# Understanding User's Continuous Use of Financial Technology Products

Wanchao Liu[a], Huosong Xia[b], Jian Mou[c,*]

[a] Postgraduate Student, School of Management, Wuhan Textile University, China
[b] Professor, School of Management, Wuhan Textile University, China
[c] Associate Professor, School of Business, Pusan National University, Korea

**A B S T R A C T**

Online financial technology products are an important consumer finance innovation. While a large body of previous research has focused on initial adoption and consumer willingness to use these products, little research explores the continued use of these products beyond the initial adoption phase. In particular, special attention should be paid to how users' trust and perceptions of privacy and security affect continued use behavior. This paper integrates the expectation confirmation model of information system continuance (ECM-ISC), the information system success model (ISSM) and the security and trust literatures to investigate continued use of online financial technology. To test the research model, we collected 398 valid questionnaires from Ant Credit Pay users. The research results show that system and service quality positively impact users' expectation confirmation, while information quality has no significant impact. Expectation confirmation and perceived usefulness positively affect user satisfaction. Moreover, the user's perception of privacy and security plays a vital role in user satisfaction. Satisfaction and perceived trust jointly promote users' continuance behaviors. Findings of this study indicates the importance of the information system success factors and security factors due to their influence on the continued use of Fintech products. This conclusion has implications for enterprises in improving the product qualities and enhancing the degree of security to meet user needs.

*Keywords:* Ant Credit Pay, Consumer Credit, Privacy, Trust, IS Success Model, Continuous Use

## Ⅰ. Introductions

Financial technology (Fintech) developments empowered by big data, the Internet, and artificial intelligence have revolutionized the traditional consumer credit business. Consumers from low- and middle-income groups are taking advantage of new Fintech platforms to benefit from availability of credit and reduced borrowing costs (Allen et al., 2002). As a form of financial technology innovation, Internet consumer credit promotes more 'inclusive finance' and stimulates users' consumption motivation, which

can accelerate economic growth and transformation (Xie et al., 2019). Therefore, research on Internet consumer credit has important theoretical significance and practical value.

Ant Credit Pay is an internet consumer credit product launched by Alibaba Group. Relying on Alipay, Taobao, and other e-commerce platforms, it has gained a large group of users, accumulated a large amount of user data, and occupied the leading share of the internet consumption credit market. In this context, researching Ant Credit Pay's user behavior has broader significance for the entire Internet consumption credit industry looking to attract more loyal consumers and achieve long-term economic growth.

Information systems (IS) scholars have paid increasing attention to this topic. For instance, Zhu et al. (2021) investigated users' perceptions of consumer credit products, which provided useful insights into the link between Internet use and credit consumption. Some scholars (e.g., Jia et al., 2018) focused on the perspective of attractive promotional activities initiated by electronic consumer credit service providers and tested the impact of these services on consumer credit consumption. These studies focused more on the impact of external variables of consumer credit products on users' behavior. In the field of financial industry, Baabdullah et al. (2019) studied the use of mobile banking in Saudi Arabia based on UTAUT2 and IS Success Model, while Lin et al. (2020) attempted to integrate the technology acceptance model and ISSM to study mobile banking travel insurance purchase behavior. Yet, little work has focused on continued use of online financial technologies by consumers.

This study aims to integrate the expectation confirmation model of information system continuance (ECM-ISC) and the information system success model (ISSM) to investigate user's continued use of financial technology products. In addition, scholars have found that security and trust perceptions have a significant impact on the use of credit products (Madden et al., 2017; Shaw and Sergueeva, 2019). Therefore, we also considered the impacts of these perceptions in this study. The ECM-ISC model considers the continuous use of the information system by users. The ISSM addresses three characteristics of the Ant Credit Pay system: information quality, system quality, and service quality. We analyzed each factor's effect on user continuance behavior, which provides a specific reference and guidance for improving and optimizing the success of Internet consumer credit products.

# Ⅱ. Theoretical Perspective and Literature Review

Internet consumer credit is an emerging information system supported by big data, the Internet, and other information technologies. Therefore, the theories from IS field can be applied to study Internet consumer credit. If Internet consumer credit products want to obtain long-term success, user continuance beyond initial adoption is the most important issue. Therefore, in this study, we considered the ECM-ISC model. Previous studies demonstrated good explanatory power in explaining user's continuous usage behavior. Additionally, this study also adopted the ISSM as an essential supplement theory.

## 2.1. ECM-ISC Model

In previous research on information systems, scholars used the TAM to study user initial adoption or acceptance of an information system (e.g.,

Mohammadi, 2015). Bhattacherjee (2001) pointed out that users' continued use of the information system beyond initial adoption was however more important to whether the system became successful or not. By integrating the factors from the technology acceptance model, Bhattacherjee (2001) developed a post-adoption model based on expectation-confirmation theory (Oliver, 1980). Central to the model are the constructs of perceived usefulness, expectation confirmation and user satisfaction. Perceived usefulness is derived from TAM and defined as a user believes that using a service or system would enhance his/her performance or effectiveness. Expectation confirmation is defined as the extent to which a user perceives that his/her initial expectations are being confirmed during actual use (Bhattacherjee, 2001). The model considers that:

- The user's expectation confirmation directly impacts perceived usefulness and satisfaction.
- Perceived usefulness of users has a direct impact on their satisfaction and continuance behavior.
- In turn, user satisfaction directly impacts continuance behavior.

Furthermore, Bhattacherjee (2008) added variables namely IT self-efficacy and convenience conditions to develop the ECM-ISC. Lin et al. (2017) studied users' continuous use of group-buying apps based on the ECM-ISC theory. They found that improving users' expectation confirmation and satisfaction will significantly affect users' continuous use behavior. In addition, Yu et al. (2019) combined the ECM-ISC and TAM models to compare users' continuous use of WeChat and Alipay for payment service and found that perceived ease of use plays different roles in both services. Ant Credit Pay is a service that relies on Alipay. However, Ant Credit Pay has been consid-

ered a separate information system (Mu and Lee, 2017) in previous studies because of its characteristics. Therefore, we study Ant Credit Pay as an independent information system to explore the factors that may influence its continuous use.

## 2.2. IS Success Model

DeLone and McLean (1992) proposed the Information System Success Model (ISSM). The theory considers that the system quality and information quality of the information system may affect user satisfaction and willingness to use and further impact users and organizations. With the continuous innovation of information systems, DeLone and McLean (2004) improved the model to help better meet enterprises' and users' needs by adding service quality as an additional factor. This model is widely used to study the success of information systems. In addition, DeLone and McLean (2004) pointed out that the improved model is only an extensive research framework, and different variables need to be developed based on actual problems. Lin et al. (2019) integrated the ISSM and the UTAUT to study mobile payment systems' continuous use in both China and South Korea population. The results showed that the information quality, system quality, and service quality of the mobile payment system positively affected user satisfaction, thereby affecting user continuance behaviors. Moreover, trust has been studied as an important factor in studying online human behavior. For instance, Sharma (2019) found that both service quality and trust are key factors that affect user satisfaction and continued use of mobile electronic banking services.

## 2.3. Privacy Concern and Privacy Security

Online privacy concerns arise due to risks associated with the collection of personal information by services on Internet (Xu and Bélanger, 2013). With the widespread use of enterprise platforms and mobile application services, online privacy concerns have received increasing attention. Privacy concerns are likely to be especially heightened for services such as Internet consumer finance and online consumer credit. When using such services, users need to submit their identity information, telecommunication information, bank account details, and other personal information for registration. Users' perception of how their private information was being protected would affect their decision on continued usage of such services. Prior empirical studies have supported perceived privacy security as positively impacting continued use of a mobile Fintech payment service (Lim et al., 2019).

## Ⅲ. Research Hypothesis and Model

Based on the information system success model and the expectation confirmation model of in-

formation system continuance, we aimed to suggest an expanded research model as shown in <Figure 1>. The model retains the three most critical variables of the ISSM model: information quality, system quality, and service quality as determinants of expectation confirmation. Furthermore, the perceived privacy security variable is given its importance in the online payment environment as a determinant of user satisfaction. The constructs of self-efficacy and trust have also been included in our model.

Information quality is reflected in the relevance, accuracy, timeliness, and adequacy of the system's information output (DeLone and McLean, 2004). Information quality plays a vital role in decision making and is a crucial factor affecting a user's attitudes toward the information systems and technologies they use (Akter et al., 2013). Koo et al. (2001) found that the quality of information significantly enhanced the user's expectation confirmation in the study of electronic health users using the Korean National Cancer Information System. In addition, Roca et al. (2006) researched e-learning services based on expectancy disconfirmation theory. They found that when users' perception of the system's information quality is higher than initial expectation, their expectation confirmation level will also increase. It is thus
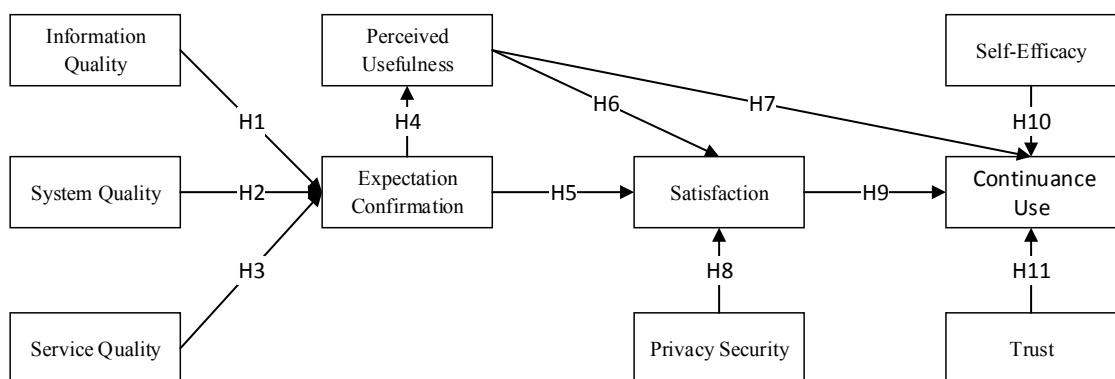


<Figure 1> Research Model

expected that in the use of Ant Credit Pay, the quality of the system's information will also affect the user's experience. When the system can provide high-quality information, it will increase the user's expectation confirmation.

*H1: Ant Credit Pay's information quality positively affects the user's expectation confirmation.*

System quality focuses on the quality of interaction between the information system and users and reflected in the stability, reliability, convenience, accessibility, and adaptability of the information system (DeLone and McLean, 2004; Urbach et al., 2010). Nam and Seong (2020) studied users' communication behavior through social network services provided by financial institutions and found that the reliability and system quality of social network systems significantly impacts on users' expectations and satisfaction. Elsewhere, Cheng (2014) showed system quality significantly impacted the users' perceived usefulness and expectation confirmation of a hybrid e-learning system. Ant Credit Pay's system's quality lies in whether the user had a good interactive experience and could reliably and efficiency use the system and maintain stability during usage. This experience of system quality should positively impact the user's expectation confirmation. Therefore, we propose the following hypothesis:

*H2: Ant Credit Pay's system quality positively affects the user's expectation confirmation.*

DeLone and McLean (2004) incorporated service quality into the revised information system success model, defining it as the availability and responsiveness of support provided to users of a system. When users' perception of service quality improves, their

attitudes toward the information system will also improve, which can subsequently lead to better user satisfaction (Lien et al., 2017). Yang et al. (2017) found that service quality is positively correlated with continued use in the context of online courses. Service quality is thus a reasonable expectation of users in multiple online contexts (DeLone and McLean, 2004). If Ant Credit Pay users have obtained personalized services supplemented with instructions, users' expectation confirmation will increase. Based on this, we propose the following hypotheses:

*H3: Ant Credit Pay's service quality positively affects the user's expectation confirmation.*

Oliver (1980) pointed out that the degree of expectation confirmation results from a comparison by the consumers between their before- and after-purchase perceptions of the product or service. The result of this comparison affects the subsequent use or purchase behavior. Bhattacherjee (2001) introduced the expectation confirmation concepts in the IS field to compare the user's expectations before and after using an information system. When the user's expectations are confirmed, the user's perceived usefulness increases, resulting in a higher degree of satisfaction, leading the user to continue to use that information system. Various studies support this. For example, Cheng (2018) found that users' satisfaction with a system is improved when the revenue obtained from a cloud computing system services is better than expected. In Wu and Huang (2015)'s research on users' online shopping behavior, the degree of expectation confirmation was found to positively affect users' perceived usefulness for shopping websites. In addition, Rai et al. (2002) found that when user expectations were well met, their perceived usefulness of the system also improved. Thus a user's expect-

ations inform subsequent perceptions of usefulness. We can therefore theorize that users will have certain anticipated expectations before using Ant Credit Pay, in terms of benefits and user experiences. If the quality of actual user experience exceeds expectations, user satisfaction will be improved, and the system's usefulness perceptions will also increase. Therefore, the following hypotheses are proposed:

H4: *The user's expectation confirmation of using Ant Credit Pay positively affects perceived usefulness.*

H5: *The user's expectation confirmation of using Ant Credit Pay positively affects satisfaction.*

Perceived usefulness is included in TAM to study the user's initial acceptance or adoption behavior of an information system (Davis, 1989). It was later also considered an essential variable to study the continued use of information systems by its users. Perceived usefulness is a subjective cognitive belief of users about information systems, affecting users' personal experience during or after use (Bhattacherjee, 2001). Oghuma et al. (2016) found that if users obtain greater convenience when using mobile instant messaging (MIM), then users' perceived usefulness of MIM will be stronger. As user satisfaction increases, the willingness of users to continue to use MIM will also increase. Wang et al. (2016) empirically examined the effects of usefulness on continuous use of Sina Weibo. Kim et al. (2016) found that users' perceived usefulness of smartphone VR applications positively affects user satisfaction and further affects users' willingness to continue usage of the applications. Lin and Wang (2012) researched the premise of the continuous intention of adopting e-learning systems in blended learning teaching and found that perceived usefulness and system satisfaction have significant impacts on continuance

intentions. Based on the above, this article proposes the following hypothesis:

H6: *Perceived usefulness positively affects users' satisfaction with Ant Credit Pay.*

H7: *Perceived usefulness positively affects users' continuous use of Ant Credit Pay.*

Privacy security is of great concern to people who engage with financial services, including credit consumption. In traditional financial services, the user's personal information is submitted to central banks or services under central regulatory oversight. As a regulated stable financial entity, traditional banks may be perceived to offer provide sufficient protection for customers' privacy (Liao et al., 2016). With significant data development, the rapid flow and aggregation of data have formed a new big data environment. The Internet consumer credit model gradually replaces traditional credit card consumption. Financial companies can provide users with more professional and personalized services by collecting, transforming, and analyzing massive amounts of user information. However, on the Internet, there are many risks to consumer privacy. The Internet consumer credit companies handles the privacy information of users, which weakened the central control modeled by traditional bank centers. Given the lack of relevant regulations, financial companies may use users' private information for other purposes or leak users' privacy, causing losses to users' property. Lim et al. (2019) studied users' continuous use of mobile financial technology payment services and found that users' perception of privacy and security affects users' satisfaction with the payment system. PricewaterhouseCoopers (2014) reports that the user's perception of lack of privacy and security will reduce user satisfaction and cause users to become

dissatisfied with these technologies. Users need to register and upload their personal information when using Ant Credit Pay. The user's perception of security and how their personal data has been managed and secured will impact their ongoing satisfaction with using Ant Credit Pay. Therefore, this article proposes the following hypothesis:

*H8: User perception of privacy and security positively affects the user's satisfaction with using Ant Credit Pay.*

Satisfaction is the subjective feelings of users after the experience of a specific target service or product (Kim, 2012). Many studies have examined that user satisfaction has a significant positive effect on users' continuous use behavior (Bhattacherjee, 2001; Oliver, 1980). Joo et al. (2018) verified that students' satisfaction in using K-MOOCs positively affects continuous use behavior. In addition, Shang and Wu (2017) verified that user satisfaction positively affects users' continuous use behavior through research on consumers' online mobile shopping behavior. After using Ant Credit Pay, users will have positive emotions based on their experience, which will impact the user's continued use. Therefore, this article proposes the following hypothesis:

*H9: User satisfaction positively affects Ant Credit Pay's continuous use behavior.*

Bandura (1977) proposed the self-efficacy variable in social cognitive theory, which refers to the degree of confidence that an individual can rely on his ability to complete a task or work. The higher is the individual's self-efficacy, the stronger the willingness to complete the task. In information systems, self-efficacy refers to users' self-belief that they can independently use the information system or use it to complete a specific task (Alruwaie et al., 2020). Bhattacherjee (2008) proposed that self-efficacy positively affects users' continuous IT use intentions. Huang and Ren (2020) found that users' self-efficacy is positively correlated with users' continued use behavior when using mobile fitness applications. When using Ant Credit Pay, users will evaluate whether they can use the system independently. We believe that self-efficacy will impact the continued use of Ant Credit Pay behavior. Therefore, this paper proposes the following hypothesis:

*H10: Self-efficacy positively affects users' continuous use of Ant Credit Pay.*

Perceived trust is perceptions of a product or service in an online environment (Zhou, 2013). Many studies have examined perceived trust to be an essential factor in adopting new information technologies (Kumar et al., 2018; Susanto et al., 2016; Zhao and Bacao, 2020). A study on smart tourism found that users' perceived trust in the system is positively correlated with their willingness to continue using it (Masri et al., 2020). Chen et al. (2018) studied mobile medical applications in the Chinese market and found that perceived usefulness and perceived trust positively affect the users' continued use behavior. When using Ant Credit Pay, users will comprehensively perceive their trust in Ant Credit Pay based on the judgment of the system. Therefore, this article proposes the following hypothesis:

*H11: Perceived trust positively affects users' continuous use of Ant Credit Pay.*

# Ⅳ. Research Design

## 4.1. Questionnaire Design and Variable Measurements

This article used a survey to obtain data. Most measurement scales were adapted from the existing research. By considering Ant Credit Pay's characteristics, the measurement items were modified appropriately. The questionnaire is divided into two parts. The first part included the questions about participants' background information such as respondent's gender, age, education, and the second part included 32 Likert's 5-point scale items, in which "1" represents "strongly disagree" and "5" represents "strongly agree." Before the actual data collection, 40 users participated in the pilot survey. Then, the questionnaire was modified appropriately according

<Table 1> Variables and Measurement Items

| Variable | Measurement Item | Supporting Literature: |
|---|---|---|
| Information Quality (IQ) | IQ1: The information provided by Ant Credit Pay is accurate<br>IQ2: The information provided by Ant Credit Pay is up to date<br>IQ3: The information provided by Ant Credit Pay is easy to understand | DeLone and McLean (2004); Sharma (2019) |
| System Quality (SSQ) | SSQ1: Credit Pay has strong adaptability to mobile phones and mobile terminals<br>SSQ2: Ant Credit Pay interface is simple and easy to operate<br>SSQ3: Clear navigation of the Ant Credit Pay application<br>SSQ4: Ant Credit Pay has good application stability | DeLone and McLean (2004); Zhao et al. (2015) |
| Service Quality (SVQ) | SVQ1: Ant Credit Pay can be used in multiple life scenarios<br>SVQ2: Ant Credit Pay does not require high interest for repayment before the repayment date<br>SVQ3: Ant Credit Pay can provide personalized services based on sesame credit score | DeLone and McLean (2004); Ofori et al. (2017) |
| Expectation Confirmation (EC) | EC1: The experience of using Ant Credit Pay is better than expectation<br>EC2: The convenience of using Ant Credit Pay is better than the expectation<br>EC3: Using Ant Credit Pay to satisfy my intertemporal consumption is better than expectation<br>EC4: Generally speaking, my expectations of Ant Credit Pay have been met after use | Bhattacherjee (2001) |
| Perceived Usefulness (PU) | PU1: Using Ant Credit Pay can relieve my short-term financial pressure<br>PU2: Using Ant Credit Pay can satisfy my daily consumption<br>PU3: Ant Credit Pay is more convenient than traditional credit card consumption | Bhattacherjee (2001) ; Singh et al. (2020) ; Jia et al. (2018) |
| Satisfaction (SAT) | SAT1: I think using Ant Credit Pay is a wise decision<br>SAT2: I am satisfied with the credit service provided by Ant Credit Pay<br>SAT3: The process of using Ant Credit Pay makes me feel happy | Bhattacherjee (2001) |
| Privacy Security (PS) | PS1: I think it is safe to submit personal information to Ant Credit Pay<br>PS2: I think Ant Credit Pay will not reveal personal privacy<br>PS3: I am not worried about the security of financial transactions on the Internet | Johnson et al. (2018) |

<Table 1> Variables and Measurement Items (Cont.)

| Variable | Measurement Item | Supporting Literature: |
|---|---|---|
| Self-Efficacy (SE) | SE1: I can use Ant Credit Pay independently without guidance<br>SE2: I believe I can complete the repayment before the repayment date<br>SE3: Ant Credit Pay helps to solve the financial difficulties encountered in my life | Bhattacherjee (2008); Sevillano-Garcia (2015) |
| Trust (TRU) | TRU1: I believe Alipay can provide enough credit endorsement for Ant Credit Pay<br>TRU2: I believe Ant Credit Pay can provide me with professional services<br>TRU3: I believe my friends around recommended me to use Ant Credit Pay | Beldad and Hegner (2018); Yen (2015) |
| Continuance Use (CU) | CU1: I plan to continue using Ant Credit Pay<br>CU2: I will increase the frequency of using Ant Credit Pay<br>CU3: I would recommend Ant Credit Pay to friends around me | Bhattacherjee (2001); Liébana-Cabanillas et al. (2017) |

to the pilot results. As shown in <Table 1>, there are 10 variables and 32 measurement items.

## 4.2. Data Collection

We collected the survey data using both online and offline channels. We created the questionnaire using a professional survey platform in China, and then we promoted it through WeChat Moments, Qzone, and Weibo social media platforms. In addition, paper-based questionnaires were also distributed. A total of 651 questionnaires were collected through the two different channels. The questionnaires with missing values were dropped for data analysis. The total of 398 valid questionnaires from existing Ant Credit Pay users were finally obtained, meeting the requirement that the sample size is at least 10 times larger than the number of variables (10) (Chin, 1998). The descriptive statistics of the respondent information are shown in <Table 2>.

A descriptive statistical analysis of the accepted and dropped questionnaires has been investigated. In the accepted questionnaires, women (211 people) accounted for approximately 53%, and men (187

people) accounted for approximately 47%. In the dropped questionnaires, women (52 people) accounted for approximately 40%, and men (80 people) accounted for approximately 60%. This phenomenon may be because the men under investigation have insufficient patience compared with women. In addition, in the accepted questionnaires, students (197 people) accounted for approximately 49%, and other occupations (201 people) accounted for approximately 51%. Students (54 people) accounted for approximately 41% of the dropped questionnaires, and other occupations (78 people) accounted for approximately 59%. The possible reason for this needs further investigation.

## V. Data Analysis

### 5.1. Reliability and Validity Tests

The questionnaire data were tested using SPSS 24.0 for Cronbach's $a$ to verify all dimensions' internal consistency. If Cronbach's $a$ coefficients are all greater than 0.7, it can be considered that all latent variables

<Table 2> Descriptive Statistics of Respondents

| Basic Information | Item | Quantity | Percentage |
|---|---|---|---|
| Gender | Male | 187 | 47.0% |
| | Female | 211 | 53.0% |
| Age | Under 18 | 4 | 1.0% |
| | 18-24 Years Old | 247 | 62.1% |
| | 25-35 Years Old | 105 | 26.4% |
| | 36-50 Years Old | 36 | 9.0% |
| | Over 50 Years Old | 6 | 1.5% |
| Highest Education | High School and Below | 25 | 6.3% |
| | Junior College | 51 | 12.8% |
| | Undergraduate | 182 | 45.7% |
| | Master's Degree | 137 | 34.4% |
| | Ph.D. and Above | 3 | 0.8% |
| Profession | Student | 197 | 49.5% |
| | Corporate Employees | 80 | 20.1% |
| | Institutions or Civil Servants | 65 | 16.3% |
| | Self-Employed Persons | 29 | 7.3% |
| | Other | 27 | 6.8% |
| Basic Living Expenses | Below 800 | 12 | 3.0% |
| | 800-1000 | 42 | 10.6% |
| | 1000-1500 | 151 | 37.9% |
| | 1500-2500 | 124 | 31.2% |
| | Above 2500 | 69 | 17.3% |
| The Length of Time to Use Ant Credit Pay | Within 1 Year | 61 | 15.3% |
| | 1-2 Years | 74 | 18.6% |
| | 2-3 Years | 105 | 26.4% |
| | Over 3 Years | 158 | 39.7% |
| Frequency of Using Ant Credit Pay | Once Within 1 Month and Below | 90 | 22.6% |
| | 2-3 Times In 1 Month | 92 | 23.1% |
| | 4-5 Times In 1 Month | 49 | 12.3% |
| | 5 Times or More in 1 Month | 167 | 42.0% |

have a high level of reliability (Nunally, 1978). After calculation, the Cronbach's $a$ coefficients of all latent variables are over 0.799. The specific values are shown in <Table 3>, indicating that the scale has good reliability.

To further test the questionnaire's reliability and validity, we used AMOS 21.0 to perform a confirmatory factor analysis on the inputted SPSS data. The calculation results show that the standardized factor loadings of all measurement items are higher

<Table 3> Reliability, Validity Index, and Calculation Results

| Variable | Measurement Item | Standard Factor Loading | Cronbach's $a$ | AVE | CR |
|---|---|---|---|---|---|
| Information Quality (IQ) | IQ1 | 0.797 | 0.827 | 0.617 | 0.828 |
| | IQ2 | 0.799 | | | |
| | IQ3 | 0.759 | | | |
| System Quality (SSQ) | SSQ1 | 0.860 | 0.900 | 0.693 | 0.900 |
| | SSQ2 | 0.832 | | | |
| | SSQ3 | 0.820 | | | |
| | SSQ4 | 0.817 | | | |
| Service Quality (SVQ) | SVQ1 | 0.833 | 0.826 | 0.630 | 0.835 |
| | SVQ2 | 0.693 | | | |
| | SVQ3 | 0.846 | | | |
| Expectation Confirmation (EC) | EC1 | 0.780 | 0.822 | 0.537 | 0.822 |
| | EC2 | 0.749 | | | |
| | EC3 | 0.717 | | | |
| | EC4 | 0.682 | | | |
| Perceived Usefulness (PU) | PU1 | 0.834 | 0.883 | 0.716 | 0.883 |
| | PU2 | 0.857 | | | |
| | PU3 | 0.847 | | | |
| Satisfaction (SAT) | SAT1 | 0.796 | 0.839 | 0.640 | 0.842 |
| | SAT2 | 0.825 | | | |
| | SAT3 | 0.778 | | | |
| Privacy Security (PS) | PS1 | 0.803 | 0.820 | 0.608 | 0.823 |
| | PS2 | 0.806 | | | |
| | PS3 | 0.727 | | | |
| Self-Efficacy (SE) | SE1 | 0.862 | 0.847 | 0.653 | 0.849 |
| | SE2 | 0.784 | | | |
| | SE3 | 0.775 | | | |
| Perceived Trust (TRU) | TRU1 | 0.826 | 0.799 | 0.591 | 0.811 |
| | TRU2 | 0.807 | | | |
| | TRU3 | 0.663 | | | |
| Continuous Use (CU) | CU1 | 0.783 | 0.823 | 0.609 | 0.823 |
| | CU2 | 0.759 | | | |
| | CU3 | 0.798 | | | |

than 0.5. They are all significant at the level of 0.001, indicating that they can explain the variables well (Wixom and Watson, 2001). The average extraction variance (AVE) of all variables is more significant than 0.5. The composite reliability (CR) is more significant than 0.8, indicating that the questionnaire

has good aggregate validity (Fornell and Larcker, 1981).

Furthermore, the discriminative validity was tested. The correlation coefficient between the square root of each variable's AVE value and other variables was observed. The results are shown in <Table 4>. The diagonal values in the table are the square root of the AVE value of each variable. The comparison shows that all diagonals' values are larger than the correlation coefficients, demonstrating that the variables have good discriminant validity (Fornell and Larcker, 1981).

## 5.2. Model Fitting and Hypotheses Testing

In this paper, AMOS 21.0 is used for structural equation model analysis. The fitting indicators and recommended indicators of each model (Marsh et al., 1988; Maccallum et al., 1996; Bentler, 1990; Doll et al., 1995; Kim and Shin, 2015) are shown in <Table 5>. c2/df = 2.522, RMSEA = 0.062, CFI = 0.905, GFI = 0.855, AGFI = 0.828, IFI = 0.905, TLI = 0.894, most of the relevant indicators meet the recommended standards, and only TLI is slightly smaller than the threshold value. As shown in <Figure 2>, the explanation power for continuance use reached

<Table 4> Discriminant Validity Analysis

|  | TRU | SE | PS | SAT | PU | EC | SVQ | SSQ | IQ | CU |
|---|---|---|---|---|---|---|---|---|---|---|
| TRU | **0.769** |  |  |  |  |  |  |  |  |  |
| SE | 0.421 | **0.808** |  |  |  |  |  |  |  |  |
| PS | 0.351 | 0.282 | **0.780** |  |  |  |  |  |  |  |
| SAT | 0.663 | 0.387 | 0.297 | **0.800** |  |  |  |  |  |  |
| PU | 0.487 | 0.432 | 0.226 | 0.563 | **0.846** |  |  |  |  |  |
| EC | 0.563 | 0.536 | 0.29 | 0.577 | 0.668 | **0.733** |  |  |  |  |
| SVQ | 0.496 | 0.484 | 0.256 | 0.402 | 0.485 | 0.705 | **0.794** |  |  |  |
| SSQ | 0.432 | 0.475 | 0.243 | 0.355 | 0.377 | 0.566 | 0.674 | **0.794** |  |  |
| IQ | 0.495 | 0.495 | 0.269 | 0.426 | 0.465 | 0.59 | 0.652 | 0.747 | **0.785** |  |
| CU | 0.568 | 0.295 | 0.287 | 0.617 | 0.387 | 0.454 | 0.156 | 0.117 | 0.221 | **0.780** |

<Table 5> Model Fitting Indicators

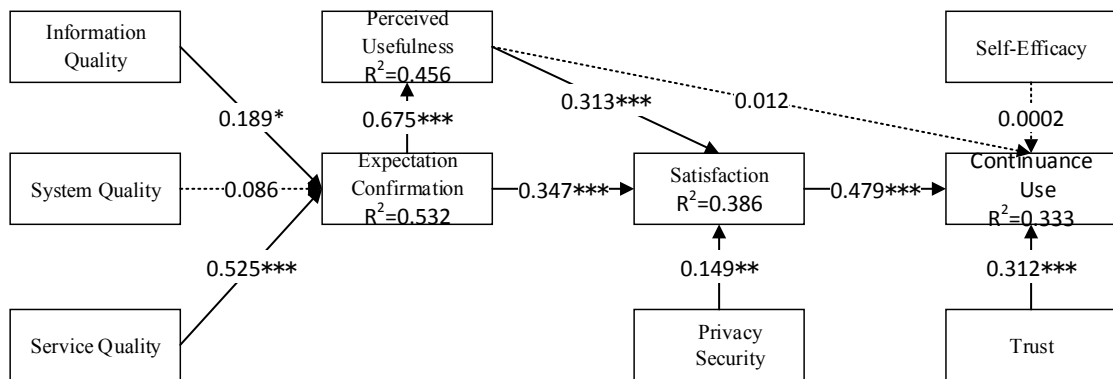| Index | Standard | Value |
|---|---|---|
| $\chi$2/df | < 3（Marsh, 1988） | 2.522 |
| RMSEA | < 0.08（MacCallum, 1996） | 0.062 |
| CFI | > 0.9 (Bentler, 1990) | 0.905 |
| GFI | > 0.8 (Doll, 1995) | 0.855 |
| AGFI | > 0.8 (Doll, 1995) | 0.828 |
| IFI | > 0.9 (Kim, 2015) | 0.905 |
| TLI | > 0.9 (Kim, 2015) | 0.894 |

33.3%, and explanation power for expectation confirmation, perceived usefulness, and satisfaction reached 53.2%, 45.6%, and 38.6%, respectively. This shows that the model performs well in explaining user's continued use behavior with Ant Credit Pay.

Using AMOS 21.0 for hypothesis testing, the model's path analysis results are shown in <Figure 2> and <Table 6>. The coefficient for information quality on expectation confirmation is 0.189, the *p*-value is significant under the condition of 0.05. Therefore, H1 was supported. The coefficient for system quality

on expectation confirmation is 0.086, the *p*-value is not significant. Therefore, H2 is not supported. The path coefficient for service quality on expectation confirmation is 0.525 ($p < 0.001$). Therefore, H3 was supported. The path coefficient for expectation confirmation on perceived usefulness is 0.675 ($p < 0.001$). Thus, H4 was supported. The coefficient of expectation confirmation on satisfaction is 0.347. Therefore, H5 was supported. The path coefficient for perceived usefulness on satisfaction is 0.313 ($p < 0.001$). H6 was thus supported. The path coefficient for perceived



<Figure 2> Structural Model Testing Results

Note: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, ns: insignificant at the 0.05 level

<Table 6> Hypothesis Test Results

| Hypotheses | Path | Standard Path Coefficient | Standard Deviation | *P*-Value | Hypothetical Test |
|---|---|---|---|---|---|
| H1 | IQ → EC | 0.189 | 0.060 | 0.019 | Support |
| H2 | SSQ → EC | 0.086 | 0.069 | 0.322 | Not Support |
| H3 | SVQ → EC | 0.525 | 0.059 | *** | Support |
| H4 | EC → PU | 0.675 | 0.081 | *** | Support |
| H5 | EC → AT | 0.347 | 0.104 | *** | Support |
| H6 | PU → SAT | 0.313 | 0.078 | *** | Support |
| H7 | PU → CU | 0.012 | 0.061 | 0.870 | Not Support |
| H8 | PS → SAT | 0.149 | 0.063 | 0.005 | Support |
| H9 | SAT → CU | 0.479 | 0.066 | *** | Support |
| H10 | SE → CU | 0.0002 | 0.052 | 0.998 | Not Support |
| H11 | TRU → CU | 0.312 | 0.071 | *** | Support |

usefulness on continuous use is 0.012, but the *p*-value is not significant. Therefore, H7 was not supported. The path coefficient for perceived privacy security on satisfaction is 0.149, with the *p*-value significant at the 0.01 level, and therefore H8 was confirmed. The path coefficient for satisfaction on continuous use is 0.479 ($p < 0.001$). Thus, H9 was supported. The path coefficient for self-efficacy on continuous use was 0.0002. H10 was thus not supported. The path coefficient for trust on continuance is 0.312 ($p < 0.001$). Therefore, H11 was supported.

## Ⅵ. Discussion

Based on the continuance theory of information systems use and the IS success model, this paper empirically studied the factors influencing users' continued use of Ant Credit Pay. We gained several interesting findings.

First, the information quality and service quality of Ant Credit Pay positively affect the expectation confirmation. The explanation power of expectation confirmation reached 0.524, which affects the user's expectation confirmation. The impact of service quality (0.525) is more significant than that of information quality (0.189). Improving service quality and information quality for Ant Credit Pay users can increase the degree of confirmation of users' expectations. Therefore, Ant Credit Pay needs to provide users with adequate support, good service and more timely and accurate information to improve the quality of their service and retain users. However, Ant Credit Pay's system quality has no significant impact on the users' expectation confirmation ($p = 0.322$). The possible reason is that the system quality emphasizes the system itself. The actual demand for users to use Ant Credit Pay is to obtain credit support and better financial services. The Ant Credit Pay system is more of an interactive platform, so it has no significant impact on the user's expectation confirmation.

Second, this paper verifies that expectation confirmation, perceived usefulness, and perceived privacy security positively impact user satisfaction. Three of them jointly explained satisfaction with 0.386, which shows that they have a good explanation for the dependent variable. Expectation confirmation (0.347) has the most significant impact on user satisfaction, followed by perceived usefulness (0.313), and perceived privacy security (0.149) is the smallest. This result shows that when the user receives higher credit consumption support than expected after using Ant Credit Pay, she/he will be more likely to be satisfied with the service. Therefore, increasing the user's expectation confirmation can improve the user's satisfaction level, and the expectation confirmation can be improved from a high-level Ant Credit Pay service quality and information quality. In addition, privacy security also has a positive impact on user satisfaction. Ant Credit Pay can continuously optimize the security level to gain more users.

Third, this article verifies that user satisfaction can positively and significantly affect users' continued use behavior and is the most critical factor affecting continued use in our model. However, empirical studies have found that perceived usefulness has no direct effect on users' continuous use behavior but indirectly affects continuous use by affecting user satisfaction. This is because Ant Credit Pay is a credit consumer product, and users still need to make repayments after using this finance product. Regarding the pressure of repayment, even if the user perceives it as valid, it does not directly generate the willingness to continue using Ant Credit Pay. Therefore, improving user satisfaction enables users to continue to

use Ant Credit Pay. Simultaneously, user perception of trust also has a positive and significant impact on continued use. This result is consistent with the conclusion of Lee and Kim (2020)'s study of users' continued use of online e-banking. Therefore, in the process of users using Ant Credit Pay, it is necessary to strengthen the trust between users and financial service providers to form a long-term stable relationship. Trust will build long-term commitment to continue using Ant Credit Pay. Finally, the results show that self-efficacy has no significant effect on continued use. Self-efficacy may be more important for initial adoption or for only occasional Ant Credit Pay usage behavior, but for subsequent and continued use, it appears self-efficacy is not salient.

## Ⅶ. Conclusions

### 7.1. Research Implications

This paper has several theoretical implications. The paper integrates the ISSM and the continuous use model of the ECM-ISC to study users' continuous use of financial product behavior. This investigation conducted an integrated analysis of the impact of information quality, system quality, and service quality on confirmation of user expectations. Furthermore, it proposes that perceived privacy security and perceived trust cannot be ignored in consumer credit model research. The empirical results provide a reasonable explanation for the factors that affect users' continuous use of Ant Credit Pay.

We also found several practical implications. This article explores the conclusions obtained from the factors that affect the user's continuous use of Ant Credit Pay. It has specific practical significance for the Ant Credit Pay usage behavior: 1) The purpose

of users using Ant Credit Pay is to obtain better credit consumption support. Ant Credit Pay can further reduce user interest within a reasonable range, especially when users pay in installments. The demand for low-interest rates becomes more urgent. Ant Credit Pay also needs to expand its application scenarios, such as deepening cooperation with more medical and educational institutions, expanding credit services, and excavating more clients who need funds. 2) It is necessary to strengthen the Ant Credit Pay security protection, by enhancing the supervision of users' personal private information. Meanwhile, it is also necessary to strengthen the employee education within enterprises to prevent internal personnel from using private information to seek profits without authorization. When users perceive that Ant Credit Pay can protect their personal private information, they will be more likely to continually use it. 3) Ant Credit Pay needs to strengthen the strategies of trust-building with users. The user's perception of trust directly affects their continued use of Ant Credit Pay. Ant Credit Pay can make its operational processes transparent and shows the credit evaluation mechanism to users so that users can have a higher sense of trust in it and can use it with more confidence, thereby increasing the economic benefits of the enterprise.

### 7.2. Limitations and Future Research

Although this paper has made some contributions in terms of theoretical implications and management insights, there are still some shortcomings and limitations.

First, we found some surprising non-significant relationships, such as the role of system quality. Therefore, moderating variables can be considered in future studies to fully explore the interactions

among variables.

Second, this paper investigates the behavior of users' continued use of Ant Credit Pay service by integrating the ECM-ISC and ISSM models. The conclusions obtained might not generalize to other Internet consumer credit or fintech products. Therefore, future research needs to consider the characteristics of different fintech platforms and test the model for generalizability.

Thirdly, although all participants were Ant Credit Pay users, a large proportion of the sample were student respondents. This may not be a good representation of all users of Ant Credit Pay. Therefore, future studies should consider more general Ant Credit Pay users to enrich the variety and sample

of subjects.

## Acknowledgement

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# ◆ About the Authors ◆

**Wanchao Liu**

Wanchao Liu is a postgraduate student at the school of management, Wuhan Textile University, Wuhan, China. His major is Business Administration, and his research interests include knowledge management, e-commerce, and Fintech etc.

**Huosong Xia**

Dr. Huosong Xia is a professor in the school of management of the Wuhan Textile University. He was a visiting scholar at Eller College of Management of the University of Arizona, USA from 2006 to 2007. His main research interests are: knowledge management, data mining and, e-Commerce and Logistics Information System. His publications have appeared in refereed over 100 papers in journals, book chapters & conferences such as Journal of Knowledge Management, International Journal of Knowledge Management, Journal of Knowledge Management Practice, Knowledge Management Research & Practice, Electronic Commerce Research, Journal of Computer Information Systems, Decision Support Systems, Information Discovery and Delivery, International Journal of Management, Journal of Systems Science and Information, Journal of Convergence Information Technology, Journal of Grey System, Financial Innovation (Springer), and World Journal of Social Science Research. He can be contacted via: bxxhs@sina.com; 1179094639@qq.com

**Jian Mou**

Jian Mou is an associate professor in the School of Business, Pusan National University, South Korea. His research interests include big data analysis, social media, trust and risk issues in e-service, and information management. Dr. Mou's research has been published in Journal of the Association for Information Systems, Information and Management, Internet Research, International Journal of Information Management, Technological Forecasting and Social Change, Electronic Commerce Research, Information Processing and Management, Computers in Human Behavior, Information Technology and People, Behaviour and Information Technology, International Journal of Human-Computer Interaction, Journal of Retailing and Consumer Services, Information Development, International Journal of Mobile Communications, and Technology in Society. Dr. Jian Mou is corresponding author, can be contacted via: jian.mou@pusan.ac.kr