



DETERMINING FACTORS AFFECTING THE DECISION TO USE E-BANKING MOBILE APPLICATIONS IN HO CHI MINH CITY

NGUYEN NGOC HOA

Abstract: Following the outbreak of COVID-19 in 2021, Ho Chi Minh City was placed under quarantine. This has resulted in a surge in demand for information technology for services provided by banks. Particularly, a series of banks have launched smartphone application services to serve their customers. Although many banks have provided smartphone application services before, the numbers of users and transactions were low, despite their many conveniences. The growth of smartphone application services provided by banks is negatively impacted by a number of factors.

Keywords: Influencing factors, bank's smartphone application.

Received: January 19th, 2022

Revised: February 7th, 2022

Accepted: March 4th, 2022

Introduction

The concern about the safety and security of customers' transactions is a long-standing problem. Most Vietnamese people do not fully understand the function of smartphone application provided by banks as well as the benefits it brings, so they tend to find the application complicated, confusing, and annoying.

In the past, many incidents in transactions, fraud in card payment and electronic payment activities, and cases of accounts being hacked by hackers have contributed greatly to the uncertainty of electronic banking service and mobile banking applications.

From this situation, it is necessary and appropriate to propose a study from the perspective of specific influencing factors of users on applications provided by banks.

In the past time, many incidents in transactions, fraud in card payment and electronic payment activities, cases of accounts being hacked by hackers have contributed greatly to the uncertainty of the banking service. electronic banking and mobile banking applications.

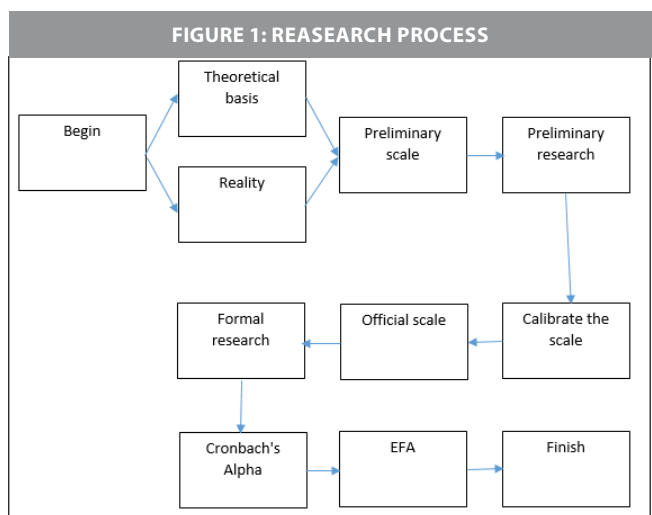
Research process

The study was carried out in two steps.

- Preliminary research.
- Formal research.

First, from the theoretical basis and the actual situation in Ho Chi Minh City, the author builds a scale for the research. Next, the author conducts direct interviews with experienced experts in the banking sector. The calibration scale from the preliminary scale was used as the official research scale.

Formal research uses Likert scale with 5 steps to evaluate observed variables.



Source: Proposed by author

Objective and Research Methods

Research Objective

To research the factors affecting the decision to use e-banking applications on smartphones. The data is collected from a survey of customers who are currently using or have used in the past banks' smartphone applications in Ho Chi Minh City.

Research Methods

The author collects primary data through questionnaires and detect the factors that affect people's decision to use e-banking applications on smartphones. The study uses quantitative methods to determine the research results.

Theoretical Basis and Proposed Model

Theoretical Basis

For customers, the use of electronic devices such as smartphones and tablets, laptop, computer, etc. to access



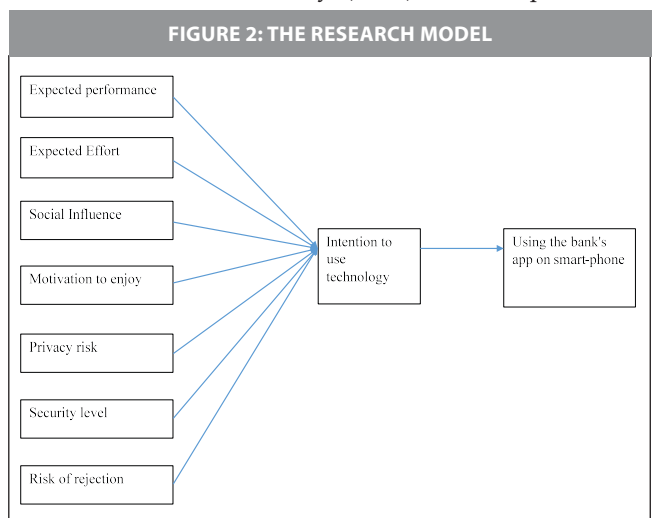
information or banking services is a faster and more convenient method (Daniel, E., 1999).

The use of e-banking also provides banks with a savings in information processing costs (Turner, P., 2001), the internet has made it possible for traditional banking to change the nature of its business activities. (Akhisar, I., Tunay, KB, & Tunay, N., 2015) have identified the studies of (Al-Smadi, MO, 2011), (Khrawish, HA, & Al-Sa'di, NM, 2011)), (Sadr, SMH, 2013) are e-banking applications that will reduce operating costs and increase profitability for banks.

The TAM model which predicts the adoption and usage of new information technology in organizations is introduced by (Davis Jr, F. D., 1986). This model is a model that is both predictive with high probability and explains whether users do or do not accept the technology and thereby find the right solution to overcome it. (Davis, F. D., Bagozzi, R. P., & Warshaw, P. R., 1989).

The Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh, et al., 2003) research is based on the following eight models and theories: Theory of Reasoned Action (TRA), Technology Acceptance Model (TAM), Motivational Model (MM), Theory Of Planned Behavior (TPB), combined theory of planned behavior and technology acceptance model (C – TPB – TAM), Model of PC Utilization (MPCU), Innovation Diffusion Theory (IDT) and Social Cognitive Theory (SCT). Using the above-mentioned theories and models, (Dwivedi, YK, Rana, NP, Chen, H., & Williams, MD, 2011) determined that there is a difference in intention and can be explained by measuring Performance with four independent measurements: performance expectations (PE), effort expectations (EE), facility conditions (FC) and social influence (SI). These four independent measurements are influenced and affected by four dependent variables: gender, age, experience, and willingness to use (Venkatesh, et al., 2003).

Perceived Risk Theory (PRT) defines perceived



Source: Proposed by author

TABLE 1: OFFICIAL RESEARCH SCALE

Expected performance is HSK	
HSK1	Can you save time and money when using the bank's app on your phone?
HSK2	Do you feel the bank's app on your phone is highly effective?
HSK3	Can you use the bank's app on your phone anytime, anywhere?
HSK4	Do you feel that the bank's mobile app has the flexibility and convenience to meet most transactions when needed?
Expected Effort is NLK	
NLK1	Does the bank always solve the error cases of the bank's app on the phone for you wholeheartedly?
NLK2	The process of fixing errors of the bank's app on smartphones is always guaranteed quickly
NLK3	The software of the bank's app on smartphones is always updated and processed quickly and efficiently
NLK4	The bank always provides timely details of the bank's app on your smartphone
Social Influence is AHX	
AHX1	You are easily influenced by negative comments about your bank's smartphone app from people around you
AHX2	Bank interaction is the deciding factor to use the bank's app on your smartphone
AHX3	The size and brand of the bank will influence your decision to use the bank's app on your smartphone
Motivation to enjoy is DLH	
DLH1	You find the bank's smartphone app service simple and easy to use.
DLH2	You find transactions become more convenient and faster when you have the bank's app service on your smartphone.
DLH3	Bank's app on smartphone is a necessary utility service in your life
DLH4	You appreciate the usefulness of the bank's app service on smartphones
Privacy risk is RRR	
RRR1	You are concerned that when using the bank's app on your phone, your payment information may be revealed
RRR2	You are concerned that when using a bank's app on your smartphone, your payment account may be taken over by hackers.
RRR3	Are you worried about your private personal information being leaked from the bank's information management system?
Security level is ATB	
ATB1	Are you worried that the security of the bank's app system on smartphones has not yet met the needs of users?
ATB2	You are concerned about transactions that affect your personal payment account
ATB3	Are you concerned about losing your account in case the system is compromised or by hackers

Source: Research's result



risk as a type of loss which occurs during a pursuit of a desired outcome (Peter, JP, and Ryan, MJ, 1976 or Featherman, MS, and Pavlou, PA, 2003).

Proposed Model

The author finds that perceived usefulness has a positive effect and perceived risk has a negative effect on the use of e-banking, including mobile applications. Internet banking is affected by two sides: customers and banks. To check the accuracy, the author will rely on the following concepts and make a suitable proposal for the research model (Figure 1).

Research Results

Descriptive Statistics of Research Results

Through a random survey, the author surveyed 145 random people about the factors affecting the bank's decision to use Mobile Applications, all samples were valid.

With gender data, 88 men (60.7%) and 57 women (57%) took part in the survey.

With age data, 63 people (43.4%) were under 22 years old, 71 people (49%) were between 23 and 40 years old, and 11 people (7.6%) were over 41 years old.

With career data, 72 survey participants (49.7%) were students, 41 people (28.3%) were office workers. 14 respondents (9.7%) were self-employed. Subjects were household business owners with 3 people (2.1%) were household business owners, and 2 people (1.4%) were retirees. The surveyed groups of students and nurses working in the medical profession, each group has 1 surveyor, accounting for 0.7%.

Evaluation of the Scale By Cronbach's Alpha Reliability Coefficient

After testing the scale using Cronbach's Alpha reliability coefficient, the results are as follows (Table 1).

- For the variable HSK: Cronbach's Alpha coefficient reaches 0.845, satisfying the reliability condition of being above 0.6, and at the same time, the correlation coefficient of the variable and the sum of the scales HSK1, HSK2, HSK3, HSK4 are 0.674; 0.688; 0.712;

0.658 respectively; all are greater than 0.3.

- For the variable NLK: Cronbach's Alpha coefficient reaches 0.879, satisfying the reliability condition of being above 0.6, and at the same time, the correlation coefficient of the variable and the sum of the scales NLK1, NLK2, NLK3, NLK4 are 0.739; 0.783; 0.798; 0.636 respectively; all are greater than 0.3.

- For the variable AHX: Cronbach's Alpha coefficient reaches 0.443, not satisfying the reliability condition of being above 0.6, and at the same time, the correlation coefficient of the variable and the sum of the scales AHX1, AHX2, AHX3 are 0.219; 0.263; 0.389 respectively. The two scales AHX1, AHX2 are not greater than 0.3. Thus, the AHX factor must be eliminated.

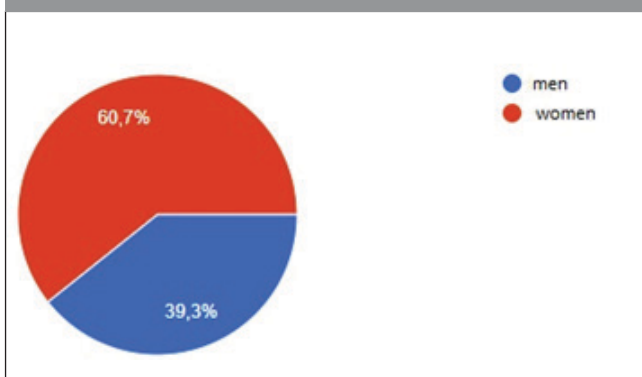
- For the variable DHL: Cronbach's Alpha coefficient reaches 0.867, satisfying the reliability condition of being above 0.6, and at the same time, the correlation coefficient of the variable and the sum of the scales DLH1, DLH2, DLH3, DLH4 are 0.762; 0.688; 0.722; 0.746 respectively; all are greater than 0.3.

- For the variable RRR: Cronbach's Alpha coefficient reached 0.925, satisfying the reliability condition of being above 0.6 and lower than 0.95, and at the same time, the correlation coefficient of the variable and the sum of the scales RRR1, RRR2, RRR3 are 0.810; 0.870; 0.863 respectively; all are greater than 0.3.

- For the variable ATB: Cronbach's Alpha coefficient reached 0.918, satisfying the reliability condition of being above 0.6 and lower than 0.95, and at the same time, the correlation coefficient of the variable and the sum of the scales ATB1, ATB2, ATB3 are 0.838; 0.830; 0.836 respectively; all are greater than 0.3.

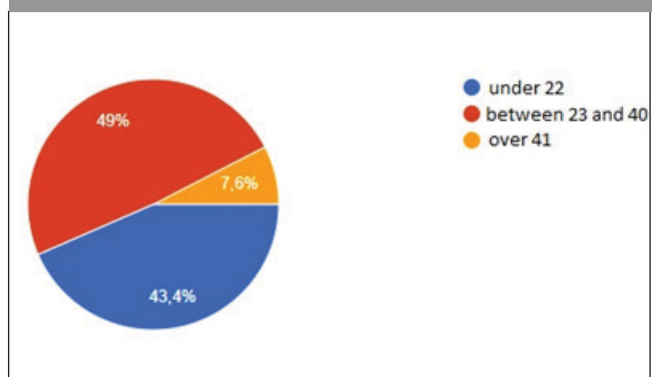
- For the variable RRR: Cronbach's Alpha coefficient reached 0.461, not satisfying the reliability condition of being above 0.6, and at the same time, the correlation coefficient of the variable and the sum of the scales RRR1, RRR2, RRR3 are 0.178; 0.373; 0.344 respectively. The RRR1 scale is not greater than 0.3, and Cronbach's Alpha coefficient after deletion is only 0.565 which less than 0.6. Thus, the RRR factor must be eliminated.

FIGURE 3: RESULTS WITH GENDER DATA



Source: The research result

FIGURE 4: RESULTS WITH AGE DATA



Source: The research result



TABLE 2: RESULTS OF EFA ANALYSIS

Observable Variables	Factors		
	Convenience (STL)	Safety (SAT)	Expected Effort (NLK)
	1	2	3
DLH4	0.804		
HSK3	0.799		
DLH3	0.792		
DLH2	0.787		
DLH1	0.750		
HSK4	0.744		
HSK1	0.691		
HSK2	0.678		
RRR2		0.929	
ATB1		0.918	
RRR3		0.904	
ATB3		0.883	
ATB2		0.868	
RRR1		0.853	
NLK2			0.869
NLK1			0.850
NLK3			0.812
NLK4			0.642

Source: Calculated by Author using SPSS Software

Exploratory Factor Analysis (EFA) Analysis

The KMO coefficient after EFA analysis is 0.867, showing that the data is suitable for performing factor analysis. The significance level of the Bartlett test is 0.000, so the observed variables are correlated with each other on the whole. The total variance extracted was 70.846%, showing that the scale explained 70.846% of the variability of the data.

Conclusions and Recommendations

Conclusion

After conducting EFA analysis, the study did not remove any observed variables because of the satisfactory EFA load factor (> 0.5) (Hair et al., 2014). The final analysis results extracted 3 factors from 18 observed variables. The variable EFA load factor ranges from 0.642 to 0.929.

The Expected Performance Scale (HSK) keeps four variables, and the Hedonic Motivation Scale (DLH) also keeps four variables, combined into one factor.

The Privacy Risk Scale (RRR) remains the same three variables and the Security Level Scale (ATB) also keeps three variables, combined into one factor.

The Expected Effort Scale (NLK) is extracted into each factor exactly as the model proposes.

Recommendations

Security risks in online transactions are a matter of concern to users, therefore banks need to give top priority to investing in infrastructure development, keeping up with modern technology updates, and upgrading system security software to prevent the intrusion of hackers and high-tech criminals.

Banks need to continue to perfect the procedures and service cycle in the direction of compliance with the prescribed safety standards of the world. This includes staff training, regardless of department, to clearly understand the problems that may occur when customers use the bank's application.

Each employee should always be the first person to be ready to advise customers when there are issues. Banks also need to expand the Digital Payment ecosystem by promoting connections with major service providers.

References:

1. Akhisar, I., Tunay, K. B., & Tunay, N. (2015). Retrieved from *The effects of innovations on bank performance: The case of electronic banking services. Procedia-Social and Behavioral Sciences*, 195.
2. Al-Smadi, M. O. (2011). Retrieved from *The Impact of E-Banking on The Performance of Jordanian Banks. Journal of Internet Banking and Commerce*, 16(2).
3. Daniel, E. . (1999). Retrieved from *Provision of electronic banking in the UK and the Republic of Ireland. International Journal of bank marketing*.
4. Davis Jr, F. D. (1986). Retrieved from *a technology acceptance model for empirically testing new end-user information systems: theory and results*.
5. Davis, F. D. . (1989). Retrieved from *Perceived usefulness, perceived ease of use, and user acceptance of information technology. MIS quarterly*, 319-340.
6. Featherman, M. S., & Pavlou, P. A. (2003). Retrieved from *Predicting e-services adoption: a perceived risk facets perspective. International journal of human-computer studies*, 59(4), 451-474.
7. Khrawish, H. A., & Al-Sa'di, N. M. . (2011). Retrieved from *The Impact of E-Banking on Bank Profitability: Evidence from Jordan*.
8. Peter, J. P., & Ryan, M. J. (1976). Retrieved from *An investigation of perceived risk at the brand level. Journal of marketing research*, 13(2), 184-188.
9. Sadr, S. M. H. (2013). Retrieved from *Consideration the effect of e-banking on bank profitability; Case study selected Asian countries. Journal of Economics and Sustainable Development*, 4(11), 112-117.
10. Turner, P. (2001). Retrieved from *E-finance and financial stability. Open Doors: Foreign Participation in Financial Systems in Developing Countries, Brookings Institution*, 389-410.
11. Venkatesh, et al. (2003). Retrieved from *User acceptance of information technology: Toward a unified view. MIS QUART*, 27(3), 425-478.

Author's information:

Nguyen Ngoc Hoa

Nguyen Tat Thanh University

Email: nguyenngochoa.sgvn@gmail.com