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A STUDY ON RELATIONSHIP BETWEEN CUSTOMER SATISFACTION AND DIMENSIONS OF E-BANKING SERVICE QUALITY OF COMMERCIAL BANKS IN VIETNAM

Nguyen Tran Hung
Thuongmai University
Email: hung.tmdt@gmail.com

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With the rapid development of information technology (IT) applications in banking sector, most commercial banks in the world and in Vietnam have made great advancement in providing and developing e-banking services. This does not only allows commercial banks to create their superiority and new utilities in financial services, but it also opens up new opportunities to access a large number of potential customers, occupy share in e-banking market and cross-sell their products and services. In Viet Nam today, e-banking products and services diversified types. However, the number of e-banking users is still limited with small transaction value, which is irrelevant to the market potential and current customers as well as the investments of commercial banks. It is of great importance for Vietnamese commercial bank to deal with the challenge in the present and future context. The paper presents a model for studying the relationship between dimensions of e-banking service quality of commercial banks in Viet Nam and customer satisfaction as well as a scientific reference for Vietnamese commercial banks to review their e-banking service quality and accurately assess customer satisfaction. Through this, Vietnamese commercial banks can improve e-banking services, foster customer satisfaction, create loyal customers and attract more potential customers for e-banking services.

Keywords: e-banking, commercial banks, e-banking services, e-banking service quality, quality elements of e-banking services.

Introduction

In the current context of international integration and commitments to further opening finance and banking market in Viet Nam, commercial banks have to improve their services, upgrade the systems, develop technologies to facilitate and create more benefits for customers. Technological application is one of the outstanding development trends in banking business to provide simple, efficient and rapid finance-banking services for customers through the use of electronic devices and telecommunication network. Such financial and banking services are generally known as e-banking services.

1. Overview on e-banking services and customer satisfaction in e-banking services

1.1. Overview on e-banking services and e-banking quality dimensions

a. E-banking services

E-banking services have been defined in many ways by researchers. According to A. Basel & W. Omar (2016), e-banking services are those which allow customers to access and perform banking transactions on their accounts through computers connected to websites of commercial banks twenty four hours [2].

I. Driga & C. Isac (2014) define e-banking as a service of commercial banks that provides customers

the opportunity to gain access to their accounts, execute transactions, and obtain information on financial products and services electronically[4].

According to State Bank of Viet Nam, e-banking services are modern and convenient banking products and services delivered to corporate and individual customers (online, 24/7, regardless of distance and time) through channels (Internet and terminal equipment such as computers, ATM, POS, telephone, mobile phones, etc.)

Therefore, it is *commonly agreed that e-banking services are defined as financial and banking services delivered to customers through electronic channels including Internet; mobile devices; ATM/ POS/ KIOSK Banking; television, websites; specialized online payment devices.*

With transactions completely conducted via electronic devices and telecom network, e-banking services have delivered numerous benefits to banks, customers and the society.

+ *To banks:* E-banking services has created a new channel for banks to expand their networks, and access to customers any time, any place without any limitations. Via electronic devices and telecom network, banks can launch promotion and product introduction to customers rapidly and conveniently. Besides, they are also able to reduce such costs as office rent, staff or others related to documentation, vault management, etc.

+ *To customers:* E-banking services are easy and efficient, which enable clients to save time and costs. Transactions steps in e-banking services have been programmed carefully, so it is easy for clients to make transactions accurately. With Internet-connected devices and e-banking, clients can perform their banking activities any time and any place. Moreover, via online network, banks can connect with each other to form alliances which facilitate clients' inter-bank transactions.

+ *To the society:* E-banking has presented a new drive for the development of business, trade, service and tourism for regional and international economic integration. Moreover, it is secure and environmental friendly to use e-banking services.

b. Dimensions of e-banking service quality

Service quality can be defined as the gap or difference between expected service and delivered services. Parasuraman et al (1998) stated service quality is the overall assessment of a particular company by comparing the corporate capabilities and consumers' expectations on a certain company's performance [10].

Service quality is perceived by consumers based on the evaluation between expectations (e.g. consumers' expectations from the company's coupons) and performance (e.g. consumers' experience and perceptions of services). In other words, service quality is generally the responsiveness of providers to consumers' demand and expectations on the service. Thus, service quality is mainly determined by consumers, higher service quality leads to higher customer satisfaction. Service quality is subjective and dependent on consumers' desires and expectations. Therefore, provisions of the same service at different time can generate different experience and perceptions. In fact, it is attributed to the variability of service.

From these approaches to service quality and e-banking services, *e-banking service quality is seen as the responsiveness of commercial banks in providing e-banking services to consumers' desires and expectations.* However, unlike traditional services, electronic customers can hardly assess each sub-process in an access to the bank's website. Customers in the electronic context are likely to perceive e-banking services as a result of the overall process (Van Riel et al, 2001) [12]. Moreover, with little dependence on real-time staff, the service is provided automatically via electronic tools, so it is able to minimize the variability of service quality.

Common dimensions of service quality have been explored by various researchers to measure or establish their relationship with customer satisfaction. Santos (2003) divides the quality of e-services into two phases of before and after the launch of a website and identifies six dimensions of service quality in order of importance including reliability, efficiency, support, communications, security and incentives with close relationship to customer satisfaction [11].

Nevertheless, the classic, comprehensive and outstanding study was carried out by Parasuraman et al (1998) to measure the size of different dimensions of service quality. In the case of e-banking services, the dimensions include Reliability; Responsiveness; Assurance; Empathy and Tangibles [10]. In which:

+ *Reliability*: Capabilities of commercial banks to offer secure and efficient e-banking services. It describes the consistent performance that consumers can trust. Commercial banks have to comply with their promised services.

+ *Responsiveness*: The consideration, accuracy and response speed of commercial banks in providing e-banking services. It is related to the staff willingness to help customers and provide prompt service.

+ *Assurance*: Knowledge and courtesy of employees and their ability to inspire trust and confidence.

+ *Empathy*: Caring, individualized attention of commercial banks to customers. It consists of accessibility, sensitivity and understanding users' demand.

+ *Tangibles*: Physical facilities, equipment, and appearance of personnel of commercial banks.

With the purposes of the study, these five dimensions of e-banking service quality were used to make an overall assessment of customer satisfaction in e-banking services of commercial banks.

1.2. Overview on customer satisfaction in e-banking services

a. Concept

Challenging business environment has motivated banks to create and utilize alternative channels to attract more customers, raise customers' awareness and promote customers' loyalty (Bauer et. al, 2005.)

According to M. D. Johnson et al (1995), the satisfaction or disappointment after consumption is defined as customers' assessment of the difference between prior expectations and real perceptions on products after use [7].

Hoyer & MacInnis (2001) stated satisfaction can be associated with the feelings of acceptance, relief, excitement and delight [6].

Hansemark & Albinsson (2004) defined satisfaction as an overall attitude towards a service provider or an

emotional reaction to the difference between what customers expect and what they actually receive regarding the fulfillment of a need [5].

According to Zeithaml & Bitner (2000), customer satisfaction is the assessment on a product or service which fulfills the need and expectation [13].

P. Kotler (2000) also defines satisfaction as "a person's feelings of pleasure, excitement, delight or disappointment which results from comparing a product's perceived performance to his or her expectations." [8].

According to P. Kotler & K. Keller (2006) satisfaction is the level of emotional state resulting from comparing a product's perceived performance or outcome against his/ her expectations [9]. Parasuraman et al (1998) says customer satisfaction is the response to the perceived difference between known experience and expectations on the service. Customer satisfaction is closely related to dimensions of service quality [10]. As an important determinant to businesses, customer satisfaction is a fundamental goal for trading organizations thanks to its positive relationship with the organizational performance (Anderson, 2013).

Within the scope of the study, customer satisfaction can be defined as follows: "*Customer satisfaction in e-banking services is customers' personal assessment or anticipation of the service based on their knowledge of e-banking after use. Customer satisfaction in any e-banking service has close relationship with its quality dimensions.*" Satisfaction is a psychological state when customers' desires are fulfilled. Customer satisfaction is formed based on cumulative experience of e-banking usage. Customers, then, compare their practical experience and expectation to evaluate the level of satisfaction.

Customer satisfaction is dependent on the performance or benefits of e-banking services in comparison with their expectations at different levels, namely dissatisfaction if benefits is lower than expectations, satisfaction and delight when benefits are higher than expectations. However, commercial banks are required to understand how customers build their expectations. In fact, most customer expectations are formed based on their prior experience, reviews and marketing activities. Commercial banks, therefore, have to establish

appropriate expectations. Low expectations are easy to satisfy, but unable to attract customers. In contrast, it is possible to disappoint customers if commercial banks set too high expectations. The measurement of customer satisfaction is significant in the context of strong competition and development of e-banking services today. It is vital for commercial banks to understand their ability to satisfy customers as well as their competitors'. In addition to reach high customer satisfaction, successful banks have to consider the cost and benefits of improving satisfaction.

b. Classification

According B. Stauss & P. Neuhaus (1997) customer satisfaction can be divided into Demanding satisfaction; Stable satisfaction; Resigned satisfaction. Customer satisfaction in e-banking services is particularly as follows:

+ Demanding satisfaction is characterized by confidence and positive emotions towards the supplier and willingness to continue the relationship, due to the supplier's ability to consistently meet the customers' rising expectations. However, customer loyalty is subject to the bank's ability to improve according to the customer's rising demands, and therefore, it is important that the bank listens to the customer and makes an effort to improve according to customer needs.

+ Stable satisfaction is described a satisfaction state, where the customer perceives that the supplier is able to fulfil the customer's expectations and does not perceive any improvement requirements. The customer is confident regarding the company's future performance capabilities and is willing to continue the relationship.

+ Resigned satisfaction refers to a state where customers have little trust in the providers and they find it difficult for the providers to improve service quality according to their demand. Customers are satisfied as they perceive the bank is unable to improve rather than by fulfillment of expectations. They can switch to the competitor any time.

2. Research model and methodology

2.1. Research model

From the literature, customer satisfaction in e-banking services has close relationship with quality

dimensions of e-services provided by commercial banks. Studies on customer satisfaction in services generally use SERVQUAL developed by Parasuraman, Zeithaml and Berry (1998) and J. J. Cronin & et al (1992) for the qualitative measurement.

E-banking has some distinctive features compared to other services and its quality is closely related to customer satisfaction. As a result, in the study, the author measured e-banking user satisfaction by SERVQUAL proposed by Parasuraman et al (1998) with some adaptations in scales (adjustment and addition of observed variables) and suggested a model of 5 dimensions: Reliability, Responsiveness, Assurance, Empathy, and Tangibles.

The research model of relationship between customer satisfaction and dimensions of e-banking service quality of commercial banks can be described as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5$$

In which:

+ X_1 : Reliability; X_2 : Responsiveness; X_3 : Assurance; X_4 : Empathy; X_5 : Tangibles. X_1, X_2, X_3, X_4, X_5 are components of customer satisfaction in e-banking services.

+ $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$ are respective coefficients of X_1, X_2, X_3, X_4, X_5 .

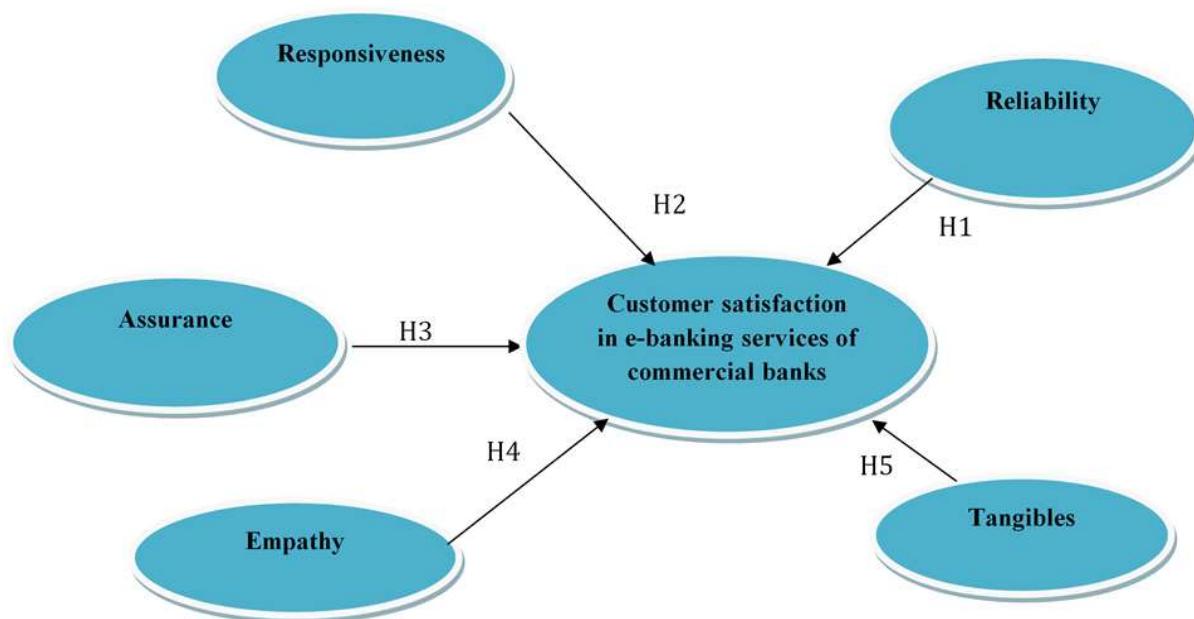
+ β_0 : constant and random error representing unlisted variables in the model.

+ Y : Customer satisfaction in e-banking services of commercial banks.

Questionnaires adopted from Parasuraman et al (1998) on dimensions of e-banking service quality with 22 variables according to the original model are described in Table 1 as follows:

The questionnaires were modified based on the interviews with 20 e-banking service users and 10 experts from five typical e-banking service providers in Viet Nam, namely, BIDV, Vietcombank, Vietinbank, Techcombank, and Agribank. The interviews were conducted to test the validity and relevance of questionnaires in order to identify the most relevant variables to each criterion in the model to best measure customer satisfaction in e-banking services.

Figure 1: Research model



(Source: Author's)

Table 1: Independent and Observed variables in original model of Parasuraman et al (1998)

No.	Code	Variables
I	STC	Reliability (Reliability)
1	STC1	When the commercial banks promise to do something by a certain time, they should do so.
2	STC2	When customers have problems, these banks should be sympathetic and reassuring.
3	STC3	These banks should be dependable.
4	STC4	They should provide their services at the time they promise to do so.
5	STC5	They should keep their records accurately.
II	SPH	Responsiveness (Responsiveness)
1	SPH1	Employees should be expected to tell customers exactly when services will be performed.
2	SPH2	Customers should expect prompt service from employees of these banks.
3	SPH3	Their employees are always willing to help customers.
4	SPH4	Their employees are never too busy to respond to customer requests promptly.
III	SDB	Assurance (Assurance)
1	SDB1	Customers should be able to trust employees of these banks.
2	SDB2	Customers should be able to feel safe in their transactions with these banks' employees.

3	SDB3	Their employees should be polite.
4	SDB4	Their employees should get adequate support from these banks to do their jobs well.
IV	SCT	Empathy (Empathy)
1	SCT1	These banks should be expected to give customers individual attention.
2	SCT2	Employees of these firms are expected to give customers personal attention.
3	SCT3	These banks are expected to have their customers' best interests at heart.
4	SCT4	Employees are expected to know what the needs of their customers are.
5	SCT5	They should be expected to have operating hours convenient to all their customers.
V	SHH	Tangibles (Tangibility)
1	SHH1	They should have up-to-date equipment
2	SHH2	Their physical facilities should be visually appealing
3	SHH3	Their employees should be well dressed and appear neat.
4	SHH4	Their brochures and materials of e-banking services should be visually attractive.

(Source: [10])

Questionnaires with 5 dimensions and 22 observed variables were modified into 5 dimensions with 29 observed variables as described in Table 2. The research objectives can be put into the following hypotheses:

Table 2: Independent and Observed variables in the research model

No.	Code	Variables
I	STC	Reliability (Reliability)
1	STC1	E-banking services are provided exactly as customer registrations
2	STC2	Commercial banks send regular and correct account statements
3	STC3	Types of e-banking services (online payment, bill payment, interbank transfer, etc.) are provided as committed
4	STC4	Value-added services for e-banking users are provided as committed.
5	STC5	E-banking services help customers save time and transaction costs
6	STC6	Customer support and services are provided as committed
II	SPH	Responsiveness (Responsiveness)
1	SPH1	Banks frequently provide information on promotion programs for e-banking users
2	SPH2	Employees respond to customer requests promptly
3	SPH3	Banks deal with complaints rapidly and relevantly
4	SPH4	Employees handle problems related to customer usage of e-banking services timely and accurately
5	SPH5	Employees offer prompt customer support in registering and transacting

III	SDB	Assurance (Assurance)
1	SDB1	Customers feel safe in their use of e-banking services
2	SDB2	E-banking transactions are highly accurate
3	SDB3	Confidentiality and privacy of e-banking transactions are secured
4	SDB4	Account information and outstanding loan are informed timely
5	SDB5	Customer control of personal financial information is guaranteed
6	SDB6	E-banking services are linked to other banks conveniently
IV	SCT	Empathy (Empathy)
1	SCT1	E-banking registration is simple and convenient
2	SCT2	Employees give customers personal attention
3	SCT3	Cost of service use is reasonable
4	SCT4	E-banking service types and utilities are relevant to customer demand
5	SCT5	Promotion policies are good
6	SCT6	Branches and POS, ATM system are widespread, convenient for customers
7	SCT7	Banks actively deal with problems in e-banking registration and transactions
V	SHH	Tangibles (tangibles)
1	SHH1	Banks have good reputation, large networks and modern facilities
2	SHH2	Employees are well-dressed and appear neat
3	SHH3	Banks use advanced technologies and up-to-date equipment for e-banking services
4	SHH4	E-banking channels (ATM, POS locations, Internet, mobile phones, applications, etc.) are convenient for customers
5	SHH5	Banks have various channels (website, fanpage, call center, etc.) to dedicate to responding customer queries

(Source: Author's illustration)

H₁: Reliability of customers to commitments of e-banking providers in Viet Nam has an effect on customer satisfaction in e-banking services.

H₂: Responsiveness of commercial banks in Viet Nam to customer requests and complaints has an effect on customer satisfaction in e-banking services.

H₃: Assurance of commercial banks in Viet Nam in e-banking has an effect on customer satisfaction in e-banking services.

H₄: Empathy or customer understanding of commercial banks in Viet Nam in e-banking service provision has an effect on customer satisfaction in e-banking services.

H₅: Tangibles in e-banking facilities and equipment of commercial banks in Viet Nam has an effect on customer satisfaction in e-banking services.

2.2. Methodology

a. Sampling and measurement scale

+ Sample size: Hair et. al (1998) suggest the minimum sample size estimation for correlation and regression analysis of 5 times of total observed variables. According to B. Tabachnick & L. Fidell(1996) minimum sample size should be calculated by $(50 + 8 \times \text{number of independent variables})$. The study by Roger (2006) states the minimum sample size for quantitative research of 100 to 150. With the model of 5 independent variables and 29 observed variables, the minimum sample size should be from 90 to 145. However, to provide for invalid questionnaires and low response via email, the study estimated to adopt convenience sampling of 200 e-banking users of five typical banks in Viet Nam including BIDV, Vietcombank, Vietinbank, Agribank, and Techcombank.

+ Scale: To measure customer satisfaction in e-banking services by interviews and survey, the author applied a five-point Likert scale of 1: Extremely dissatisfied; 2: Dissatisfied; 3: Neutral; 4: Satisfied; 5: Extremely satisfied.

b. Questionnaire design and delivery

Questionnaires were sent to 200 e-banking users by post (50 questionnaires), email (50) and at the counters (100) with the support of customer service departments from 5 banks including Vietcombank, BIDV, Vietinbank, Agribank, and Techcombank. Respondents by post and email were selected randomly on the database of e-banking users of the five banks. After two weeks of no response, senders would call the customers to remind them. At the counters, bank customers could complete the questionnaires and return to the employees. 168 questionnaires were collected including 37 by post, 42 by email and 89 at counters, in which 11 questionnaires were not included in the analysis because of incompleteness. Therefore, there are only 157 questionnaires for analysis. As the required minimum sample size ranges from 90 to 145, the valid sample for the study $n=157$ can represent the population.

3. Research results

3.1. Demographic information

Collected data was analyzed by SPSS 20.0. Descriptive statistical analysis of 157 respondents showed the following results:

+ Gender: Of 157 respondents in this study, the number of female users is higher than male, specifically, 72 male users (45.85%) and 85 female (54.15%).

+ Age: The age groups of e-banking users primarily had respondents aged between 25 to 55 years with 64 (40.76%) respondents from 25 to 40 years; 53 (33.76%) respondents from 40 to 55 years; 27 (17.2%) respondents under 25 years and 13 (8.28%) respondents over 55 years.

+ Income: Customers with income of VND4 to 7 million account for 31.21% (49 respondents); 74 respondents (47.13%) with VND7 to 15 million; 23 respondents (14.65%) with VND15 to 25 million and 11 respondents (7.01%) with over VND25 million.

+ E-banking use period: Most customers use e-banking services from 1 to 3 years, particularly, 28 (17.83%) respondents under 1 year; 81 (51.59%) respondents from 1 to 3 years; and 48 (30.57%) respondents with over 3 years of use.

3.2. Reliability analysis

Cronbach's Alpha statistic showed that Cronbach's Alpha coefficients of Reliability, Responsiveness, Assurance, Empathy, Tangibles range from 0.823 to 0.877, which all exceed 0.6.

		N	%
Cases	Valid	157	100%
	Excluded	0	.0
	Total	157	100%

However, STC5, SPH4, SCT4 and SCT6 have respective Corrected Item - Total Correlation of 0.283; 0.232; 0.205 and 0.221 lower than 0.3 and the elimination of the variables can increase Cronbach's Alpha coefficients, so these observed variables were removed from the research model. After Cronbach's Alpha and Corrected Item - Total Correlation testing, it is possible to remove 4 observed variables which have no effect

Reliability Statistics of STC

Cronbach's Alpha	N of Items
.841	6

Reliability Statistics of SPH

Cronbach's Alpha	N of Items
.823	5

Reliability Statistics of SDB

Cronbach's Alpha	N of Items
.854	6

Reliability Statistics of SCT

Cronbach's Alpha	N of Items
.877	7

Reliability Statistics of SHH

Cronbach's Alpha	N of Items
.839	5

Item - Total Statistics

	Corrected Item – Total Correlation	Cronbach's Alpha if Item Deleted
STC1	.714	.746
STC2	.652	.793
STC3	.695	.817
STC4	.717	.821
STC5	.283	.875
STC6	.689	.714
SPH1	.694	.756
SPH2	.748	.864
SPH3	.773	.792
SPH4	.232	.871
SPH5	.714	.814
SDB1	.738	.822
SDB2	.772	.818
SDB3	.813	.764
SDB4	.744	.783
SDB5	.769	.789
SDB6	.781	.803
SCT1	.661	.782
SCT2	.747	.805
SCT3	.723	.823
SCT4	.205	.911
SCT5	.689	.789
SCT6	.221	.885
SCT7	.741	.764
SHH1	.763	.807
SHH2	.613	.793
SHH3	.628	.715
SHH4	.713	.829
SHH5	.747	.815

(Source: Author's SPSS analysis)

on customer satisfaction in e-banking services. There remained 25 observed variables in the model.

3.3. Exploratory Factor Analysis (EFA)

The author then carried out EFA analysis for the remaining 25 variables. The results showed KMO of 0.911 > 0.5; Bartlett's test with Sig = 0.00 < 0.05 and

total variance explained of 75.871% (>50%). Most of factor loadings were greater than 0.5; Eigenvalue > 1.

Therefore, the measurement of customer satisfaction in e-banking services extracted 5 factors with 25 observed variables.

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.911
Bartlett's Test of Sphericity	Approx. Chi-Square	2568.535
	Sig.	.000

Rotated Component Matrix

	Component				
	1	2	3	4	5
STC3	.845				
STC1	.814				
STC6	.783				
STC2	.758				
STC4	.607				
SPH3		.839			
SPH2		.821			
SPH5		.747			
SPH1		.716			
SDB3			.853		
SDB6			.827		
SDB5			.752		
SDB1			.701		
SDB4			.683		
SDB2			.604		
SCT7				.856	
SCT2				.834	
SCT5				.797	
SCT3				.756	
SCT1				.681	

SHH1					.843
SHH4					.785
SHH5					.716
SHH3					.655
SHH2					.621
Eigenvalue	7.432	7.221	7.315	5.806	5.653
KMO	.911				
P-value	.000				
Total Variance Explained	75.871				

(Source: Author's SPSS analysis)

3.4. Linear regression analysis and hypothesis testing

Linear regression analysis could be applied to test the hypotheses of positive relationship between service quality dimensions and customer satisfaction; which dimension has the most effect on customer satisfaction. It is concluded in the following equation:

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5$$

In which:

Y: Customer satisfaction in e-banking services of commercial banks.

X₁: Reliability; X₂: Responsiveness; X₃: Assurance; X₄: Empathy; X₅: Tangibles.

Six variables were put into regression analysis to assess the model fit of multiple regression model by Enter. The value of each factor is the mean of the observed variables. The results of linear regression analysis are presented as in the following table.

Accordingly, the fit of the research model and the research data has Adjusted R² of 0.724 with significance level of 0.05. It showed that 5 independent variables could explain 72.4% of dependent variables. Durbin - Watson coefficient is 1.998 in (1; 3), so it is certain to conclude there is no first order autocorrelation in the model.

The regression analysis revealed Pearson's Correlation between independent and dependent variables has the significance of 0.717 to 0.860, all greater than 0.6. It showed the fairly close relationship between customer satisfaction and e-banking services of commercial banks in such factors as Reliability; Responsiveness; Assurance; Empathy; Tangibles.

From the analysis, all five independent variables have Sig. < 0.05 and are significant. Thus, all hypotheses H1, H2, H3, H4, H5 are accepted with confidence

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.851 ^a	.724	.724	.37214	1.998

(Source: Author's SPSS analysis)

Anova^b

Model	Sum of Squares	df	Mean square	F	Sig.
1 Regression	83.170	4	20.792	241.359	.000 ^a
Residual	13.181	153	.086		
Total	96.351	157			

a. Predictors: (Constant), STC, SPH, SDB, SCT, SHH

b. Dependent Variable: Y (Customer satisfaction in e-banking services)

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
	B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	-.851	.149		-	.001					
Constant	.494	.056	.416	6.179	.000	.860	.496	.212	.888	1.126
STC	.416	.047	.397	7.075	.000	.762	.311	.141	.797	1.255
SPH	.339	.051	.352	4.051	.000	.829	.527	.221	.539	1.854
SDB	.471	.045	.411	7.662	.000	.717	.310	.153	.699	1.431
SCT	.374	.051	.321	4.039	.000	.805	.411	.237	.710	1.408
SHH				5.713						

(Source: Author's SPSS analysis)

level of 95%. Variance inflation factor VIF is between 1 and 2 (Tolerance > 0.5), so there is no multicollinearity between five independent variables.

Multiple regression equation showing the relationship between five factors affecting customer satisfaction in e-banking services is presented as follows:

$$Y = -0.851 + 0.494 \cdot X_1 + 0.416 \cdot X_2 + 0.339 \cdot X_3 + 0.471 \cdot X_4 + 0.374 \cdot X_5$$

β_0 is the coefficient to assess the effect of external factors on dependent variables when independent variables are 0, $\beta_0 < 0$, meaning some factors excluded from the model could reduce customer satisfaction.

4. Conclusion

The study showed that all five dimensions of e-banking service quality have effect on customer satisfaction. All factors have $\beta > 0$, i.e. there are positive effect on e-banking service customer satisfaction. Accordingly, $\beta_0 = -0.851$ represents the negative effect of other factors on customer satisfaction. They can be named customer income; customer behavior; service knowledge and usage; disruption in service use due to limited telecom infrastructure, etc. which can have negative effect on customer satisfaction, so β_0 has negative value. STC ($\beta_1 = 0.494$) has the greatest effect and SDB ($\beta_3 = 0.339$) has the least effect on customer satisfaction in e-banking services. There is no great difference in the values of β_1 to β_5 because the respective factors in the model are equally important with strong effect on customer satisfaction in e-banking services of commercial banks in Viet Nam. The

regression results showed that when other factors in the model remain stable, STC, SPH, SDB, SCT, SHH increase by 1, Y (customer satisfaction in e-banking services of commercial banks in Viet Nam) will respectively by 0.494, 0.416, 0.339, 0.471 and 0.374.

Overall, the study presented a clear approach for commercial banks in Viet Nam to improve customer satisfaction in their e-banking services under their objectives by tackling the relevant factors in the research model.

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Summary

Với sự phát triển nhanh chóng các ứng dụng công nghệ thông tin (CNTT) trong kinh doanh ngân hàng,

hầu hết ngân hàng thương mại (NHTM) trên thế giới và ở Việt Nam đều có những bước tiến dài đối với hoạt động cung cấp và phát triển thị trường dịch vụ ngân hàng điện tử (NHĐT). Điều này một mặt, cho phép NHTM tạo ra ưu thế vượt trội và các tiện ích mới trong cung cấp dịch vụ tài chính. Mặt khác, mở ra nhiều cơ hội mới trong việc tiếp cận với số lượng lớn khách hàng tiềm năng, chiếm lĩnh thị phần dịch vụ NHĐT và bán chéo sản phẩm dịch vụ. Tại Việt Nam hiện nay, các sản phẩm dịch vụ NHĐT được cung cấp đã rất đa dạng và phong phú về loại hình, tuy nhiên số lượng khách hàng sử dụng dịch vụ NHĐT vẫn còn quá ít, giá trị giao dịch còn quá nhỏ so với tiềm năng thị trường và khách hàng hiện tại của các NHTM cũng như chưa tương xứng với những nỗ lực đầu tư của các NHTM. Đây là thực tế cấp bách đang được các NHTM Việt Nam đặt vấn đề quan tâm hàng đầu, đòi hỏi phải được giải quyết trong bối cảnh hiện nay và sắp tới. Bài viết của tác giả đã đưa ra mô hình nghiên cứu mối quan hệ của các thành tố chất lượng dịch vụ NHĐT của các NHTM Việt Nam và sự hài lòng của khách hàng sử dụng, tạo cơ sở khoa học cho các NHTM Việt Nam trong việc nhìn nhận lại chất lượng dịch vụ NHĐT cung cấp và đánh giá chính xác sự hài lòng của khách hàng. Thông qua đó, các NHTM Việt Nam có thể cải thiện dịch vụ NHĐT, gia tăng sự hài lòng của khách hàng, tạo lập các khách hàng trung thành và thu hút thêm khách hàng tiềm năng cho các dịch vụ NHĐT.

NGUYEN TRAN HUNG

1. Personal Profile:

- Name: Nguyen Tran Hung
- Date of birth: 10th December 1980
- Title: Doctor of Economics
- Workplace: Department of Electronic Commerce, Viet nam University of Commerce
- Position: Head of Department of Electronic Commerce Principles

2. Major research directions:

- Electronic Commerce Models.
- Mobile commerce and its applications, such as: mobile marketing, mobile banking, mobile ticketing, mobile retailing...; Social media marketing and development for electronic brands of web-sites; Search engines optimization and data mining on the web.

3. Publications the author has published his works:

- Journal of Trade Science
- Journal of Economic Development
- Business Review