

Determinants of Continuance Intention to Use Credit Cards in Vietnam: A Model Integrating Stimulus-Organism-Response, Perceived Risk, and Information System Success

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Abstract. This study investigates the factors influencing customers' continuance intention to use credit cards in Vietnam, drawing on the stimulus-organism-response framework, the theory of perceived risk, the expectation-confirmation model, and the information system success model. The study conducts a survey of 418 credit card holders to test a proposed model linking three quality attributes (information, service, system) to perceived risk, perceived usefulness, satisfaction, and continuance intention. The results, based on structural equation modeling, reveal that the quality attributes have significant effects on perceived risk and usefulness, which, along with satisfaction, directly influence continuance intention. However, perceived risk only indirectly affects satisfaction through perceived usefulness. The findings provide insights into the complex interplay of cognitive, affective, and environmental factors shaping credit card users' post-adoption behavior, and offer implications for enhancing the design, marketing, and management of credit card services in emerging markets. Limitations and future research directions are discussed.

Keywords: Credit card, Continuance intention, Stimulus organism response, Vietnam

1. Introduction

Recently, the cashless payment ecosystem has received special attention in Vietnam. Banks focus on investing and developing payment card products and digital banking services. Among card products, credit cards become popular because of their consumer loan capabilities. With the advent of new payment platforms, customers can use credit cards for online transactions through various channels, such as web portals, mobile applications, and contactless interfaces. As a result, credit cards along with debit cards are gradually becoming the two most popular non-cash payment methods in Vietnam.

With effective coordination of relevant parties, Vietnam's credit card market has reaped some results in terms of the number of cards in circulation and card sales. Specifically, as of December 31, 2022, the Vietnamese market was circulating about 5.8 million credit cards, an increase of nearly 1.1 million cards or 22.5% compared to the end of 2021 (The State Bank of Vietnam, 2024). With approximately 57.36 million workers (World Bank, 2022, 2023), on average, one in 12 people owns a credit card (ratio of 0.08 cards/person). The rate of credit card ownership among the population in 2022 increased by nearly 20% compared to 2021 and increased by about 200% compared to 2016 (NAPAS, 2024). Credit card sales in 2022 remained as high as in previous years. Previously, with total sales exceeding 10.4 billion USD, an increase of about billion USD compared to the end of 2021 (The State Bank of Vietnam, 2024). Thus, revenue per credit card increased by 10% compared to 2021, reaching 2,200 USD.

However, besides the achieved results, the Vietnamese credit card market still has some shortcomings that need to be overcome shortly. Although there are currently nearly 6 million cards in circulation on the market, these cards are issued to about 2.65 million customers out of 57.36 million Vietnamese workers (World Bank, 2022, 2023). On average, each cardholder owns 2 credit cards. This number is quite modest compared to 9 million households living in urban areas with high incomes and living standards, or nearly 46 million people with bank accounts, a prerequisite for being issued a credit card (Global Economy, 2024; The State Bank of Vietnam, 2024). In addition, the Vietnam Bank Card Association recorded that in 2022, there were nearly 1.5 million credit cards locked or canceled at the request of the cardholder for no reason (The State Bank of Vietnam, 2024). Therefore, finding out why customers do not use or do not continue to use credit cards with their irrefutable benefits is an urgent task for banks to promote credit card business as well as fully exploit banking information systems.

When credit cards became important and popular in daily consumer payments, there have been many studies on behavioral intention published in prestigious scientific journals. These studies apply two different approaches to understanding consumers' behavior on credit cards. Some authors develop research models based on the achievements of previous studies (Jamshidi & Hussin, 2018; Meyll & Walter, 2019; Xu, Unger, Bi, Papastamatelou, & Raab, 2022). Other studies inherit the theoretical framework of consumer behavior in related studies (Aida, 2021; Cardozo, Christino, & Carvalho, 2023; Porto & Xiao, 2019; Trinh, Tran, & Vuong, 2020). These studies all focus on the credit card's paying functionality; these do not consider the consumer loan function of credit cards, even though this is the biggest advantage of credit cards over debit cards or other payment types of equipment. Another special point of the above studies is that they focus on the intended use of actual use, not on the continuance intended use of credit cards. The number of studies on the intention to continue the use of credit cards in electronic devices is still very limited. Meanwhile, the intention to continuous use is a familiar research topic in the fields of e-services (Jangir, Sharma, Taneja, & Rupeika, 2022; Ramdhony, Liébana - Cabanillas, Gunesh - Ramlugun, & Mowlabocus, 2022), e-commerce (Maduku & Thusi, 2023; T. B. Nguyen et al., 2022; Timur, Oğuz, & Yilmaz, 2023), e-payment (Aprilia & Amalia, 2023; Ha, Tran, Sakka, & Ahmed, 2024; Halim, Zadeh, Hanifah, Teoh, & Nawaser, 2022; Sasongko, Handayani, & Satria, 2022), and e-banking (Inan et al., 2023; Saibaba, 2024; Yin & Lin, 2022).

With attention to customer reactions after the first use of products or services, these studies identify factors that determine customers' intention to continue (CIU) or discontinue the use of that product or service. Based on the theory of perceived risk (TPR) (Bauer, 1960), the expectation-confirmation model

(ECM) (Bhattacharjee, 2001), and the information system success model (ISS) (DeLone & McLean, 2003), perceived usefulness (PU), perceived risk (PR), and satisfaction (SAT) are proposed as determinants of continuous behavioral intention. The prior studies agree that when customers are happy with providing products or services, they are more likely to use them more and more. However, the influences of PR, and PU on the continued use, in direct or indirect via SAT, are inconsistent. Aprilia and Amalia (2023); Ramdhony et al. (2022) provide evidence of the positive impact of PU on continued use, which was not found in the studies of Halim et al. (2022), Song and Jo (2023). The mediating role of satisfaction on the relationship between PU and continued use was encountered in the studies of T. B. Nguyen et al. (2022) and Sasongko et al. (2022), but Maduku and Thusi (2023) declined this recommendation. Similarly, Ha et al. (2024), T. B. Nguyen et al. (2022), and Timur et al. (2023) found that when customers consider potential losses in shopping online, they may stop doing it again. Disagree with this opinion, Ramdhony et al. (2022), Xiong, Wang, and Wang (2022) informed that there is no evidence on the relationship between PR and continued use of e-services. Mehroliya, Alagarsamy, Moorthy, and Jeevananda (2023), and Ha et al. (2024) are also controversial by providing conflicting evidence about the relationship between PR, SAT, and CIU.

The studies also mentioned that personal perceptions, such as PR and PU, may be changed by environmental factors. In technological environments or information systems, these factors commonly are quality attributes, including information quality (INQ), system quality (SYQ), and service quality (SEQ) (DeLone & McLean, 2003). However, the role of environmental factors in cognitive responses is still inconsistent. Some studies found a relationship between PU, PR, and three quality attributes (Alyoussef, 2023; Li & Yuan, 2018; Won, Chiu, & Byun, 2022). Some others declined the impact of information quality on PU (Hidayat, Turi, Rosak, Alam, & Pilar, 2023), PR (Ryu & Ko, 2020); service quality on PU (Al-Fraihat, Joy, & Sinclair, 2020), PR (Zhong & Chen, 2023); system quality on PU (Zhong & Chen, 2023), PR (Zhong & Chen, 2023).

Inspiring by the abovementioned research needs and literature gaps, we asked two fundamental questions in the study: (1) How do the three quality attributes of information systems influence individual perceptions, such as PU and PR? (2) How do PU and PR impact the user satisfaction and then the continuance intention to use credit cards? To answer these questions, this study developed a conceptual model based on the Stimulus-Organism-Response (SOR) model (Mehrabian & Russell, 1974) along with TPR, ECM, and ISS. The SOR model is very suitable for consumer behavior research because of its flexibility and ability to be modified, supplemented, or deleted (Jacoby, 2002). While the SOR model is useful in identifying the psychological drivers underlying consumer behavior in certain conditions, such as credit cards, the TPR, ECM, and ISS, on the other hand, helps to understand the influence of environmental stimuli, individual internal states, and behavioral reactions. By adopting a user-based research perspective, the multivariate relationships proposed in the research model of information system quality attributes, perceived risk, perceived usefulness, satisfaction, and continuance intention were empirically tested with credit cards.

This paper is structured as follows: the quick review of the continuance intention to use. Then, the authors recommend a research model, research hypotheses, and research methodology. Finally, there are brief discussion about the findings, some conclusions, limitations, and managerial implications.

2. Literature Review

2.1. Credit Card Adoption

Consumer behavior research, according to Kotler and Keller (2008), is the study of how individuals and organizations carry out the process of purchasing products and services. This research not only explores actual behavior during the process of purchasing and using products and services but also clarifies intended behavior related to those products and services. Usually, intention to use is a behavioral determinant and a reasonable proxy for actual usage behavior (Davis, Bagozzi, & Warshaw, 1989). Besides intended use, consumer behavior research also focuses on continuance intention to use,

which is the intention to repurchase a product or service after a consumer has purchased it once (Bhattacharjee, 2001). According to Bhattacharjee (2001), the decision to reuse an information system is up to the first use of the system.

In the literature, almost all attention has been paid to the drivers of the intended use of credit cards. These studies applied the theoretical framework of consumer behavior to develop the proposed research model and the proposed hypotheses on the intention to use. Among of theories on technology adoption, scholars refer to TPR, TPB, TAM, and UTAUT in determining a relationship between customers' PR, PU, perceived ease of use (EOU), subjective norms (SN), and their intention to use credit cards. For example, Cardozo et al. (2023) applied UTAUT to digital credit cards; they found a significant impact of PU and SN on consumer's behavioral intention. Aida (2021) combined TPR and TAM in their study to reveal the mediating role of PR in the relationship between PU, EOU, SN, and intention to use. Meanwhile, Trinh et al. (2020) proposed PR as a second-order factor and found a multivariate relationship between this factor, along with PU, EOU, SN, and intended use of credit cards.

These studies all focus on the intended use, not on the continuance intended use of credit cards. The number of studies on the intention to continue the use of credit cards is still very limited, even if there are many similar studies on electronic services, which are very close to credit cards (Laudon & Traver, 2021). Based on TPR, TAM, and ECM, these studies proposed PR, PU, and SAT as determinants of continuous behavioral intention. For example, Ferreira, Silva, and Dias (2023), Magno and Cassia (2024) revealed that PU and EOU from TAM are facilitators of repurchase intention of online shopping. From the perspective of Bhattacharjee (2001), PU is the determinant of SAT and CIU (Jangir et al., 2022; Liu, Li, Edu, & Negricea, 2023; Maduku & Thusi, 2023). Mishra, Shukla, Rana, Currie, and Dwivedi (2023) combined TAM and ECM to assert that PU and EOU affect both SAT and CIU. Not only mentioning motivations, previous studies also clarify barriers to the intention to continue using digital services. Based on TPR, Ryu and Ko (2020) found that when customers perceive the potential losses related to a particular behavior, they are more likely to decline to perform that behavior again. Along this view, Timur et al. (2023) revealed that PR and SAT are two influencers of CIU in two opposite directions. Similarly, T. B. Nguyen et al. (2022) asserted that PU, EOU from TAM, and perceived risk from TPR are the drivers of the intention to continue purchasing online.

However, not all studies agree with the above results about the multivariate relationships of PU, PR, SAT, and CIU. Halim et al. (2022) stated that e-wallet users may be less likely to continue using their accounts, even if they appreciate the performance of using this kind of payment method. Similarly, Song and Jo (2023), Magno and Cassia (2024) rejected the influence of PU on the intention to continue the use of new technology. As for satisfaction, the fact that customers are satisfied with a product or service does not guarantee that they will continue to attach to that product or service (Miao et al., 2021). Although the negative impact of PR on the intention to continue use is tested in many fields of e-services, this relationship may fail to be tested in government services (Ramdhony et al., 2022; Xiong et al., 2022).

Although in the literature there was research on determinants of the intended use of credit cards, studies on continuance intention to use this kind of payment method are still very limited. The results of prior papers on the continued use of credit card-related e-services are inconsistent. Therefore, it is necessary to propose a conceptual model of continuance intention to use credit cards.

2.2. Conceptual Model

Continuance intention research is a field of consumer behavior research. Consumers intend to continue using a product or service, which means they may accept and use the product or service again after using it before. Within the scope of this study, consumers' intention to continue using credit cards is a sign of their willingness to continue using or not continue to use credit cards in the future. However, consumers' acceptance or rejection of credit cards is not random but is the result of influences from the external environment and cognitive states within each person. This view was presented by Mehrabian and Russell (1974) in the Stimulus-Organism-Response (SOR) model related to environmental

psychology. The core value of the SOR model is that when an individual is exposed to an environmental stimulus (S), he or she develops cognitive states and emotional states (O) as agents to promote/inhibit his or her approach/avoidance behavior. The SOR model is very suitable for consumer behavior research because of its flexibility and ability to be modified, supplemented, or deleted (Jacoby, 2002). This model has proven useful in identifying the psychological drivers underlying consumer behavior (Mehrabian & Russell, 1974). It also makes it easier to identify, visualize, and explain the complex relationships between the above-mentioned motivational factors (Jacoby, 2002)

Empirical evidence indicates that the SOR model is a useful theoretical framework when understanding consumer behavior toward electronic services. Li and Yuan (2018) used the SOR model to demonstrate the role of environmental stimulation of factors related to suppliers or intermediaries on PR and subsequent group-purchase intention in online stores. Lai, Toh, and Alkhrabsheh (2020), T. B. Nguyen et al. (2022) combined the SOR model with the TAM model to demonstrate the mediating role of two motivational components (usefulness, and ease of use) in the causal relationship between personal characteristics, system characteristics, and intention to use e-payment. Meanwhile, Gao (2023) developed a framework from the SOR model to verify the effects of mobile-based sensory stimuli on users' internal evaluation of UTAUT's factors, and then continuance intention. Therefore, the SOR model may be suitable for exploring continuance intention to use credit cards issued by banks with the two functions of bill payment and consumer loans (Laudon & Traver, 2021).

The results of the literature review show the multivariate relationships between PU, PR, SAT, and CIU. Among these concepts, PU, PR, and SAT are personal cognitive states (Lai et al., 2020), and continuance intention to use is the behavioral response (Gao, 2023). These relationships are tested in many fields of e-services, such as e-banking (Inan et al., 2023; Saibaba, 2024), e-payment (Aprilia & Amalia, 2023; Sasongko et al., 2022), e-commerce (Maduku & Thusi, 2023; T. B. Nguyen et al., 2022), which are very close to credit cards (Laudon & Traver, 2021).

In addition, electronic services, such as bill payment by credit card, can only reach consumers when deployed on specific information systems. As a result, individuals' evaluation of using an electronic service depends on how they evaluate the quality of the service provided by the system (DeLone & McLean, 2003). The perception of the quality of a particular information system determines the perception of the service provided by that system. In this study, credit cards are issued by banks and used on electronic devices connected to the bank information system. Therefore, the perceived quality of banking information systems is an important antecedent of PR (Ryu & Ko, 2020; Zhong & Chen, 2023) and PU (Albayrak, Rosario, Caber, & Karasakal, 2023; Zhong & Chen, 2023).

The relationship between the quality of the banking information system, internal perceptions of service provided by the system, and the continuance intention to use this service as above is fully expressed by Mehrabian and Russell (1974) in the SOR model. In particular, the quality attributes are environmental factors, the perception of the service is the cognitive state of each person and, finally, the continuance intention to use is considered a behavioral response. The SOR model is a reasonable choice for this study because it provides a reasonable theoretical justification for using perceived quality as an environmental stimulus (Li & Yuan, 2018; Zhong & Chen, 2023). Besides, the SOR model allows an understanding of the impact of PU, PR, and SAT on intention to continue use (Mehroli et al., 2023; V. B. Nguyen, Dang, Nguyen, & Foroudi, 2020). In addition, the SOR model allows the approach of continuance intention to be used as a behavioral response to cognitive states resulting from environmental stimuli (Lai et al., 2020). Figure 1 shows the theoretical framework for the study. The next section will present a description of the research concepts and hypotheses about the relationship between these concepts.

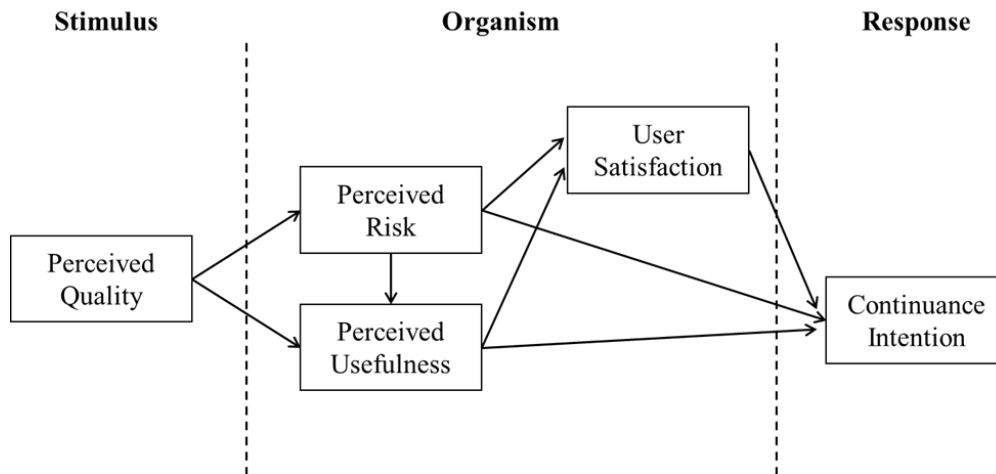


Fig. 1: Theoretical research model

2.3. Hypothesis Development

In the past few years, modern information systems have been built and penetrated deeply into all aspects of life. Faced with many choices, the perceived quality or the assessment of the excellence or superiority of a particular system helps users make decisions (Zeithaml, 1998). Among many quality measurement models, the most famous is the e-commerce system quality of DeLone and McLean (2003), which includes information quality (INQ), system quality (SYQ), and service quality (SEQ). Therefore, this study uses these quality attributes to measure the concept of quality within the theoretical framework of the study.

DeLone and McLean (2003) described information quality (INQ) as the quality of the results received from an information system. Today, the development of the Internet makes information change continuously and rapidly; so, it is difficult to monitor and ensure the quality of information (Won et al., 2022). In this study, INQ is the accuracy and completeness of credit card information published by banks on the mass media. INQ has been one of the important antecedents to perceived risk. Information can be useful for customers in equipping knowledge and helping them to process information, then encouraging them to underestimate potential losses when performing the behavior (Ryu & Ko, 2020; Won et al., 2022). Once banks provide high-quality information, they can help credit cardholders have a more complete awareness of the benefits brought by credit cards when paying daily bills (Al-Fraihat et al., 2020; Alyoussef, 2023). On that basis, this study proposes the following hypotheses:

H1a: INQ affects PR in the opposite direction

H1b: INQ affects PU in the same direction

System quality (SYQ), according to (DeLone & McLean, 2003), is the desired characteristic of an e-commerce system. Customers expect availability, adaptability, response time, and reliability when using the system (Ryu & Ko, 2020). In this paper, consumers are most interested in successfully paying the bill with the correct amount stated on it. Therefore, this study examines SYQ as to how accuracy the system responds to credit card payment transactions. Evidence shows the significant relationship between SYQ and PR. The system operates effectively, accurately, and continuously to help consumers overcome anxiety about unexpected results when performing behaviors (Li & Yuan, 2018). When customers believe that their transaction will be successful, they easily overcome their fear of losses to complete the transaction (Ryu & Ko, 2020). However, consumers appreciate the banking information system with its ability to ensure information security, operate continuously, and respond to transactions quickly and accurately helps them feel the usefulness of credit cards in daily consumer payments (Al-Fraihat et al., 2020; Alyoussef, 2023). On that basis, this study proposes the following hypotheses:

H2a: SYQ affects PR in the opposite direction

H2b: SYQ affects PU in the same direction

DeLone and McLean (2003) describe the service quality (SEQ) of an e-commerce system as the quality of the overall support that consumers receive from the supplier. That support comes from inside or outside the system. This support is very meaningful to users, as it helps them overcome complex processes, confusing technical terms, and problems that arise (Ryu & Ko, 2020; Wardhana & Pradana, 2023). Businesses have an advantage in the market when they provide high-quality services (Hidayat et al., 2023). In credit cards, SEQ represents the individual's assessment of the bank's support related to credit cards. Empirical studies confirm the role of SEQ in PR. Ryu and Ko (2020) provide evidence of mixed effects of SEQ on potential losses in Internet shopping. Hidayat et al. (2023) demonstrate that an increase in SEQ significantly reduces consumers' assessment of potential losses associated with the aviation sector. Meanwhile, Wei, Wang, Zhu, Xue, and Chen (2018) point out that, among the quality attributes of DeLone and McLean (2003), SEQ has the strongest impact on PR. Meanwhile, consumers can fully appreciate the benefits of using credit cards when they perceive high-quality service (Al-Fraihat et al., 2020). On that basis, this study proposes the following hypotheses:

H3a: SEQ affects PR in the opposite direction

H3b: SEQ affects PU in the same direction

Bauer (1960) introduced perceived risk (PR) as an individual's expectation of potential harm when performing a specific behavior. Ryu and Ko (2020) also suggest that PR can cause people to shift their minds about adopting new electronic services. A credit card is a technology product that is useful for cash advances or bill payments (Poromatikul, De Maeyer, Leelapanyalert, & Zaby, 2020). In this study, perceived credit card risk is a consumer's belief of the potential loss when using this kind of payment means. Murray (1991) argues that consumers' awareness of the harm based on negative outcomes associated with a behavior is an important barrier to their intended use of that behavior. Trinh et al. (2020), Adwan, Li, Abbasi, Albelbisi, and Habibi (2023) highlight the opposite influence of PR on PU and electronic payment intention. Liu et al. (2023) confirm that negative expectations stemming from uncertainty when using travel applications reduce satisfaction with experiencing those applications. In their research on social commerce, Rouibah, Al-Qirim, Hwang, and Pouri (2021) proved that users reduced satisfaction with Instagram, where they feel it is time-consuming, ineffective, or poor quality.

In digital banking, Poromatikul et al. (2020) found that customers tend not to continue using mobile banking applications when they feel unsafe about performing electronic transactions on these applications. Mehrolia et al. (2023) emphasize the important role of PR in both SAT and intention to continue using chatbots in digital banking transactions. Similarly, once consumers feel that ordering food through mobile applications is potentially risky, they tend not to continue using this form of purchase (Timur et al., 2023). On that basis, this study proposes the following hypotheses:

H4a: PR affects PU in the opposite direction

H4b: PR affects SAT in the opposite direction

H4c: PR affects CIU in the opposite direction

In the TAM model, Davis et al. (1989) describe perceived usefulness (PU) as the individual's level of belief that using technology will help achieve high performance at work. According to Bhattacharjee (2001), usefulness is an extrinsic motivator for the intention to use technology, representing the outcomes of technology according to consumers' subjective evaluations. In this study, perceived usefulness is an individual's confidence that using a credit card will make daily payments more effectively. Perceived usefulness is a customer's perception of the expected benefits when using a particular technology for financial transactions (Bhattacharjee, 2001). In e-services, customers' perceptions of usefulness can influence their satisfaction and intention to continue using the service (Mehrolia et al., 2023). Empirical studies provide reliable evidence of the positive impact of PU on SAT and continuance intention in e-services (Jangir et al., 2022), mobile payment (Jangir et al., 2022), mobile banking (Inan et al., 2023), social commerce (Ferreira et al., 2023; Yu, Hung, Yu, & Hung, 2023) based on positive attitudes stemming from a perception of the system's utility. Thus, this study examines the effect of PU on SAT, and CIU through the following hypotheses:

H5a: PU has a positive effect on SAT

H5b: PU has a positive effect on CIU

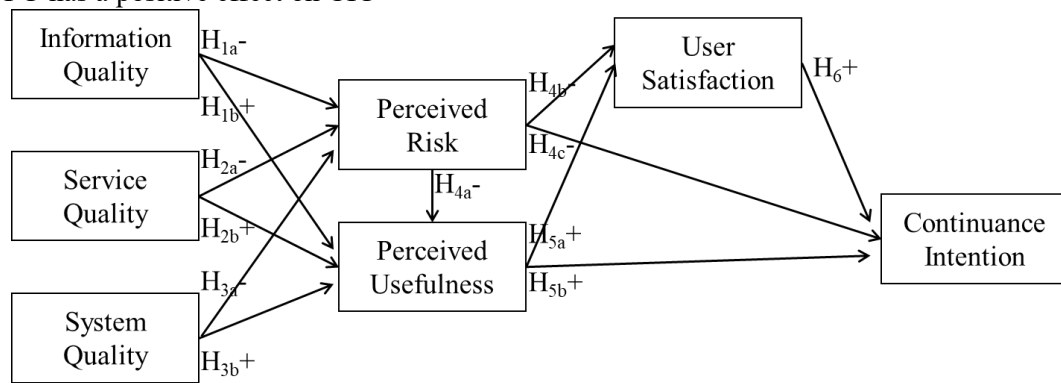


Fig. 2: Proposed research model

User satisfaction (SAT) is a person's feeling of appointment or disappointment that results from equalling his expectations with the perceived performance of a product (Kotler & Keller, 2008). Bhattacharjee (2001) describes SAT as a customer's overall attitude toward a service provider or emotional response to the difference between what customers expected and what they received, related to satisfying some need, goal, or desire. Liu et al. (2023) argue that SAT is a barometer that predicts future customer behavior. This is a key ingredient in retaining customers and motivating them to repurchase products (Cao, Yu, Liu, Gong, & Adeel, 2018). In this study, SAT is a customer's general attitude toward credit cards from accumulated experiences through credit card usage behavior. Bhattacharjee (2001), and DeLone and McLean (2003) affirmed that SAT is the major factor for the intended reuse of public products and services. Cao et al. (2018) revealed that dissatisfied customers are more likely to discourage the relationship with the provider and look for a replacement. Empirical studies in information system-based services, including mobile payments (Jangir et al., 2022), food delivery applications (Timur et al., 2023), online shopping (Ferreira et al., 2023; T. B. Nguyen et al., 2022), electronic banking (Mehroliya et al., 2023) provide evidence for finding that SAT drives continuance intention because satisfied customers are less likely to switch to alternatives. Therefore, the hypothesis about the relationship between SAT and CIU is given below:

H6: SatisSATfaction has a positive effect on CIU

In summary, consumers' acceptance or rejection of a behavior is not arbitrary. This decision is from a complete process, from the impact of the environment, to the influence of each individual's subjective judgments. The following model shows the structural relationship between environmental factors, personal perception, and intention to continue using credit cards (Figure 2).

3. Research Methodology

This paper conducted an Internet survey of Vietnamese credit card holders. The survey contains 35 questions focusing on 7 factors in the research model. There are three components of quality attributes, perceived usefulness (DeLone & McLean, 2003), perceived risk (Bauer, 1960), user satisfaction, and intention to continue use (Bhattacharjee, 2001). Items for measuring these constructs are inherited from Ryu and Ko (2020), Hidayat et al. (2023), and Liu et al. (2023). The study used a 5-point Likert scale with 1-strongly disagree and 5-strongly agree.

This study uses quantitative research methods with statistical processing software SPSS 24 and AMOS 24 to select and develop research models, build measurement scales, and test research hypotheses in the process of 4 steps (Harrison, 2013). (1) Cronbach's Alpha analysis is used to test the reliability of the measurements, which is reliable and usable when the Cronbach's Alpha (CR's α) coefficient is greater than 0.6 and the corrected item-total correlations of all observed variables exceed 0.3 (Hair, Black, Babin, Anderson, & Tatham, 2014). (2) The Exploratory Factor Analysis (EFA) is

suitable for extracting factors from observed variables, which is appropriate when its KMO coefficient is greater than 0.6, all loading factors exceed 0.5, and the total extracted variance of variables is not less than 50% (Hair et al., 2014). (3) The Confirmatory Factor Analysis (CFA) examines the model-data fit of the proposed model which requires Chi-square/df to be less than 2.0, RMSEA to be less than 0.5, all absolute indices (GFI, CFI, TLI) be greater than 0.9, all factor loadings and AVE values are greater than 0.5 (Hair et al., 2014). (4) The Structural Equation Model (SEM) tests the multivariate relationships between the latent factors in the proposed research model, which requires Chi-square/df to be less than 2.0, RMSEA is less than 0.5, all absolute indices (GFI, CFI, TLI) are greater than 0.9 (Hair et al., 2014).

Table 1: Characteristics of data sample (Source: authors' work)

Variable	Frequency	Percent	Variable	Frequency	Percent
Income (USD)			Occupation		
Under 500	98	23.4	Industries	58	16.3
500-900	199	47.6	Trading services	94	22.5
900-1.600	80	17.2	Financial services	145	34.6
Above 1.600	41	11.8	Public services	111	26.6
Gender			Marital status		
Female	211	50.5	Single	157	37.6
Male	207	49.5	Married	261	62.4
Age			Education		
Under 29	223	53.3	College	106	25.4
From 29 to 45	144	34.4	University	127	30.4
Above 45	51	12.3	Post-graduation	185	44.2

The study requires a sample of at least 175 data for validating the proposed model with 7 factors extracted from 35 observed variables (Hair et al., 2014). To collect such data samples, the identified invitations were sent through the Google mail server to more than 4,000 credit cardholders in Hanoi City and Hochiminh City, Vietnam's two biggest economic and social centers. After a month, in November 2023, the study received 466 answer sheets, of which 418 responses had complete information. Such data is suitable for validating the proposed research hypotheses (Cattell, 1978). Table 1 describes the descriptive statistics of respondents.

4. Results

4.1. Cronbach's Alpha Reliability Test

Cronbach's alpha reliability test provides the internal consistency and reliability of the items in measuring factors in the proposed model. The results show that 4 observed variables from the 35 scale measurement are unsuitable because their corrected item-total correlations are less than 0.3. Table 2 shows that the reliability coefficients of all research concepts in the proposed model are greater than 0.8. Next, the corrected item-total correlations exceed 0.3 for all observed variables. Thus, factor analyses are suitable for these 31 remaining observed variables (Hair et al., 2014).

4.2. Factor Analyses

This study applies Exploratory Factor Analysis to the measurement of 27 observed variables corresponding to independent and mediating factors in the proposed model. The results show that 6 factors have been extracted from these observed variables. This analysis is appropriate because its KMO coefficient is 0.854. All loading factors exceed 0.5, and the total extracted variance of variables is 65.459%, so these extracted factors are suitable for the proposed model. Similarly, observed variables in intention to continue use have high loading coefficients and their data variation is well explainable (Table 2). According to Hair et al. (2014), the measurement is suitable for Confirmatory Factor Analysis.

Next, the paper examines the model-data fit of the proposed model with Confirmatory Factor Analysis. The proposed model is appropriate because of some good absolute indices, including Chi-square/df=1.767, GFI=0.901, CFI=0.963, TLI=0.958, and RMSEA=0.043. Table 2 shows that the

overall reliability coefficient exceeds 0.6, all factor loadings and AVE values are greater than 0.5. Then, the corrected item-total correlations exceed 0.3 for all observed variables. Therefore, these measurements are model-data fit, discriminant validity, unidimensionality, convergence validity, and internal consistency reliability (Hair et al., 2014).

Table 2: Results of Reliability and Factor Analyses (Source: Authors' work)

Constructs	Corr. Item Total	Loading coefficients	
		EFA	CFA
Information quality (INQ): CR's $\alpha=0.897$, Eigenvalues=2.296, AVE=0.716, MSV=0.147			
Provides up-to-date information	.817	.879	.855
Provides timely information	.750	.798	.863
Provides accurate information	.781	.812	.815
Provides complete information	.748	.827	.852
Service Quality (SEQ): CR's $\alpha=0.910$, Eigenvalues=2.455, AVE=0.718, MSV=0.164			
Quick response to my complaint	.804	.848	.858
Help me when I need support	.767	.807	.813
Provide the service as promised	.831	.927	.882
Understand and meet my needs	.781	.792	.834
System Quality (SYQ): CR's $\alpha=0.831$, Eigenvalues=1.986, AVE=0.547, MSV=0.103			
Well-designed system	.646	.704	.617
Well-navigated system	.584	.633	.504
Well-secured system	.685	.777	.816
Well-managed system	.732	.872	.941
Continuously upgraded system			
Perceived Risk (PR): CR's $\alpha=0.833$, Eigenvalues=1.990, AVE=0.513, MSV=0.246			
Unsecured	.740	.845	.842
Loss of privacy	.634	.693	.709
Expensive	.623	.694	.716
Loss time			
Sense of anxiety	.558	.649	.594
Paying bills by credit card would be a failed	.624	.656	.699
Perceived Usefulness (PU): CR's $\alpha=0.919$, Eigenvalues=3.550, AVE=0.699, MSV=0.186			
Purchase without carrying cash	.896	.911	.957
Buy first and repay later	.747	.799	.789
Access to cash easily if needed	.827	.912	.843
Installment purchases in free of interest	.732	.752	.781
Free of interest for up to 45 days			
Flexible borrowing and repay	.764	.801	.797
Satisfaction (SAT): CR's $\alpha=0.921$, Eigenvalues=7.409, AVE=0.708, MSV=0.218			
I am generally pleased to use credit cards	.770	.788	.813
I think using credit cards is a wise choice	.832	.874	.877
I am very grateful to use credit cards	.824	.874	.867
I think credit cards have worked out as well as my expectation			
I think using credit cards is the right thing	.818	.815	.795
I think using credit cards is very efficient for my payments	.755	.856	.852
Continuance intention to use (CIU): CR's $\alpha=0.893$, Eigenvalues=3.042, AVE=0.681, MSV=0.246			
I intend to continue using credit cards	.767	.827	.819
I will continue using credit cards	.744	.798	.797
I will recommend for others to use credit cards	.809	.875	.873
I will using credit cards as usual as possible	.747	.800	.811

4.3. Structural Equation Modeling

This study uses the Structural Equation Model to test the proposed hypotheses in the research model. There are three independent factors, three mediating factors, and one dependent factor, which are measured by 31 observed variables. The results provide some absolute indices, including Chi-square/df=1.711, GFI=0.903, CFI=0.965, TLI=0.961, and RMSEA=0.041, which reveal that the data collected from the market are suitable for the proposed model (Hair et al., 2014). The SEM reveals that three quality attributes are determinants of both PR and PU, which, along with SAT, affect CIU. The results also provide evidence for the direct relationship between PR-PU, and PU-SaT, but not for PR-SAT. Thus, almost all proposed hypotheses are supported, except the influence of PR on SAT (Table 3).

Table 3: Results of the Structural Equation Model (Source: authors' work)

Hypothesis	Relationship	Estimate	S.E.	C.R.	P	
H1a	INQ --> PR	-0.210	0.041	-3.999	***	Accepted
H1b	INQ --> PU	0.234	0.044	4.788	***	Accepted
H2a	SEQ --> PR	-0.310	0.045	-5.57	***	Accepted
H2b	SEQ --> PU	0.197	0.048	3.799	***	Accepted
H3a	SYQ --> PR	-0.182	0.05	-3.615	***	Accepted
H3b	SYQ --> PU	0.170	0.053	3.678	***	Accepted
H4a	PR --> PU	-0.231	0.064	-4.147	***	Accepted
H4b	PR --> SAT	-0.092	0.073	-1.506	0.132	Rejected
H4c	PR --> CIU	-0.371	0.057	-6.702	***	Accepted
H5a	PU --> SAT	0.150	0.061	2.574	0.01	Accepted
H5b	PU --> CIU	0.169	0.044	3.421	***	Accepted
H6	SAT --> CIU	0.377	0.04	7.993	***	Accepted

Path analysis results (Table 4) show that among the factors that directly influence CIU, SAT has the strongest impact ($\beta=0.377$), followed by PR ($\beta=-0.371$), and PU ($\beta=0.169$). Considering the indirect impact on CIU, SEQ has the strongest influence ($\beta=0.148$), followed by INQ ($\beta=0.117$), SYQ ($\beta=0.096$), PR ($\beta=-0.074$), and PU ($\beta=0.057$). Combining direct and indirect effects, PR, SAT, and PU have the strongest, gradually decreasing impact on CIU. Analysis results show that two factors that directly impact SAT are PR ($\beta=-0.092$) and PU ($\beta=0.150$). In addition, SAT is indirectly affected by SEQ ($\beta=0.058$) followed by INQ ($\beta=0.054$) and SYQ ($\beta=0.049$). PU has the strongest impact in the same direction ($\beta=0.150$) while PR is the only factor that affects SAT in the opposite direction ($\beta=-0.092$). The next factor to be considered is PU with a direct impact of PR ($\beta=-0.231$), INQ ($\beta=0.234$), SEQ ($\beta=0.197$), and SYQ ($\beta=0.170$). These three quality attributes also have an indirect impact on PU. Taken together, INQ, SEQ, PR, and SYQ have a significant, decreasing impact on PU. These quality attributes also directly contribute to PR, as the only factor does not have any indirect effects in the research model.

Table 4: Results of the Path Analysis (Source: authors' work)

Factor	Type of Effects	INQ	SEQ	SYQ	PR	PU	SAT	CIU
PR	Direct	-0.21	-0.31	-0.182				
	Indirect	0	0	0				
	Total	-0.21	-0.31	-0.182				
PU	Direct	0.234	0.197	0.17	-0.231			
	Indirect	0.049	0.072	0.042	0			
	Total	0.283	0.269	0.212	-0.231			
SAT	Direct	0	0	0	-0.092	0.15		
	Indirect	0.054	0.058	0.049	0.000	0.000		
	Total	0.054	0.058	0.049	-0.092	0.150		

CIU	Direct	0	0	0	-0.371	0.169	0.377	
	Indirect	0.117	0.148	0.096	-0.074	0.057	0.000	
	Total	0.117	0.148	0.096	-0.445	0.226	0.377	

The SEM analysis results continue to be evaluated using the Bootstrap technique on N=3.000 replicate samples of N = 3.000. Table 5 presents the estimation results from 3.000 samples calculated on average (Mean) with standard deviation (SE). Accordingly, the bias between the value calculated by the collected sample and the value estimated by Bootstrap is insignificant. The critical value (C.R.) is in the range (-2;2), so the above difference is very small and not statistically significant at the 95% confidence level. Thus, the estimates obtained by SEM analysis are reliable.

Table 5: Estimated results using Bootstrap with N=3.000 (Source: authors' work)

Parameter			SE	SE-SE	Mean	Bias	SE-Bias	C.R.
PR	<---	INQ	0.05	0	-0.211	-0.001	0.001	-1
PR	<---	SEQ	0.05	0	-0.31	0	0.001	0
PR	<---	SYQ	0.05	0	-0.181	0.001	0.001	1
PU	<---	INQ	0.05	0	0.232	-0.002	0.001	-2
PU	<---	SEQ	0.05	0	0.198	0.001	0.001	1
PU	<---	SYQ	0.05	0	0.171	0.001	0.001	1
PU	<---	PR	0.06	0	-0.231	0.001	0.001	1
SAT	<---	PR	0.06	0	-0.091	0	0.001	0
SAT	<---	PU	0.06	0	0.15	0	0.001	0
CIU	<---	PR	0.05	0	-0.371	0	0.001	0
CIU	<---	PU	0.05	0	0.169	0	0.001	0
CIU	<---	SAT	0.04	0	0.377	0	0.001	0

5. Discussions

The research validated a comprehensive framework to examine Vietnamese customers' intention to continue using credit cards. It applied the SOR model to explain the relationship between quality attributes of information systems (DeLone & McLean, 2003), perceived risk (Bauer, 1960), perceived usefulness, satisfaction, and intention to continue use.

The SEM results provide evidence that INQ has a significant, negative impact on PR and a significant positive impact on PU, H1a and H1b are supported. This means that when consumers are provided with information of high quality, they can change their perception of privacy and safety in transactions on electronic devices. High-quality information helps them reduce concerns about potential losses when using credit cards on electronic devices or via online payment gateways. This viewpoint is consistent with (Ryu & Ko, 2020) when these authors confirm that service providers have many hidden actions that are not monitored such as collecting and abusing customer-related information. On the other hand, with a full understanding of credit cards and related issues based on INQ, consumers increase their confidence in the benefits brought by credit cards (Al-Fraihat et al., 2020; Won et al., 2022). As a result, they increase their interest in paying by credit card on electronic devices (Alyoussef, 2023). These results assert the importance of INQ in the credit card business, where transactions are invisible to cardholders and service providers to avoid unfavorable information in their business.

The SEM results assert the significant effect of SEQ on PR and PU in different directions, which results in supporting H2a and H2b. This means that when customers believe in credit card services, they feel that banks have a responsibility to receive their opinions and take measures to investigate and handle stores that intentionally attach card skimming devices or integrate malicious source code into e-commerce websites. They believe that banks are always ready to fight against all kinds of technology crimes with many options to keep customers' accounts safe. This reduces their assessment of raising harm when paying bills with credit cards (Li & Yuan, 2018; Ryu & Ko, 2020; Wei et al., 2018). Next,

appreciating the quality of credit card services means ensuring that the services are committed, attentive, and responsive. This gives customers confidence in the results of paying bills by credit card (Hidayat et al., 2023). They believe that the bank will ensure the success of the transaction and that they will pay the bill with the correct amount stated on it (Albayrak et al., 2023). These results suggest the importance of service quality in the credit card business, where timely, dedicated, and thorough guidance helps consumers clearly understand fees, interest, and conditions for interest exemption for up to 45 days, so they can effectively utilize the loan function of credit cards.

The study reveals that SYQ expressively influences PR and PU in different directions, hence, H3a and H3b are acceptable. This means if customers appreciate the system quality of the credit card system, they feel that this system is capable of protecting them from the risks of information insecurity and invasion of privacy. This reduces consumers' appreciation of the potential harm of using credit cards on electronic devices (Li & Yuan, 2018; Ryu & Ko, 2020), and helps them have confidence in their ability to pay the bill (Albayrak et al., 2023; Alyoussef, 2023). Besides, high-quality credit card systems can detect and promptly prevent fraudulent transactions. It means that the credit account only records debts from payment transactions performed by itself, other cases are excluded. A good credit card system also allows cardholders to easily track debts and choose appropriate debt repayment methods. As a result, consumers can be proactive in controlling debt and repay debt fully and on time.

The perceived risk verifies customers' assessment of occurred damage when using credit cards on electronic devices. With H4b, the relationship between PR and SAT is insignificant, H4b is not supported, or the potential losses related to credit cards have a negligible negative impact on the customer's feeling of appointment that results from equalling his expectations with the perceived performance of credit cards. This result is consistent with the study of Ha et al. (2024) in mobile payment but did not receive the consent of Mehrolia et al. (2023) in banking chatbot service and Rouibah et al. (2021) in social commerce. The insignificant impact of PR on SAT may be because the majority of respondents believe that the potential losses related to credit cards are trivial compared to their satisfaction when comparing what they expected and received. Although customers have to pay many fees, they will buy products or get services in installments with free interest and a repayment period of up to 12 months. In an emergency, they can withdraw cash at ATMs with withdrawal fees plus interest much lower than borrowing from financial companies or private individuals as black credit. With card transaction times often very short, customers will quickly receive notification from the bank about whether the transaction is successful or failed to have appropriate next payment options. Customers can proactively choose to shop at large, reputable stores to avoid surcharges when paying by card, which often organizes programs to support non-cash payments. Thanks to that, customers do not care much about the potential damages when they decide to favor credit cards.

Meanwhile, with H4a and H4c, PR significantly, negatively influences PU, and CIU, which is evidence that H4a and H4c hypotheses are supported. These results are consistent with the studies of Adwan et al. (2023), Mehrolia et al. (2023), Timur et al. (2023). Accordingly, concerns about problems arising with credit cards reduce cardholders' evaluation of the effectiveness brought by this kind of e-payment equipment. Potential damages related to the privacy and security of electronic information are always in the minds of consumers and make the payment efficiency of credit cards meaningless. This viewpoint is consistent with the recommendations of Adwan et al. (2023) where these authors argue that metaverse-based learning platforms, with their mandatory requirements for transmitting and storing sensitive information, become less useful when the personal information is not properly secured and privacy is violated. Mehrolia et al. (2023) also mentioned that the nature of electronic information systems requires cooperation between relevant parties, malicious entities can take advantage of this cooperation to collect sensitive data or disseminate false information; The victim cannot appreciate the system that causes the result.

The perceived usefulness of the credit card is determined by its paying and loaning functionality. The study reveals the significant, positive impact of PU on SAT and CIU, which supports H5a and H5b.

Accordingly, when consumers fully feel the values or benefits brought by credit cards, they are more likely to feel satisfied with what they receive from the credit card and intend to continue using it. Vietnamese consumers tend to increase their intention to continued use credit cards when they think that using credit cards will help make their payments more efficient. This result is consistent with the observations of Hidayat et al. (2023) when the authors proved that Pakistani users highly appreciate the ability to meet the needs of public services and thereby promote the use of e-government applications in their daily activities. Jangir et al. (2022) also stated that if FinTech users believe the technology is beneficial to them, their attitude toward that technology will be changed, and then they will continue to use it. Similarly, Liu et al. (2023) revealed that Chinese consumers highly appreciate the convenience of travel applications and believe that the advantages of these applications appear to be superior to their disadvantages, this is the main reason they increase the use of m-applications in their travel journey.

User satisfaction with credit cards is determined by customers' overall attitude toward the difference between what they expected and what they received in using this kind of e-payment equipment. The study confirms the significant impact of SAT on CIU, which is evidence that H6 is supported. Accordingly, when consumers feel satisfied with the results achieved with credit cards, they will not intend to change their payment means or they are more likely to continue using credit cards for daily payments. This result is consistent with the recommendations of Yin and Lin (2022), Ferreira et al. (2023), when these authors revealed that customers, who are highly satisfied with the information technology, showed stronger and more frequent intention to use the applications. Similarly, Yu et al. (2023) also pointed out that when customers are highly satisfied with social media, their intention to continue engaging in social shopping will increase.

6. Conclusion

This study contributes to the literature by proposing and testing a comprehensive model of the drivers of continuance intention to use credit cards in Vietnam. The findings highlight the crucial roles of information, service, and system quality in shaping users' perceptions of risk and usefulness, which, along with satisfaction, determine their post-adoption behavior. The study also reveals the complex interplay between cognitive, affective, and environmental factors, with perceived risk having both direct and indirect effects on continuance intention through perceived usefulness and satisfaction.

These findings have important implications for credit card providers and banks seeking to retain and expand their customer base. First, they should invest in improving the quality and reliability of their information systems, service delivery, and communication channels, to reduce users' perceived risk and enhance their perceived usefulness and satisfaction. Second, they should segment and target their customers based on their risk perceptions and usage patterns, and tailor their marketing and support strategies accordingly. Third, they should monitor and manage the post-adoption experience of their customers, and proactively address any issues or complaints that may arise, to prevent churn and negative word-of-mouth.

However, the study also has some limitations that should be acknowledged. First, the cross-sectional design and self-reported measures may not fully capture the dynamic and objective nature of credit card usage and continuance intention. Future research could use longitudinal or experimental designs and incorporate behavioral or transactional data to enhance the validity and generalizability of the findings. Second, the focus on a single country and product category may limit the applicability of the results to other contexts or cultures. Future studies could replicate or extend the model in different settings and compare the drivers and outcomes of continuance intention across different types of financial services or payment methods.

Despite these limitations, this study offers a valuable foundation for further research on the post-adoption behavior of credit card users and provides actionable insights for managers and policymakers to promote the sustainable growth and responsible use of credit cards in emerging markets.

References

- Adwan, A., Li, N., Abbasi, G., Albelbisi, N., & Habibi, A. (2023). Extending the technology acceptance model (TAM) to Predict University Students' intentions to use metaverse-based learning platforms. *Education and Information Technologies*, 28(11), 15381-15413.
- Aida, A. Z. (2021). Consumers' perceptions of intention to use a credit card: Perceived risk and security. *Entrepreneurship and Sustainability Issues*, 9(2), 37-49.
- Al-Fraihat, D., Joy, M., & Sinclair, J. (2020). Evaluating E-learning systems success: An empirical study. *Computers in Human Behavior*, 102, 67-86. doi:10.1016/j.chb.2019.08.004
- Albayrak, T., Rosario, M., Caber, M., & Karasakal, S. (2023). The use of mobile applications for travel booking: impacts of application quality and brand trust. *Journal of Vacation Marketing*, 29(1), 3-21. doi:10.1177/13567667211066544
- Alyoussef, I. Y. (2023). Acceptance of e-learning in higher education: The role of task-technology fit with the information systems success model. *Heliyon*, 9(3), e13751. doi:10.1016/j.heliyon.2023.e13751
- Aprilia, C., & Amalia, R. (2023). Perceived Security and Technology Continuance Theory: An Analysis Of Mobile Wallet Users' Continuance Intention. *Global Business Review*, 097215092211458. doi:10.1177/09721509221145831
- Bauer, R. A. (1960). *Consumer Behavior as Risk Taking, Dynamic marketing for a changing world*. Chicago: American Marketing Association.
- Bhattacharjee, A. (2001). Understanding Information Systems Continuance - An Expectation-Confirmation Model. *MIS Quarterly*, 25(3), 351-370.
- Cao, X., Yu, L., Liu, Z., Gong, M., & Adeel, L. (2018). Understanding mobile payment users' continuance intention: a trust transfer perspective. *Internet Research*, 28(2), 456-476. doi:10.1108/IntR-11-2016-0359
- Cardozo, E., Christino, J., & Carvalho, A. (2023). Digital bank accounts and digital credit cards: extending UTAUT2 to FinTech's services in Brazil. *International Journal of Services and Operations Management*, 44(2), 238. doi:10.1504/ijssom.2023.129049
- Cattell, R. B. (1978). Matched determiners vs. factor invariance: A reply to Korth. *Multivariate Behavioral Research*, 13, 431-448. doi:10.1207/s15327906mbr1304_5
- Davis, F., Bagozzi, R., & Warshaw, P. (1989). User Acceptance of computer technology: A comparison of two theoretical models. *Management Science*, 35(8), 982-1003. doi:10.1287/mnsc.35.8.982
- DeLone, W. H., & McLean, E. R. (2003). The DeLone and McLean Model of Information Systems Success: A Ten-Year Update. *Journal of Management Information Systems*, 19(4), 9-30. doi:10.1080/07421222.2003.11045748
- Ferreira, A., Silva, G., & Dias, L. (2023). Determinants of continuance intention to use mobile self-scanning applications in retail. *International Journal of Quality & Reliability Management*, 40(2), 455-477.
- Gao, B. (2023). Understanding smart education continuance intention in a delayed benefit context: An integration of sensory stimuli, UTAUT, and flow theory. *Acta Psychol (Amst)*, 234, 103856. doi:10.1016/j.actpsy.2023.103856
- Global Economy. (2024). Vietnam Economic Indicators. Retrieved from <https://www.theglobaleconomy.com/Vietnam/>

- Ha, M. T., Tran, K. T., Sakka, G., & Ahmed, Z. U. (2024). Understanding perceived risk factors toward mobile payment usage by employing extended technology continuance theory: a Vietnamese consumers' perspective. *Journal of Asia Business Studies*, 18(1), 158-182.
- Hair, J., Black, W., Babin, B., Anderson, R., & Tatham, R. (2014). *Multivariate data analysis*, 7th edn. USA: Pearson Education.
- Halim, N. A., Zadeh, A., Hanifah, H., Teoh, A. P., & Nawaser, K. (2022). Understanding the determinants of e-wallet continuance usage intention in Malaysia. *Quality & Quantity: International Journal of Methodology*, 56(5), 3413-3439.
- Harrison, R. L. (2013). Using mixed methods designs in the Journal of Business Research, 1990–2010. *Journal of Business Research*, 66(11), 2153–2162. doi:10.1016/j.jbusres.2012.01.006
- Hidayat, I., Turi, J., Rosak, J., Alam, M. N., & Pilar, L. (2023). The role of awareness in appraising the success of E-government systems. *Cogent Business & Management*, 10(1), 2186739. doi:10.1080/23311975.2023.2186739
- Inan, D., Hidayanto, A., Juita, R., Soemawilaga, F., Melinda, F., Puspacinantya, P., & Amalia, Y. (2023). Service quality and self-determination theory towards continuance usage intention of mobile banking. *Journal of Science and Technology Policy Management*, 14(2), 303-328.
- Jacoby, J. (2002). Stimulus-Organism-Response Reconsidered: An Evolutionary Step in Modeling (Consumer) Behaviour. *Journal of Consumer Psychology*, 12(1), 51-57.
- Jamshidi, D., & Hussin, N. (2018). An integrated adoption model for Islamic credit card : PLS-SEM based approach. *Journal of Islamic Accounting and Business Research*, 9, 308-335
- Jangir, K., Sharma, V., Taneja, S., & Rupeika, R. (2022). The Moderating Effect of Perceived Risk on Users' Continuance Intention for FinTech Services. *J. of Risk and Financial Management*, 16(1), 21.
- Kotler, P., & Keller, K. L. (2008). *Marketing management* (13th ed.). NJ: Prentice Hall.
- Lai, P. C., Toh, E. B. H., & Alkhrabsheh, A. A. (2020). Empirical Study of Single Platform E-Payment in South East Asia *Strategies and Tools for Managing Connected Consumers* (pp. 252-278).
- Laudon, K. C., & Traver, C. G. (2021). *E-commerce: business, technology, society*: UK: Pearson.
- Li, W., & Yuan, Y. (2018). Purchase experience and involvement for risk perception in online group buying. *Nankai Business Review International*, 9, 587-607. doi:10.1108/NBRI-11-2017-0064
- Liu, Y., Li, Q., Edu, T., & Negricea, I. C. (2023). Exploring The Continuance Usage Intention Of Travel Applications In The Case Of Chinese Tourists. *Journal of Hospitality & Tourism Research*, 47(1), 6-32.
- Maduku, D. K., & Thusi, P. (2023). Understanding consumers' mobile shopping continuance intention: New perspectives from South Africa. *Journal of Retailing and Consumer Services*, 70, 103185.
- Magno, F., & Cassia, F. (2024). Predicting restaurants' surplus food platform continuance: Insights from the combined use of PLS-SEM and NCA and predictive model comparisons. *Journal of Retailing and Consumer Services*, 79, 103820.
- Mehrabian, A., & Russell, J. A. (1974). *An approach to environmental psychology*. Cambridge, MA: MIT Press.
- Mehroliya, S., Alagarsamy, S., Moorthy, V., & Jeevananda, S. (2023). Will Users Continue Using Banking Chatbots? The Moderating Role of Perceived Risk. *FIIIB Business Review*,

23197145231169900.

Meyll, T., & Walter, A. (2019). Tapping and waving to debt: Mobile payments and credit card behavior. *Finance Research Letters*, 28, 381-387. doi:10.1016/j.frl.2018.06.009

Miao, M., Jalees, T., Zaman, S. I., Khan, S., Hanif, N.-u.-A., & Javed, M. K. (2021). The influence of e-customer satisfaction, e-trust and perceived value on consumer's repurchase intention in B2C e-commerce segment. *Asia Pacific Journal of Marketing and Logistics*, 34(10), 2184-2206

Mishra, A., Shukla, A., Rana, N., Currie, W., & Dwivedi, Y. (2023). Re-examining post-acceptance model of information systems continuance: A revised theoretical model using MASEM approach. *International Journal of Information Management*, 68, 102571.

Murray, K. B. (1991). A Test of Services Marketing Theory: Consumer Information Acquisition Activities. *Journal of Marketing*, 55, 10. doi:10.2307/1252200

NAPAS. (2024). Annual Conference. Retrieved from <https://en.napas.com.vn/>

Nguyen, T. B., Tran, T. L. A., Tran, T. T. H., Le, T. T., Tran, P. N. H., & Nguyen, M. H. (2022). Factors influencing continuance intention of online shopping of generation Y and Z during the new normal in Vietnam. *Cogent Business & Management*, 9(1), 2143016. doi:10.1080/23311975.2022.2143016

Nguyen, V. B., Dang, H. P., Nguyen, H. H., & Foroudi, P. (2020). Revisit intention and satisfaction: The role of destination image, perceived risk, and cultural contact. *Cogent Business & Management*, 7(1), 1796249. doi:10.1080/23311975.2020.1796249

Poromatikul, C., De Maeyer, P., Leelapanyalert, K., & Zaby, S. (2020). Drivers of continuance intention with mobile banking apps. *International Journal of Bank Marketing*, 38(1), 242-262

Porto, N., & Xiao, J. (2019). Credit Card Adoption and Usage in China: Urban-Rural Comparisons. *The Singapore Economic Review*, 64, 41-56. doi:10.1142/S021759081743010X

Putri, G. A., Widagdo, A. K., & Setiawan, D. (2023). Analysis of financial technology acceptance of peer to peer lending (P2P lending) using extended technology acceptance model (TAM). *Journal of Open Innovation: Technology, Market, and Complexity*, 9(1), 100027. doi:10.1016/j.joitmc.2023.100027

Ramdhony, D., Liébana-Cabanillas, F., Gunesh-Ramlugun, V. D., & Mowlabocus, F. (2022). Modelling the determinants of electronic tax filing services' continuance usage intention. *Australian Journal of Public Administration*, 82(2), 194-209. doi:10.1111/1467-8500.12559

Rouibah, K., Al-Qirim, N., Hwang, Y., & Pouri, S. G. (2021). The Determinants of eWoM in Social Commerce. *Journal of Global Information Management*, 29(3), 75-102. doi:10.4018/jgim.2021050104

Ryu, H. S., & Ko, K. S. (2020). Sustainable development of Fintech: Focused on uncertainty and perceived quality issues. *Sustainability*, 12(18), 7669. doi:10.3390/su12187669

Saibaba, S. (2024). Examining the Determinants of Mobile Banking App Continuance Intention in India: An Extension of the IS Success Model. *Journal of Internet Commerce*, 23(1), 50-89.

Sasongko, D. T., Handayani, P. W., & Satria, R. (2022). Analysis of factors affecting continuance use intention of the electronic money application in Indonesia. *Procedia Computer Science*, 197, 42-50.

Song, H. G., & Jo, H. (2023). Understanding the Continuance Intention of Omnichannel: Combining TAM and TPB. *Sustainability*, 15(4), 3039. doi:10.3390/su15043039

The State Bank of Vietnam. (2024). Statistical Reports. Retrieved from

<https://sbv.gov.vn/webcenter/portal/en/home/sbv/statistic>

Timur, B., Oğuz, Y. E., & Yilmaz, V. (2023). Consumer behavior of mobile food ordering app users during COVID-19: dining attitudes, e-satisfaction, perceived risk, and continuance intention. *Journal of Hospitality and Tourism Technology*, 14(3), 460-475. doi:10.1108/JHTT-04-2021-0129

Trinh, H. N., Tran, H. H., & Vuong, D. H. Q. (2020). Determinants of consumers' intention to use credit card: a perspective of multifaceted perceived risk. *Asian J. of Economics and Banking*, 4(3), 105-120.

Wardhana, A., & Pradana, M. (2023). Service quality and brand reputation as antecedents of brand choice: The case of ride-hailing applications in Southeast Asia. *Journal of Eastern European and Central Asian Research*, 10(3), 387-400.

Wei, Y., Wang, C., Zhu, S., Xue, H., & Chen, F. (2018). Online Purchase Intention of Fruits : Antecedents in an Integrated Model Based on Technology Acceptance Model and Perceived Risk Theory. *Frontiers in Psychology*, 9, 1-11. doi:10.3389/fpsyg.2018.01521

Won, D., Chiu, W., & Byun, H. (2022). Factors influencing consumer use of a sport-branded app: the technology acceptance model integrating app quality and perceived enjoyment. *Asia Pacific Journal of Marketing and Logistics*, 35(5), 1112-1133. doi:10.1108/apjml-09-2021-0709

World Bank. (2022). Global Findex Indicators. Retrieved from <https://www.worldbank.org/en/publication/globalfindex/Data>

World Bank. (2023). Labor force, total - Viet Nam. Retrieved from <https://data.worldbank.org/indicator/SL.TLF.TOTL.IN?locations=VN>

Xiong, L., Wang, H., & Wang, C. (2022). Predicting mobile government service continuance: A two-stage structural equation modeling-artificial neural network approach. *Government Information Quarterly*, 39(1), 101654. doi:10.1016/j.giq.2021.101654

Xu, C., Unger, A., Bi, C., Papastamatelou, J., & Raab, G. (2022). The influence of Internet shopping and use of credit cards on gender differences in compulsive buying. *Journal of Internet and Digital Economics*, 2(1), 27-45.

Yin, L., & Lin, H. (2022). Predictors of customers' continuance intention of mobile banking from the perspective of the interactivity theory. *Economic Research-Ekonomska Istraživanja*, 35(1), 6820-6849.

Yu, W.-J., Hung, S.-Y., Yu, A. P.-I., & Hung, Y.-L. (2023). Understanding consumers' continuance intention of social shopping and social media participation: The perspective of friends on social media. *Information & Management*, 103808. doi:10.1016/j.im.2023.103808

Zeithaml, V. (1998). Consumer perceptions of price, quality, and value: A means-end model and synthesis of evidence. *Journal of Marketing*, 52, 2-22.

Zhong, J., & Chen, T. (2023). Antecedents of mobile payment loyalty: An extended perspective of perceived value and information system success model. *Journal of Retailing and Consumer Services*, 72, 103267.