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Summer 6-27-2016

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### Recommended Citation

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THE EFFECTS OF WEBPAGE COLOR ON LENDERS'  
DECISIONS IN ONLINE P2P LENDING: A CONSTRUAL LEVEL  
THEORY PERSPECTIVE

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**Abstract**

*In recent years, P2P (peer-to-peer) lending as the most popular innovative business model of Internet finance, has received wide attentions from government, industry, and researchers. Prior academic attention has been devoted to the investigation of factors that may affect lenders' bidding strategies. In this study, based on the construal level theory, we examine the effect of webpage color (warm vs. cool) on lenders' preference between acceptable benefit and risk when they decide to make a bid. A series of laboratory experiments are designed to test our proposed hypotheses.*

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## Abstract

*In recent years, P2P (peer-to-peer) lending as the most popular innovative business model of Internet finance, has received wide attentions from government, industry, and researchers. Prior academic attention has been devoted to the investigation of factors that may affect lenders' bidding strategies. In this study, based on the construal level theory, we examine the effect of webpage color (warm vs. cool) on lenders' preference between acceptable benefit and risk when they decide to make a bid. A series of laboratory experiments are designed to test our proposed hypotheses.*

*Keywords: Peer-to-Peer lending, construal level, webpage color.*

## 1. Introduction

The evolution of information technology in recent years has led to the development of new financial service intermediaries. One of such new financial service intermediaries which has drawn extensive attentions from both academia and practitioners is online P2P (peer-to-peer) lending (Berger and Gleisner 2009, Iyer, Khwaja et al. 2009, Bachmann, Becker et al. 2011, Chen and Han 2012). Leveraging the “wisdom of the crowd” by allowing multiple lenders to collectively fund a loan, online P2P lending is part of a large crowd-funding movement that uses the Internet to rally donors for collective funding (Burtch, Ghose et al. 2014, Liu, Brass et al. 2015). One of the key issues in understanding this innovative business model is how lenders make decision on which borrowing requests to invest (Greiner and Wang 2010, Lin, Prabhala et al. 2013). Accordingly, prior academic attention has been devoted to the investigation of factors that may affect lenders’ bidding strategies, which are also been called determinants in P2P lending (Bachmann, Becker et al. 2011). Those determinants can be divided into two kinds: hard-factors like financial characteristics and soft-factors like demographic and social characteristics (Bachmann, Becker et al. 2011). In addition to characteristics of borrowers, a few research has been conducted done to study transaction history (including borrow and lend) of a borrower (Lee and Lee 2012, Yum, Lee et al. 2012). Finally, the similarity between lenders and borrowers has been studied, which has a strong positive impact on lenders’ decision (Ravina 2007).

However, prior researches merely focus on the characteristics of borrowers and lenders, the design factors related to the intermediary platform, i.e., P2P website, have largely been ignored. The Internet and information technology make this traditional economic transaction dramatically different (Berger and Gleisner 2009, Bachmann, Becker et al. 2011). Prior literature on e-commerce website design have identified several key design features which might significantly affect users’ decision making (Griffith, Krampf et al. 2001, Palmer 2002, Teo, Oh et al. 2003, Hong and Tam 2005). One prominent factor is webpage color (Pieters, Rosbergen et al. 1997, Hong, Thong et al. 2004, Hong, Thong et al. 2004, Moore and Coulter 2013). Thus, our research question is: whether or not the web page color would affect lenders’ decisions on P2P lending platform? If so, how does this factors play roles in lending decisions in online P2P lending situation?

Building on the construal level theory, this study proposes a research model to explain how webpage color can affect lenders’ perception on a P2P lending platform. Specifically, this study seeks to find out how webpage color affects lenders’ construal levels; and how construal levels affect lenders’ decisions. We expect that warm webpage should lead to higher construal level and then affect lending decision. The contributions of this study are twofold. From academic perspective, it integrates theory from different domains to help us understand the effects of the website interface on lenders’ online P2P lending behavior. Besides, it is the first research focusing on web design factors in P2P field. From a practical perspective, the findings will have implications for designers of P2P lending website on how to best present information.

## **2. Literature Review and Theory Foundation**

### **2.1 P2P Lending**

Online P2P lending has gained wide attentions over the past few years. Extant research largely focused on identifying the economic-related such as such factors include interest rates of loan request, transaction history, etc. (Greiner and Wang 2010, Herzenstein, Sonenshein et al. 2011, Yum, Lee et al. 2012, Lin, Prabhala et al. 2013) and personal and social factors that influence funding success. For example, Herzenstein, Sonenshein et al. (2011) examined how borrowers' identity claims constructed in narratives by borrowers influence lender decisions on unsecured personal loans. Lin, Prabhala et al. (2013) suggested that online friendships of borrowers could act as signals of credit quality. Liu, Brass et al. (2015) investigated how friendships act as pipes, prisms, and herding signals in a large online P2P lending site.

To sum up, some key findings of online P2P lending have been reported. First, a large number of studies agreed that one of the most critical problems in P2P lending is information asymmetry (e.g. Yum, Lee et al. 2012, Burtch, Ghose et al. 2014). Due to the problem of information asymmetry, trust and trust building become critical issues in P2P lending (Greiner and Wang 2010, Herzenstein, Sonenshein et al. 2011). Although a burgeoning number of studies have examined how to facilitate the success of online lending, little research has been done to investigate the effect of P2P lending platform. As a third party, website can influence users in many ways such as web design. However, attention just has been devoted to borrowers and lenders. The potential effect from P2P lending website has largely been neglected.

### **2.2 Construal Level Theory**

Construal level theory (CLT) posits that psychological distance influences the way people construe or mentally represent a target object or activity (Trope and Liberman 2010). Moreover, it is also proposed that the change in construal level will affect people's prediction, evaluation, and behavior (Trope and Liberman 2010, Goodman and Malkoc 2012, Soderberg, Callahan et al. 2014).

Mental construal is considered to serve to transcend the immediate situation and represent psychologically distal objects (Trope and Liberman 2010). People construe information at different construal levels in different situations. At high construal level, people represent a target object or activity more abstractly; focus more on central aspect and weight desirability more heavily. While low-level construal level refers to concrete and specific mental representations, and weight feasibility more heavily. (Trope and Liberman 2010). For instance, when describing actions such as "eat", those at higher construal level prefer descriptions focusing on "why" aspect (e.g., "fill a hungry stomach") whereas those at a lower construal level prefer to focus on "how" aspect (e.g., "have noodles but rice"). (Trope and Liberman 2010, Aggarwal and Min 2015)

According to CLT, a key determinant of construal level is the psychological distance of the event from the person's current state. With the increase of psychological distance, the level of construal becomes higher. There are four dimensions of psychological distance: temporal (near future vs. distant future), spatial (here vs. there), social (self vs. others), and probability (likely vs. unlikely) (Liberman and Förster 2009, Trope and Liberman 2010, Soderberg, Callahan et al. 2014), which means events

that are temporally proximal, geographically nearby, relating to someone socially close, and probabilistically more likely all lead to a lower level of construal.

CLT have been applied to study decision making process in IS (Ho, Ke et al. 2015, Kankanhalli 2015) and marketing fields (Hansen, Kutzner et al. 2013, Baskin, Wakslak et al. 2014, Hyojin, Xiaoyan et al. 2014, Lee and Min 2014, Aggarwal and Min 2015, Hernandez, Wright et al. 2015). Some external variables may influence construal level and thus have a host of downstream consequences. For example, in product choice, people prefer products high in desirability (e.g., software with great features despite difficulty of use) at a high construal level but prefer products high in feasibility (e.g., easy-to-use software with only basic features) at a low construal level. Aggarwal propose that differences in consumers' perceptions of height can affect their mental construal and their subsequent product decisions (Aggarwal and Min 2015). The authors confirm in five studies that consumers who perceive themselves to be actually or mere conceptually physical high are more likely to adopt higher construal level. Steidle research the interplay between darkness, construal level (Steidle, Werth et al. 2015).

### **3. Research Model and Hypotheses Development**

This research centers on the idea that webpage color of P2P lending website will affect lenders' construal level, which then affect lenders' investment decisions. We include two factors to measure lenders' decisions: average acceptable benefits and average acceptable risk of the borrowing requests which lenders decide to invest. Lenders may decide to invest in several borrowing request to create a portfolio, the average acceptable benefits and risk will be calculated based on a lender's selected borrowing requests.

#### **3.1 Effect of Construal Level on Lenders' Decisions**

According to the expectancy value theory, an individual's behaviors are dependent on subjective value evaluation of outcomes and the expectancy to succeed in performing the behavior and achieving outcomes (Fishbein and Ajzen 1975, Eccles 1983). In P2P lending website, lenders invest in certain borrowing requests for expectancy of monetary return and bear the risk of failure of repayment. The perceived benefits of investing in a specific borrowing request is directly related to loan interest rate, which is about a lender's benefit of a lending behavior. The effect of loan interest rate on the likelihood of successful funding has been reported in several P2P lending research (e.g. Greiner and Wang 2010, Herzenstein, Dholakia et al. 2011, Lee and Lee 2012). At the same time, lenders evaluate risk levels associated with a certain borrowing request based on information of the borrowing request and the borrower. Perceived risk is an integrate cognition of a large set of information. Prior P2P lending research have identified a set of risk related variables which might affect lenders' decisions. (Galak, Small et al. 2011) (Herzenstein, Sonenshein et al. 2011).

According to construal level theory, the way people construe or mentally represent a target object or activity would affect an individual's decision and choice (Trope and Liberman 2010). When at a high construal level, people would prefer choice options which are high in desirability. In online P2P lending, benefits of a borrowing request is related to desirability and risk level is associated with the feasibility. Accordingly, we conjecture that when a higher construal level would lead to more attention

on the perceived benefits of a loan, whereas a lower construal level would result in more attention on the risk. Therefore, we propose that:

**H1a:** when lenders are at a high construal level, the acceptable benefit level of selected loans will be greater than when they are at a low construal level.

**H1b:** when lenders are at a high construal level, the acceptable risk level of selected loans will be smaller than when they are at a low construal level.

### 3.2 Effect of Web Page Color on Construal Level

Color of webpage impacts users on psychology (Pieters, Rosbergen et al. 1997, Hong and Tam 2005). There are three dimensions of color: hue, chroma, and value, which combine to determine the color visual effect (Gorn and Tripathi 2004). In this study, we focus on hue and compare two kinds of color combinations: warm color and cool color (Holtzschue 2011), which is determined by its wavelength. Cool colors are associated with short wavelengths while warm colors referring to long wavelengths (Yildirim, Akalin-Baskaya et al. 2007). According to the psychology literature, warm colors tend to elicit more arousal (Birren and Faber 1983, Moore and Coulter 2013) and generate less relaxation and pleasure than cool colors (Guilford and Pc. 1959, Jacobs and Suess 1975, Moore and Coulter 2013). Long wavelength colors called warm colors, such as red, orange and yellow. On the contrast, short wavelength colors refer to cool colors like blue and green (Smets 1969). Figure 1 & 2 present examples of two different color combinations in P2P lending websites.



Figure 1. Cool Webpage Color



Figure 2. Warm Webpage Color

Prior research suggested that blue will lead people perceive things farther away whereas red makes people feel things nearer (Canter 1974), which is related to temporal dimension of people's psychological distance (Lieberman and Förster 2009, Trope and Liberman 2010, Soderberg, Callahan et al. 2014). Given this association, we propose that cool colors like blue is linked to higher construal level than warm colors like red.

In addition, empirical results from several psychology research shows that warm colors (e.g., red) elicits more excitement whereas cool colors (e.g., blue) elicits more relaxation (Jacobs and Hustmyer 1974, Jacobs and Suess 1975, Gorn and Dahl 1997). When a person is in a state of relaxation perceived time seems to pass quickly while slowly in tension state (Gorn and Tripathi 2004). With shorter limited perceived time, people usually focus more on global features. Based on the construal level theory, we proposed that:

**H2:** the lender's construal level is higher when the P2P lending platform is using warm color compared to cool color.

#### 4. Research Methods

A series of laboratory experiments have been designed to test our hypotheses. The empirical design of this study comprised two phases: a pre-test and a series of main experiments. The purpose of the pre-test is to obtain the average perceived benefits and risk for each loans from independent judges.

In the main experiments, laboratory experiments was employed to test the effect of construal level on lenders' decisions and the effects from display format and web page color on construal level.

**Pre-test:** To enhance the realism and generalizability of findings, we copy real loan information from a large China P2P website (www. Ppdai.com), one of the largest P2P lending platforms in China and select 15 loans randomly for experiment purpose. Thirty (30) undergraduate students were recruited from a major university in China for the pre-test. All loan information was listed in a questionnaire. To avoid the potential order effect, the order of loans was counterbalanced. Participants



worked as independent judges to rate the perceived benefits and perceived risk in a 100-point scale. Participants' ratings were averaged to form the average perceived benefits and risk. We will calculate the correlation between perceived benefits and risk. The Cronbach's alpha of participants' ratings will be calculated too to test the agreement across judges.

**Experiment 1:** In Experiment 1, we demonstrate the association between warm color versus cool color and high-level versus low-level construal, respectively. We manipulate webpage color by asking participants view a series of pictures with warm or cool color. To measure perceptual construal level with global versus local processing, we use the classic Navon letter-identification task used in prior research (Navon 1977, Liberman and Förster 2009, Aggarwal and Min 2015). In this task, participants are presented with a series of single large letters that consisted of numerous small letters. They are then asked to identify, as quickly as possible, a target letter (e.g., H) that appeared either at the global level (e.g., a big H composed of small Fs) or at the local level (e.g., a big F composed of small Hs).

**Experiment 2:** 50 undergraduates will be recruited in a major university. They will participate in the experiment as lenders and randomly assigned to two groups. To manipulate construal level, we induced the tendency to construe objects in high-level versus low-level terms using procedural mind-set procedures. The category versus exemplar procedural mind-set manipulation of construal level presented participants with 30 words, such as actor, beer, book, and candy. Those in a high-level construal condition were instructed to generate superordinate category labels for each word by answering the question: an ACTOR is an example of \_\_\_\_\_. Those in low-level construal condition were instructed to generate subordinate exemplars for each word by answering the question: an example of an ACTOR is \_\_\_\_\_. We then provide 15 loan information to each participant. Each Participant is primed with 10000 RMB and he (she) can bid any of 10 loans by distributing their money freely. We will take records of their decisions.

**Experiment 3:** In experiment 3, we test our hypotheses on a test simulated website which link to our test database. We aim to simulate a real lending process on a P2P lending website of lenders. Another 50 undergraduates will be recruited for this experiment. Participants will be divided into two groups randomly. Participants in each group were presented 15 loans in one page via test simulated website and each participant operated as lenders owning 10,000 RMB. Two groups are showed with warm color website and cool color website respectively, then lenders could choose any loans to lend money freely.

## 5. Conclusion

The study add to the nascent empirical research on P2P lending. Instead of investigating lenders' investment strategies, we address this issue by examining the effect of webpage color, on lenders' decisions. Specifically, building on the construal level theory, we propose that the lender's construal level could affect their decisions and their construal level might be affected by information display format and web page color.

From academic perspective, this study would provide some evidences that webpage color of P2P lending platform will influence lenders' preference between acceptable perceived benefit and risk. From a practical perspective, there are some important implications in the findings for web design of P2P lending platform.

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