzen and Fishbein 1980), which explains the individual's behavioral intention in terms of two variables: attitude and subjective norm (Ajzen and Fishbein 1980, Madden et al. 1992). In accordance with the Theory of Reasoned Action, TAM postulates that individual's information system acceptance is determined by behavioral intention (BI). TAM posits that two core variables, perceived usefulness (PU) and perceived ease of use (PEOU), fundamentally affects the individual's system acceptance (Davis et al. 1989).

Perceived usefulness refers to “the prospective user's subjective probability that using a specific application system will increase his or her job performance within an organizational context”, and perceived ease of use refers to “the degree to which the prospective user expects the target system to be free of effort” (Davis et al. 1989). TAM postulates that the individual's behavioral intention is jointly determined by the person's attitude and perceived usefulness, where perceived usefulness influences attitude as well. Perceived ease of use does not affect the behavioral intention directly, but has indirect impact through perceived usefulness and attitude (Davis et al. 1989). Figure 3 illustrates the basic constructs of TAM.



[Figure 3] Technology Acceptance Model (TAM).

After its introduction in more than three decades ago, TAM became a dominant model that explains the factors affecting user acceptance of technology (Marangunic and Granic 2015). Extensive number of researchers have utilized TAM as a base model to explain user acceptance in various contexts. Among these domains, task-related systems, e-commerce systems, and hedonic systems are salient areas of TAM application (Hsiao and Yang 2011).

2.3.2 Extension of TAM and Perceived Risk

As recognized as a valid model, many researchers tried to extend the basic TAM with supplementary factors to enhance its explanation power (Marangunic and Granic 2015). Often, factors from other theories are incorporated in the model to increase predictive validity of TAM (2015). These factors includes subjective norm (Hardgrave et al. 2003), expectations (Vanketesh et al. 2003), trust (Gefen 2004; Wu et al. 2011), and risk

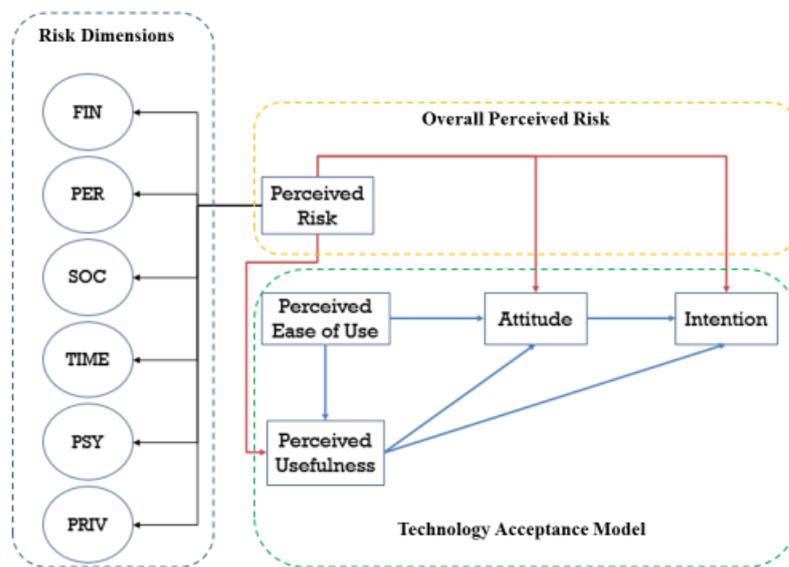
(Featherman and Pavlou 2003; Pavlou 2003).

In terms of TAM extension with perceived risk, the study conducted by Featherman and Pavlou (2003) is considered as a seminal work. In their study, they criticized TAM as it only considers positive utility gains attributable to technology acceptance (2003). They suggested a research model which combines TAM with negative utility attributes (i.e. perceived risk) concept in order to provide a deeper understanding of user acceptance in e-service context. The validity of extended TAM model with perceived risk has been empirically examined by large number of researches and frequently utilized in various areas, including e-service and e-commerce domains (Lee et al. 2001; Park et al. 2004; Crespo et al. 2009; Lee 2009; Faqih 2012).

Chapter 3. Conceptual Model and Hypotheses

3.1 Conceptual Model

Based on the literature review conducted on the previous chapter, following research model was designed to analyze the user participation in reward-based crowdfunding.



[Figure 4] Conceptual Model

The model consists of mainly three components: risk dimensions, overall perceived risk, and technology acceptance model. Explanation of each constructs and research hypotheses are discussed in the following section.

3.2 Variable Descriptions and Hypotheses

3.2.1 Technology Acceptance Model

The core idea of TAM is that the individual's intention to accept or use a technology is determined by perceived usefulness, perceived ease of use, and attitude toward using technology. In this research, operational definition of TAM variables are modified in accordance with crowdfunding context. Table 2 summarizes each variable's operational definition.

[Table 2] TAM variables definitions

Variable	Operational Definition	Related Literature
Perceived Usefulness	A degree to which the person believes that participating in crowdfunding would bring positive influences to him/her.	Davis (1989)
Perceived Ease of Use	A degree to which the person believes that participating in crowdfunding would be free of effort.	Davis (1989)
Attitude	The person's subjective (positive or negative) attitude toward the concept of Crowdfunding	Davis (1989)
Behavioral Intention	The person's intention to participate in crowdfunding activities.	Davis (1989)

Based on the TAM's traditional structure and e-service/e-commerce related literatures, following hypotheses are proposed:

H1: The individual's attitude toward reward-based crowdfunding has a positive influence on the intention to participate in reward-based crowdfunding projects.

H2: The perceived usefulness of reward-based crowdfunding has a positive influence on the intention to participate in reward-based crowdfunding projects.

H3: The perceived usefulness of reward-based crowdfunding has a positive influence on attitude toward reward-based crowdfunding.

H4: The perceived ease of use of reward-based crowdfunding has a positive influence on attitude toward reward-based crowdfunding.

H5: The perceived ease of use of reward-based crowdfunding has a positive influence on perceived usefulness of reward-based crowdfunding.

3.2.2 Perceived Overall Risk

In this research, overall perceived risk is defined as ‘a subjective expectation of loss resulting from participating in reward-based crowdfunding’ (Peter and Ryan 1974; Stone and Gronhaug 1993; Fetherman and Pavlou 2003; Laroche et al. 2004). In the context of e-service, especially in e-commerce, the influence of perceived risk to the consumer behavior has been extensively studied. Related to the basic constructs of TAM, previous literatures observed that perceived risk has a negative influence on user’s behavior (Park, Lee and Ahn 2004; Zhang et al. 2012), behavioral intention (Pavlou 2003; Hong and Cha

2009), attitude (Shih 2004; Crespo et al. 2009), and perceived usefulness (Shih 2004; Crespo et al. 2009). From these empirical results, following hypotheses are developed:

H6: The perceived overall risk in reward-based crowdfunding has a negative influence on the intention to participate in reward-based crowdfunding projects.

H7: The perceived overall risk in reward-based crowdfunding has a negative influence on the attitude toward reward-based crowdfunding.

H8: The perceived overall risk in reward-based crowdfunding has a negative influence on the perceived usefulness of reward-based crowdfunding.

3.2.3 Risk Dimensions

Several previous researchers have claimed that perceived risk has multidimensional characteristics, which can be divided into several risk facets (Cunningham 1964; Kaplan et al. 1974; Peter and Tarpey 1975). The most frequently referred risk dimensions in various academic area consist of five facets: economic (financial), performance, social, time and psychological risks (Crespo et al. 2009). Especially in e-service and e-commerce literature, privacy risk is a relevant risk facet in addition to those five risk facets (Featherman and Pavlou 2003; Crespo et al. 2009). Following previous literatures, this research posits these six risk facets as determinants of perceived overall risk. The

operational definitions of each risk dimension are summarized in Table 3.

[Table 3] Definition of perceived risk dimensions

Perceived Risk Dimension	Definition	Related Literature
Financial Risk	The potential monetary outlay associated with reward-based crowdfunding investment, including financial loss due to fraudulent activity and misuse of funding gathered.	Cunnungham (1967), Jakoby et al. (1974), Stone and Gronhaug (1993), Featherman and Pavlou (2003), Crespo et al. (2009) Agrawal et al. (2013)
Performance Risk	The possibility of the product malfunctioning and not performing as it was designed and advertised.	Cunnungham (1967), Jakoby et al. (1974), Stone and Gronhaug (1993), Featherman and Pavlou (2003), Crespo et al. (2009) Agrawal et al. (2013)
Social Risk	Potential loss of stauts in one's social group as a result of participating in reward-based crowdfunding.	Cunnungham (1967), Jakoby et al. (1974), Stone and Gronhaug (1993), Featherman and Pavlou (2003), Crespo et al. (2009)
Time Risk	Potential loss of time assoicated with investment process, product delivery, and project completion.	Cunnungham (1967), Stone and Gronhaug (1993), Featherman and Pavlou (2003), Crespo et al. (2009), Agrawal et al. (2013)
Psychological Risk	Potential negative influence on the user's peace of mind, such as unwated tension and anxiety.	Cunnungham (1967), Stone and Gronhaug (1993), Dholakia (2001), Featherman and Pavlou (2003), Crespo et al. (2009)
Privacy Risk	Potential loss of control over personal information and misuse of it.	Javenpaa and Todd (1997), Featherman and Pavlou (2003), Crespo et al. (2009)

Source: Adapted from Featherman and Pavlou (2003) and Crespo et al. (2009)

3.2.3.1 Financial Risk

Financial risk is defined as ‘the potential monetary outlay associated with reward-based crowdfunding investment, including financial loss due to fraudulent activity and misuse of funding gathered’. In the area of consumer behavior, financial loss has been regarded as one of the most critical factors that negatively affects e-service adoption (Dai et al. 2014). Especially in the reward-based crowdfunding environment, the incompetency of fundraiser may increase this type of risk as they often do not have previous experience in building a product and managing resources, which may result in higher price for the proposed products (Agrawal et al. 2003). Even disregarding the inexperience of the fundraiser, early-stage ventures inherently has probability of failure, which may result in financial loss for investors (2003). Furthermore, relatively easier use of false information to create fraudulent pages, and limited tools for funders to monitor the actual use of the funding may further increase this type of risk (2003). Therefore, following hypothesis is proposed:

H9: The perceived overall risk in reward-based crowdfunding is determined by the financial risk associated with it.

3.2.3.2 Performance Risk

Performance risk is defined as ‘the possibility of the product malfunctioning and not performing as it was designed and advertised’. In the reward-based crowdfunding, this

type of risk may be more salient than other type of services as most of the products offered are in the developmental (or prototype) stages, and investors cannot find the same (or similar) products from existing market. As a result, investors may feel uncertainty about the products, and perceive of participating in crowdfunding more risky. Therefore, following hypothesis is proposed:

H10: The perceived overall risk in reward-based crowdfunding is determined by the performance risk associated with it.

3.2.3.3 Social Risk

Social risk is defined as ‘the potential loss of status in one's social group as a result of participating in reward-based crowdfunding’. The risk arises when one’s shopping behavior is not accepted by other society members, such as friends or families (Lim 2003). Also, it is associated with other’s perception change due to the inappropriateness of the purchased goods (Stone and Gronhaug 2006). In reward-based crowdfunding context, many of the products are new to the market, and often there is no alternative to measure other’s reaction regarding the products. Therefore, following hypothesis is proposed:

H11: The perceived overall risk in reward-based crowdfunding is determined by the social risk associated with it.

3.2.3.4 Time Risk

Time risk is defined as ‘the potential loss of time associated with investment process, product delivery, and project completion’. In reward-based crowdfunding environment, risk associated with time arises from various aspects. First of all, long funding period could be the source of time loss. Usually, funding process could take long period of time, often from 30 days to 90 days, until it closes further funding from investors (Mollick 2014). Also, in addition to the funding period, further developmental phase is needed for fundraiser to develop and manufacture the final product, which largely varies depending on each project. Mollick (2014) showed in his research that the majority Kickstarter project fails to deliver the products as promised, which shows the potentially higher time risk associated with reward-based crowdfunding. Therefore, following hypothesis is proposed:

H12: The perceived overall risk in reward-based crowdfunding is determined by the time risk associated with it.

3.2.3.5 Psychological Risk

Psychological risk is defined as ‘the potential negative influence on the user's peace of mind, such as unwanted tension or anxiety’. This type of risk may arise from consumer’s lack of experience (Hong and Cha 2013). As many people do not have experience in

funding projects in reward-based crowdfunding, consumers may feel greater mental discomfort from potentially making wrong investment decision (2013). Also, factors such as lack of fundraiser information, high information asymmetry, and prolonged project duration would further increase this psychological loss. Therefore, following hypothesis is proposed:

H13: The perceived overall risk in reward-based crowdfunding is determined by the psychological risk associated with it.

3.2.3.6 Privacy Risk

Privacy risk is defined as ‘the potential loss of control over personal information and misuse of it’. In e-service sectors, privacy risk has been considered critical due to the potential negative consequences occurred online, such as phishing, identity theft or undisclosed capture of information (Lim 2003; Lee 2009). In addition to the online transaction, reward-based crowdfunding has privacy concern arises from social network. Social network and interaction with a community plays critical role in the success of crowdfunding project, and platforms often encourage fundraiser to actively use SNS (Mollick 2014). However, this may result in unwanted disclosure of personal information for both fundraisers and investors, which may discourage their participation in crowdfunding activities. Therefore, following hypothesis is proposed:

H14: The perceived overall risk in reward-based crowdfunding is determined by the privacy risk associated with it.

As a summary, hypotheses regarding constructs in our model, their influential paths, and their categories are presented in Table 4.

[Table 4] Summary of Proposed Hypotheses

Hypothesis & Path	Categories
H1 Attitude (+) → Intention	TAM Hypotheses
H2 Perceived Usefulness (+) → Intention	
H3 Perceived Usefulness (+) → Attitude	
H4 Perceived Ease of Use (+) → Attitude	
H5 Perceived Ease of Use (+) → Perceived Usefulness	
H6 Perceived Risk (-) → Intention	Overall Risk Hypotheses
H7 Perceived Risk (-) → Attitude	
H8 Perceived Risk (-) → Perceived Usefulness	
H9 Perceived Risk (+) → Financial Risk	Risk Dimensions Hypotheses
H10 Perceived Risk (+) → Performance Risk	
H11 Perceived Risk (+) → Social Risk	
H12 Perceived Risk (+) → Time Risk	
H13 Perceived Risk (+) → Psychological Risk	
H14 Perceived Risk (+) → Privacy Risk	

Chapter 4. Research Methodology

In order to empirically test the conceptual model, this study follows the methodology employed by Featherman and Pavlou (2003) and Crespo et al. (2009). Following sections discuss the detail of each step.

4.1 Survey Development

The survey items for measuring each construct in the model was developed based on existing literatures. For basic TAM constructs (Perceived Usefulness, Perceived Ease of Use and Attitude), items utilized by Crespo et al. (2009) and Lee (2009) are referenced. For risk dimensions constructs, mainly items utilized by Crespo et al. (2009) and Hong and Cha (2013) are referenced. However, in order to incorporate risk salient in crowdfunding context, a few items measuring financial and time risks are modified based on existing qualitative crowdfunding literatures (Collins & Pierrakis 2012; Agrawal et al. 2013, Kuppuswamy & Bayus 2015). Each item is measured by multi-attribute scales with five-point Likert scales, where 1 indicates total disagreement and 5 indicates total agreement. In order to conduct SEM analysis, each constructs are measured with 3 to 4 items. Also, basic explanation regarding crowdfunding is included in the first part of the survey in order to clarify the terms and to help respondent's understanding. The detail of the survey items are presented in Appendix.

4.2 Data Collection

The survey was conducted online through proprietary survey firm, *Macromill Embrain* to collect the sample from Korea. The participants were limited to those who are in 20s to 40s, and those who know the term ‘crowdfunding’. The reasoning behind this sample limitation was to collect more reliable response as crowdfunding is fairly new phenomenon and many people do not recognize or understand the concept yet. Also, two sample groups were selected during the course of screening process: one group who knows the term crowdfunding, but do not have previous experience in participating, and the other group who knows the term crowdfunding and have previous experience in participating any type of crowdfunding. Screening was conducted through multiple questions prior to the main survey, and those who met the criteria could proceed into main survey. Other limitations were not set, and the survey was randomly distributed to the survey panel that the firm possesses. Total 461 samples were collected from October 29th 2016 to November 4th 2016. Among these samples, 16 were deleted due to insincere responses (i.e. same value for all the questions or specific pattern in answering). Total 445 samples were utilized for the analysis. The sample socio-demographic profile is presented in Table 5.

As shown in Table 5, gender balance is almost equal, both in over sample and two sample groups. Also, age of the participants are almost equally distributed among each age range. In terms of education level, most of the participants had higher-educational background, as more than 90% of the sample has enrolled, or graduated junior college or

above. For the occupation of the sample, large portion of the participants had business-related job. However, it could be observed that the participants with various occupational backgrounds were involved overall. The most notable figure is the past reward-based crowdfunding experience of experienced group. Even though the participants are classified as 'experienced' if they have funding experience in any type of crowdfunding, only 10.4% of them did not have experience in investing in reward-based crowdfunding (in other words, 89.6% of them had invested in reward-based crowdfunding previously). This figure reassures that the popularity of reward-based crowdfunding among all types of crowdfunding. However, the proportion of recurring participants relatively low as it's only 37.7 %, and only 5.5% of the participants are actively participating in reward-based crowdfunding.

[Table 5] Sample Socio-demographic Profile

Variable	Overall Sample (%) (n=445)	Sample 1 - inexperienced (%) (n=241)	Sample 2 - Experienced (%) (n=183)
Gender			
Male	52.1	49.8	54.9
Female	47.9	50.2	45.1
Age			
20s	31.9	32.8	30.9
30s	34.8	33.2	36.8
40s	33.3	34	32.4
Education level			
Less than Junior-high	0.2	0.4	0
High School	8.5	9.1	7.8
Junior college enrolled/graduated	11.2	12	10.3
University enrolled/graduated	67.9	68	67.6
Graduate School enrolled/graduated	12.1	10.4	14.2
Occupation			
Student	15.3	17.4	12.7
Business man	45.8	41.9	50.5
Professional	16.9	13.7	20.6
Sales/Services	6.5	7.9	4.9
Engineer/Manufacturer	5.2	6.2	3.9
ETC	10.3	12.8	7.4
Past Funding Experience (Reward-based)			
0	-	-	10.4
1	-	-	51.9
2-5	-	-	32.2
More than 6	-	-	5.5

4.3 Data Analysis

The collected data were analyzed based on structural equation modeling method with

maximum likelihood robust estimation, using SPSS 23 and AMOS 18 programs. The measurement validity and reliability for each variable was evaluated by Cronbach's alpha and a first-order confirmatory factor analysis. Next, second-order CFA was performed to measure the importance of each risk facets, which comprises of perceived overall risk, following featherman and Pavlou (2003)'s work. Then, Path weights and overall fitness were calculated by AMOS-based SEM. Finally, the results difference in two groups were compared statistically.

Chapter 5. Analysis Result

5.1 Reliability and Validity

In order to check reliability of measurement scales, Cronbach's Alpha was calculated for each constructs. Cronbach's alpha was first developed by Cronbach (1951), as a means to measure the internal consistency of a scale. Nunally (1978) claimed that items can be treated as having internal consistency if the value exceed 0.7. Also, in order to assure convergent validity, composite reliability (CR) and average variance extracted (AVE) coefficient are utilized as well (Bagozzi and Yi 1988). Hair et al. (1999) suggested that the values over 0.7 and 0.5 respectively are desirable.

5.1.1 Inexperienced Group

Table 6 summarizes the descriptive statistics for measurement scale for inexperienced group. Composite reliability and AVE value are calculated based on the first-order CFA result. As shown in Table 6, Cronbach's alpha values are all greater than recommended value (0.7) for all dimensions. Also all the CR values satisfy the recommended value (0.7). For AVE, most of the values satisfied the criteria, or close to the recommended value (0.5).

[Table 6] Descriptive statistics for measurement scales – Inexperienced Group

Dimension	Items	Mean	Cronbach's alpha	Composite reliability	AVE
Intention (INT)	3	3.14	0.842	0.850	0.656
Attitude (ATT)	3	3.66	0.797	0.810	0.591
Perceived usefulness (PU)	4	3.28	0.881	0.881	0.650
Perceived ease of use (PEOU)	3	3.24	0.700	0.717	0.464
Financial risk (FIN_R)	3	4.03	0.801	0.803	0.576
Performance risk (PER_R)	3	3.45	0.803	0.807	0.585
Social risk (SOC_R)	3	2.3	0.922	0.925	0.805
Time risk (TIME_R)	3	3.46	0.767	0.778	0.541
Psychological risk (PSY_R)	3	3.28	0.924	0.924	0.803
Privacy risk (PRIV_R)	3	3.27	0.937	0.937	0.833

5.1.2 Experienced Group

Table 7 summarizes the descriptive statistics for measurement scale for experienced group. Similar to inexperienced group result, Cronbach's alpha values are all greater than or very close to the recommended value (0.7). Similarly, composite reliability values are mostly greater than or close to the recommended value (0.7). For AVE, it is shown that most of the values satisfy the recommended value (0.5).

[Table 7] Descriptive statistics for measurement scales – Experienced Group

Dimension	Items	Mean	Cronbach's alpha	Composite reliability	AVE
Intention (INT)	3	3.63	0.794	0.804	0.580
Attitude (ATT)	3	3.96	0.815	0.821	0.604
Perceived usefulness (PU)	4	3.52	0.848	0.849	0.586
Perceived ease of use (PEOU)	3	3.57	0.694	0.682	0.419
Financial risk (FIN_R)	3	3.74	0.769	0.771	0.529
Performance risk (PER_R)	3	3.18	0.832	0.834	0.626
Social risk (SOC_R)	3	2.08	0.927	0.928	0.812
Time risk (TIME_R)	3	3.09	0.766	0.804	0.583
Psychological risk (PSY_R)	3	2.61	0.934	0.935	0.829
Privacy risk (PRIV_R)	3	2.78	0.928	0.929	0.814

5.1.3 First-order CFA Fitness

Table 8 Summarizes the fit measure of first-order CFA for the measurements. Here, perceived overall risk was considered as a composite of the other risk dimensions, and therefore not included in the analysis (Diamantopoulos 2000; Featherman and Pavlou 2003). The result exhibits excellent maximum likelihood estimated fit indices, where all the recommended values are satisfied except for high chi-square statistics and low p-value accordingly. However, chi-square value is too sensitive to sample size as it is a direct function of sample size, and would not be a proper indicator for goodness of fit (Chau 1997). From these results, it is concluded that the measurements for the constructs are reliable and valid.

[Table 8] Fit Measures for first-order CFA

Fit Measures	Recommended Values	Research Model
χ^2 (df)		1414.661 (778)
P-value	≥ 0.05	0.000
χ^2/df	≤ 3.00	1.818
CFI	≥ 0.90	0.927
RMR	≤ 0.08	0.049
RMSEA	≤ 0.08	0.043
GFI	≥ 0.90	0.913
TLI	≥ 0.90	0.913

5.2 Second-order CFA

Perceived overall risk has been theorized as multidimensional, and being a composite of several risk facets. In order to support the proposed six risk dimensions to be the elements of perceived overall risk, and to identify the importance of each facet, second-order CFA was conducted following the process proposed by Featherman and Pavlou (2003).

5.2.1 Inexperienced Group

Table 9 summarizes second-order CFA analysis result for inexperienced group. The result is quite promising, as all of the risk facets have significant influence to overall perceived risk. Among the risk facets, psychological risk seemed to have the highest influence on the perceived overall risk. However, the factor loadings are all over 0.5, which indicate all the risk facets have relevant impact to the perceived overall risk.

[Table 9] Second-order CFA Result – Inexperienced

Risk Facet	Std Path Weights	Significance
Financial risk (FIN_R)	0.58	***
Performance risk (PER_R)	0.776	***
Social risk (SOC_R)	0.536	***
Time risk (TIME_R)	0.73	***
Psychological risk (PSY_R)	0.803	***
Privacy risk (PRIV_R)	0.625	***

*** = $p < 0.000$

5.2.2 Experienced Group

Table 10 summarizes second-order CFA analysis result for experienced group. Again, all the risk facets shown high significance as in inexperienced group result. Also, all the factor loadings have relevant impact in formulating perceived overall risk, as they are over 0.5. There are several difference in importance of each variables when compared with the result of inexperienced group. However, again, psychological risk seemed to be the most influential factor for experienced group.

[Table 10] Second-order CFA Result – Experienced

Risk Facet	Std Path Weights	Significance
Financial risk (FIN_R)	0.640	***
Performance risk (PER_R)	0.769	***
Social risk (SOC_R)	0.644	***
Time risk (TIME_R)	0.800	***
Psychological risk (PSY_R)	0.866	***
Privacy risk (PRIV_R)	0.762	***

5.2.3 Second-order CFA Fitness

As shown in Table 11, model fit indices for the second-order CFA support the good fitness of the model. Most of the indices satisfy the recommended value, or very close to the recommended value. Based on these second-order CFA analysis results, all risk dimension facets are included in the final model without any modification.

[Table 11] Fit Measures for Second-order CFA

Fit Measures	Recommended Values	Research Model
χ^2 (df)		576.79 (256)
P-value	≥ 0.05	0.000
χ^2/df	≤ 3.00	2.253
CFI	≥ 0.90	0.943
RMR	≤ 0.08	0.074
RMSEA	≤ 0.08	0.053
GFI	≥ 0.90	0.873
TLI	≥ 0.90	0.932

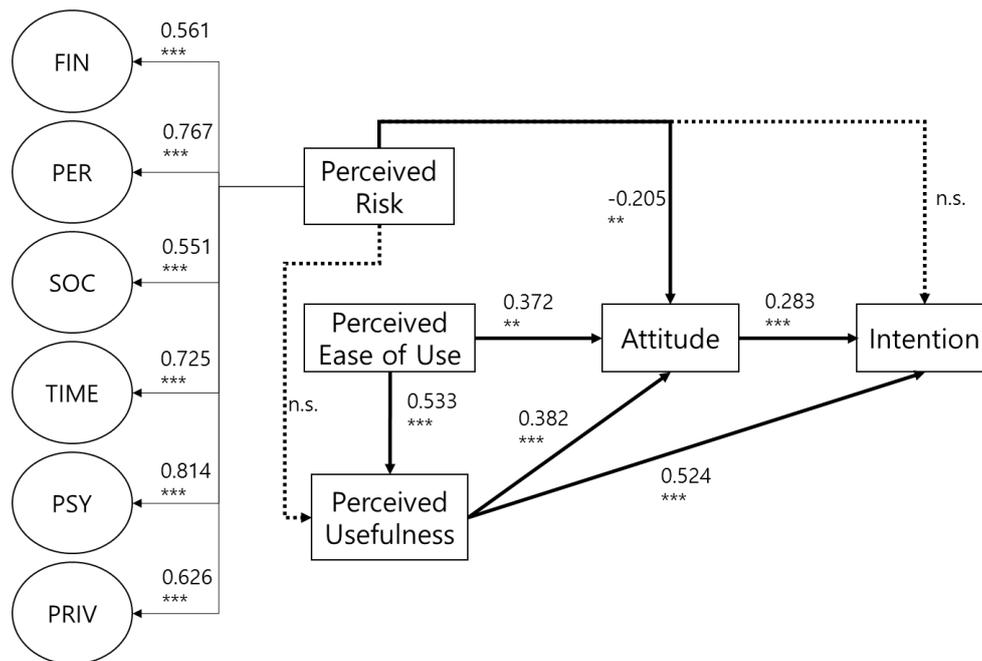
5.3 SEM Estimation Results

For the next step, SEM analysis is conducted based on the proposed research model in order to test our hypotheses. Again, the result for each group is presented separately.

5.3.1 Inexperienced Group

The SEM result for the inexperienced group is summarized in figure 5. The model yielded acceptable level of fitness indices, as it exhibited a CFI = 0.912, RMR = 0.062,

RMSEA = 0.046, TLI = 0.902, which all satisfy recommended values. GFI value was 0.808, which did not satisfy recommended value, but still in acceptable range.



[Figure 5] SEM result – Inexperienced

5.3.1.1 Basic TAM Hypotheses Test

As shown in figure 5, all of the basic TAM hypotheses are supported as path coefficient for H1 to H5 are all significant. This result does not only shows the validity of TAM model as empirically supported in the previous literatures, but also give a strong support for the validity of the proposed model.

[Table 12] Basic TAM Hypotheses Testing Result - Inexperienced

Hypothesis & Path	Standardized Path Coefficient	P-value	Result
H1 Attitude (+) → Intention	0.283	***	Supported
H2 Perceived Usefulness (+) → Intention	0.524	***	Supported
H3 Perceived Usefulness (+) → Attitude	0.382	***	Supported
H4 Perceived Ease of Use (+) → Attitude	0.372	**	Supported
H5 Perceived Ease of Use (+) → Perceived Usefulness	0.533	***	Supported

5.3.1.2 Perceived Overall Risk Hypotheses Test

In contrary to the basic TAM hypotheses, not all the hypotheses are supported in the case of perceived overall risk. As the result indicates, the negative impact of perceived risk on behavioral intention (H6) is not supported, even though it exhibits negative coefficient as hypothesized. Also, negative of perceived risk on perceived usefulness (H8) showed negative coefficient as hypothesized, but is not statistically significant. However, negative influence of perceived risk on attitude (H7) is statistically significant with negative coefficient, which supports the hypothesis.

[Table 13] Perceived Overall Risk Hypotheses Testing Result – Inexperienced

Hypothesis & Path	Standardized Path Coefficient	P-value	Result
H6 Perceived Risk (-) → Intention	-0.095	0.12	Not Supported
H7 Perceived Risk (-) → Attitude	-0.205	**	Supported
H8 Perceived Risk (-) → Perceived Usefulness	-0.098	0.164	Not Supported

5.3.1.3 Risk Dimensions Hypotheses Test

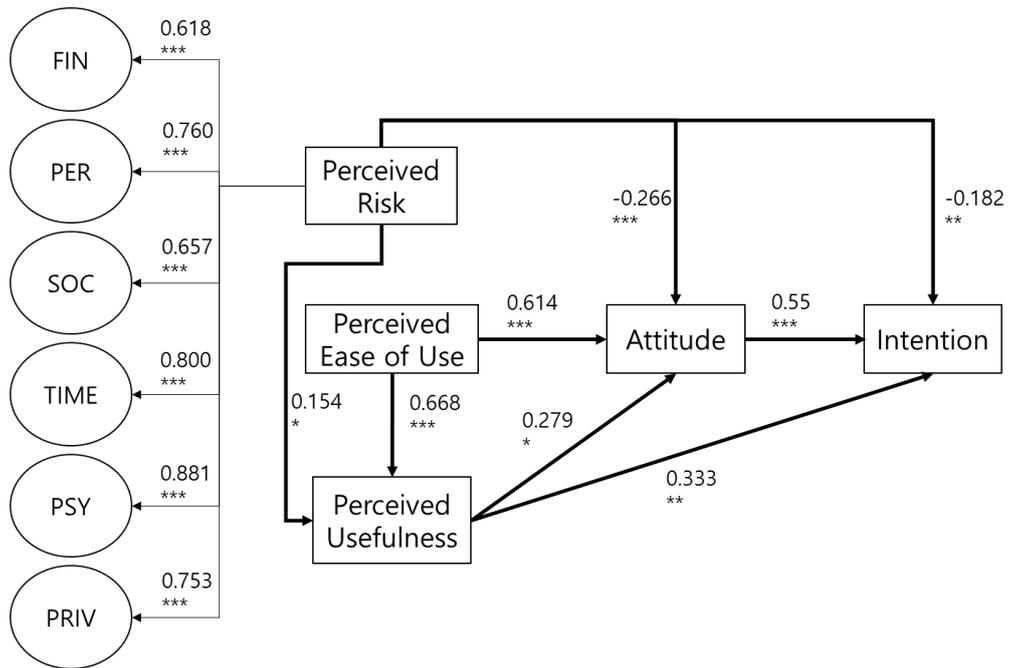
As validated in the second-order CFA, the result supported the multidimensional characteristic of perceived overall risk (H9-H14). Among the risk facets, psychological risk is the most relevant, while the other risk facets also showed high factor loadings.

[Table 14] Risk Dimensions Hypotheses Testing Result - Inexperienced

Hypothesis & Path	Standardized Path Coefficient	P-value	Result
H9 Perceived Risk (+) → Financial Risk	0.561	***	Supported
H10 Perceived Risk (+) → Performance Risk	0.767	***	Supported
H11 Perceived Risk (+) → Social Risk	0.551	***	Supported
H12 Perceived Risk (+) → Time Risk	0.725	***	Supported
H13 Perceived Risk (+) → Psychological Risk	0.814	***	Supported
H14 Perceived Risk (+) → Privacy Risk	0.626	***	Supported

5.3.2 Experienced Group

With the same SEM model and procedure used for the inexperienced group, SEM result for the experienced group was calculated. Figure 6 summarized the result.



[Figure 6] SEM result - Experienced

5.3.2.1 Basic TAM Hypotheses Test

The SEM result for experienced group supports all the basic TAM hypotheses, as for the inexperienced group. However, the significance level and the importance of each path showed different results. Notably, compare to the inexperienced group result, the positive influence of perceived ease of use on attitude (H4) exhibits both higher coefficient and significance level in experienced group.

[Table 15] Basic TAM Hypotheses Testing Result - Experienced

Hypothesis & Path	Standardized Path Coefficient	P-value	Result
H1 Attitude (+) → Intention	0.55	***	Supported
H2 Perceived Usefulness (+) → Intention	0.333	**	Supported
H3 Perceived Usefulness (+) → Attitude	0.279	*	Supported
H4 Perceived Ease of Use (+) → Attitude	0.614	***	Supported
H5 Perceived Ease of Use (+) → Perceived Usefulness	0.668	***	Supported

5.3.2.2 Perceived Overall Risk Hypotheses Test

On the contrary to the basic TAM hypotheses result, perceived overall risk hypotheses testing result exhibits great difference between two groups. First of all, negative influence of perceived overall risk on behavioral intention (H6) is supported for experienced group. It also has higher coefficient compared to inexperienced group result as well. Negative impact of perceived risk on attitude (H7) is supported in both cases, but experienced group result shows both higher coefficient and significance level. The influence of perceived risk on perceived usefulness (H8) has acceptable level of significance ($P < 0.005$), but the coefficient showed positive value, opposed to the hypothesis. The unexpected result could be explained by the risk taking characteristics of the group, which result in higher evaluation of usefulness when risk is higher.

[Table 16]] Perceived Overall Risk Hypotheses Testing Result - Experienced

Hypothesis & Path	Standardized Path Coefficient	P-value	Result
H6 Perceived Risk (-) → Intention	-0.182	**	Supported
H7 Perceived Risk (-) → Attitude	-0.266	***	Supported
H8 Perceived Risk (-) → Perceived Usefulness	0.154	*	Not Supported

5.3.2.3 Risk Dimensions Hypotheses Test

The result of multidimensionality hypotheses for perceived overall risk is similar for both groups. As shown in Table 17, all the risk facets seem to have relevant influence on perceived risk formulation. Again, psychological risk seem to be the most relevant risk facet for the experienced group.

[Table 17] Risk Dimensions Hypotheses Testing Result - Experienced

Hypothesis & Path	Standardized Path Coefficient	P-value	Result
H9 Perceived Risk (+) → Financial Risk	0.618	***	Supported
H10 Perceived Risk (+) → Performance Risk	0.76	***	Supported
H11 Perceived Risk (+) → Social Risk	0.657	***	Supported
H12 Perceived Risk (+) → Time Risk	0.8	***	Supported
H13 Perceived Risk (+) → Psychological Risk	0.881	***	Supported
H14 Perceived Risk (+) → Privacy Risk	0.753	***	Supported

5.3.3 Group Comparison

As a final step of the analysis, the results of the both model are compared. Coefficient for each path is individually compared statistically, while setting all the other paths unconstrained. P-value was obtained based on the chi-square value comparison. The comparison result is summarized in Table 18.

[Table 18] Comparison of Path Coefficient for Two Groups

Causal Relationship	Inexperienced Group Coefficient	Experienced Group Coefficient	P-Value
H1 Attitude (+) → Intention	0.283	0.55	0.413
H2 Perceived Usefulness (+) → Intention	0.524	0.333	0.371
H3 Perceived Usefulness (+) → Attitude	0.382	0.279	0.717
H4 Perceived Ease of Use (+) → Attitude	0.372	0.614	0.038 **
H5 Perceived Ease of Use (+) → Perceived Usefulness	0.533	0.668	0.819
H6 Perceived Risk (-) → Intention	n.s.	-0.182	-
H7 Perceived Risk (-) → Attitude	-0.205	-0.266	0.165
H8 Perceived Risk (-) → Perceived Usefulness	n.s.	0.154	-
H9 Perceived Risk (+) → Financial Risk	0.561	0.618	0.431
H10 Perceived Risk (+) → Performance Risk	0.767	0.76	0.57
H11 Perceived Risk (+) → Social Risk	0.551	0.657	0.117
H12 Perceived Risk (+) → Time Risk	0.725	0.8	0.083 *
H13 Perceived Risk (+) → Psychological Risk	0.814	0.881	0.137
H14 Perceived Risk (+) → Privacy Risk	0.626	0.753	0.283

As the result indicates, the impact of perceived ease of use on attitude (H4) is significantly higher for experienced group. Also, even though the path coefficient does not differ much in its magnitude, time risk (H12) is more relevant facets in formulation of perceived overall risk in experienced group than inexperienced group statistically.

5.4 Summary and Discussion

By showing appropriate level of fitness, the results of this study provide general support for the explanation power of proposed research model, which combines TAM model with perceived risk construct that consists of several risk dimensions. Several insightful results could be obtained by our research framework. In this section, notable findings from the results will be discussed.

First of all, hypotheses associated with basic TAM constructs are all supported in the

both groups. All of the basic TAM constructs, which are perceived usefulness, perceived ease of use and attitude, showed positive influence on behavioral intention, directly and indirectly. Therefore, hypotheses H1 to H4 are all supported on both groups. This result reassures the validity of the TAM model proposed by Davis (1986). However, the result exhibits that there is a difference between the groups regarding the influence of perceived ease of use to attitude (H4). Model comparison result shows that the positive effect of perceived ease of use on attitude for experienced group ($\beta = 0.614$) is higher than that of inexperienced group ($\beta = 0.372$) in statistically significant level ($p < 0.05$). This may be the result of the difference in knowledge between the groups regarding participation procedure. For the inexperienced group, they could only infer the easiness of participation (or, complexity of participation) procedure from the basic information from the survey sheet, as they do not have previous experience in investment. Therefore, the perceived ease of use may not pose great influence on the attitude they have. However, experienced group has previous experience, even once, in participating in crowdfunding project. Therefore, they possess more information and they recognize the importance of easier participation, which affects their attitude formation. This result is somewhat relevant to the result of Crespo et al. (2009), where previous experience with e-commerce affects the importance of perceived ease of use on attitude.

In terms of perceived overall risk hypotheses, two groups showed quite different results. For the inexperienced group, negative influence of perceived overall risk on participation intention (H6) and perceived usefulness (H8) were statistically non-

significant. Only negative influence of perceived overall risk on attitude (H7) showed statistically significant value ($\beta=-0.205$, $p < 0.01$). This result indicates that perceived risk has only indirect influence on participation intention, mediated through attitude for inexperienced group. On the other hand, the experienced group results show that perceived overall risk has both direct (H6) and indirect effects (H7 & H8) on the participation intention. This different results indicate that there is a difference between two groups in terms of the cognitive process that determines behavioral intention. One interpretation of this difference is that it may arise from the different knowledge level regarding crowdfunding. As experienced group has generally higher knowledge about crowdfunding, and the risk regarding crowdfunding, they may associate it with other variables (i.e. usefulness, attitude and intention) when making their decisions. On the other hand, inexperienced group may have less knowledge about crowdfunding and risk associated with it. As a result, instead of relating it with other psychological constructs, their risk perception may be reflected in the negative image toward general crowdfunding, which is measured by attitude variable.

Lastly, multidimensional aspect of perceived overall risk was supported in both groups' results. Specifically, all of the six proposed risk dimensions (financial, performance, social, time, psychological and privacy) hypotheses (H9-H14) are supported, and all of the risk dimensions showed relevant importance in formulating perceived overall risk, exhibiting factor loading above 0.5. It is notable that psychological risk showed the highest influence, regardless of the past experience. This result is somewhat

different from past e-commerce literatures, where psychological risk was not significant, or of less influential factors (Featherman and Pavlou 2003; Crespo et al. 2009; Zheng et al. 2012). This result indicate that, even though they are similar, e-commerce and reward-based crowdfunding are different in terms of hierarchy of consumer risk perception. Lim (2003) stated that delayed arrival, or no arrival at all, of products, poor product's quality, and unsuitability for one's need are the factors that cause the mental stress of consumers in e-commerce environment. As discussed in section 2.1.4, products offered in reward-based crowdfunding have even higher risk associated with these factors (Agrawal 2013). Furthermore, prolonged period of projects may even signify the effects of these factors, resulting psychological risk as the most influential risk in formation of perceived overall risk.

Chapter 6. Conclusion

6.1 Summary of Research

This research aims to explain how perceived risk affects consumer's participation intention of reward-based crowdfunding. In order to provide more comprehensive understanding of perceived risk, six risk dimensions are incorporated in the model to formulate perceived overall risk. Combined with TAM framework, the proposed model covers both positive and negative aspects of reward-based crowdfunding. Also, two groups' (experienced and inexperienced) results are compared to investigate the difference in consumer behavior. The empirical results show that there are differences between two groups, with their causal paths and magnitudes of constructs. Multidimensionality of perceived risk is supported by the both results, and psychological risk is shown to be the most influential one among the risk dimensions.

6.2 Implications

6.2.1 Academic Implication

There are several academic implications that can be obtained from this research. First, this research analyzed consumer behavior in reward-based crowdfunding considering the effects of perceived risk. Existing literatures are mostly focused on the analysis of success factors in terms crowdfunding project characteristics. However, these studies are

fundraiser-oriented, and could not give the general idea of how consumer decides to enter crowdfunding market at the first place. Also, the role of perceived risk in reward-based crowdfunding environment has been largely neglected by researchers. By incorporating perceived risk concept with TAM model, this study provides more comprehensive understanding of consumer behavior in the related domain.

Secondly, this study provides empirical result for the consumer behavior in crowdfunding. Due to its short history, crowdfunding related researches are still scarce, and large portion of the studies are qualitative. This study contributes to the crowdfunding research area with empirical results.

Finally, this study verifies the multidimensionality of perceived risk, and the importance of each risk dimension. The result of this study not only reassures the claim that the perceived risk has different source of risk, but also exhibits what are the important risk facets associated with reward-based crowdfunding.

6.2.2 Practical Implications

The result of this research poses several managerial implications. First of all, the results indicate that managing risk is a critical factor to motivate users to participate in reward-based crowdfunding. Especially, it is notable that the importance of each risk facet is quite different than that of e-commerce literature results. Our empirical result shows that psychological risk is the most important factor in formulating perceived overall risk. Delayed delivery, failure of project, inferior quality of final products, high

degree of information asymmetry, and prolonged project period are all the potential source of the consumer's mental distress, which may work as a deterrent to crowdfunding participation (Lim 2003; Agrawal 2013). In order to remedy the problem, platforms may take strategies such as screening proposed projects based on their feasibility, and limiting the project duration, not only in terms of funding periods, but also in terms of actual manufacturing and delivery periods. Also, platform may encourage fundraisers to continuously communicate with investors to dispel their anxiety through platform or SNS. Probably mandating periodic updates for project progression would be recommended.

Also, our result shows that there exists behavioral difference between consumer groups, depending on their previous funding experiences. This indicates that the platforms must choose different strategies depending on their goal: expanding new customer base, or encouraging continuous investment from existing users.

In new participant's perspective, perceived overall risk's negative influence on intention is solely mediated through attitude. Therefore, improving attitude (in other words, giving favorable impression and trust toward crowdfunding) is critical for attracting new customer base.

Currently issues are arising crowdfunding regarding platforms' project quality control. Furthermore, when problem arises, platforms are showing very passive attitude, and let it solved only between fundraisers and investors. This would severely damages consumer trust against crowdfunding, and make them reluctant to participate. As our result exhibits, consumer's attitude also works as a crucial mediating variable to other positive variables,

which perceived usefulness and perceived ease of use, this should be treated with a critical importance. Currently investors who are damaged from crowdfunding investment are utilizing outside community such as Kickscammed⁴ or GoFraudMe⁵ in order to communicate with other casualties, or even to file a collective lawsuit against the fundraisers. However, the very existence of those communities shows the serious problems existing in crowdfunding system, and degrades the overall reputation of crowdfunding industry. Thus, platforms must actively involve in solving problems arise between the parties, and provide them with tools to facilitate the problem solving. If platforms have limitation in exercising their power on solving disputes among fundraisers and investors, the government could ensure the necessary right for the platforms.

For recurring customers, increasing perceived ease of use is important. In other words, consumer should be free of effort when using platform, and participating the funding activities. For this purpose, platforms may have to make an efforts to make the payment easier, let customer find interesting projects quickly, and without complexity. One recommended solution would be a personalized recommendation system based on big data analysis, which may greatly ease searching process of consumers and increase user participation. Furthermore, as the analysis result shows, consumer attitude toward crowdfunding is also important mediating variable for the recurring customers as well. Therefore, reputation management strategies are also important to motivate existing customer to participate in crowdfunding projects.

⁴ <http://kickscammed.com/>

⁵ <http://gofraudme.com/>

6.3 Limitations and Future Research Directions

This paper makes its contribution by providing a deeper understanding of consumer behavior in crowdfunding area, focusing on perceived risk of its users. However, there still are several limitations of the study that can be improved.

First, this study categorized consumer groups based on their crowdfunding experience. This methods has its advantage on comparing different consumer behaviors between existing consumers and potential consumers that have not entered the market yet. However, it has its limitation in reflecting individual characteristics. Therefore, future study could include additional variables that could show individual difference. One recommendation is to encompass five-factor personality model into the proposed model. The model has been widely used in different research areas, including the adoption and usage of new services (Correa et al. 2010; Devaraj 2008; Ryu and Kim 2016). Especially, Ryu and Kim distinguished crowdfunding investors into several different groups based on five-factor model, and showed the different consumer behaviors among the groups (2016). As such, the model proposed in this study could further improved by utilizing additional variables that reflect user characteristics.

Secondly, this study only considered the reward-based crowdfunding project whose main object is to provide new goods or service. Sometimes, projects on the reward-based crowdfunding are philanthropic, whose main focus is to generate social benefits. Even though the fundraisers provide some form of rewards, usually their value is far less than the investment (De Buysere et al. 2012). This study did not consider this type of projects

into the analysis due to the different motivations and consumer types (Ryu and Kim 2016). Therefore, future may take philanthropic projects into consideration, and compare the results between the project types.

Lastly, this study only addresses reward-based crowdfunding, and did not address other types of crowdfunding, such as donation-based, lending-based, and equity-based crowdfunding. This paper addresses risks associated with reward-based crowdfunding based on e-commerce literatures, due to the similarities between two areas. However, the model has limitation when applied to different crowdfunding types, as they have different consumer motivations, goals, and thus perceived risks. Therefore, future study may improve the proposed research model by developing different perceived risk dimensions based on the different crowdfunding types and their characteristics.

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Appendix: Survey Sheet

Part 1. 다음은 설문에 응답하기 위하여 필요한 사전지식입니다. 정확한 설문을 위하여 질문에 대한 응답에 앞서 아래 내용을 읽어주십시오.

<p>1. 보상형 크라우드 펀딩의 개념</p>	<p>설명</p>	<p>보상형 크라우드펀딩(Reward-based Crowdfunding)은 크라우드펀딩의 한 종류로서, 새로운 제품이나 서비스의 개발, 상업화를 목표로 하는 개인, 혹은 기업이 플랫폼을 통하여 다수의 후원자로부터 조금씩 자금을 모으는 형태를 뜻합니다.</p> <p>자금 모집은 플랫폼 상에서 프로젝트 형식으로 이루어집니다. 각 프로젝트는 플랫폼으로부터 할당된 개별 웹페이지 상에서 목표 모금액, 상품 설명, 자금 사용처, 상품 예상 제공일 등의 정보를 게시합니다. 후원자는 플랫폼을 통하여 자신이 원하는 프로젝트에 원하는 만큼의 금액을 후원할 수 있습니다. 후원자는 후원한 금액에 따라 원하는 보상(상품)을 프로젝트 결과물로서 받게 됩니다.</p> <p>일반적으로 크라우드펀딩 프로젝트는 <u>30일에서 60일</u> 간 모금을 진행하게 됩니다. 모금이 성공적이었을 경우, 실제 보상품 수령에는 짧게는 <u>1개월 내외</u>, 길게는 <u>6개월 이상</u> 가량 소요 됩니다. 다만 프로젝트가 지체될 경우, 예상 제공일을 초과하여 상품을 제공하게 되는 경우도 있습니다</p> <p>대부분의 보상형 크라우드펀딩 플랫폼은 All-or-Nothing 형식을 취하고 있습니다. 즉, 자금 모집자가 설정한 목표 모금액을 기한 내에 달성해야지만 결제가 시행되고, 최종 모금액이 자금 모집자에게 전달 됩니다. 만약 목표 모금액이 달성되지 않을 경우, 후원액은 후원자들에게 자동 환불 됩니다. 성공적으로 모금이 완료되었을 경우, 자금 모집자는 전달된 모금액을 약속된 상품 개발, 생산 등 필요에 따라 사용하게 됩니다.</p>
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	개념도	
2. 보상형 크라우드 펀딩의 장/단점	장점	<ul style="list-style-type: none"> ① 시중에 없는 새로운 상품 구입 가능. ② 상용화 전 상품을 앞서 체험 가능. ③ 기발한 아이디어를 지닌 벤처기업 및 개인 창업자 지원 가능. ④ 은행 대출, 벤처 캐피탈 등의 기존 금융 방식의 대안.
	단점	<ul style="list-style-type: none"> ① 허위 정보를 바탕으로 한 사기성 프로젝트의 위험성 존재. ② 프로젝트에서 설명된 상품 특성과 실제 완성품 간의 차이 존재 가능. ③ 모금액의 실제 사용처 감시가 제한적. ④ 자금 모집자의 경험 부족으로 인해 모금 완료 후 완성품 제공의 지체, 혹은 프로젝트 도중 수포화 가능성 존재.
3. 보상형 크라우드 펀딩 플랫폼 예시	<ul style="list-style-type: none"> • 외국: 킥스타터, 인디고고 등 <div style="text-align: center;"> </div> <ul style="list-style-type: none"> • 국내: 와디즈, 텀블벅 등 	

	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>클라우드펀딩을 부탁해!</p>  </div> <div style="text-align: center;">  <p>tumblbug</p> </div> </div>
<p>4. 보상품 예시</p>	<ul style="list-style-type: none"> ● 신기술/아이디어 기반 제품 (접이식 전기자전거, 휴대용 공기청정기 등) <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="text-align: center;">  <p><'G바이크 미니' 접이식 전기 자전거></p> </div> <div style="text-align: center;">  <p><'클레어B' 휴대용 공기청정기></p> </div> </div> ● 게임 (모바일/PC 및 보드 게임 등) <div style="text-align: center; margin-top: 10px;">  <p><'프로젝트 6' 모바일 게임></p> </div> ● 디자인 제품 (기능성 가방, 가구 및 편리 용품 등) <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> </div>

	<p><'Rolley' 기능성 아이패드 가방> <'프타 멀티박스' 멀티탭 정리함></p> <ul style="list-style-type: none"> ● 패션/뷰티 제품 (유기농 화장품, 천연 비누 등) <div style="display: flex; justify-content: space-around;"> <div data-bbox="486 495 863 759">  <p><'닥터플로라' 유기농 꽃물 화장품></p> </div> <div data-bbox="927 483 1319 759">  <p><'소피아티슈' 인도 천연비누></p> </div> </div> <p>등</p> <p><그림 출처: 와디즈 홈페이지></p>
<p>5. 설문 조사 범위</p>	<p>본 설문에서는 <u>실제 완성품 제공</u>을 목표로 하는 프로젝트만을 대상으로 합니다. 따라서 <u>기부를 목적으로 하거나 완성품이 부차적으로 제공</u>(예: 사회적 약자를 위한 모금에 대한 대가로 소정의 상품을 지급하는 등) 되는 프로젝트는 <u>해당되지 않습니다</u>.</p>

Part 2. 지금부터 보상형 크라우드펀딩 서비스의 사용자 인식과 관련된 질문이 제시됩니다. 본 설문
의 문항은 ‘전혀 그렇지 않다’부터 ‘매우 그렇다’ 사이의 5 점 척도에 근거하여 구성되어 있습니다. 다음의 각
문항에 대하여 귀하의 견해와 일치하는 번호에 체크하여 주십시오.

(프로젝트 후원자의 입장에서 작성하여 주십시오.)

A. 다음은 귀하가 느끼는 크라우드펀딩 서비스의 **금전적 위험요소**에 관한 질문입니다.

1. 나는 내가 후원한 프로젝트가 허위 정보에 기반한 사기를 목적으로 한 것으로 판명 날 경우, 금전적
손실을 입을까 걱정된다.

① 전혀 그렇지 않다 ② 그렇지 않다 ③ 보통이다 ④ 그렇다 ⑤ 매우 그렇다

2. 나는 내가 후원한 금액이 제대로 된 사용처(프로젝트 설명문에 명시된 사용처)에 사용될지 의심된다.

① 전혀 그렇지 않다 ② 그렇지 않다 ③ 보통이다 ④ 그렇다 ⑤ 매우 그렇다

3. 나는 내가 후원한 프로젝트가 도중에 수포로 돌아갔을 경우, 제대로 환불을 받지 못할까 염려된다.

① 전혀 그렇지 않다 ② 그렇지 않다 ③ 보통이다 ④ 그렇다 ⑤ 매우 그렇다

B. 다음은 귀하가 느끼는 크라우드펀딩 보상품의 **기능적 위험요소**에 관한 질문입니다.

4. 나는 크라우드펀딩 보상품이 제대로 된 기능을 수행할지 의심스럽다.

① 전혀 그렇지 않다 ② 그렇지 않다 ③ 보통이다 ④ 그렇다 ⑤ 매우 그렇다

5. 나는 크라우드펀딩 보상품의 질이 떨어질 것 같다.

① 전혀 그렇지 않다 ② 그렇지 않다 ③ 보통이다 ④ 그렇다 ⑤ 매우 그렇다

6. 나는 크라우드펀딩 보상품이 약속된 것과 같은 기능을 수행할지 의심스럽다.

① 전혀 그렇지 않다 ② 그렇지 않다 ③ 보통이다 ④ 그렇다 ⑤ 매우 그렇다

C. 다음은 귀하가 느끼는 크라우드펀딩 서비스의 **사회적 위험요소**에 관한 질문입니다.

7. 나는 크라우드펀딩에 참여하는 것이 내 가족이나 친구의 나에게 대한 이미지에 부정적 영향을 줄

<p>것이라고 생각한다.</p> <p>① 전혀 그렇지 않다 ② 그렇지 않다 ③ 보통이다 ④ 그렇다 ⑤ 매우 그렇다</p>
<p>8. 나는 크라우드펀딩에 참여하면 나에게 대해 안 좋게 생각하는 사람이 있을 것 같다.</p> <p>① 전혀 그렇지 않다 ② 그렇지 않다 ③ 보통이다 ④ 그렇다 ⑤ 매우 그렇다</p>
<p>9. 나는 크라우드펀딩에 참여함으로써 내 평판이 떨어질 것을 염려한다.</p> <p>① 전혀 그렇지 않다 ② 그렇지 않다 ③ 보통이다 ④ 그렇다 ⑤ 매우 그렇다</p>

<p>D. 다음은 귀하가 느끼는 크라우드펀딩 서비스의 시간적 위험요소에 관한 질문입니다.</p>
<p>10. 나는 크라우드펀딩에 참여하는데 많은 시간이 필요하다고 생각한다.</p> <p>① 전혀 그렇지 않다 ② 그렇지 않다 ③ 보통이다 ④ 그렇다 ⑤ 매우 그렇다</p>
<p>11. 나는 크라우드펀딩 완성품을 수령할 때까지 너무 오래 걸릴까 염려된다.</p> <p>① 전혀 그렇지 않다 ② 그렇지 않다 ③ 보통이다 ④ 그렇다 ⑤ 매우 그렇다</p>
<p>12. 나는 크라우드펀딩 완료까지 너무 오랜 시간이 소요된다고 생각한다.</p> <p>① 전혀 그렇지 않다 ② 그렇지 않다 ③ 보통이다 ④ 그렇다 ⑤ 매우 그렇다</p>

<p>E. 다음은 귀하가 느끼는 크라우드펀딩 서비스의 심리적 위험요소에 관한 질문입니다.</p>
<p>13. 나는 크라우드펀딩에 참여함으로써 걱정거리가 생길 것 같다.</p> <p>① 전혀 그렇지 않다 ② 그렇지 않다 ③ 보통이다 ④ 그렇다 ⑤ 매우 그렇다</p>
<p>14. 나는 크라우드펀딩에 참여하면 불필요한 긴장감을 느낄 것 같다.</p> <p>① 전혀 그렇지 않다 ② 그렇지 않다 ③ 보통이다 ④ 그렇다 ⑤ 매우 그렇다</p>
<p>15. 나는 크라우드펀딩에 참여하면 불안감을 느낄 것 같다.</p> <p>① 전혀 그렇지 않다 ② 그렇지 않다 ③ 보통이다 ④ 그렇다 ⑤ 매우 그렇다</p>

F. 다음은 귀하가 느끼는 크라우드펀딩 서비스의 사생활 침해 위험요소 에 관한 질문입니다.
16. 나는 크라우드펀딩에 참여함으로써 나의 개인 정보가 유출될 가능성이 있다고 생각한다.
① 전혀 그렇지 않다 ② 그렇지 않다 ③ 보통이다 ④ 그렇다 ⑤ 매우 그렇다
17. 나는 크라우드펀딩에 참여함으로써 나의 개인 정보가 노출될까 두렵다.
① 전혀 그렇지 않다 ② 그렇지 않다 ③ 보통이다 ④ 그렇다 ⑤ 매우 그렇다
18. 나는 크라우드펀딩에 참여하면 나의 개인정보가 남용될 가능성이 있다고 생각한다.
① 전혀 그렇지 않다 ② 그렇지 않다 ③ 보통이다 ④ 그렇다 ⑤ 매우 그렇다

G. 다음은 귀하가 느끼는 크라우드펀딩 서비스의 유용성 에 관한 질문입니다.
19. 나는 크라우드펀딩이 나에게 유용하다고 생각한다.
① 전혀 그렇지 않다 ② 그렇지 않다 ③ 보통이다 ④ 그렇다 ⑤ 매우 그렇다
20. 나는 크라우드펀딩을 통해 혜택을 얻을 수 있을 것이라고 생각한다.
① 전혀 그렇지 않다 ② 그렇지 않다 ③ 보통이다 ④ 그렇다 ⑤ 매우 그렇다
21. 나는 크라우드펀딩을 통해 유용한 제품을 얻을 수 있을 것이라고 생각한다.
① 전혀 그렇지 않다 ② 그렇지 않다 ③ 보통이다 ④ 그렇다 ⑤ 매우 그렇다
22. 나는 크라우드펀딩이 나에게 도움이 된다고 생각한다.
① 전혀 그렇지 않다 ② 그렇지 않다 ③ 보통이다 ④ 그렇다 ⑤ 매우 그렇다

H. 다음은 귀하의 크라우드펀딩에 대한 일반적 태도 에 관한 질문입니다.
23. 나는 크라우드펀딩이 좋은 아이디어라고 생각한다.
① 전혀 그렇지 않다 ② 그렇지 않다 ③ 보통이다 ④ 그렇다 ⑤ 매우 그렇다
24. 나는 크라우드펀딩에 대해 긍정적이다.

① 전혀 그렇지 않다 ② 그렇지 않다 ③ 보통이다 ④ 그렇다 ⑤ 매우 그렇다
25. 나는 크라우드펀딩의 개념에 호의적이다.
① 전혀 그렇지 않다 ② 그렇지 않다 ③ 보통이다 ④ 그렇다 ⑤ 매우 그렇다

I. 다음은 귀하가 느끼는 크라우드펀딩 서비스의 사용 용이성 에 관한 질문입니다.
26. 나는 크라우드펀딩 플랫폼 사용이 용이하다고 생각한다.
① 전혀 그렇지 않다 ② 그렇지 않다 ③ 보통이다 ④ 그렇다 ⑤ 매우 그렇다
27. 나는 크라우드펀딩에 참여하는 것에 많은 노력이 필요하다고 생각하지 않는다.
① 전혀 그렇지 않다 ② 그렇지 않다 ③ 보통이다 ④ 그렇다 ⑤ 매우 그렇다
28. 나는 크라우드펀딩에 참여하는 과정이 복잡하다고 생각하지 않는다.
① 전혀 그렇지 않다 ② 그렇지 않다 ③ 보통이다 ④ 그렇다 ⑤ 매우 그렇다

J. 다음은 귀하의 크라우드펀딩 참여 의사 에 관한 질문입니다.
29. 나는 크라우드펀딩 프로젝트에 후원할 의사가 있다.
① 전혀 그렇지 않다 ② 그렇지 않다 ③ 보통이다 ④ 그렇다 ⑤ 매우 그렇다
30. 나는 크라우드펀딩에 참여할 가능성이 있다고 생각한다.
① 전혀 그렇지 않다 ② 그렇지 않다 ③ 보통이다 ④ 그렇다 ⑤ 매우 그렇다
31. 나는 크라우드펀딩 후원을 하지 않을 것이다.
① 전혀 그렇지 않다 ② 그렇지 않다 ③ 보통이다 ④ 그렇다 ⑤ 매우 그렇다
32. 나는 크라우드펀딩 서비스를 가족 및 친구에게 추천할 의향이 있다.
① 전혀 그렇지 않다 ② 그렇지 않다 ③ 보통이다 ④ 그렇다 ⑤ 매우 그렇다

K. 다음은 귀하의 기본적인 정보에 관한 질문입니다.
33. 귀하의 성별은 어떻게 되십니까? ① 남성 ② 여성
34. 귀하의 연령은 어떻게 되십니까? ① 20세 미만 ② 20~29세 ③ 30~39세 ④ 40~49세 ⑤ 50세 이상
35. 귀하의 최종 학력은 어떻게 되십니까? ① 중졸 이하 ② 고졸 이하 ③ 전문대 재학 또는 졸업 ④ 대학교 재학 또는 졸업 ⑤ 대학원 재학 또는 졸업 ⑥ 전업주부 ⑦ 기타
36. 귀하의 직업은 어떻게 되십니까? ① 학생 ② 관리/사무직 ③ 전문직 ④ 판매/서비스직 ⑤ 기술/생산직 ⑥ 전업주부 ⑦ 기타
37. 귀하의 보상형 크라우드펀딩 프로젝트 후원 횟수는 어떻게 되십니까? ① 0회 ② 1회 ③ 2~5회 ④ 6회 이상

Abstract (Korean)

기존의 금융 방식에 대한 대안으로서 근래에 크라우드펀딩이 대중의 주목을 얻고 있다. 그러나 증가되는 관심에도 불구하고, 크라우드펀딩에 관한 학술적 연구는 여전히 그 수가 적고, 더욱이 투자자의 일반적 참여 메커니즘은 연구되고 있지 못하였다. 또한, 현재의 법적 규제 및 플랫폼 가이드라인은 현재 발생되기 시작하고 있는 제 문제, 특히 보상형 크라우드펀딩에서의 문제를 해결하는데 있어 그 한계가 있다. 따라서 문제해결을 위한 대안 제시 및 시장 활성화를 위해서는 소비자 행동 및 소비자 문제 인식에 관한 연구가 필요하다. 지각된 위험 차원을 바탕으로 확장된 기술수용모형(TAM)을 사용하여, 본 연구는 소비자의 참여 의도에 영향을 미치는 요소 및 그들의 경로와 크기를 조사한다. 금전적, 기능적, 사회적, 시간적, 심리적, 그리고 사생활 침해 위험 요소가 중요 위험 차원으로 선정되었다. 총 445개의 샘플이 온라인 설문 시스템을 통하여 수집되었고, 이를 구조방정식모형으로 분석하였다. 분석의 결과, 각 위험 차원은 지각된

종합적 위험의 형성에 영향을 주고, 이를 통하여 직, 간접적으로 참여 의도에 부정적 영향을 미치는 것으로 나타났다. 또한, 분석의 결과 인지된 위험이 참여 의도에 대해 미치는 영향은 과거의 투자 경험에 의하여 다르게 나타나는 것으로 밝혀졌다. 유경험자의 경우 지각된 위험이 참여 의도에 대해 직, 간접적으로 영향을 미치는 반면, 미경험자의 경우 간접적 경로로만 영향을 미치는 것으로 나타났다.

주요어: 클라우드펀딩, 사용자 수용, 기술수용모형, 지각된 위험, 구조방정식모형, 소셜 펀딩

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