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THE EFFECT OF PERCEIVED RISK ON INTENTION TO USE MOBILE BANKING IN HANOI

Nguyen Dang Hai Yen, Nguyen Hong Hanh, Le Thi Thuy An, Vu Hong Dieu*

National Economics University, Vietnam

**Email address: haiyenlnqk36c@gmail.com*

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Abstract:

As banking services become more and more developed, customers demand a new form of convenient experience that can satisfy the need to pay at any time without using cash. With the advancement of technology and telecommunications, the commercial banks continuously develop Mobile Banking (mobile banking service) to meet the market's needs. However, in the process of using Mobile Banking, customers encounter technology and non-technological problems. In the face of the increase in crimes in the online environment, users are more cautious and hardly trust Mobile Banking services. Because of the above reasons, the research focuses on analyzing the factors affecting the intention to use Mobile Banking service based on the theory of technology acceptance model and the theory of perceived risk. Valid data were collected from 512 people in Hanoi city to test the proposed model. The study uses the linear structural modeling method to identify the influence of perceived risk factors (including: privacy risk, financial risk, psychological risk, time risk, operational risk) on perceived usefulness and intention to use Mobile Banking, and studies the effect of perceived usefulness on intention to use Mobile Banking. Based on the research results, the article proposes some comments and recommendations to promote the enhancement of Mobile Banking

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ẢNH HƯỞNG CỦA RỦI RO CẢM NHẬN ĐẾN Ý ĐỊNH SỬ DỤNG MOBILE BANKING TRÊN ĐỊA BÀN THÀNH PHỐ HÀ NỘI

Nguyễn Đăng Hải Yến, Nguyễn Hồng Hạnh, Lê Thị Thúy An, Vũ Hồng Diệu*

Đại học Kinh tế Quốc dân, Việt Nam

**Địa chỉ email: haiyenlnqk36c@gmail.com*

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Ý định sử dụng.

Tóm tắt

Khi dịch vụ ngân hàng ngày càng phát triển, khách hàng bắt đầu đòi hỏi một hình thức trải nghiệm mới thuận tiện, đáp ứng được nhu cầu thanh toán bất cứ lúc nào mà không cần sử dụng tiền mặt. Với sự tiến bộ của công nghệ - viễn thông, các ngân hàng thương mại liên tục phát triển Mobile Banking (dịch vụ ngân hàng di động) để đáp ứng nhu cầu của thị trường. Tuy nhiên trong quá trình sử dụng Mobile Banking, khách hàng còn gặp phải các vấn đề về công nghệ và phi công nghệ. Trước sự gia tăng các loại tội phạm trên môi trường mạng, người dùng lại càng thận trọng và chưa hoàn toàn tin tưởng loại hình dịch vụ này. Chính vì những lý do trên, nghiên cứu tập trung phân tích các yếu tố ảnh hưởng đến ý định sử dụng Mobile Banking dựa trên lý thuyết mô hình chấp nhận công nghệ và thuyết về rủi ro cảm nhận. Dữ liệu hợp lệ được tập hợp từ 512 người dân trên địa bàn thành phố Hà Nội nhằm kiểm định mô hình đề xuất. Nghiên cứu sử dụng phương pháp mô hình cấu trúc tuyến tính để nhận diện sự ảnh hưởng của các yếu tố thuộc nhóm rủi ro cảm nhận (gồm: rủi ro riêng tư, rủi ro tài chính, rủi ro tâm lý, rủi ro thời gian, rủi ro hoạt động) đến cảm nhận tính hữu ích và ý định sử dụng Mobile Banking, đồng thời nghiên cứu ảnh hưởng cảm nhận tính hữu ích đến ý định sử dụng Mobile Banking. Dựa trên kết quả nghiên cứu, một số bình luận và kiến nghị được đưa ra nhằm thúc đẩy sự phát triển của Mobile Banking.

1. Introduction

In the context of developing countries' economies, consumer needs also change a lot on most goods and services, including banking services. Along with the continuous advancement of technology, Mobile Banking has appeared to meet the needs of the market.

Vietnam is no exception to the trend of the world and the Vietnamese banking industry is constantly learning, integrating technology in operations and digitizing business processes in the direction of automation and intelligence to help banks. The bank can conduct business, provide products and services easily on digital platforms, effectively exploit data to increase customer experience and engage customers.

According to Statista's statistics (2022), the number of Mobile Banking transactions in Vietnam reached 506 million transactions with a value of VND 500

billion in the third quarter of 2021. The number of customers using Mobile Banking in 2021 reached 28.6 million people and this number is forecast to increase and reach 34.6 million people by 2025 (Statista, 2022b). However, in the process of using the Bank's Mobile Banking transaction system, customers still encounter problems with technology (such as slow speed, incorrect transactions, system errors) and non-technology (such as service fees, complicated procedures) (Le, 2021). In addition, in the face of the increasing trend of crimes in the online environment with more and more sophisticated and complex tricks, users are more cautious and do not really trust Mobile Banking services. Several studies on mobile banking acceptance have shown that perceived risk is one of the main factors that make people refuse or are reluctant to use mobile banking services (Dasgupta et al. , 2011). In other words, perceived risk affects customers' intention to use Mobile Banking services. [1], [2].

There have been a number of studies that have tested the influence model of perceived risk on the intention to use some services such as online banking (Internet Banking) (Reepu and Rakhi Arora, 2022), peer-to-peer payment services. (P2P) (Daniel Belanche et al., 2022), but there is still a research gap on the number of observed samples, the perceived usefulness factor of the Mobile Banking application, which is believed to have a certain influence on the user's intention to use, has not been researched. In Vietnam today, researches related to new banking services such as mobile banking (Mobile Banking) (Ngo Duc Chien, 2022), mobile money (Mobile Money) (Nguyen Thuong Lang, 2021), Smart banking (Ha Nam Khanh Giao et al., 2020)... mainly the factors affecting the intention to use and there has not been any research focusing on specific analysis of perceived risk and their impact on perceived usefulness and intention to use Mobile Banking.

To solve the above urgent problem, the research team has chosen the topic "The effect of perceived risk on intention to use Mobile Banking in Hanoi". From there, the research proposes solutions and recommendations to promote the development of Mobile Banking in Hanoi city, create convenience in commercial transactions and improve the potential of the economy. [3], [4], [5], [6].

2. Theoretical Model

Technology Model Acceptance

Based on the theory of TRA and TPB, author Davis published the TAM Technology Acceptance Model in 1989. In particular, the TAM model has attracted a lot of attention from researchers in the field of management information systems when this model became the core theoretical foundation and was used to develop successful information systems (Taylor & Todd, 1995). This model explains the intention of consumer's behavior to accept technology will be based on attitude towards behavior and perceived usefulness of technology [7], [8].

The model used two factors of information technology adoption: "perceived usefulness" (PU) and "perceived ease of use" (PEU). PU reflects "the degree to which an individual believes that using a particular system will improve his or her job performance." The PEU explains "the degree to which an individual believes that using a particular system will not require effort" (Davis, 1985).The experimental results show a strong relationship between perceived usefulness and ease of use and intention and use, in which, PU and PEU factors have has a positive effect on user intention to use, PU plays the main important role, PEU is a secondary determinant, attitude only acts as a mediating factor affecting intention. Use and intention to use affect the behavior of accepting information technology systems or services. [9]

Theory of Perceived Risk

The theory of perceived risk was first defined by Raymond Bauer in 1960 to identify customer behavior and examine the factors that influence them when making decisions (Taylor, 1974). According to Bauer, perceived risk is the customer's perception of the effects and unexpected results that can be received in the process of consuming goods/services. Several studies on the adoption of new technologies show that the user's perceived risk is an important factor in the

adoption of such technology (Chen, 2013; Laforet and Li, 2005). [10], [11], [12], [13]

Lee's study (2009) highlights how perceived risk reduces perceived usefulness and ease of use, and thus affects intention to use. Several studies on mobile banking acceptance have shown that perceived risk is one of the main factors that cause people to refuse or be reluctant to use mobile banking services (Dasgupta et al. , 2011). [14], [15]

According to Bauer (1960) risk can be classified into six aspects including: Financial risk, Performance risk, Time risk, Social risk, Psychological risk and Privacy Risks. [10]

3. Theoretical Framework

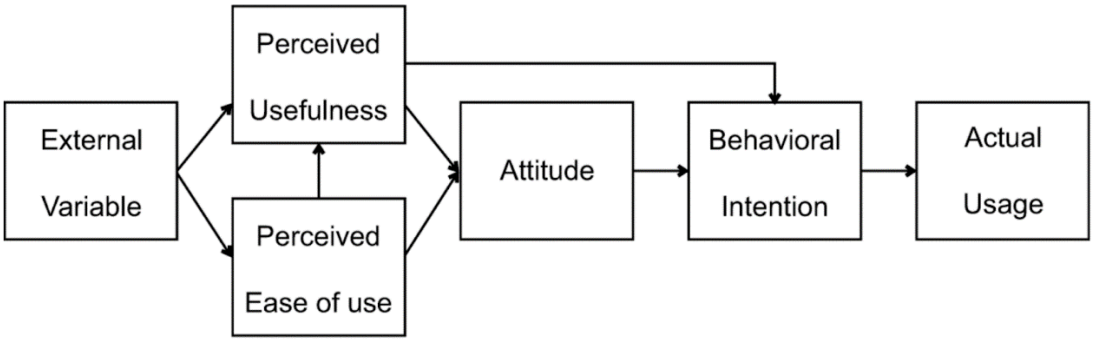

Figure 1: T echnology Acceptance Model

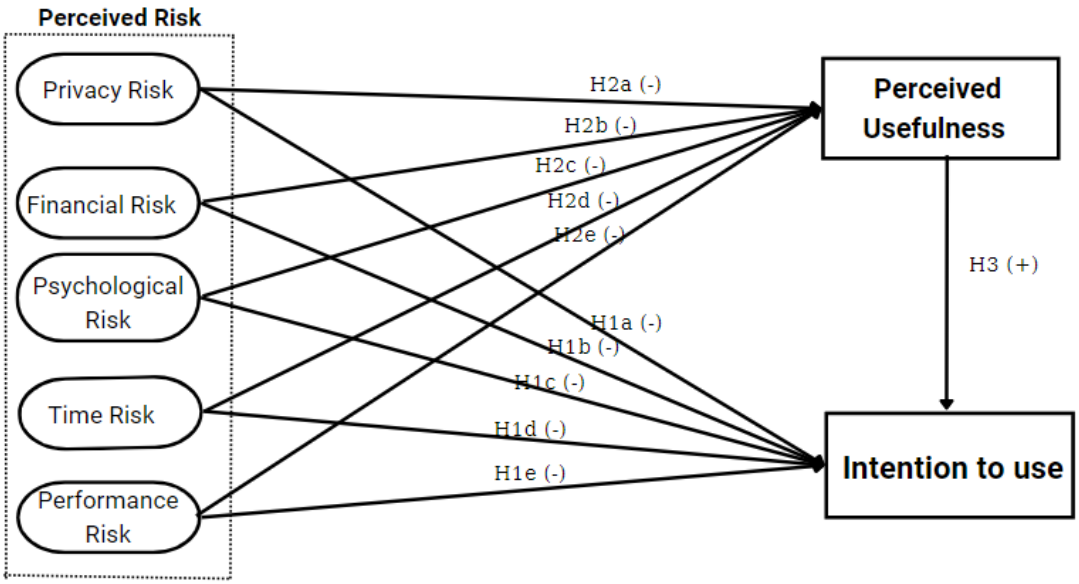

Fig.2 depicts our hypotheses and theoretical model.

4. Results

4.1 Setup and Data collection

The scale is developed from previous studies and is adjusted based on the context of Mobile Banking in Vietnam. A five-point Likert scale was applied to each question (1) - "Strongly disagree", (2) - "Disagree", (3) - "Normal", (4) - "Strongly agree". agree", (5) - "Totally agree".

Using the linear regression method, the number of survey samples suitable for factor analysis is at least 5 times higher than the total number of observed variables or the sum of questions serving the focus of the research in the survey (Comrey, 1973 and Roger, 2006) or calculated by the formula n = 50 + 8*m where m is the number of independent variables in the research model according to Tabachnick and Fidell (1996). This research has 5 independent variables, so the number of observed variables is 90 (=50 + 8*5). To ensure reliability, the study wishes to collect 450

samples (=90*5), including 350 online and 100 face-to-face surveys. [16]

Research using survey technique by questionnaire designed on Google Form to share links on social networks such as Facebook, Zalo, along with the traditional method of distributing survey questionnaires. In the introduction of information posted on social networks and the beginning of the questionnaire, the study limited the survey subjects, specifically people aged 15 years and older in Hanoi city. Survey results collected and after cleaning based on a number of issues such as duplicate survey questionnaires and/or incomplete answers, the number of valid votes is 512, accounting for 113.78%: online questionnaire survey (online) obtained 382 valid survey samples, exceeding the target of 350 samples set by the group; Direct survey questionnaires were distributed by the group in districts in Hanoi city, and 130 valid survey samples were collected. The survey process was carried out from December 29, 2022 to February 13, 2023. The authors used IBM SPSS Statistics 22.0 software, IBM SPSS AMOS 22.0 combined with Microsoft Excel 2013.

4.2 Discuss results

This scientific research has demonstrated that "Perceived risk" has a negative effect on "intent to use". It can be said that this correlation is similar to previous research. However, adding the element "Performance risk" instead of "Social risk" is in line with practice, especially when this live service is subject to occasional maintenance, causing inconvenience; Besides, the popularity of Mobile Banking today as well as awareness of this service has increased after the period of Covid-19 acute respiratory infection. Generalizing such practice, the authors decided to choose the factor "Performance risk". Accordingly, the factors that are negatively correlated with "intent to use" in decreasing order of magnitude are as follows: (1) "Privacy risk", (2) "Financial risk", (3) "Privacy risk". Time risk", (4) "Psychological risk", (5) "Performance risk".

Accordingly, the factor "Privacy risk" has the greatest impact on "intention to use", specifically, when privacy risk increases by 1 unit, the intention to use decreases by 0.214 units. The reason given by users is still worried about the security of personal information of online services (especially online payment services such as Mobile Banking); Besides, now there is still some information on the Internet such as commercial banks being hacked by hackers, threatening to sell customer data. Overall, all of this has created anxiety. about customer privacy. The second most influential factor on 'intent to use' is "Financial risk", when financial risk increases by 1 unit, intention to use decreases by 0.193 units. The reason given is that customers also find that Mobile Banking is more prone to financial problems than traditional banking services, such as: money being hacked, error manipulation leading to money loss. In addition, the factors "Time risk" with impact level -0.141; "Psychological risk" with an impact level of -0.134; also have a significant impact on "intention to use". The factor "Performance risk" has the lowest impact on "intent to use", specifically, when performance risk increases by 1 unit, intention to use decreases by 0.128 units. The two main reasons to explain this are as follows. Firstly, on the demand side, users think that performance risk does not affect their decision to use Mobile Banking too much because the probability of it causing serious damage such as privacy risk, financial risk is lower. Secondly, on the supply side, commercial banks have increased the application of Basel II standards, some banks such as VIB, Vietcombank, SeABank, VPBank, TPBank, MSB, VietCapitalBank, SHB, LienVietPostBank, HDBank,... have completed three important pillars of Basel II. This has shown that commercial banks have initially met the requirements of governance, risk management and capital management according to international standards. Therefore, performance risk management has been strengthened and improved. In addition, the information about this performance risk management platform also contributes to improving people's trust level.

This scientific research has also shown the relationship between "Perceived usefulness" and "Perceived risk", "intent to use". These perceived risk factors are negatively correlated with "Perceived usefulness". This is a new point of this research compared with previous Vietnamese studies such as that of Ngo Duc Chieu (2022), Nguyen Thuong Lang et al (2021),... when the previous authors often separate

them, analyzed the influence of these two variables on intention to use, but did not study the relationship between "Perceived usefulness" and "Perceived risk". And according to the results of this scientific research, these perceived risk factors are negatively correlated with "Perceived usefulness". The factor with the greatest impact is still "Privacy risk", it can be seen that, "Privacy risk" increases by 1 unit, the perceived usefulness decreases by 0.338 units. This highlights that the privacy risk has significantly reduced the perceived usefulness of the Mobile Banking service by users. It is followed by "Performance Risk" with an impact on "perceived usefulness" of -0.323. It can be seen that as analyzed above, the performance risk factor is not so important to the intention to use Mobile Banking, but through this analysis, it can be seen that the performance risk has a large impact on the perceived usefulness. This shows that, although performance risk does not affect behavioral intentions too much, it has a large impact, namely reducing perceived usefulness of this service. This is completely consistent with the reality and perception of the user. In addition, the factors "Financial risk" with impact level -0.293, "Time risk" with impact level -0.265, also have a significant impact on "Perceived usefulness". The factor "Psychological risk" has the lowest impact on "Perceived usefulness", specifically, when psychological risk increases by 1 unit, the intention to use decreases by 0.242 units.

This scientific research also demonstrated the positive influence of "Perceived usefulness" on "intention to use". This once again proves that people will use online payment services if they find the usefulness of such technology. [4], [6]

5. Conclusion and future work

This research has demonstrated that "perceived risk" has a negative effect on "intent to use". Accordingly, the factors that are negatively correlated with "intention to use" in decreasing order of magnitude are as follows: (1) "Privacy risk", (2) "Financial risk", (3) "Risk of time risk", (4) "Psychological risk", (5) "Performance risk".

This research has also shown the relationship between "Perceived usefulness" and "Perceived risk", "intent to use". These perceived risk factors are negatively correlated with "Perceived usefulness", in decreasing order of magnitude as follows (1) "Privacy risk", (2) "Performance risk", (3) "Financial risk", (4) "Time risk", (5) "Psychological risk". In addition, "Perceived usefulness" is positively correlated with "intent to use".

However, *firstly*, this research did not demonstrate an effect of gender similar to the research of Tan et al (2014). Besides, age, experience are also notable moderating variables, which can affect "intention to use". *Secondly*, this research has not considered the factor "Perceived ease of use" in the TAM model. *Thirdly,* the new research sample only concentrated in the districts of Hanoi city. These may become points worth adding and developing in further studies.

But in general, from the results obtained from the research, the authors have analyzed and proposed a number of solutions to improve the quality of Mobile Banking and the intention to use the service of customers as follows:

Promote awareness of the usefulness of the service to users.

Banks should convince and demonstrate to users about the usefulness that Mobile Banking brings. It should be popularized and emphasized that transactions via Mobile Banking are very quick, do not have to go to the bank, users can perform transactions 24/24h, easier to use than transactions at the counter, especially helps users save costs compared to conventional forms. Actively listen to customers' opinions and feedback, thereby overcoming the limitations of the service as well as adding useful and practical features contributed by customers.

Reduce perceived risk

Firstly, invest in perfecting and applying technology, with modern digital applications, protecting customer information, ensuring safety when transacting online, ensuring that there are no cases of loss or damage. draining users' money due to unauthorized access to the banking system. Improve processing speed for transactions through bandwidth expansion, Internet connection, avoid "hang" and "slow" transactions due to mobile network speed.

Secondly, the bank needs to commit to take responsibility and fulfill its commitment when there is a risk, to ensure that customers can be completely assured when using the service.

At the same time, banks need to provide knowledge and information to customers so that customers can assess and be aware of the dangers when using e-banking; always advise, warn and guide customers to be aware of risks, threats, and sophisticated scams of bad actors.

Thirdly, designing digital banking service applications with friendly interface, easy to see, easy to understand, few steps to access, with very high visual and audible instructions will make customers feel the implementation Transaction operations become easier, saving time in learning how to use the service.

Fourth, regularly participate in activities for the community, sponsor programs, to bring the image of the bank to users in the most friendly and closest way, creating trust and peace of mind. when using the bank's Mobile Banking service.

Fifth, strictly manage, establish a reasonable decentralized system for internal employees. It is necessary to clearly define the responsibilities and duties of each department and individual to be able to operate the e-banking system smoothly, to limit confusion due to professional errors and employees' operations. .

In addition to solutions from the bank, some other subjects should also contribute to improving the experience of using Mobile Banking.

Users who choose to use Mobile Banking should improve their knowledge and be alert to potential risks that may be encountered. On the side of the state bank, it is possible to organize concentration classes for commercial banks to learn and improve services and propose tough sanctions to limit fraud cases in the bank. In addition, the government needs to continue to build and complete the legal corridor for digital banking activities and invest in the development of advanced technology infrastructure. The Ministry of Information and Communications should promote financial education and communication programs to improve knowledge and skills in using digital products and services for people.

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