DETERMINANTS OF E-BANKING SERVICE: A CASE OF HO CHI MINH CITY AND DONG NAI PROVINCE

Phan Thanh Tam[1], Le Thu Thuy[2] and Nguyen Quoc Huy[3]
[1,2,3] Lac Hong University (LHU)
Email: [1]phthtam74@gmail.com, [2]thuylt@lhu.edu.vn and [3]huy175@gmail.com

Abstract

Service quality, customer satisfaction, and loyalty are essential issues in the marketing strategy of any bank. Especially in the field of electronic banking. The researchers surveyed 600 customers who used the E-banking services. Customers answered 23 items, and 585 samples processed. The Data got from July 2019 to January 2020 at E-banking services in Ho Chi Minh City (HCMC) and Dong Nai province, Results showed that key factors affecting E-banking service quality, customer satisfaction, and loyalty with significance level 0.01. The findings of this study are a very important scientific document to help bank managers improve banking service quality and develop E-banking service quality in the future.

Keywords: E-banking, service quality, customer, satisfaction, and loyalty.

Introduction

The digital revolution with global influence has had much impact on Vietnam's E-banking industry. These impacts are reflected in many aspects such as business organization model, providing products and services, payment field, security and confidentiality issues, job requirements of officials and employees (Abu-Assi, 2014).

Banking and customer-related factors. Notably, the Digital Revolution has brought many opportunities and benefits to the banking industry, specifically: (1) The Digital Revolution affects the awareness and actions of bank officials and employees, requires each individual who has to make efforts to study and raise the level of science and technology and apply for advances. Technical aspects of improving labor productivity and quality of work. At the same time, it is essential to keep up to date with information, innovation, creativity, and adaptation to new requirements. (2) The Digital Revolution provides an opportunity for the Banking industry to apply intelligent management technology and automation in business processes, helping to accelerate the process towards a standard model in the future. The influence of the Digital Revolution, in particular the internet, the internet of things, large-scale data storage, cloud computing. It helps domestic, commercial banks reshape business models, e-payment, governance. towards building intelligent digital banks in the future. (3) In the context of the Digital Revolution, the computer network connects global financial markets into a unified and continuous market. This factor contributes to overcoming obstacles in time and space, saving costs; At the same time, creating conditions for international banking transactions carried out quickly and easily, providing excellent opportunities for financial and banking traders. (4) Advances from the Digital Revolution are the motivation for domestic banks to develop and compete with advanced banks in the region and around the world in the condition of timely capture and change to adapt to new technology. (5) The construction of large data centers makes it easier for scientists to analyze and manage data in the banking sector. Collecting, analyzing, and processing big data create new knowledge, support quick and effective decision-making, thereby reducing costs and creating competitive advantages for banks. In particular, banks, especially statistics, financial forecasting activities, become much more relaxed. (6) Advances in technology and technology of the Digital Revolution have contributed to promoting the formation of new financial products and services in the banking industry such as M-POS, electronic wallets, chip card technology, mobile banking, internet banking... The introduction of these new financial products and services facilitate the use of new banking services and contribute to saving transaction costs for people. Based on the things mentioned above. The Digital Revolution or the Industrial Revolution 4.0 has a substantial impact on all industries and socio-economic fields, including Banking. Facing the opportunities and challenges brought about by the Digital Revolution, the banking

industry has taken measures to adapt to the new requirements. Authors research the impacting the electronic information system quality on customers' satisfaction and loyalty of E-banking services in HCMC and Dong Nai province.

Literature review

The electronic information system quality (EIS)

Quality of the electronic information system: including 3 components: Accessibility (A), Accuracy (C), Security (S). 5 observed variables measure accessibility. Accuracy measured by 4 observed variables. 4 observed variables measure security. Thus, there are a total of 13 observed variables that measure the three components of online information system quality. The electronic information system quality following:

Accessibility (A): Accessibility is a generic term used to describe the extent to which many people can use a product, device, service, or environment as possible. Access sees as accessibility and the ability to benefit from a system or matter. Access often used to focus on people with disabilities or special needs or access to different entities, often through the use of assistive devices (Adapa, S, 2017). Access should not be confused with the usability commonly used to describe the extent to which competitors may use a product (e.g., equipment, services, environment). Use particular objects to achieve specific goals with efficiency, performance, and satisfaction in a specific use context. Approach directly to the design for everyone using a direct approach, involves making everything accessible to everyone (even if they have a disability). Or not) (Alalwan, A., Dwivide, Y., Rana, N., 2016). Another solution is indirect access by supporting the use of assistive devices to gain access (for example, reading devices). The arrangement of information on the Bank's Website helps customers find information simply. Access to your e-banking account is simple. Using the Bank's website in electronic banking transactions requires much effort. Making an electronic banking transaction through the Bank's Website is simple. I did not spend much time waiting for information on e-banking services through the Bank's Website.

Accuracy (C): Up to now, there have been many pieces of research on service quality in general and the quality of e-banking services in particular; these studies depending on the specific research context, have pointed out the most important criteria. Measure the quality of electronic banking services (Alnsour, M, 2011). Studies show that "responsiveness," "reliability," and "access speed" are the most important criteria for measuring the quality of e-banking services. Other studies have affirmed that "reliability," "access speed" "and" access speed, "guarantee, "and" reputation "are the criteria for measuring the quality of banking services. Best electronics. Customers' online transactions always done correctly. Information about electronic banking services on the Bank's Website is accurate. Online transactions did correctly.

Security (S): The fact brings about the different quality of e-banking services. Different e-banking researchers discover them; they are valuable when the factors determine the number of e-banking services or not, each of the prominent factors that bring about the quality of e-banking services significantly affects customers' perceived quality of e-banking services (Anusiga Gunaratnam, 2018). I believe that the Bank does not misuse the personal information of customers. I feel safe for e-banking transactions through the Bank's Website. The sensitive information of customers in electronic banking transactions through the Bank's Website is confidential. The risk associated with online transactions via the Bank's Website is low.

E-banking service (EBS)

So far, there are many different interpretations of the concept of e-banking services. There is a perception that e-banking is a banking service that allows customers to have remote access to collect information; perform payment transactions, finance based on depository accounts at the Bank, and register to use new services (Leong, L. Y., Hew, T. S., Lee, V. H, 2015). According to this interpretation, e-banking service is a computer software system that allows customers to learn or use banking services by connecting their computer network with the Bank. The State Bank of Vietnam has also defined: "Modern and multi-utility banking products and services are delivered quickly to wholesale and retail customers (online, continuously 24 hours a day). And 7 days/week regardless of

space and time) through distribution channels (Internet and other terminal access devices such as computers, ATMs, POSs, desk phones, mobile phones) is called electronic banking service (Gorgani, G, 2016).

Hypothesis H1: Accessibility has a positive impact on the E-banking service of commercial banks in HCMC and Dong Nai province.

Hypothesis H2: Accuracy has a positive impact on the E-banking service of commercial banks in HCMC and Dong Nai province.

Hypothesis H3: Security has a positive impact on the E-banking service of commercial banks in HCMC and Dong Nai province.

Customer satisfaction (C.S.)

Customer satisfaction is an essential premise to create customer loyalty. Satisfaction is the response of customers when they are satisfied with the desired, the customer reaction on the difference between desire and the level of feeling after using products or services. Satisfaction is a person's emotion, which is the joy or disappointment from comparing results received from products or services to their expectations (Liébana-Cabanillas, 2013). Customer satisfaction is a psychological process of measuring results received against expectations.

Customer satisfaction can lead to customer retention and, therefore, profitability for an organization. Customer satisfaction is positively correlated with loyalty in traditional services and is an indicator of the performance of a business. In an online environment, satisfaction has a more substantial effect on loyalty than it does in reality because finding alternatives is much costlier (Sadeghi, T, 2010). Customer satisfaction is the emotional state in which the customers' needs and expectations of the value/benefits of products and services met lower, equal, or higher than expected—leading to loyalty and repeated purchase of products and services of businesses (Sharma, G, 2014).

Hypothesis H4: Accessibility has a positive impact on the customer satisfaction of commercial banks in HCMC and Dong Nai province.

Hypothesis H5: Accuracy has a positive impact on the customer satisfaction of commercial banks in HCMC and Dong Nai province.

Hypothesis H6: Security has a positive impact on the customer satisfaction of commercial banks in HCMC and Dong Nai province.

Hypothesis H7: E-banking service has a positive impact on the customer satisfaction of commercial banks in HCMC and Dong Nai province.
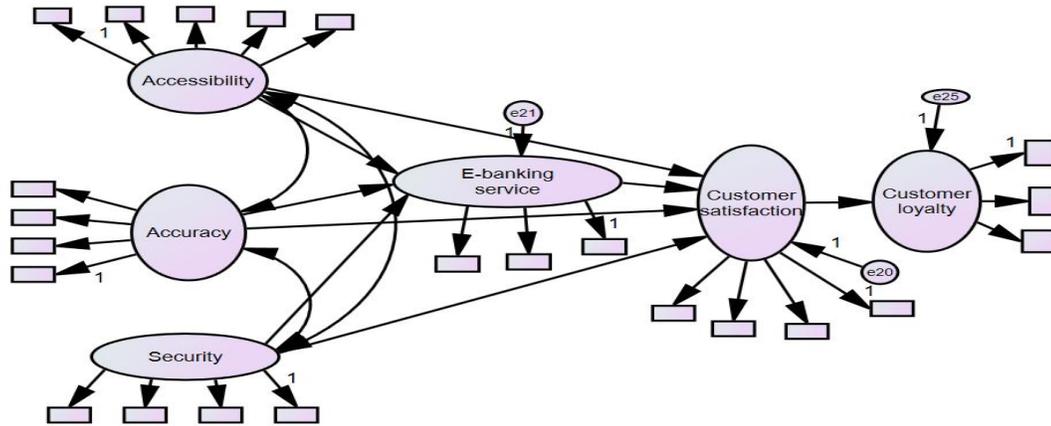
Customer loyalty (CL)

Loyalty is a term used and overused. Although widely used, the authors have not yet defined this term, resulting in a lack of uniformity in marketing theories. The common assumption is that loyalty can transform into countless repeated purchases from the same supplier over a specified period (Shahid, A, 2016). Customer loyalty and profitability are closely related. Increasing profit from customer loyalty is a result of reducing marketing costs, increasing sales, and reducing business costs as loyal customers rarely switch to other products when prices change. And they often buy more customers.

There are three conventional approaches to studying customer loyalty: an attitude approach, behavioral approach, and a mixed approach. The mixed approach takes into account both the "behavior" and "attitude" variables, to create its customer loyalty concept (Shahid, A, 2016). Thus loyalty is a concept accessible in many ways and with many different manifestations (Yoon, H. S, 2013). However, there is the scope of this study. The authors choose a mixed approach, which is to study customer loyalty on both the behavior and attitudes in which loyal customers tend to direction of continued use of products and services (repeated purchasing behavior),

commitment to prioritizing the selection of products and services and introducing products and services to others (word of mouth) (Yo, C., Oni, A., Adewoye, O, 2016).

Hypothesis H8: Customer satisfaction has a positive impact on the customer loyalty of commercial banks in HCMC and Dong Nai province.

(Source: Researchers discovered)

Figure 1. Research model for key factors affecting E-banking service, customer satisfaction, and loyalty

Methods of research

The object of the study is the relationship between the quality of e-banking services and the satisfaction and loyalty of customers, so the study subjects are customers using electronic banking services. To study this relationship, the author uses a combination of both primary and secondary data (Hair, J., Anderson, R., Tatham, R., & Black, W., 1998). In particular, secondary data on the situation of internet development and electronic banking services in HCMC and Dong Nai province to see the research context. Primary data collected via questionnaire. The survey subjects are customers who use electronic banking services of commercial banks; the scope of the survey focuses on big cities such as HCMC and Dong Nai province. To analyze the relationships, the author uses the method of linear structure model (SEM), the software used in SPSS 20.0.

The study conducted through the following specific steps:

Step 1: Research theoretical overview, build theoretical models and systems of research hypotheses. Besides, the researchers built preliminary scales based on 35 experts' consultation about E-banking service to improve the scale and design of the questionnaire. The results showed that 35 experts agreed on all factors affecting E-banking service, customer satisfaction, and loyalty. Step 2: Develop a data collection questionnaire. The questionnaire uses a 5-point Likert scale, with 1 strongly disagreed and 5 strongly agreeing. The questionnaire distributed to customers of commercial banks in HCMC and Dong Nai province in both paper and electronic versions. Step 3: Run a measurement model to test the scale. The authors are to assess the reliability and validity of the scale (reliability & validity), the Cronbach's Alpha, Composite reliability, and average deduction variance (AVE) used. Average Variance Extracted is > 50%, the KMO coefficient is within 0.5 to 1, Sig coefficient ≤ 5%. Step 4: Run a structure model (SEM) to test the proposed hypotheses in the theoretical model. To test the theoretical model, the authors rebuilt the citadel structure model based on the gradual addition of variables, then select the best model based on the results of running the model. Chi-square testing is P-value > 5%; CMIN/df ≤ 2, some cases CMIN/df

maybe ≤ 3 or < 5. Step 5: Summary of research results based on model test results. Step 6: Conclusion and recommendations.

The overall objective of this study is the entire Vietnamese customer from 18 years of age or older, living and working in big cities like Ho Chi Minh City and Dong Nai Province, they can be students, or do various jobs (business, administrative, career, freelance.).

Regarding the sample size, synthesized from previous studies, the optimal sample size depends on the expectations of reliability, data analysis methods, estimation methods used in the study, and number to estimate and structure of respondent groups.

According to (Hair, J., Anderson, R., Tatham, R., & Black, W., 1998), the sample size must ensure: n> = 104 + m (with m is the number of independent and dependent variables) or n> = 50 + m if m <5.

In the case of using the factor analysis method, according to Hair and ctg, the sample size should be at least 50, preferably 100, and the ratio of several observations/measurement variables is 5/1, that is, each measurement variable. Measurement needs at least 5 observations.

Because this study uses both factor analysis and regression methods, the research model has 23 measurement variables. So if the principle of 5 observations/measurement variables followed, the minimum sample size would be 115 customers (Hair, J., Anderson, R., Tatham, R., & Black, W., 1998). In keeping with the study, to select a sample that is representative of the population as a whole, the sampling method chosen was the convenient sampling method. The sample size defined as 600 elements; the sample size is 10 times larger than the number of measurement variables, ensuring the requirements for factor analysis and regression analysis are reliable enough.

Research results

The authors supposed several hypotheses developed to determine the relationship between the criteria. Bring e-banking service, customer satisfaction, customer loyalty, the impact of conversion costs, trust imagine customer satisfaction and loyalty in the context of the banking system in HCMC and Dong Nai province. The scale reliability tests for factors affecting E-banking service, customer satisfaction, and loyalty.

Table 1. The scale reliability tests for factors affecting E-banking service, customer satisfaction, and loyalty

Items	Contents	Cronbach's Alpha if Item Deleted
A1	The arrangement of information on the Bank's Website helps customers find information simply	0.955
A2	Access to your e-banking account is simple	0.965
A3	Using the Bank's website in electronic banking transactions requires much effort	0.964
A4	Making an electronic banking transaction through the Bank's Website is simple	0.951
A5	I did not spend much time waiting for information on e-banking services via the Bank's website	0.954
Cronbach's Alpha for accessibility (A)		**0.966**
C1	Customers' online transactions are always done correctly	0.937
C2	Information about electronic banking services on the Bank's Website is accurate	0.956
C3	Online transactions are performed correctly by employees when customers ask for help	0.960
C4	Electronic banking transactions are always conducted with high security	0.938
Cronbach's Alpha for Accuracy (C)		**0.960**
S1	I trust the Bank not to misuse the personal information of customers	0.811
S2	I feel safe for e-banking transactions through the Bank's Website	0.824
S3	The sensitive information of customers in electronic banking transactions through the Bank's Website is confidential	0.851
S4	The risk associated with online transactions via the Bank's Website is low	0.811
Cronbach's Alpha for security (S)		**0.862**
EBS1	Overall, the Bank's electronic service quality is good	0.924
EBS2	Overall, the Bank has enough factors to make a good electronic banking provider	0.864
EBS3	The Bank provides most of the online service functions that customers need	0.936
Cronbach's Alpha for E-banking service (EBS)		**0.937**

CS1	Overall, I am satisfied with what happens in e-banking transactions with banks	0.844
CS2	Overall, I am satisfied with the Bank's Internet-based transactions	0.792
CS3	Overall, I am satisfied with the products and services provided by the Bank	0.853
CS4	Overall, I am satisfied with the Bank I am trading	0.819
	Cronbach's Alpha for customer satisfaction (C.S.)	**0.865**
CL1	I continue to make electronic banking transactions. I am currently trading	0.953
CL2	The Bank I am trading is always my number one choice in e-banking transactions	0.915
CL3	I would recommend the Bank I am trading to my friends and relatives	0.927
	Cronbach's Alpha for customer loyalty (CL)	**0.953**

(Source: Data processed by SPSS 20.0)

Table 1 showed that all of 23 variables surveyed Corrected item-total correlation greater than 0.3 and Cronbach's Alpha if Item deleted greater than 0.8, and Cronbach's Alpha is very reliable. This factor is to consider the reliability of the scale; Cronbach's Alpha coefficient applied. This method allows the analyst to remove inappropriate variables and limit garbage variables during the study and evaluate the reliability of the scale by a coefficient through the Cronbach's Alpha coefficient. Variables with an item-total correlation coefficient of less than 0.3 disqualified. The scale of Cronbach's Alpha coefficient of 0.6 or higher is usable in the case of a new research concept. Typically, scales with Cronbach's Alpha from 0.7 to 0.8 used. Many researchers think that when Cronbach's Alpha coefficient range from 0.8 to nearly 1 is the best scale. Such observations make it eligible for the survey variables after the testing scale. This result showed that data was suitable and safe for researching.

Table 2. KMO and Bartlett's test for factors affecting E-banking service, customer satisfaction, and loyalty

Code	Component					
	1	2	3	4	5	6
A4	0.956					
A1	0.951					
A5	0.948					
A2	0.931					
A3	0.863					
C4		0.968				
C1		0.964				
C2		0.928				
C3		0.919				
CS4			0.931			
CS2			0.864			
CS1			0.821			
CS3			0.730			
S4				0.861		
S1				0.855		
S2				0.843		
S3				0.811		
CL3					0.961	
CL2					0.960	
CL1					0.948	
EBS2						0.950
EBS3						0.948
EBS1						0.858
Kaiser-Meyer-Olkin Measure of Sampling Adequacy is 0.827						
Bartlett's Test of Sphericity; Sig. is 0.000						

(Source: Data processed by SPSS 20.0)

Table 2 showed that the KMO coefficient is 0.827, and the level of significance (Sig) is 0.000. The result showed that there are five components. Extraction sums of squared loadings are % of the Variance coefficient is 83.556%, with the level of significance (Sig) is 0.000. These results show that Data is very reliable for researching structural equation modeling (SEM).

Table 3. Coefficients from structural equation modeling (SEM)

Relationships			Coefficient	Standardized Coefficient	S.E.	C.R.	P	Conclusion
Electronic banking service	<---	Accuracy	0.119	0.121	0.032	3.776	***	H2: Supported
Electronic banking service	<---	Security	0.215	0.184	0.042	5.160	***	H3: Supported
Electronic banking service	<---	Accessibility	0.466	0.502	0.036	13.045	***	H1: Supported
Customer satisfaction	<---	Electronic banking service	0.248	0.361	0.032	7.751	***	H7: Supported
Customer satisfaction	<---	Security	0.095	0.119	0.030	3.193	.001	H6: Supported
Customer satisfaction	<---	Accuracy	0.066	0.098	0.022	2.987	.003	H5: Supported
Customer satisfaction	<---	Accessibility	0.169	0.265	0.028	5.964	***	H4: Supported
Customer loyalty	<---	Customer satisfaction	0.504	0.343	0.064	7.863	***	H8: Supported

Note: Significant at 1.0 percent (All t-tests are one-tailed)

Table 3 showed that column "P" < 0.01 with significance level 0.01 and column "Conclusion" H1: supported; H2: supported; H3: supported H4: supported; H5: supported; H6: supported, H7: supported, and H8: supported. These results showed that three factors are affecting the human resource management of commercial banks in Vietnam and four factors affecting the E-banking service with a significance level of 0.01. Besides, E-banking service-affecting customer satisfaction and customer satisfaction affecting loyalty with a significance level of 0.01. These results are science evident for managerial implications to enhance the E-bank service, customer satisfaction, and loyalty.

Chi-square = 971.748; df = 209; p = 0.000; Chi-square/df = 4.650; GFI = 0.888; TLI = 0.935; CFI = 0.946; RMSEA = 0.079.
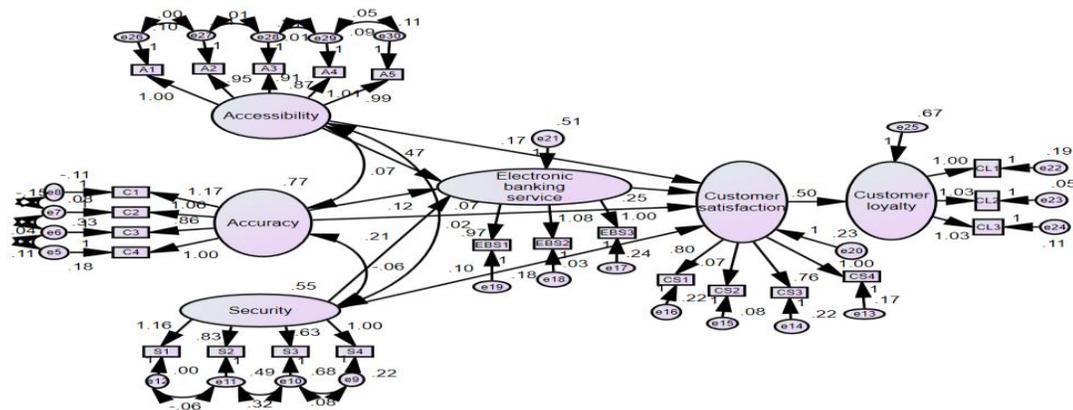
Figure 2. the structural model showing the structural linkage between banking service, customer satisfaction, and customer loyalty

Conclusions

The rapid development of science and technology, especially the information technology (I.T.) industry, has had a substantial impact on all aspects of life, socio-economy, changing perceptions, and methods—production and business solutions of many fields and different economic sectors, including banking activities. Based on the results of running the model, some necessary conclusions draw as follows: Firstly, the model best explains the relationship between the e-banking services and customer satisfaction and loyalty. From this model, e-banking services have a positive relationship with customer satisfaction and loyalty. Secondly, electronic banking services have a positive correlation with the quality of electronic information systems. In other words, according to customer reviews, if the quality of electronic information systems is improved (more accessible, more accurate, and more secure), e-banking services improved. Third, E-banking service and bank satisfaction are positively correlated. Not only that, with a very high correlation coefficient, but this correlation is also dominant, or in other words, if e-banking services are improved to meet the needs of customers, surely customers satisfy. Fourth, customer satisfaction and loyalty have a positive correlation. This correlation is also substantial, showing that if customers are satisfied with e-banking services, they are loyal to the Bank. This result suggests a marketing strategy for banks. To get loyal customers, banks need to satisfy customers. The researchers had managerial implications for commercial banks to continue improving the management policies of the E-banking service in the future.

Managerial implications

E-banking services bring new values to customers, saving time, cost, and convenience, anytime, anywhere, quickly and effectively. Developing e-banking services is one of the top development strategies of commercial banks in the world. Determining to promote e-banking services as one of the core activities, commercial banks have taken many concrete steps, from deploying the construction and modernizing the payment system to creating the base system and advanced payment technology infrastructure. The development of electronic banking services is an indispensable and objective trend in the modern economy and in the era of international economic integration. Benefits brought by e-banking are huge for customers, banks, and the economy, thanks to its utility, convenience, fastness, accuracy, and security. Therefore, the researchers had managerial implications following.

The managerial implications for accessibility are ($\beta = 0.502$); commercial banks need to continue to strengthen and strengthen customers 'confidence about the safety, transaction security, and increase customers' awareness about internet banking such as ease of use, convenience, cost. Also, it is necessary to invest in infrastructure development to create favorable conditions for customers to use, train qualified staff,

handle emergencies, and answer customer questions. to meet the increasing demands of customers for internet banking services, in the field of technology, commercial banks need to continue focusing on investment in data security and safety technology. From countries with advanced technology. Banks also need to pay more attention to the quality of services, especially the confidentiality and authentication of information to create trust from customers. The development of e-banking must be national strategic. In the current conditions, credit institutions develop service activities of e-banking at a level suitable to the actual situation, level of development of the economy; needs of customers such as building and developing websites; mobile banking; home banking. These products and services serve traditional customers themselves and attract new customers using the Bank's existing utilities and information. To expand the network as well as create convenience for customers, the Bank must coordinate with other commercial enterprises to invest in electronic payment systems, order more ATMs, POS... so customers can perform transactions. The management software system should also be focused on upgrading.

Managers need to manage your business well, management software plays an important role, but investing in software is very expensive, and the software needs kept up to date, so choosing software Appropriate management, reputable software vendors help businesses manage their business, combat shipping risks and create a reputation for the Bank. On the other hand, the development of information technology, especially the internet, brings a lot of benefits but also a lot of risks. Currently, technology crimes are increasing, and their activities are usually targeted at banks and in particular electronic banking services. Hackers use tricks to deceive consumers and banks into stealing passwords, make fake credit cards, ATMs, etc. to withdraw customers' money. These objects operate increasingly sophisticated and unpredictable, and make customers fear, do not dare to use the Bank's services. Therefore, to make customers trust bank services, banks need to take measures to minimize the risks in transactions.

The managerial implications for security are ($\beta = 0.184$): continually invest in network infrastructure development, upgrade and expand the transmission line with broadband, large capacity, high speed. The improvement of the transmission line help solves difficulties in terms of transmitting information on the network, minimizing the congestion affecting the quality of the service. Commercial banks continue promoting the linkage between banks, and the technology manufacturers should be focused and promoted. Commercial banks also need to strengthen technical cooperation with technology manufacturers, regional and global financial and banking organizations, to enlist multi-faceted support: financial, techniques, experience. To gradually improve the technology level and information technology application of commercial banks. Commercial banks continue effectively exploiting the website, marketing, advertising, consulting. Creating favorable conditions to attract and develop potential customers and new customers. The website must have diverse content, prosperous, information updated regularly. Hopefully, in the trend of modernization, e-banking services applied, accepted, and become familiar with each organization and individual participating in banking services because of its convenience, economy, and efficiency. In the next time, to develop e-banking services, to satisfy customers, banks need to continue to invest heavily in electronic infrastructure systems but need to change investment structure. Stronger, focusing more investment in training because human factors are still the determinant of business success. Besides, for customers to know and understand the benefits of e-banking services, banks also need to actively invest in advertising and propaganda in various forms to be able to attract. Attention customer's attention

The managerial implications for accuracy are ($\beta = 0.121$): commercial banks need to enhance propaganda to encourage the access and use of internet banking services, need to make customers understand what internet banking is, the outstanding benefits of this service to customers. Commercial banks also need to organize seminars and customer conferences to introduce electronic banking products in general and electronic banking services in particular, providing customers with knowledge. Necessary to use the service effectively. When internet banking services are developed by banks to create similarities in investment capital and advanced technology, service quality is set as a competitive strength of each Bank, to satisfy the needs of customers the most. In parallel with the improvement of service quality, it is necessary to build a better system of receiving, responding, and handling customer complaints so that problems arising

managed so that adjustments made accordingly. Regulatory agencies need to develop and complete a system of legal documents to more closely manage online business activities and serve as a basis for resolving disputes between banks and customers when they occur. There are many transaction problems on internet banking services; develop common standards and legal bases for electronic documents, electronic signatures, and electronic certifications. Despite the highlighted contributions of this paper, some limitations improved in this study. The research model tested on a sample of other provinces and cities in Vietnam. Foreign banks had comparisons over time as a result of future changes in the variables.

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