

Research article

Customers' adoption of financial services offered by banks and fintechs partnerships: evidence of a transitional economy

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Abstract: In recent years, the number of fintech startups has increased substantially, especially those that offer financial services in areas considered as traditional advantage of commercial banks such as payment, deposit or lending services. This paper examines the cooperation in the provision of financial services between banks and Fintech from consumers' perspective, which is the customers' adoption of financial services offered by the partnership between banks and Fintechs. The study employs SEM utilizing data of 234 customers using financial services in Vietnam to identify the factors influence their behaviors and intention to use financial services offered by banks and fintechs partnerships. The findings indicate that perceived usefulness, brand image, user innovativeness and trust have positive effects on customers' attitude and consequently on their intention to use. However, there is no evidence regarding the impact of perceived ease of use and perceived risks on behavior and intention to use of customers. The findings also provide more evidence on the factors that influence the intention of customers' technology acceptance in the traditional Technology Acceptance Model (TAM).

Key words: fintechs; banks; customer adoption; intention to use; TAM model; customer attitude

JEL Codes: M30, M31, G21, O30

1. Introduction

Technology is developing so speedily that it affects all facets of the business. One of these is the creative use of the internet to help companies improve their business (Meyliana et al., 2019). Technological innovation has led to the combination of information and financial technology into Financial Technology (Fintech). Fintech is a digital technology with blockchain core, big data, and smart investment consulting are widely used in the financial sector. It provides the new points of financial services that become more efficient in payment schemes in a transaction. It changes the traditional financial services to innovative services in the financial services industry in the form of Fintech. Thus, it provides a broader range in the field of financial services, starting from products created to available services and markets. In addition, the Financial Stability Board (FSB) (2019) defined FinTech as new frontier technologies, including AI (artificial intelligence), blockchain and big data that promote emerging business models, new technology applications and advanced product services. As traditional financial services, the banks understand the importance of user experience, and some have begun to improve core competitiveness and market share by acquiring or partnering with Fintech company. Fintech has brought about tremendous changes in the digital economy, especially in India, the United Kingdom and China (Chua et al., 2019; Cham et al., 2018; Kim et al., 2015). Since the end of the first decade of the 21st century, financial technology has been adopted into the digitalization of the following sectors: payment (electronic money, mobile payment, QR code payment, etc.); savings; investment and asset management; blockchain and related applications; credit, peer-to-peer lending; insurance; data analysis (Stewart & Jürjens, 2018; Wonglimpiyarat, 2017; Datta, 2011; Donner & Tellez, 2008). Moreover, Fintech also mentioned the operations of technology companies that have an advantage in re-searching and developing software solutions to support or directly provide alternative banking services with safety, speed and low costs priority (Vietnam Microfinance Working Group, 2018; Romānova & Kudinska, 2016). In recent years, Fintech have become major trends in the world and in Vietnam as banking and financial markets witnessed a steady growth of the company non-banking technology.

In general, the increase of Fintech has brought about a great impact on the banking industry, changing the banking ecosystem, even overthrowing previous business models as well as service modes (Hamidi and Safareeyeh, 2019). Furthermore, the development of Fintech in the recent years has brought positive change to Vietnam's economy. Vietnamese banks have accelerated their digital push, partnering with Fintech companies to ramp up efforts. For example, Vietnam's Tien Phong Commercial Joint Stock Bank (TPBank) recently partnered with digital banking platform Backbase to provide its customers with digital priority products and services. Non-cash payments, digital banking and green banking are the top three priorities of the industry in the period 2020–2025 in Vietnam. Besides, the development of digital banking is accelerating the combination of Fintech rapidly, the e-commerce industry is booming. Although many banks have chosen to cooperate with foreign fintechs, such as VietinBank and Opportunity Network (UK), CIMB Bank Vietnam and Toss (Korea), VPBank and BE Group (Sweden), OCB and RippleNet (USA), TPBank and Backbase (Netherlands), several other banks have partnered with local startups. Thus, Fintech companies and banks choose to cooperate with each other and how customers react to the combined products of these two partners.

This study explores customer responses through their perception of behavior and usage intentions for high-tech products combining the bank and the Fintech company. Including image awareness, trust, the usefulness of the technology, perceived ease of use, perceived risk, user innovativeness influence to the attitude of users and from that affect to customers' intention to use banking-Fintech combined high-tech products by using the Theory of Technology Acceptance Model (TAM) as the basic theory of this research.

Previous studies focused on qualitative research from the supply side (Fintechs and Banks), specifically investigating the difference between expected benefits and desired cooperation process of each party to ensure the success of the cooperation process. While banks take advantage of Fintech technology (Halilovic & Cicic, 2013), Fintechs utilize customer base of banks in the cooperation (You & Kim, 2016; Ng & Kwok, 2017). This study conducts a quantitative research from the demand side (customers) to determine the customer's perception of Fintech products distributed through banks and examine the factors that affect the intention to choose Fintech-banks products of the Bank. Research results provide empirical evidence for both banks and Fintechs' decision makers to not only focus on the usefulness of products, user innovativeness and creating trust for customers but each parties also need to build and maintain a good brand image if they want customers to accept and choose Fintech products distributed through the banks.

2. Literature review and hypothesis development

2.1. *Technology acceptance model (TAM)*

A theoretical model widely applied in the research on the level of customer acceptance of Fintech services is the theory of reasoned action (TRA) model by Fishbein & Ajzen (1977). Based on the theory of TRA, the Technology Acceptance Model (TAM) was developed by Davis et al. (1989). This model is considered a fundamental theoretical model used by many researchers to build research models related to predicting or explaining individual behavior. Technology Acceptance Model (TAM) (Davis et al., 1989) has been one of the most influential models of technology acceptance, with two primary factors affecting an individual's intention to use new technology: perceived usefulness and perceived ease of use. According to Davis et al. (1989), the perception of usefulness is the degree to which a person believes using a particular system will enhance his or her productivity. Besides, perceived ease of use is as perception about ease of using technology. Based on the development, the TAM model can evaluate and identify elements that influence human behavior towards the use of a technology (Davis et al., 1989). Since the TAM model could effectively explain the difference in the consumer's information technology readiness and can be effectively improved and identified by the analytical problem, it has become into one of the most widely used models in information technology research and application. According to Lin et al. (2020) the relationship between attitude toward using and behavioral intention to use represents that a user will generate behavioral intention to use for the execution of a certain behavior when he/she has a positive attitude toward the result of the certain behavior. In addition, this model has been widely applied in academic research as well as in business practices and social fields. Advanced technologies are applied to provide products and services for individual customers (Bailey et al., 2017) includes online banking, mobile banking, or phone banking

(Patel & Patel, 2018; Martins et al., 2014; Abbad, 2013; Zhou & Yang, 2011); social networks (Kim, 2012); digital library (Chen et al., 2016; Kapoor et al., 2014); and in a diversity of other business operations based on different digital platforms (Demoulin and Djelassi, 2016).

The traditional TAM holds that a positive attitude toward new technology is the premise of intentions to adopt this technology (Gupta & Arora, 2017). There is a significantly positive correlation between users' attitudes and their adoption intentions toward a certain technology (Aboelmaged & Gebba, 2013). Previous review indicated that TAM could serve as a useful theoretical framework for current research (Lee & Lehto, 2013). Furthermore, according to Shaikh et al. (2020) TAM is considered by many researchers as a model that can provide insight into complex human behavior and extend further analysis of these behavioral factors in the direction of adopting the system specific. Similarly, TAM is still successful in developing more user adoption in the Information Systems field. Several researchers use the TAM to predict FinTech adoption, such as mobile payments in Taiwan (Wu & Wang, 2005), crypto payments in the Netherlands (Jonker, 2019), e-tickets in Finland (Mallat et al., 2009), as well as e-commerce (Smith et al., 2014) among other services. Few studies have analyzed consumers' bank switching behavior (Manrai and Manrai, 2007). The study of Lee & Lehto (2013) indicates that the attitudes influence their respective intentions and behaviors toward adopting a new technology. On the other hand, in some studies, applying TAM's theoretical framework have proposed to remove the attitude factor from the model because the perceived usefulness and ease of use directly influence the intention without go through the transitional factor as initially predicted (Koufaris, 2002; Patel & Patel, 2018). There was a close relationship between Perceived Usefulness and User Behavior Intent, in which there was no effect of the attitude factor (Venkatesh et al., 2003). However, in this study, to argue more closely, the attitude factor is used as intermediate issue before other factors influence to customers intention using services from the model.

2.2. *Intention to use (ITU)*

The Intention to use variable was based on the Behavioral Intent concept. According to the theory of reasoned action—TRA by Azjen & Fishbein (1980), the composition of the reason for deciding to take an action included: behavioral intention (BeI), the attitude of the subject towards the behavior (attitude-A), and the external subjective criteria affecting the behavior (subjective norm-SN). This doctrine proposed that a subject's behavioral intention depends on his or her attitude about the action and outside subjective criteria, following to the formula:

$$\text{Behavioral Intention (BeI)} = \text{Attitude towards Behavior (ATT)} + \text{Subjective Norm (SN)}$$

Behavioral intent measures the relative strength of an object of intent to perform an act. However, Fishbein & Ajzen (1977) suggested that the proportions of attitudes and subjective criteria in predicting behavior were very different. If the individual was the type of person who cared less about what those around him thought about his actions, the proportion of subjective norm (SN) would be less than the proportion of individual attitudes (A) when predicting the individual's behavior (Miller, 2005).

In the theory of "planned behavior" (TPB) (Ajzen, 2011) proposed "behavior control perception" factor to analyze the formation of attitude and behavior of performing an act. A person's attitude towards a thing or phenomenon was generally considered to be an important psychological structure, relatively permanent and stable. It was, furthermore, the factor that influences and predicts many

behaviors (Olson and Zanna, 1993). In general, the more positive an attitude toward a behavior was, the stronger an individual's intention to perform the act (Ajzen, 1991).

2.3. Attitude (ATT)

In the Theory of Reasoned Action (TRA), a specific personal behavior was influenced by one's BeI. In turn, BeI was determined by the person's attitude (ATT), in conjunction with subjective norm (SN). TAM model inherited TRA to explain users' acceptance on information technology, eliminating the impact of SN. TAM predicated that users' intention to use a technology product was based on their affective feelings about it, which was called attitude (Yang and Yoo, 2004). There were empirical studies that have approved the positive impact of users' attitude on their intent to use Fintech products and services (Teo et al., 2009; Kim and Woo, 2016; Bailey et al., 2017).

Hypothesis H1: Customers' ATT positively affects customer's intention to use high-tech products in combination between banks and Fintech.

2.4. Brand image (BI)

One characteristic of the service industry is that customer can only validate the quality after their usage of service. Therefore, it is common for customers to search for clues about service provider's quality before deciding to use it. Brand reputation is one of importance sources for customers to base their evaluation on. This factor is more critical to complex services like financial services, including banking and Fintech (Devlin, 1997). When the quality and functions of Fintech products and services were vague, reliable brands may be references for consumers (Pauline, 2003). A reputation brand, which was the result of the stability operations, long history of development and sustainability, can have positive effect on the intent of use (Wang and Li, 2012; Stocchi et al., 2019; Khodabandeh and Lindh, 2020).

Hypothesis H2: Perception of a bank's brand name positively affects the attitude of customers to use high-tech products combined between the bank and Fintech.

2.5. Trust

The trust has been identified by many studies that it has an impact on the intent to use Fintech products and services, especially due to their quality of immense and multidimensional data. Trust is an interdisciplinary concept that has been studied by many researchers in sociology, management, organizational behavior and many other disciplines (Lee and Turban, 2001; McKnight and Chervany, 2001). On research of the intention to use of banking products and services-fintech, trust referred to the overall perception of the benefits of the user. Kesharwani and Singh Bisht (2012) showed that user's trust could induce positive behaviors in the intent to use Fintech products and services, regarding its inherent characteristics (Lee and Turban, 2001). Researchers have found that trust is closely related to brand image and risk (Roy et al., 2012). User perception of banking brands and service risk perception would have significant impact on customers' confidence in the bank. In addition, many scholars have affirmed that user trust in services played an important role in deciding on using Fintech products.

In other words, the more users trust the service provider, the more willing they will be to use the service (Wu and Wang, 2005; Munoz-Leiva et al., 2017; Qiu and Li, 2008), means the easier it is to promote the behavior of use.

Concisely, if the brand perception and trust are higher, the attitude toward purchasing is more positive. When consumers believe that the information provided by the services provider is reliable, they will have a positive attitude toward using. Therefore, the definition of “trust” (brand and service trust) in this study is “the degree to which the customers” belief in reputation, website quality and system security are related to guest behavior of using Fintech products and services.

Hypothesis H3: Trust has a positive impact on the attitude of use of customers for banking-Fintech products.

2.6. The usefulness of the technology (PU)

Consumers’ attitude was determined to depend on their perception of the usefulness of technology (López-Nicolás et al., 2008; Dulcic et al., 2012; Wallace and Sheetz, 2014; Chuen, 2015). To promote willingness to use a new technology, potential users must perceive that the new technology could benefit them (Chau and Hu, 2002). The perception of Usefulness was also believed to be the perception of potential users about new technology that would increase their work efficiency and benefit them in the future (Moon and Kim, 2001). If users believe that the benefits offered by Fintech are useful (e.g. they can quickly complete their tasks) and easy to use (they can get started without someone else’s guidance), their attitude towards using Fintech is also higher. Therefore, the usefulness and ease of use of Fintech Service are the cognitive factors for consumers to accept the new technology.

Hypothesis H4: Perception of usefulness positively affects customers’ attitude to use bank-fintech products.

2.7. Perceived ease of use (CONV)

Perception of ease is another important factor in TAM model, refers to the degree to which potential users consider that new technology is easy to use (Moon and Kim, 2001). In this (Venkatesh and Davis, 2000) study, the degree of ease perceived is the one to which consumers feel comfortable during the process of learning to use services provided by Fintech companies. Fintech combined services could provide customers better experience, for instance, making customer feel more convenient or making products and services more customized to individual needs. This ability is the core determinant of user adoption.

In the field of banking, scholars have demonstrated a significant correlation between ease of use and new technology adoption. The perceived usefulness significantly affected user attitudes and willingness to adopt Fintech when users used complex information systems to conduct financial transactions via mobile devices (Riquelme and Rios, 2010). If users perceived that Fintech services were convenient, user-friendly, and easy to operate, they tended to accept them more (López-Nicolás et al., 2008; Dulcic et al., 2012; Kim and Woo, 2016). All TAM, TPB (planned behavior theory) and DTPB (decomposition theory of planned behavior) model agreed that “ease of use” had positive impact on the perceived usefulness.

Hypothesis H5: Perception of ease of use positively affects customers' attitude to use banking-Fintech products and services.

2.8. Perceived risk (PR)

Perception of risk is a form of mistrust and most scholars believe that perception of financial risk and privacy are major factors that negatively influence customers' technology adoption. Financial risk refers to a consumer's property loss. Privacy risk refers to the risk that personal and transactional data as well as other confidential information are disclosed when consumers use financial products through the Internet. Risk awareness was the most important factor influencing the adoption of electronic services (Liebermann and Stashevsky, 2002; Forsythe and Shi, 2003; Kesharwani and Singh Bisht, 2012; Munoz-Leiva et al., 2017).

Hypothesis H6: Perception of risk adversely affects customers' attitude to use banking-fintech combined high-tech products.

2.9. User innovativeness (UI)

User innovativeness or trendiness is defined as the degree of early acceptance of innovation; The degree to which individual users tend to try new products, new technologies or services. When individuals are highly innovative, they are less risk-averse and more receptive to technological innovation (Aldás-Manzano, et al. 2009; Ratten, 2014; Thakur and Srivastava, 2015).

Hypothesis H7: Perception of contemporary when using new products and/or services positively affects customers' attitude to use high-tech products combined between the bank and Fintech.

3. Methods

Motivation and the possibility of cooperation between the banks and fintech companies not only depend on their own needs but also on the customers' acceptance of their joint products. The more the intention to use the joint products, the higher the possibility of the actual consumption of the end users. The research plans to conduct a customer survey in order to analyze the collected data to identify the factors affecting the intention to use the bank-fintech high-tech products. The findings of the research provide the empirical evidence for banks and fintech companies to act on the critical factors to facilitate the intention to use the high-tech products.

3.1. Framework

The research model is built based on TAM. However, in addition to the two variables: perceived usefulness and perceived ease of use in the original TAM, this study identifies additional factors such as brand image, trust, user innovativeness, perceived risk identified from recent studies on acceptance behavior of customer in the 3.0 and 4.0 technology era; to determine the suitable financial products offered from the partnership between banks and fintech, as well as consumer attitudes influenced by each factor. Furthermore, this study also investigates how customers' attitude can have an impact on

their intention to use fintech products. With the expanded TAM model, the research provides more comprehensive empirical evidence to help banks and Fintechs's decision makers to promoteon the factors that can help improve the number of customers using high-tech products offered by banks and fintechs' partnerships.

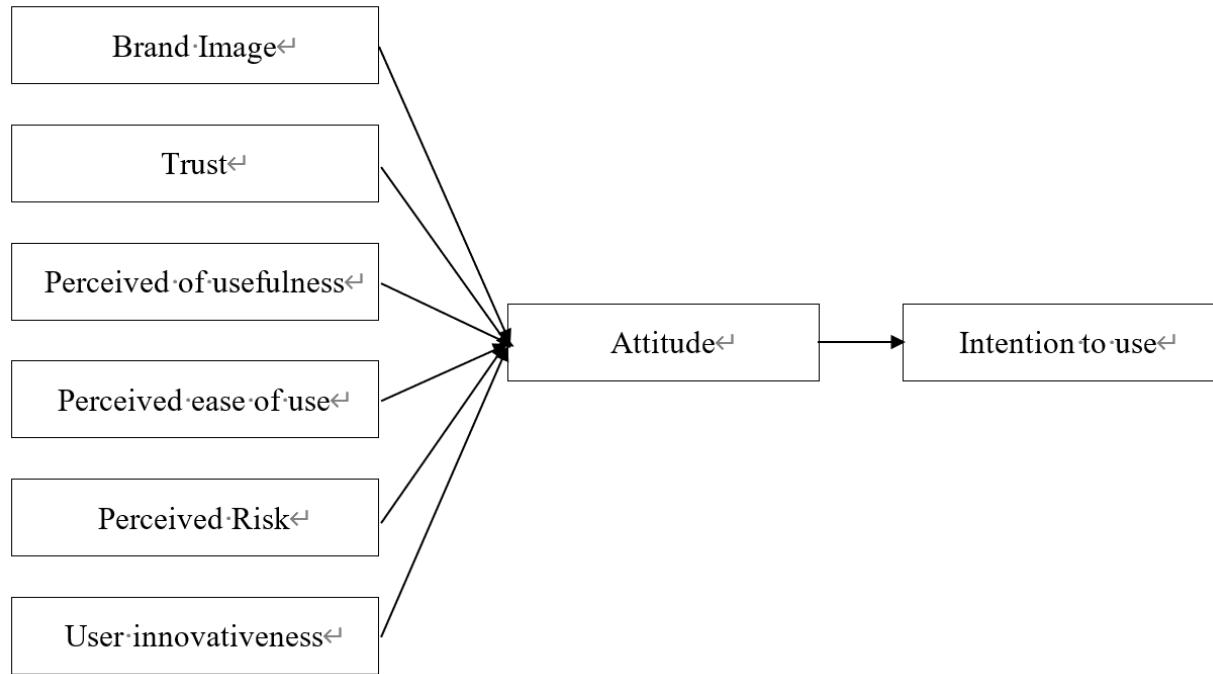


Figure 1. Research framework.

3.2. Instruments

The measurement of items is adopted from previous studies (Table 1). The variables of all items are measured on five-point Likert scale. The scale ranges from 1 which is strongly disagree to 5 for strongly agree.

3.3. Data sample

Field data collection is handled by sending questionnaires randomly and directly to those who agree to participate, as well via online Google document. The total number of returned questionnaires is 254 from 300 sent out. To improve the data reliability, questionnaires with only one option selected throughout or missing three consecutive answers discarded. After screening the returned questionnaires, 234 valid ones are utilized for data analysis. Among 234 observations, there are 134 female customers and 101 male customers.

Table 1. Measurement of research items.

Code	Variables	References
<i>Brand Image: BI</i>		
BI1	I choose these banking-Fintech products because the bank always provides good products and services.	(Ruparelia et al., 2010; Ha, 2004)
BI2	I choose these banking-Fintech products because the bank is familiar to me.	
BI3	I choose to use these banking-Fintech products because the bank has a good reputation.	
<i>TRUST</i>		
TRU1	Banking - Fintech products keep personal information secure.	(Chong et al., 2010;
TRU2	In general, Banking - Fintech products are reliable.	Sanchez et al., 2018)
<i>Perceived usefulness- PU</i>		
PU1	I can achieve my need using Banking-Fintech products.	(Lockett & Littler, 1997; Huh et al., 2009)
PU2	Using Banking-Fintech products help me save time in transactions.	
PU3	Banking-Fintech products increase transaction efficiency compared to traditional banking products.	
PU4	The association with Fintech helps banking products increase usefulness.	
<i>Perceived ease of use (PEU)</i>		
PEU1	Banking-Fintech products are easy to use.	(Cheng et al., 2006;
PEU2	Banking-Fintech products' interface is easy to understand.	Wang et al., 2003)
PEU3	Banking-Fintech products are easily used on available devices (smart phone, App, wifi ...).	
<i>Perceived risk (PR)</i>		
PR1	I am afraid money is easily stolen from my bank account.	
PR2	I am afraid personal information is easily disclosed when using banking-Fintech products.	
PR 3	Overall, I feel insecure when using banking-Fintech products.	
<i>User innovativeness (UI)</i>		
UI1	When I heard about a new product, I would try it.	(Zhang et al., 2018)
UI2	I am usually the pioneer to try a new product.	
<i>Attitude (ATT)</i>		
ATT1	I believe using banking-Fintech products is a good idea.	(Grabner & Faullant, 2008)
ATT2	Using banking-Fintech products brings me a feeling of discovery.	
ATT3	I am interested in banking-Fintech products.	
<i>Intention to Use (ITU)</i>		
INT1	I will be using banking-Fintech products soon.	(Marakarkandy et al., 2017; Patel & Patel, 2018)
INT2	I am willing to keep using banking-Fintech products.	
INT3	I will recommend my friends to use banking-Fintech products.	

4. Results and discussions

Data collected from 234 customers are used to test the measurement scales of the constructs in the research study, inspecting reliability with Cronbach alpha and their underlying relationships with exploratory factor analysis. After the tests, the data and the measurement scales will be used to test the research model and confirm the research hypotheses using AMOS 18.

Research to test scale reliability by analyzing Conbach alpha, composite reliability— ρ_c , and variance extracted— ρ_{vc} ; convergence and discriminant of the scale of research concepts by exploratory factor analysis (EFA) and Confirmatory Factor Analysis (CFA).

To test the scale reliability, Cronbach alpha is employed. The results indicate that the alphas of all constructs are greater than 0.7 and item-total relationships are all greater than 0.3. Hence, the measurement scales are highly reliable. With the sample of 234, all 20 measurement variables are the inputs for exploratory factor analysis. With the use of Equamax rotation, the variable BI1 used for measuring BI is loaded into three constructs and its weights at the three constructs are not much different. Similarly, the observed variables P1 and ATT1 are not converged at the intended constructs. To increase the convergence of these items, BI1, P1 and ATT1 are omitted from measuring brand image, perceived usefulness and customer attitude. EFA outputs after dropping P1, BI1 and ATT1 indicate the acceptable levels of convergence.

The measurement scales are next tested with Confirmatory Factor Analysis CFA. The results include $CMIN/DF = 1.535 < 3$; $RMSEA = 0.048 < 0.08$; $TLI = 0.957$ and $CFI = 0.971$ (both greater than 0.9 and less than 1), therefore, it indicates the fit between observed data and the conceptualized model (Bentler and Bonett, 1980; Carmines and McIver, 1983; Steiger, 1990).

Standardized regression weights (Table 2) indicate that all standardized weights of the variables are over 0.5 and statistically significant. Therefore, the measurement scales of the research constructs all satisfy convergent validity (Gerbing and Anderson, 1988).

Table 2. Standardized regression weights.

			Estimate			Estimate	
ITU2	<---	ITU	0.826	P4	<---	PU	0.788
ITU1	<---	ITU	0.827	P2	<---	PU	0.840
ITU3	<---	ITU	0.841	Trust1	<---	TRUST	0.827
PR2	<---	PR	0.843	Trust2	<---	TRUST	0.883
PR1	<---	PR	0.775	Per2	<---	UI	0.900
PR3	<---	PR	0.690	Per1	<---	UI	0.870
Conv1	<---	PEU	0.822	ATT2	<---	Attitude	0.853
Conv3	<---	PEU	0.778	ATT3	<---	Attitude	0.867
Conv2	<---	PEU	0.871	BI3	<---	BI	0.632
P3	<---	PU	0.793	BI2	<---	BI	0.708

The outputs of the tests of correlation between observed variables and the constructs are given in Appendix 1. The correlation coefficients among research constructs are different from 1 and the standard errors are all less than 1 and statistically significant. There fore, the discriminant validity is secured.

The test for reliability is conducted with three indicators: Cronbach alpha, composite reliability— ρ_c , and variance extracted— ρ_{vc} . From the CFA output of AMOS software of the saturated model and Cronbach alpha calculated with SPSS software, the authors use Excel to calculate ρ_c , ρ_{vc} and Cronbach alpha (Appendix 2). It is evident that the scales satisfy reliability when ρ_c , ρ_{vc} are greater than 0.5 and $\rho_c \geq$ Cronbach alpha (Hair, 1998).

The scales for ITU, Trust, Conv, ATT, BI satisfy reliability as ρ_c and ρ_{vc} are greater than 0.5 and composite reliability $\rho_c \geq$ Cronbach alpha. As for PR, P and Per, they have ρ_c close to Cronbach alpha, but the differences are not much so their scales satisfy composite reliability. All 20 observed variables measuring 8 constructs are then used to test the research model and the research hypotheses with AMOS 18 software.

4.1. Econometric model and model testing

The measurement scales for the research constructs fitting the content validity, convergent validity and discriminant validity as well as reliability, are used to test the theoretical model with the technique of structural equation modeling and AMOS 18.

The estimates (standardized) of the parameters of the official research model are presented in Table 2. The relationships among the constructs of the model are all statistically significant ($p < 0.05$).

The non-standardized results indicate that perceived usefulness, trust, and user innovativeness influence their behavior with confidence level of 95%. The brand image (BI) positively influences the behavior at 94% confidence level. There is no evidence on the effect of convenience and perceived risk on the customers Attitude on the joint products between banks and fintech companies. The results also show that attitude positively affects the intention to use the product, which is statistically significant $p = 1\%$ (see Table 3).

Table 3. Regression of research constructs.

			Estimate regression weights	S0.E0.	C0.R0.	P
			Unstandardized	Standardized		
ATT	<---	BI	0.455	0.371	0.247	10.843
ATT	<---	UI	0.112	0.163	0.055	20.056
ATT	<---	TRUST	0.207	0.251	0.077	20.698
ATT	<---	PU	0.561	0.538	0.132	40.231
ATT	<---	PR	-0.045	-0.063	0.041	-10.098
ATT	<---	CONV	-0.201	-0.204	0.126	-10.596
ITU	<---	ATT	0.835	0.829	0.071	110.778

The econometric model can be summarized as following:

$$Y = \alpha + \beta_i X_i + \varepsilon \quad (1)$$

where: i represents the number of independent variables.

Y is the intention to use financial products and services of customers.

X_i represents specific independent variables such as brand image (BI), user innovativeness (UI), customers' trust (TRUST), perceived usefulness (PU), perceived risk (PR), convenience (CONV) and customers' attitude (ATT).

4.2. Hypothesis tests

The standardized regressions (Table 2) indicate that the image of the bank influence the behavior of the customers towards the product ($\beta = 0.371, p < 0.05$). The hypothesis H1 is then accepted. So, the Vietnamese customers are more concerned about the image of the fintech service suppliers. This fits with what happen in reality in Vietnam when technology products provided by fintech companies are not yet popular, especially to those of middle age and older. As per documented in “Vietnam Fintech Report 2020”, 72% of fintech companies in Vietnam have joined force with banks to provide services of payment, P2C, P2P, C2C, B2B rather than having decided to become their direct competitors. This is a sensible decision because fintech companies are new, so the customers may not be ready to use their services. When contemplating the possible usage, the customers look for information from the existing providers of similar services or from those who had collaborating relationships with fintech companies. The search words for fintech products leading to the webpage of a bank may strengthen the trust for the customers about the products. From this reasoning, when the customers are confused about the use of a new high-tech product, if it is provided by a bank with positive branding impression, behavior intention would increase and the possibility of actual use of the product would increase as well. Ratnasingham (2003) also points out that when product information has not been verified by consumers, brands would help them to make decision. The customers select the high-tech products of the bank when they had positively experienced other services that the bank supplied. There are also cases when the customers decide to use the joint products of banks in collaborating with fintech companies because of the reputation of the banks.

The findings also reveal the impact of customer trust on behavior intention ($\beta = 0.251, p < 0.05$), and consequently on usage intention ($\beta = 0.829, p < 0.05$). The hypothesis H2 is then accepted. Given the characteristics of the high-tech joint products provided by banks and fintech companies, the customers tend to have positive attitude towards the product and then increase the intention use them (Kesharwani and Singh Bisht, 2012; Malaquias and Hwang, 2016). So, for customers to accept and select to use the joint products, both banks and fintech companies have to make sure that the customers feel secure for personal information, trust the commitment of the products to the features of their products.

With the estimated $\beta = 0.538$ and significant level $p < 0.05$, hypothesis H3 is accepted. The usefulness of the product influences the most on behavior then positively influences the behavior intention ($\beta = 0.829; p_{value} < 0.05$). The customers find a high-tech product helpful for work efficiency and of essential benefits, they in turn would have positive behavior on the product and increase intention to use it. Therefore, to attract the customers to use the high-tech products, banks and fintech companies have to focus on the benefits of the products brought to the customers. The fintech companies can take advantage of regulation on KYC that the state bank requires the commercial banks to obtain wet signatures of the customers in their initial transactions with the banks or when having special requests. The customers in these cases have to go to the branches of the banks to provide information verified by manual signatures. However, the fintech companies are not regulated by the stipulation on KYC in verifying wet signature, and even can forgo a signature. Then, when using the joint products of fintech companies and banks, the customers can have confidence in using the bank services, at the same time can benefit from the advantages of the product offered by fintech companies.

Research findings identify no evidence of the impact of convenience and perceived risks on customer behaviors (coefficients and significance levels for convenience and perceived risks are respectively $\beta = -0.201$; $p_{value} = 0.11$ and $\beta = -0.045$; $p_{value} = 0.272$). The consumers may have already felt that convenience improves product usefulness. For fintech products, the consumers fear the financial risks and privacy risks so the positive behavior and intention to use decrease (Bansal et al., 2010; Khedmatgozar and Shahnazi, 2018). However, for the joint products offered by banks and fintech companies, perceived risks seem not to influence behavior and intention of use as the customers tend to assume that they are using the products provided by the banks (instead of the fintech partner which they might not be aware of) with high level of security.

Similar to the findings of Leicht et al. (2018), Hu et al. (2019), the standardized regression weights show that user innovativeness positively affects behavior ($\beta = 0.163$; $p_{value} < 0.05$). Hypothesis H6 is then accepted. So, when the customers have enough understanding and can easily approach and accept technology change (higher user innovativeness), their behavior towards the high-tech products jointly offered by banks and fintech companies changes positively. Intention to use then also increases. It is an advantage for fintech companies and banks when the Global Innovation Index 2020 of Vietnam ranks 42 in the world and places 3rd among Asean countries (WIPO, 2020). Besides, by 2020 Vietnam with population of 97.4 million, has internet covering 52% of the population, and 45% of its people are using smart phones (Fintech Singapore, 2020). Therefore, with high innovation index, high percentage of internet and smart phone penetration, Vietnam is a lucrative market for fintech companies to enjoy.

5. Conclusions

The research study reveals that the customers have positive behaviors and increased intention to use for the products which are practical, time-saving and cost-saving. When the customers have confidence about security and personal information confidentiality, they feel positive about the product and increase their intention to use. Besides, comments about the images of the banks and fintech companies also influence the behavior and intention to use. The higher the customers appreciate the image of the banks and fintech companies, the more positive feelings they have towards the products offered by the banks and fintech companies, and the intention to use increases. In addition, the customers would have no concerns about trying the products if they are more adventurous and curious about the products on smartphones. Perceived risks and convenience do not influence behavior and then have no impact on intention to use the products integrated to banks' products or distributed via the banking channels. Therefore, in order to attract the customers to products jointly provided by banks and fintech companies, both need to pay attention to products' practicality, create trust, develop positive brands and images, and focus the managerial efforts on the younger customers who prefer to explore and experience.

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Conflict of interest

The authors declare no conflicts of interest in this paper.

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