

## AN EMPIRICAL STUDY OF SPONSOR SATISFACTION IN REWARD-BASED CROWDFUNDING

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### ABSTRACT

Crowdfunding is a new financing channel for small and medium-sized enterprises and individual entrepreneurs to raise funds for innovation projects online. In reward-based crowdfunding projects sponsors invest money and receive rewards as a return. This paper investigates sponsor satisfaction in reward-based crowdfunding projects. The findings indicate that sponsors' satisfaction is determined by their utilitarian value and hedonic value from the projects. Utilitarian value is significantly related to reward delivery timeliness and the extent to which the reward meets the specifications as planned, while hedonic value may be increased through sponsors' citizenship behaviors in the process of project implementation. This paper contributes empirically to crowdfunding research and has practical implications for crowdfunding platforms and entrepreneurs.

Keywords: Reward-based crowdfunding; Sponsor satisfaction; Hedonic value; Utilitarian value

### 1. Introduction

Capital raising for innovation projects is a big challenge for small and medium-sized enterprises and individual entrepreneurs [Bradford 2012; Kortum & Lerner 2000]. Crowdfunding is a novel financing channel based on the Internet and online social network, through which entrepreneurs raise money for their innovation projects online [Lawton & Marom 2012; Yang et al. 2016]. This study focuses on reward-based crowdfunding projects in which the sponsors receive a non-financial return for their investments, such as products, services, or even a thank you letter from the entrepreneurs [Ahlers et al. 2015].

Reward-based crowdfunding is currently a popular practice in some industries. For example, music artists raise money from their fans on crowdfunding platforms, such as SellaBand and MyMajorCompany, to produce an album [Belleflamme et al. 2010]. Sponsors of these songs are rewarded by gaining access to the latest album [Belleflamme et al. 2010]. According to the Massolution report in 2015, reward-based crowdfunding is also extensively used as a

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financing channel for the social challenge projects, and business and entrepreneurship projects. On Kickstarter.com, one of the most popular crowdfunding websites, since its 2009 launch more than 9 million people have pledged over \$2.7 billion to fund 50,000 projects. These projects cover a wide range of fields, from film, video, games, food, fashion, and photography to design, technology, and publishing. Meantime, crowdfunding has been developing fast globally. For example, on Demohour, a famous crowdfunding platform in China, the biggest crowdfunded project has raised more than \$200,000 to support an online cartoon series called “A Hundred Thousand Bad Jokes”. The World Bank predicted that by 2025 total crowdfunding would reach \$46 to \$50 billion in China [Elmer 2013].

The rapid development of crowdfunding has attracted much research interest from academics. Generally, research in this field focuses on the following issues: definition and classification of crowdfunding [Barabas 2012; Lambert & Schwienbacher 2010], motivations of sponsors and entrepreneurs [Gerber & Hui 2013; Ordanini et al. 2011], and factors affecting crowdfunding performance in capital raising [Lambert & Schwienbacher 2010; Mollick, 2014; Zheng et al. 2014]. Crowdfunding consists of three phases, which are preparation, fund raising, and project implementation. Most of the extant research focuses on the issue of capital raising, and how to attract sponsors to invest money. Few studies have explored the crowdfunding project implementation process [Mollick 2014].

Consumer satisfaction is an important construct in online shopping [Deng et al. 2010; Gelderman 1998; Gelderman 2002]. In reward-based crowdfunding sponsor satisfaction is a major criterion for project implementation success, and very important to the crowdfunding projects and crowdfunding platforms [Yoon et al. 2010]. Sponsor satisfaction is particularly more important for innovative projects of products or services than for some crowdfunding contexts, for example, a crowdfunding project for sponsoring a one-time outdoor event, because marketing product or service is one important motivation for entrepreneurs to adopt crowdfunding besides fund raising [Gerber & Hui 2013; Gleasure 2015]. Satisfaction with a project could promote sponsors' positive word-of-mouth (WOM) online or offline, which may help attract more potential buyers, or even venture capitalists to the entrepreneurs [Popp & Woratschek 2017]. In addition, satisfaction with a project will enhance sponsors' relationship with entrepreneurs. In many cases, sponsors may even continue to make contributions, and are involved in the further development, promotion and commercialization of the product after the completion of projects [Belleflamme et al. 2014]. Furthermore, consumer's satisfaction with a brand may affect his/her positive WOM of the online brand community [Popp & Woratschek 2017]. Similarly, in crowdfunding, sponsors will say positive WOM of the platform if they are satisfied with the projects in which they invested. In this study we focus on sponsor satisfaction at the project level.

One major distinction of crowdfunding from traditional funding channels is that it may involve sponsors across the entire production process, thereby enhancing their experiences [Belleflamme et al. 2014]. In reward-based crowdfunding, sponsors provide funds for the projects. In addition, they may actively participate in the product/service development in a variety of ways, such as testing early product prototypes or in viral marketing [Lehner 2012]. These experiences in crowdfunding projects may affect sponsor satisfaction. Research indicates that crowdfunding project implementation performance, such as delay in reward delivery may significantly affect sponsors' feelings and experiences [Mollick 2014]. To understand sponsors' satisfaction in crowdfunding we developed a research model based on value and satisfaction theory to investigate how sponsor values and satisfaction can be anteceded by project performance and sponsor's citizenship behaviors in crowdfunding.

The remainder of this paper is organized as follows. First, we review the literature on crowdfunding, customer satisfaction and value. Second, the research model and hypotheses are developed, followed by an explanation of the survey method used to empirically test the model. We then present the results of our data analyses. Finally, we conclude with a discussion of the findings and their theoretical and practical implications.

## 2. Literature Review

### 2.1. Crowdfunding

Crowdfunding comes from the broader concept of crowdsourcing, which involves an open call for intellectual support such as ideas, feedback, or solutions from the crowd online [Howe 2008; Zheng et al. 2014; Guo et al. 2017]. Besides business solutions, firms can also obtain capital from crowd online, phenomenon known as crowdfunding [Howe 2008]. Crowdfunding includes diverse models, such as debt-based crowdfunding and equity-based crowdfunding [Ahlens et al. 2015]. In the current study, we focus on reward-based crowdfunding, defined as an “open call, essentially through the Internet, for the provision of financial resources either in the form of a donation or in exchange for some form of reward and/or voting rights in order to support initiatives for specific purposes” [Lambert & Schwienbacher 2010].

According to the extent to which the sponsors participate in the crowdfunding project implementation, Lehner [2012] classified crowdfunding as active crowdfunding, in which the sponsors have active involvement, and passive crowdfunding, in which there is no further participation for sponsors except the investment. In this study, we focus on active crowdfunding in which the sponsors actively participate in the process of product/service development. Their

participation takes various forms, such as testing early prototypes and viral marketing [Lehner 2012]. Most crowdfunding platforms, including Kickstarter and Demohour, have developed online virtual communities for entrepreneurs and sponsors to share ideas with each other to support their co-production behavior [Yi & Gong 2012]. Sponsor participation is important for crowdfunding projects. Sponsor contributions can help entrepreneurs to improve their projects [Schwienbacher & Larralde 2012], while active participation in projects enables sponsors to enjoy the fun of belonging to a crowdfunding community [Gerber & Hui 2013], called community benefit in Belleflamme et al. [2014].

The motivations of entrepreneurs and sponsors have attracted much research interest. Entrepreneurs adopt crowdfunding platforms to obtain funds, expand awareness of their work, connect with others, gain approval for their work and for themselves, maintain project control, and learn new skills [Gerber & Hui 2013]. For sponsors, receiving creative products/services (rewards) is an important motivation. In addition, helping others and being part of a community for supporting creative products also motivates them to invest in crowdfunding projects [Gerber & Hui 2013; Ordanini et al 2011]. Ryu and Kim [2016] identified six relevant funding motivations - interest, playfulness, philanthropy, reward, relationship, and recognition. Based on their motivations, sponsors were classified as four categories: angelic backer, reward hunter, avid fan, and tasteful hermit [Ryu & Kim 2016].

Generally, the success of one reward-based crowdfunding project can be measured in two dimensions: whether the crowdfunding project reaches its capital raising goal, and whether the entrepreneur implements the project successfully. For the first dimension, some scholars have investigated the determinants of crowdfunding performance in capital raising [Lambert & Schwienbacher 2010; Mollick 2014]. For example, Lambert and Schwienbacher [2010] found that crowdfunding projects with non-profit initiatives tend to be more successful in fund-raising and projects that aim to produce tangible products rather than services tend to attract larger amounts of capital. In addition, the entrepreneur's social network sites, such as Twitter and Facebook, are important platforms for entrepreneurs to connect with fans and friends who are willing to provide financial and information supports [Bechter et al. 2011; Mollick 2014]. Zheng et al. [2014] found that the entrepreneur's social capital, social network ties, obligations to fund other entrepreneurs, and the shared meaning of the crowdfunding project between the entrepreneur and the sponsors, have significant effects on crowdfunding performance in both China and the U.S. Latest research also studied the fund-raising performance based on elaboration likelihood model and found that sponsor's word-of-mouth, "like" counts, and interactions between sponsors and entrepreneur are effective signals of project quality, which could predict the funding success [Bi et al. 2017; Zheng et al. 2016].

Compared to the first dimension, the second dimension has attracted little attention from researchers. Mollick [2014] found that the degree to which a project is overfunded predicts product delivery delays in crowdfunding. To implement project successfully, entrepreneurs should pay special attention to sponsors' articulations of needs, desires, and ideas which are helpful to form and enact new opportunities [Nambisan & Zahra 2016]. Research indicates that project process and implementation has a significant impact on sponsor value and satisfaction. Thus, in this study we focus on sponsor's values and satisfaction, and investigate how they can be affected by project process and implementation in crowdfunding.

## 2.2. Customer Value and Satisfaction

Satisfaction and value are important topics of study in some fields, such as marketing and information systems. In marketing research, customer satisfaction is primarily a customer's subjective judgment of the performance of a product or service. It can be considered to be the psychological fulfillment response a consumer makes when assessing performance [Oliver 1993]. Generally, there are two types of customer satisfaction, transaction-specific satisfaction and overall satisfaction [Bodet 2008; Johnson 2001]. From the transaction perspective, customer satisfaction is an evaluative judgment of a specific product or service after a business transaction [Oliver 1993]. By contrast, overall satisfaction is the cumulative evaluation based on the total purchase and consumption experiences of a product or service [Fornell et al. 1996]. Previous research has found that overall satisfaction seems to be a better predictor of customer intention [Hsu et al. 2006; Johnson 2003]. In this study, we focus on sponsor's satisfaction, which is cumulative evaluation of the crowdfunding project.

Customer satisfaction can be predicted by customer value [Lam et al. 2004; Wang et al. 2004], which is a customer's overall assessment of the utility of a product or service based on perceptions of what is received and what is given [Boksberger & Melsen 2011; Zeithaml 1988]. While customer value can be considered a cognition-based construct, satisfaction is primarily an affective response [Lam et al. 2004; Oliver 1993]. The social science literature suggests that cognitive processes may trigger affective responses [Weiner 1986]. This suggests that customer value could positively impact customer satisfaction. Bagozzi and Phillips [1992] suggest that service value evaluation leads to an emotional reaction that, in turn, drives behavior. Based on this framework, research finds that cognitively-oriented service value appraisals precede customer satisfaction [Joseph et al. 2000; Lam et al. 2004].

Value is a multi-dimensional concept. Hartman [1967] identified three realms of perceived value: extrinsic value, intrinsic value, and systematic value. Sheth et al. [1991] proposed a theory of consumption value with five dimensions: functional value, social value, emotional value, epistemic value, and conditional value. In shopping and electronic commerce, utilitarian value and hedonic value are widely accepted and used [Bridges & Florsheim 2008; Overby & Lee 2006]. Utilitarian value refers to buyer's overall judgment of product/service's functional benefits and costs [Overby & Lee 2006]. It is more related to the cognitive aspects of attitude (value for money, convenience, or time saving) [Te 2001; Zeithaml 1988]. Hedonic value is defined as the buyer's overall assessment of the experiential benefits and sacrifices (e.g., entertainment and escapism) [Overby & Lee 2006]. Both utilitarian value and hedonic value have been identified as important factors in customer satisfaction [Bridges & Florsheim 2008] and purchase intention in online shopping [Chiu et al. 2014].

### 3. Research Model and Hypotheses

In this section, we propose a research model based on value and satisfaction theory (Figure 1). The dependent variable is sponsor satisfaction which is defined as sponsor's cumulative evaluation based on the total experience of a crowdfunding project [Fornell et al. 1996]. Hedonic value and utilitarian value are presented as the predictors of sponsor satisfaction. Hedonic value is a subjective evaluation and results more from fun and playfulness than from the task-related consequence [Babin et al. 1994]. We introduce two types of sponsor citizenship behavior, feedback and advocacy, as antecedents to hedonic value. Perceived project performance, which includes the timeliness of reward delivery and the extent to which the reward meets the specifications as planned, is considered to be an antecedent of a sponsor's utilitarian value. In addition, the sponsor's gender, age, salary, and Internet experience are treated as control variables in the model.

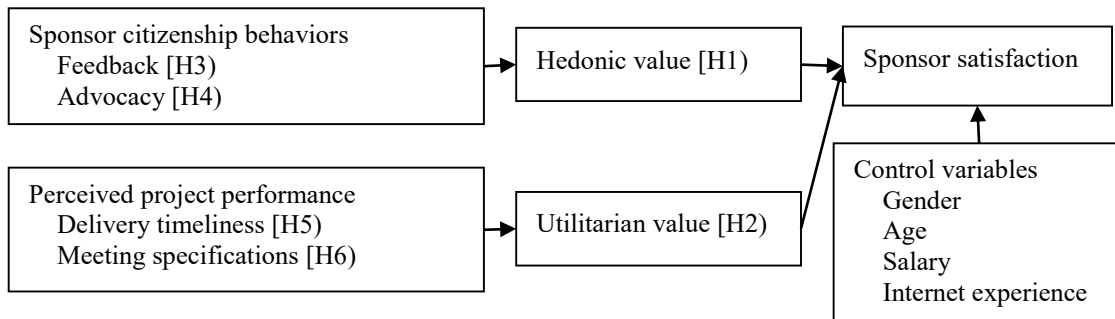


Figure 1: Research Model

#### 3.1. Hedonic Value and Utilitarian Value

Previous research has found that in online shopping consumer value can be classified into utilitarian value, the extent to which buyers feel that their shopping goals has been met, and hedonic value, which refers to the fun and excitement during the shopping experience [Kim et al. 2012; Overby & Lee 2006]. Although there are some differences between crowdfunding and online shopping, crowdfunding is similar to online shopping in that sponsors can acquire products or services as rewards, and they may also obtain fun from the experience [Belleflamme et al. 2014]. Thus, in this paper utilitarian value and hedonic value are borrowed from the marketing literature and online shopping studies and treated as two antecedents to sponsor satisfaction.

According to Overby and Lee [2006] and Kim et al. [2012], we define hedonic value for sponsor as the sponsor's overall judgment of the experiential benefits (fun, entertainment, and escapism) of the crowdfunding project. Sponsors can experience hedonic value in a number of ways. First, they can receive creative products (e.g., technology device or album) earlier in the pre-ordering process than traditional consumers who have to wait to buy the finished products on the market [Belleflamme et al. 2014]. The timely consumption of crowdfunding products can generate surprise and pride for the sponsors. Second, sponsors identify themselves as members directly involved in the project [Belleflamme et al. 2014]. They may engage themselves in crowdfunding activities in different forms, such as sharing ideas with entrepreneur and advertising crowdfunding projects. From interaction with the entrepreneurs and other sponsors, sponsors can also receive hedonic value, which is the result of community benefits [Belleflamme et al. 2014].

Utilitarian value in crowdfunding refers to the sponsor's overall judgment of the functional benefits and costs of the crowdfunding project [Overby & Lee 2006]. Receiving a creative and satisfactory product or service is an

important motivation for sponsors in investing in crowdfunding projects [Gerber & Hui 2013]. Conversely, fear of not receiving a reward is a potential deterrent to sponsor participation [Gerber & Hui 2013].

Customer satisfaction is primarily an affective response to customer values, which are cognition-based constructs [Lam et al. 2004; Oliver 1993]. Marketing research indicates that customer value is a significant factor influencing customer satisfaction [Heskett et al. 1997; Lam et al. 2004]. Innovation research finds that utilitarian and hedonic values are determinants to consumer's acceptance of innovative products [Parry & Kawakami 2015]. In addition, research in electronic commerce also finds that utilitarian value and hedonic value are critical determinants of consumers' satisfaction and behavioral intention [Kim et al. 2012]. Crowdfunding is a kind of online pre-order, similar to electronic commerce. In addition to receiving a product or service as a reward, sponsors may involve themselves in the production process to obtain fun and excitement. Thus, sponsors may receive both hedonic value and utilitarian value from crowdfunding projects, which contribute to sponsor satisfaction.

**H1:** *Sponsor satisfaction with crowdfunding is positively associated with hedonic value.*

**H2:** *Sponsor satisfaction with crowdfunding is positively associated with utilitarian value.*

### 3.2. Sponsor Citizenship Behaviors

Today, with information technologies, especially the Internet, consumers are producing much value in the production and consumption processes of products and services [Zwass 2010]. The creation of value by consumers is defined as value co-creation [Zwass 2010]. In crowdfunding, sponsors not only invest money in the projects, but also contribute ideas to improve projects, and help entrepreneurs to broadcast projects. Thus, crowdfunding can be considered one type of value co-creation by sponsors.

Previous research proposes that consumer value co-creation consists of two types of behavior, customer participation behavior and customer citizenship behavior [Yi & Gong 2012]. Participation behavior includes information seeking, information sharing, responsible behavior, and personal interaction. These are required (in-role) behavior necessary for successful service delivery. Customer citizenship behavior includes feedback, advocacy, helping, and tolerance [Yi & Gong 2012]. These are voluntary (extra-role) behavior that provides extraordinary value. The research context in this study is reward-based crowdfunding, which is different from previous research on value co-creation that focuses on service [Yi & Gong 2012]. In reward-based crowdfunding projects, generally, sponsors' behaviors take three forms: seeking information, giving feedback, and advocating the projects [Zheng et al. 2016]. Seeking information is one common in-role activity, while the latter two are extra-role behaviors. Thus, feedback and advocacy are considered as sponsor citizenship behaviors. The citizenship behaviors are important to the final outcome of a crowdfunding project [Gerber et al. 2012].

Providing feedback and recommending crowdfunding projects are important activities that involve sponsors. Feedback includes solicited and unsolicited information that sponsors provide to the entrepreneur to help the entrepreneur with the crowdfunding project [Yi & Gong 2012]. For example, sponsors can submit their creative ideas, or comment on other sponsors' ideas in the online crowdfunding community. Advocacy refers to sponsor's recommendation or compliments of the crowdfunding project to others such as friends or family members through online social networks or offline word-of-mouth.

Research indicates that customer co-creation behaviors, particularly the citizenship behaviors, provide much value. For organizations, customer co-creation behaviors are helpful for idea generation [Wu & Fang 2010], innovation [Stam 2009], and capacity improvement [Zhang & Chen 2008]. Similarly, sponsors' active engagement is important to crowdfunding projects [Gerber & Hui 2013; Ordanini et al. 2011]. Belleflamme et al. [2014] found that sponsors' participation in the crowdfunding projects is critical to the performance of the projects. In addition to the value of products or services, value co-creation behavior is related to customer value and satisfaction with the service [Vega-Vazquez et al. 2014]. Customers who are actively involved in the value co-creation activities experience much excitement and enjoyment, and thus obtain more hedonic value from the process [Vega-Vazquez et al. 2014; Chiu et al. 2014]. Research on virtual community also indicates that community members' participation can increase their sense of virtual community and community commitment [Jang et al. 2008; Tonteri et al. 2011]. In this study, we propose that sponsors' citizenship behaviors may increase the hedonic value of crowdfunding projects, which could increase their satisfaction.

**H3:** *Sponsor hedonic value is positively associated with feedback in crowdfunding.*

**H4:** *Sponsor hedonic value is positively associated with advocacy in crowdfunding.*

### 3.3. Perceived Project Performance

Sponsors in crowdfunding receive different levels of reward according to their investment. Sponsors' evaluation of the performance of the crowdfunding project, perceived project performance, depends on the results of the project. According to previous research, project performance may be evaluated from two dimensions: timeliness of results delivery and the extent to which the results meet the planning goals [Dvir et al. 2003]. In this study, the performance of a crowdfunding project is measured through the delivery timeliness of reward and the extent to which it meets the

specifications as defined in the crowdfunding open call. Generally, project performance is assessed at the project level [Dvir et al. 2003]. In this study perceived project performance refers to sponsor's evaluation of project performance at the individual level.

Delivery timeliness refers to whether the sponsors receive the reward at the time promised by the entrepreneur. For crowdfunding, Mollick [2014] found that on Kickstarter only 24.9% of projects delivered the reward on time, and complex projects tended to deliver rewards late. According to Dvir et al. [2003], meeting specifications is defined as the extent to which the reward the sponsor receives meets the functional specifications and technical specifications in the crowdfunding open call. There are many factors that might cause a failure to meet the specifications, such as poor project planning [Dvir et al. 2003] and limited team expertise [Jun et al. 2011].

Receiving reward is an important motivation for crowdfunding sponsors [Gerber & Hui 2013]. Research indicates that fulfilling product purchase intention is expected to increase consumer's utilitarian value [Babin et al. 1994]. Timely reception of reward that meets project specifications can increase sponsors' overall judgment of the benefits of crowdfunding projects. Thus, we propose:

**H5:** *Sponsor utilitarian value is positively associated with reward delivery timeliness.*

**H6:** *Sponsor utilitarian value is positively associated with the extent to which the reward meets the specifications.*

## 4. Research Method

### 4.1. Measures

All research constructs were measured using multiple-item scales adapted from prior studies, with minor wording changes to tailor them to the target context of crowdfunding. A five-point Likert scale was used for all measures. To measure sponsor satisfaction, we adapted items from Li et al. [2006] and Yoon [2010]. Items for hedonic value were adapted from Overby and Lee [2006] and Kim et al. [2012]. Utilitarian value was measured using a scale from Kim and Han [2011] with three items. The scales to measure feedback and advocacy were borrowed from Yi and Gong [2012]. The scale from Dvir et al. [2003], a study on project management, was used to measure perceived project performance, defined as delivery timeliness and meeting specifications. The list of constructs, items, and sources is shown in Table 1.

Table 1: Measures and Scales

Construct	Items	Source
Satisfaction	<ol style="list-style-type: none"> <li>1. My experience with this project is very pleasing</li> <li>2. Sponsoring this project makes me happy</li> <li>3. Overall, I am satisfied with the experience of sponsoring this project</li> </ol>	Li et al. [2006]; Yoon [2010]
Hedonic value	<ol style="list-style-type: none"> <li>1. I am excited about sponsoring and focusing on this project</li> <li>2. This project totally absorbs me all the time</li> <li>3. I feel the excitement of creating new things in this project</li> </ol>	Overby & Lee [2006]; Kim et al. [2012]
Utilitarian value	<ol style="list-style-type: none"> <li>1. Compared to the effort I put into this project, the products I received are worthwhile to me</li> <li>2. Compared with the money I sponsored for this project, the products I received offer good value for the money</li> <li>3. Compared with the time I spent on this project, the products I received are worthwhile to me</li> </ol>	Kim & Han [2011]
Feedback	<ol style="list-style-type: none"> <li>1. I often comment on entrepreneur's updates of this project</li> <li>2. I often respond to other sponsor's comments about this project</li> <li>3. When I receive a product from the entrepreneur, I comment about it.</li> <li>4. If I have a useful idea on how to improve the project, I let the entrepreneur know.</li> </ol>	Yi & Gong [2012]
Advocacy	<ol style="list-style-type: none"> <li>1. I have recommended this project to my friends many times</li> <li>2. I say positive things about this project to others</li> <li>3. I often encourage friends and relatives to sponsor this project</li> </ol>	Yi & Gong [2012]
Delivery timeliness	<ol style="list-style-type: none"> <li>1. The entrepreneur completed this project on schedule</li> <li>2. I received the product of this project on time</li> </ol>	Dvir et al. [2003]
Meeting specifications	<ol style="list-style-type: none"> <li>1. I think the product of this project meets the specifications defined in the crowdfunding open call</li> <li>2. I think the product of this project is a failure</li> </ol>	Dvir et al. [2003]

#### 4.2. Data Collection

We used a Web survey to collect data. We conducted the survey on Demohour ([www.demohour.com](http://www.demohour.com)), a popular reward-based crowdfunding platform in China. The respondents were sponsors of crowdfunding projects on Demohour. A survey methodology was used because the factors in the research model, including sponsor's satisfaction, hedonic value, utilitarian value, and perceived project performance, are the respondents' feelings, perceptions and beliefs. Therefore, they can only be measured through the respondents' self-reporting. Sponsor's citizenship behaviors, including feedback and advocacy, can also be measured through respondents' surveys. We first chose all the projects launched after July 2011, and completed until April 2013, the time of the data collection. After removing the completely non-profit social cause projects, which provide no tangible rewards for sponsors, from the list, 114 projects were left for the survey. For each of the 114 projects, roughly 10 sponsors were randomly selected. Finally, sponsors who received only a gift or a thank you letter as a reward were removed from the list. Thus, only the sponsors who received a product or service as a reward were included in the final list as potential respondents to answer the questionnaires.

We designed an online questionnaire for each of the 114 projects on [www.sojump.com](http://www.sojump.com), which is a popular online survey platform in China. The questionnaires used a 1-5 Likert scale where 1 denotes "strongly disagree" and 5 denotes "strongly agree". In the introduction of the questionnaire, we included the hyperlink of the project the respondents had invested in. The respondents were invited to click on the link and browse the project. In order to increase the response rate, an economic incentive was provided for every respondent to the survey: 30 Yuan RMB for recharging their mobile phones.

The survey was first drafted in English, and then translated into Chinese by one author who is proficient in both languages. The Chinese version was then translated back into English by the other authors to check for inaccuracies. Changes were made to the original versions until the authors all agreed that the items accurately reflected the intention of the measurement. The survey was pre-tested with 20 sponsors on Demohour who were not included in the final data collection. Feedback regarding the protocol of the survey and the clarity of the adapted measures was collected from these sponsors. Minor changes were made to the format of the questionnaire and the wording of a few questions.

1353 sponsors were invited to answer the questionnaires, and invitation messages (with a link to the survey) were sent to them by email. A total of 180 responses were received, for a response rate of 13.3%. After removing the incomplete or inappropriate responses, a total of 170 usable responses were included in the sample. The statistical characteristics of the sample are shown in Table 2.

Table 2: Respondents' Sample Statistics

Characteristics	Frequency	Percentage
<b>Age</b>		
15-20	14	8.2%
21-25	69	40.6%
26-30	62	36.5%
31-40	23	13.5%
41-50	1	0.6%
Missing	1	0.6%
<b>Gender</b>		
Male	102	60%
Female	67	39.4%
Missing	1	0.6%
<b>Income (Yuan RMB)</b>		
None	31	18.2%
Less than 2000	9	5.3%
2000-3000	28	16.5%
3001-5000	35	20.6%
5001-8000	34	20%
8001-15000	19	11.2%
15001-50000	11	6.5%
Missing	3	1.8%
<b>Internet experience (year)</b>		
1-2	3	1.8%
3-5	21	12.4%
6-10	63	37.1%
More than 10	83	48.8%

The 170 responses were from 90 crowdfunding projects on Demohour. The statistics of the projects are shown in Table 3.

Table 3: Descriptive Statistics of Sample Crowdfunding Projects

Characteristics	Mean	Standard deviation
Project_goal (Yuan RMB)	7239.19	8379.51
Project_pledge (Yuan RMB)	11007.29	11602.58
Project_duration (Day)	43.01	14.06
Fund_ratio	1.94	1.48
Category	Frequency	Percentage
Art design	44	48.89%
Film	14	15.56%
Food	1	1.11%
Game	2	2.22%
Humanity	5	5.56%
Music	6	6.67%
Photography	10	11.11%
Publishing	4	4.44%
Technology	4	4.44%

We also tested for nonresponse bias among individuals by comparing responses of early and late respondents [Armstrong & Overton 1977]. Early respondents were those who responded within one week. The two samples were compared on all study variables and on age, gender, education, salary, and Internet experience. All t-test comparisons between the means of the early and late respondents showed no significant differences. Therefore, we conclude that nonresponse bias was not a serious concern in this study.

#### 4.3. Data Analysis and Results

We chose the partial least squares (PLS) method for data analysis. PLS is a structural equation modeling technique that simultaneously assesses the reliability and validity of the measures of constructs and estimates the relationships among the constructs [Hair et al. 2013]. PLS employs a component-based approach for estimation and places minimal restrictions on sample size and residual distributions [Chin 1998]. In addition, PLS is considered suitable for this study because this study investigates sponsor satisfaction and values in an exploratory manner, where PLS is advised as the right approach [Gefen et al. 2011; Ringle et al. 2012]. Data were analyzed using SmartPLS 3.0. We followed the Anderson and Gerbing [1988]’s two-step approach in examining the measurement model and structural model.

##### *Measurement Model*

To validate the measurement model, construct reliability and two types of validity (convergent and discriminant) were assessed. Reliability was assessed by means of composite reliability [Fornell & Larcker, 1981]. The results in Table 4 indicate that all composite reliabilities (C.R.) exceed 0.8, above the suggested cut-off value of 0.7 [Nunnally 1978]. In addition, all of the Cronbach’s  $\alpha$  values are greater than 0.7. Thus the reliability of constructs is confirmed.

Convergent validity was assessed by examining factor loadings and average variance extracted (AVE). The threshold for factor loadings indicating satisfactory convergent validity is 0.70 [Chin 1998]. The results in Table 5 show that all of loadings were above 0.7. The AVE measures the amount of variance due to the construct in relation to the amount of variance due to measurement error. AVE greater than 0.50 indicates acceptable convergent validity of the construct [Fornell & Larcker 1981]. As shown in Table 4, all AVEs were greater than 0.50. Therefore, we conclude that the measures demonstrate adequate convergent validity.

To evaluate discriminant validity, the cross-loading matrix in Table 6 shows that each indicator loads much higher on the construct of interest than on any other factors. In addition, the square roots of average variance extracted were compared with the correlations among the latent variables [Fornell & Larcker 1981]. The results in Table 7 confirmed the discriminant validity: the square root of the average variance extracted for each construct was greater than the correlations involving the construct.



Table 4: Composite Reliability, Cronbach's  $\alpha$ , and AVE

Construct	Composite Reliability	Cronbach's $\alpha$	AVE
Satisfaction	0.934	0.893	0.824
Hedonic value	0.915	0.861	0.783
Utilitarian value	0.952	0.924	0.868
Feedback	0.900	0.851	0.693
Advocacy	0.947	0.916	0.856
Delivery timeliness	0.969	0.935	0.939
Meeting specifications	0.828	0.720	0.621

Table 5: Item Loadings

Construct	Item	Loading	Std. error	T-value
Satisfaction				
	Satisfaction_1	0.924	0.018	52.154
	Satisfaction_2	0.923	0.021	44.491
	Satisfaction_3	0.875	0.021	41.400
Hedonic value				
	Hedonic_value_1	0.891	0.023	38.266
	Hedonic_value_2	0.902	0.019	47.067
	Hedonic_value_3	0.857	0.029	29.599
Utilitarian value				
	Utility_value_1	0.922	0.016	59.446
	Utility_value_2	0.918	0.021	43.386
	Utility_value_3	0.954	0.011	88.987
Feedback				
	Feedback_1	0.885	0.028	32.165
	Feedback_2	0.883	0.025	35.685
	Feedback_3	0.732	0.051	14.330
	Feedback_4	0.815	0.037	22.122
Advocacy				
	Advocacy_1	0.918	0.022	42.688
	Advocacy_2	0.928	0.019	49.658
	Advocacy_3	0.927	0.013	70.876
Delivery timeliness				
	Timeliness_1	0.970	0.009	107.785
	Timeliness_2	0.968	0.010	100.463
Meeting specifications				
	MSpecifications_1	0.883	0.021	40.937
	MSpecifications_2	0.844	0.045	18.859

Table 6: Factor Loadings and Cross-Loadings

Items	Satisfaction	Hedonic value	Utilitarian value	Feedback	Advocacy	Delivery timeliness	Meeting specifications
Satisfaction_1	<b>0.925</b>	0.610	0.685	0.261	0.500	0.595	0.614
Satisfaction_2	<b>0.923</b>	0.567	0.695	0.252	0.490	0.486	0.605
Satisfaction_3	<b>0.875</b>	0.590	0.765	0.322	0.503	0.598	0.689
Hedonic_value_1	0.546	<b>0.894</b>	0.403	0.381	0.608	0.339	0.296
Hedonic_value_2	0.599	<b>0.902</b>	0.559	0.389	0.663	0.334	0.366
Hedonic_value_3	0.578	<b>0.859</b>	0.467	0.378	0.542	0.332	0.277
Utility_value_1	0.721	0.484	<b>0.924</b>	0.272	0.512	0.521	0.672
Utility_value_2	0.751	0.490	<b>0.916</b>	0.280	0.447	0.537	0.674
Utility_value_3	0.734	0.538	<b>0.955</b>	0.286	0.493	0.522	0.670
Feedback_1	0.317	0.409	0.323	<b>0.886</b>	0.410	0.177	0.126
Feedback_2	0.197	0.383	0.213	<b>0.883</b>	0.368	0.101	-0.007
Feedback_3	0.303	0.345	0.267	<b>0.731</b>	0.446	0.329	0.236
Feedback_4	0.194	0.279	0.173	<b>0.820</b>	0.359	0.124	-0.020
Advocacy_1	0.440	0.603	0.416	0.451	<b>0.919</b>	0.245	0.298
Advocacy_2	0.566	0.664	0.524	0.421	<b>0.928</b>	0.345	0.478
Advocacy_3	0.511	0.632	0.497	0.451	<b>0.928</b>	0.304	0.373
Timeliness_1	0.610	0.378	0.558	0.195	0.294	<b>0.970</b>	0.613
Timeliness_2	0.588	0.355	0.538	0.231	0.334	<b>0.968</b>	0.613
MSpecifications_1	0.738	0.402	0.751	0.257	0.484	0.683	<b>0.879</b>
MSpecifications_2	0.512	0.244	0.535	-0.058	0.260	0.421	<b>0.848</b>

Table 7: Inter-construct Correlations

Construct	1	2	3	4	5	6	7	8	9	10	11
Satisfaction (1)	<b>0.908</b>										
Utilitarian value (2)	0.650	<b>0.885</b>									
Utility value (3)	0.589	0.541	<b>0.932</b>								
Feedback (4)	0.308	0.432	0.300	<b>0.833</b>							
Advocacy (5)	0.549	0.685	0.519	0.476	<b>0.925</b>						
Delivery timeliness (6)	0.618	0.378	0.565	0.220	0.324	<b>0.969</b>					
Meeting specifications (7)	0.502	0.356	0.521	0.106	0.417	0.632	<b>0.788</b>				
Age (8)	-0.036	-0.060	-0.036	0.074	0.017	0.065	-0.025	n.a.			
Gender (9)	-0.024	0.017	0.008	0.198	0.021	-0.039	-0.042	0.058	n.a.		
Internet experience (10)	0.093	0.016	0.048	0.002	0.137	0.148	0.102	0.408	0.041	n.a.	
Salary (11)	0.019	-0.080	-0.014	0.099	-0.063	0.053	-0.066	0.595	0.135	0.455	n.a.

Note: square root of AVE shown on the diagonal. n.a.: single-item scale.

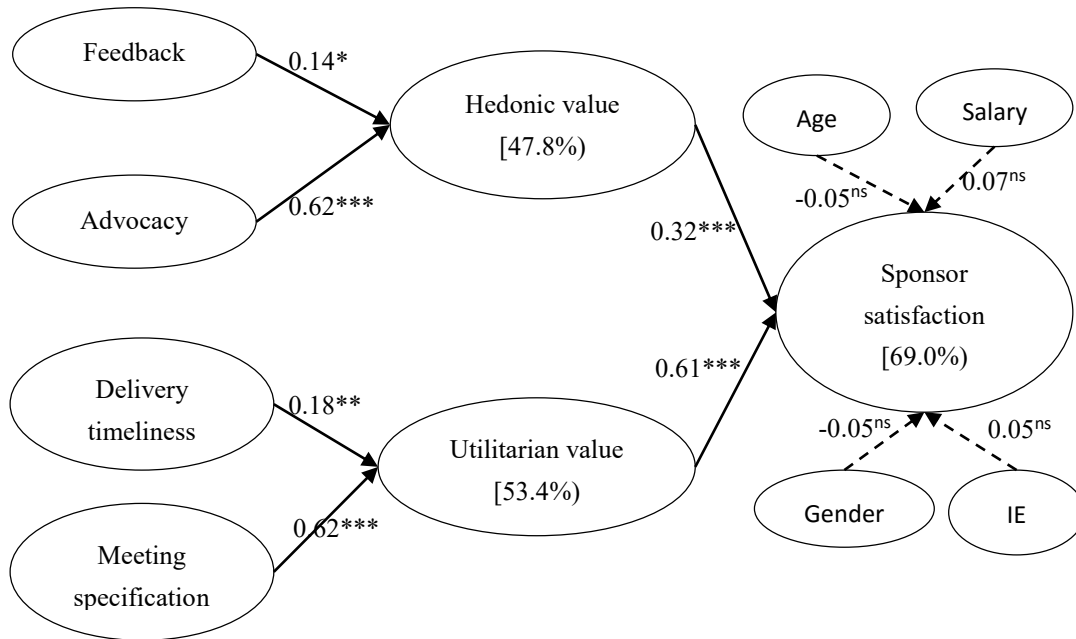
To evaluate the potential for common method bias, we first examined the correlation matrix (Table 7). All correlations are lower than 0.8, a threshold for major concerns over common method variance [Ettlie & Pavlou 2006]. Further, Harmon one-factor test in Podsakoff and Organ (1986) was used to examine CMB of the constructs in the research model. All of the constructs in the model were identified in principal component factor analysis, and the highest covariance explained by one factor is 23.2%, indicating that CMB is not a serious issue in this study.

#### Structural Model

We then tested the hypotheses with SmartPLS. The results are shown in Figure 2 and Table 8. The research model explained 69.0% of the variance in sponsor satisfaction, 47.8% of the variance in hedonic value, and 53.4% of the variance in utilitarian value. In terms of individual path, hedonic value had a significant effect on sponsor satisfaction (coefficient=0.324,  $p<0.001$ ), supporting Hypothesis 1. Utilitarian value was also a significant predictor for sponsor satisfaction (coefficient=0.610,  $p<0.001$ ). Therefore, Hypothesis 2 was supported. As for hedonic value, both feedback (coefficient=0.14,  $p<0.05$ ) and advocacy (coefficient=0.62,  $p<0.001$ ) had significant effects. Therefore, Hypothesis 3 and Hypothesis 4 were supported. Delivery timeliness was significantly related to utilitarian value (coefficient=0.178,  $p<0.01$ ), supporting Hypothesis 5. The extent the product meets the specifications had significant impact on utilitarian value (coefficient=0.615,  $p<0.001$ ), supporting Hypothesis 6.

Table 8: Hypotheses Testing

Hypothesis	Coefficient	T value	p value	Supported
H1: hedonic value-> sponsor satisfaction	0.324	4.269	0.000	Yes
H2: utilitarian value -> sponsor satisfaction	0.610	9.349	0.000	Yes
H3: feedback -> hedonic value	0.140	2.592	0.010	Yes
H4: advocacy -> hedonic value	0.620	11.472	0.000	Yes
H5: delivery timeliness ->utilitarian value	0.178	2.629	0.009	Yes
H6: meeting specifications -> utilitarian value	0.615	9.825	0.000	Yes



Notes: IE = Internet experience; \* p < 0.05; \*\* p < 0.01; \*\*\* p < 0.001.

Figure 2: Results of Hypotheses Testing

4.4. Post-hoc Analysis

To test the effects of project category and size on sponsor satisfaction, we included them as antecedents to sponsor satisfaction in the research model. The results showed that they did not affect satisfaction significantly. Then we conducted a post-hoc analysis of the moderating effect of project category, as extant research indicated that different types of projects may attract different groups of sponsors. For example, philanthropic projects may receive more funds from angelic sponsors who have relatively high philanthropic motivation and lowest reward motivation. Innovative projects are more likely to get funds from reward hunters who have highest reward motivation [Ryu & Kim 2016].

To test the effects of project category, we divide the projects in the sample into two general categories – innovative projects and philanthropic projects [Ryu & Kim 2016]. Among the 170 responses in the sample, 121 belong to innovative projects, 32 belong to philanthropic projects. Table 9 showed the distribution of projects categories.

Table 9: Project Category

Category	Sub-Category	Responses frequency
Innovative Projects	art design	85
	film	24
	music	8
	game	4
philanthropic projects	humanity	11
	food	5
	photography	16
Others		17

Innovative projects provide novel products or service like game, design, film, music, and technology tools. Prior research found that reward-based crowdfunding has been extensively used for projects with high demand for novelty. According to the Massolution report [2015], reward-based crowdfunding is most popular for projects with high demand for novelty, such as music, fashion, film and performing arts. As for crowdfunding projects, products with high novelty could provide sponsors with innovative, surprising, and delighted feelings. Philanthropic projects are the missions to pursue the general interests related to local communities, social groups or society, or food safety [Balboni et al. 2014]. In this study we coded projects on humanity, food and photography as philanthropic projects. Humanity projects are similar to non-profit projects which care about the needy or handicapped people. Food projects pay attention to the food safety. Photography projects take pictures to help local areas, elders, or to protect environment. Though the photography projects require entrepreneurs to have art and design skills, we classify them as philanthropic projects according to their main objectives. For example, one photography project described its goal as “as a photographer I will try my best to help the elders in poverty area keep some footprints of their lives. Then, their relatives could be comforted with the printed photos when the elder people passed away”.

A multi-group analysis was conducted to compare these two project categories. The results in Table 10 suggested four major points. First, hedonic value does not affect sponsor satisfaction for philanthropic projects; however its effect for innovative projects is significant. The coefficients of path between hedonic value and satisfaction were significantly different between philanthropic and innovative projects. Second, as for utilitarian value, we found that it has the most significant effect on satisfaction for philanthropic projects (coefficient = 0.732 for philanthropic vs 0.395 for innovative projects). The difference between the coefficients from utilitarian value to satisfaction was significant for innovative and philanthropic projects. Third, feedback has significant effect on hedonic value for innovative projects, however the effect is not significant for philanthropic projects. Fourth, gender only has negative effect on satisfaction for philanthropic projects, which means that compared with women men are more likely to experience lower level of satisfaction.

Table 10: Path Coefficients for Project Category

Paths in the research model	Coefficient		P Value	
	Innovative	Philanthropic	Innovative	Philanthropic
H1: Hedonic value -> Satisfaction	0.620	0.189	0.000***	0.342
H2: Utilitarian value -> Satisfaction	0.395	0.732	0.008**	0.000***
H3: Feedback -> Hedonic value	0.283	0.128	0.068*	0.446
H4: Advocacy -> Hedonic value	0.525	0.664	0.000***	0.000***
H5: Delivery timeliness -> Utilitarian value	0.058	0.235	0.546	0.203
H6: Meeting specifications -> Utilitarian value	0.734	0.640	0.000***	0.001**
Age -> Satisfaction	0.013	-0.109	0.929	0.510
Gender -> Satisfaction	0.049	-0.270	0.507	0.017*
Internet experience -> Satisfaction	-0.003	-0.002	0.860	0.888
Salary -> Satisfaction	0.033	0.227	0.660	0.252

Note: # marginal significant at level 0.1, \*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$ .

Besides project category, we also examined the effects of project fund-raising goal. The variable was coded as low, middle, and high levels. The values approximate 25 percentile and 75 percentile in the responses dataset were used as cutting points for the low, middle, and high groups. As for fund-raising goal, the cutting points are 3000 Yuan RMB and 9000 Yuan RMB respectively. We found that product delivery timeliness only affected utilitarian value significantly for projects with low fund-raising goal (coefficient = 0.288,  $p < 0.01$ ).

## 5. Discussion

Based on the survey on a Chinese crowdfunding platform, we investigated the factors influencing sponsor's satisfaction in this study. Hedonic value and utilitarian value were found to be effective predictors of sponsor satisfaction (H1 and H2). The comparison of the coefficients of hedonic value and utilitarian value (0.324 vs. 0.610) and their significance level ( $p < 0.001$  vs.  $p < 0.001$ ) indicates that utilitarian value has higher prediction power for satisfaction. These findings confirm that sponsors care about the benefits in crowdfunding projects, which is consistent with the findings of previous research that receiving a reward is an important motivation for sponsors [Gerber & Hui 2013]. These findings also indicate that the experience of fun is also important for sponsors in crowdfunding. Thus, sponsors in crowdfunding are similar to buyers in online shopping from the value perspective, who care about both

utilitarian and hedonic value [Kim et al. 2012; Kim & Han 2011]. The findings in post-hoc analysis suggested that in philanthropic projects the sponsors care more about the utilitarian value, and hedonic value does not affect their satisfaction for philanthropic projects. However, hedonic value has significant effect on sponsor satisfaction for innovative projects, showing that sponsors in innovative projects care more about the hedonic experience during the crowdfunding process.

The results indicate that sponsor's citizenship behaviors, including feedback and advocacy, can significantly increase hedonic value (H3 and H4). This is consistent with the findings in Gerber and Hui [2012] that actively participating in the projects enables the sponsors to enjoy the fun of a crowdfunding community. In crowdfunding projects, sponsors' feedback and advocacy are two types of value co-creation behavior, which are important to the success of the projects. In crowdfunding, sponsor advocacy through positive word-of-mouth can help draw more potential investors to the crowdfunding projects [Lehner 2012]. Yi and Gong [2012] proposed that advocacy is often an indicator of consumer loyalty. Entrepreneurs can also benefit greatly from the feedback from sponsors [Yi & Gong 2012]. Although previous research indicated that crowdfunding is a value co-creation process that involves the sponsors [Lehner 2012], this study for the first time empirically demonstrates the effect of value co-creation activities in crowdfunding, and reveals its linkage to sponsor's hedonic value and satisfaction. Although both feedback and advocacy are significant predictors for hedonic value, the effect of advocacy is stronger than that of feedback (0.62 vs 0.14). The different effects may be explained by the findings in the post-hoc analysis that feedback only has significant effect on hedonic value for innovative t projects.

Reward delivery timeliness is significantly correlated with sponsor utilitarian value (H5). Delivery timeliness is one important dimension of project performance [Mollick 2014]. Previous studies have also found that prompt product delivery, one dimension of service quality, is positively associated with utilitarian value in online shopping [Kim et al. 2012]. In the post-hoc analysis, we found that only in the projects which raise small amount of money the sponsors care about delivery timeliness. In the projects with large fund-raising goal, sponsors may tolerant late delivery, as we found that product delivery timeliness only affected utilitarian value significantly for projects with low fund-raising goal.

In addition to delivery timeliness, this paper introduces another measure of project performance, the extent to which the reward meets the specifications in the crowdfunding open call. The results indicate that it also significantly influences sponsor utilitarian value for all project categories (H6). This finding is consistent with Babin et al. [1994] who proposed that customers who receive the originally intended purchase goods are expected to experience a higher level of utilitarian value.

## **6. Conclusion**

### **6.1. Implications for Research**

This study makes several contributions to research. First, we investigate crowdfunding project implementation from the perspective of sponsor satisfaction. Extant research is focused on how to improve funding performance. However, issues for project implementation, such as mechanisms to reduce project risk and how to increase sponsor satisfaction, have not attracted enough attention. This study addresses this important topic by investigating sponsor satisfaction, which is an important construct in the fields of marketing and information systems, and may affect sponsor's reinvestment and future participation behavior on crowdfunding platforms. In addition, this study tested and verified the theory of value and satisfaction in the context of crowdfunding, which extended the applicability and robustness of this theory.

Second, hedonic value is included in the research model to study the benefits the sponsors receive by engaging in the crowdfunding projects. Although some previous research proposed the effect of hedonic value [Belleflamme et al. 2014], this study is the first to empirically verify the effect of hedonic value in crowdfunding. Along with utilitarian value, we found that hedonic value is also a very powerful indicator of sponsor's satisfaction. This finding confirms the proposition of Belleflamme et al. [2014] that sponsors enjoy the community benefits they experience in crowdfunding.

Third, crowdfunding implementation performance is studied from two dimensions, product delivery timeliness, and the extent to which the product meets the specification defined in the crowdfunding open call. Prior research focuses on reward delivery timeliness as the criterion for crowdfunding project success [Mollick 2014]. In this study, the product quality, the extent to which it meets the specifications, was identified as another significant factor in predicting crowdfunding utilitarian value. Thus this study provides a more comprehensive indicator for project implementation performance and a better understanding for utilitarian value in the context of reward-based crowdfunding.

Finally, this study also contributes to value co-creation research. Currently, the research on value co-creation has focused on participants' motivations and factors that enable or facilitate the co-creation process [Jang et al. 2008;

Zwass 2010]. Prior studies indicated that sponsors may participate in the project implementation and play the role of value co-creators in reward-based crowdfunding [Ordanini et al. 2011]. This paper, for the first time, empirically studied value co-creation in the crowdfunding context, and confirmed that sponsor citizenship behaviors, including feedback and advocacy, will enhance sponsor's hedonic value, which is an important predictor for satisfaction.

### 6.2. Implications for Practice

The findings of this study also provide some practical implications for crowdfunding platforms and entrepreneurs. First, crowdfunding platforms should try to improve sponsors' overall satisfaction in crowdfunding process. Currently, crowdfunding platforms and entrepreneurs exert much effort in attracting creative projects and motivating sponsors to invest in these projects to ensure that the pledges achieve funding thresholds. Little attention is paid to improving the implementation process to increase sponsor satisfaction. Accomplishment of the project on schedule to deliver the reward that meets the specifications is critical to sponsor utilitarian value. It is highly recommended that the platforms and entrepreneurs pay more attention to the project implementation process to improve the delivery timeliness and product quality. Thus, sponsors' utilitarian value and satisfaction will be increased. In addition, to promote project performance a reputation feedback system could be developed on crowdfunding platforms based on delivery timeliness and product quality. Currently, the industry practitioners assume that crowdfunding is one-off need for entrepreneurs. The crowdfunding platforms do not have reputation feedback systems to record entrepreneur performance and credibility. Implementing a reputation feedback system might be an effective means to improve the project implementation performance and to promote healthy development of the crowdfunding market.

Second, crowdfunding platform should motivate sponsors to actively participate in crowdfunding process. To further improve sponsor hedonic value, entrepreneurs should post project latest updates, and provide prompt responses to sponsors' feedback to promote sponsors' participation in the projects. In addition to the citizenship behaviors in this study, such as feedback and advocacy, other kinds of co-creation behaviors may also contribute to sponsor hedonic value. For example, the entrepreneurs could crowdsource some tasks, such as prototype design, product design, and other research and development challenges, to sponsors to take further advantage of the sponsors' ideas and initiatives. Sponsors are encouraged to participate in these kinds of crowdsourcing tasks and submit solutions to win an extra tangible reward or intangible recognition from entrepreneurs. This deeper participation by sponsors would not only increase their hedonic value, but also help the entrepreneur absorb more creative ideas from sponsors.

Finally, crowdfunding platform and founders should adopt diverse tactics for different project categories. For innovative projects, the effect of hedonic value on satisfaction is stronger. Obtaining feedback from sponsors in innovative projects is more important, as the findings suggested that feedback only has significant effect on hedonic value for this category of projects. In the projects with large fund-raising goal, sponsors may tolerant late delivery. However, entrepreneurs should keep in mind that for all kinds of projects meeting the specifications promised in the project description is one important predictor for utilitarian value and satisfaction.

### 6.3. Limitations and Future Research

There are several limitations in this study. First, the findings in this paper may be limited to reward-based crowdfunding in which the sponsors value the fun, excitement, and product from the crowdfunding project. For other kinds of crowdfunding, such as debt-based crowdfunding and equity-based crowdfunding, the financial return may be the dominant value. Future study could extend the research by studying sponsor satisfaction in other categories of crowdfunding. Second, the data were collected from Demohour, which is a crowdfunding platform in China. Cultural effects are not considered in the current study. Future studies can examine the effect of cultural differences on sponsor value and satisfaction [Rubio-Sanchez 2007]. Third, the data were collected from a single source, sponsors on Demohour, by survey. Although we examined common method bias and the results showed that bias was not a major issue, future studies should use quantitative data to actually measure sponsors' citizenship behaviors in crowdfunding projects.

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