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Factors affecting the acceptance of customers to use e-banking services in Vietnam

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Abstract
This study is conducted to evaluate the factors affecting the acceptance of customers using e-banking services in Vietnam. By the method of confirmation factor analysis (CFA) and structural equation (SEM0 with a sample of 214 customers using e-banking services at Vietnamese commercial banks, the author has identified the factors). Affects the acceptance of customers to use e-banking services in Vietnam on the basis of the research results, the author proposes solutions to promote the adoption of e-banking services. of customer.

Keywords: e-banking, online banking, commercial bank, Vietnam

Introduction

The development of information technology in banking has significantly changed the business strategies of commercial banks. Instead of providing traditional banking services, commercial banks are taking advantage of information technology, especially the internet, to provide customers with e-banking services.

Electronic banking services bring many benefits to the bank such as reducing the number of employees, branches, increasing the number of transactions... thereby reducing costs and increasing profits. For customers, e-banking services help customers make transactions quickly, conveniently, and save travel time, transaction costs... While Covid-19 translation is still complicated, one of the best ways to prevent spread is to limit your exposure. And it's convenient when sitting at home you can still shop, pay, Top-Up online... through online banking. (Bahia, K & J. Nantel 2000) [5].

In the past, some household bills such as electricity, water, and telephone have been paid for online by me; go to the supermarket, pay the tuition fee, and swipe the card. However, since the outbreak, families have limited going out, the utility of the cashless payment habit. Just sitting at home, people can still easily buy their goods and services through a few clicks on their mobile phones or by clicking on the computer.

Facing complicated developments of the epidemic, many commercial banks also encourage customers to conduct transactions online to limit contact, while ensuring safety, convenience, and meeting customers' needs. The explosion of technology 4.0 over the past time has helped non-cash payment channels take the throne, especially payments through electronic banks. Instead of increasing online transaction fees as in previous years, some banks choose free ways to attract users, increase experience opportunities for customers. Users opening accounts will be free for many types of transactions, especially internal or interbank transfers. This helps to remove worries about fees, especially for individual customers, businesses that regularly transact via e-banking, online payments.

E-banking can bring many different benefits to both banks and customers (Broderick & Vachirapornpuk, 2002). E-banking helps reduce costs by reducing the number of employees, branch offices, and other facilities while maintaining a high level of customer service. This can facilitate banks to provide services to customers at lower costs and with higher returns than traditional banking services (Gerlach, 2000; (Gerlach, 2000; Jun & Cai, 2001) [12, 1] To be successful in a highly competitive industry such as electronic banking, banks must provide customers with high-quality service (Mefford, 1993).

Theoretical basis and research overview

Electronic banking is a broad concept and difficult to cover, but basically, it can be understood as a computer software system that allows customers to choose or buy banking services by connecting to a computer network. Computers with the banking network (Cai, S & M. Jun 2003) [7]. Electronic banking (e-banking), also known as internet banking (internet banking) is understood as a bank using electronic networks and telecommunications to provide banking services to customers (Aduda). and Kingoo, 2012) [1]. Electronic banking has improved banking efficiency, significantly changed the operations of retail banks, and increased customer benefits (Pousttchi and Schurig, 2004) [25]. Consumers receive benefits over traditional services: lower costs, better service quality, 24-hour service available, time savings, free access to services, easy to use, faster service speed, compatibility with living conditions and security (Laukkanen and Lauronen, 2005).

Since the 1990s, the wireless internet has been constantly evolving. Mobile technology products are sophisticated wireless data services focused on mobile access to the internet and electronic messaging on mobile devices. Internet "in your pocket" has many potential applications, travel information, news, shopping,... According to Shaikh and Karjaluoto (2015) [26] e-banking has been implemented since the late 1990s, when the German company Paybox, in partnership with Deutsche Bank, launched the first service. Initially, it was deployed and tested mainly in European countries such as Germany, Spain, Sweden, Austria, and the US.

There are many theories related to the decision to use e-banking such as technology adoption theory, rational action

theory, planned behavior theory, and unified theory of technology adoption and use. In which, the unified theory of technology adoption and use (UTAUT) is the technology adoption model built by Venkatesh *et al*. There are four main factors in theory:

1. Expected efficiency,
2. Expected effort,
3. Social influence, and
4. Favorable conditions. The first three factors are the factors influencing usage decisions and behavior, the fourth-factor influencing user behavior. This is the model used in many domestic and international studies.

The topic of factors influencing the decision to use e-banking is also practiced by many foreign and domestic researchers. In Vietnam, a number of related studies such as the research of Nguyen Duy Thanh, Cao Hao Thi (2011), Le Thi Tuyet Trinh (2012) [19]... Each study with different research scope have no results. Together. At the same time, through the research review process, there is no research on the factors affecting the decision to use e-banking services by individual customers in the city. HCM City.

Relationship between factors to the decision to use e-banking

- **Expected effect**

Expected performance is defined as the degree to which an individual believes using the system will enable him/her to achieve a job goal (Davis *et al*., 1989) [11]. The useful magnetically oriented expected effect is found, relative advantage, external motivation, and job fit. According to Chitungo, SK, and Munongo, S. (2013) [8], the background theory of this variable is derived from useful perception (Technology adoption theory), available motivation (Motivational model), work suitability (PC use model), relative advantage (Innovation diffusion theory) and expected results (Social cognitive theory). There are three factors that influence expected performance: perceived usefulness, motivation, and job relevance (Shen, *et al*., 2010) [27].

- **Effortless expectations**

In the Acceptance and Use of Technology Consolidation Theory (UTAUT2) Venkatesh *et al*. (2010) [28], the expected effort is defined as the ease associated with system use. According to Venkatesh *et al*. (2003) [29], this factor stems from the ease-of-use perception proposed in the technology adoption model. Davis (1989) [11] Points out that an individual cognitive application that can easily use them is more likely to accept them. Davis *et al*. (1989) [11] also shows similar results that the expected effort-oriented factor is more prominent in the first step of the new behavior when difficulties arising in the process can be overcome. After all, any tooling concerns are gone. Based on other behavioral theory models, Venkatesh *et al*. (2003) [29] based on cognitive concepts easy to use (TAM), complexity (MPCU), and ease of use (IDT) to create concepts. Conceive effort expectation as the relative ease of use of technology.

• Social influence

Social influence is defined as the degree to which an individual perceives that people who are important to the individual believe that the use of technology is important (Lee, K. C., and Chung, N. 2009) [20]. This factor is similar to the Subjective Standard defined in the TAM2 Technology Adoption Model, the TAM extension. Noor, M. M. (2011) [23] defines image as the extent to which the use of perceived innovation technology enhances the individual's image or status in the social group of the individual. Subjective standards are seen as mediating from a decision to technology use (Shen t al., 2010) [27].

- **Good condition**

Facilitation is defined as the degree to which an individual believes resources are needed to support the use of the system (Venkatesh *et al*., 2012) [30]. The basic structure of enabling facilitation includes aspects of the technical and organizational environment, designed to remove barriers to use (Keong *et al*., 2012). UTAUT theory includes elements from controlling perceived behavior and usage decisions by potential customers. Gu, J. C *et al*., (2009) argue that the expected efficiency and effort, social influence, and facilitation positively impact the use of information technology systems.

- **Value of service**

The cost value is understood as the perceived balance of the consumer between the benefits of the application and the monetary cost of using Them (Venkatesh *et al*., 2012) [30]. One thing that differentiates individual consumers and organizations when they use the service is that they incur the costs themselves, which may affect their usage behavior. For example, there is research evidence that the use of SMS instead of internet banking in China is due to lower service fees (Charles Makanyeza, 2017) [10]; Hsu *et al*., (2011) [15] stated that this is one of the most important factors for consumers when adopting new technology. Cost value has been found to have a positive influence on e-banking decisions (Ahmed and Rashid, 2017) [2].

- **Get confidence**

Trust is very important to any business relationship Park, J., *et al*., 2007) [24] and it plays an important role in e-commerce, as it reduces uncertainty (Gu *et al*., 2009) [14]. In the technology sector, trust represents a catalyst for a buyer-seller relationship (Gu *et al*., 200). Customer lack of trust is one of the reasons customers do not accept and use electronic banking (Alalwan *et al*., 2013). In addition, Alalwan *et al*. (2013) have also shown that as trust increases, customers will perceive that using a bank's electronics will be easier, more useful, and less risky.

- **Decisions and behavior on using electronic banking**

The decision to use e-banking is the willingness of a person to accept the service (David *et al*., 1989). Venkatesh *et al*. (2003) [29], Venkatest and Zang (2010) demonstrated that behavioral decisions have a significant effect on technology use. Customer's use of e-banking is the regular use of the customer's service over a period of time (Al-Jabri, I. *et al*., 2012) [4] or is considered the number of banks to transact and the benefits of e-banking services consumers use (Cheng *et al*., 2006) [9]. In this study, the use of electronic banking is considered as the level of using more or less for electronic banking services in a certain period of time.

Research model and hypothesis

The thesis uses the Unified Theory of Acceptance and Use of Technology (UTAUT) of Venkatesh *et al* (2003) [29] to

build a research model with 6 independent variables, including X1: Expected effects, X2: Expected effort, X3: Favorable conditions, X4: Social impact, X5: Service value, X6: Awareness of beliefs and the dependent variable is Y: Decision to use banking services electronic commercial banks in the city. HCM City.

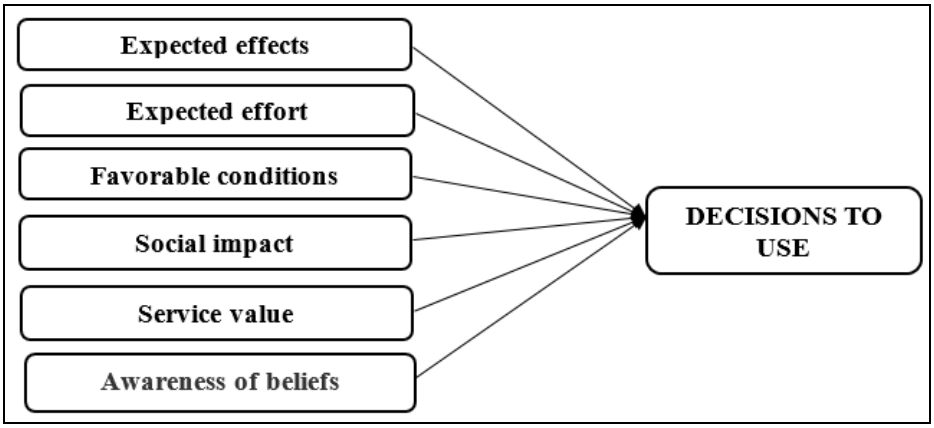

Fig 1: Author's proposed research model

The hypotheses in the research model include:

- Hypothesis H1: Expected performance has a positive impact on customers' decisions to use e-banking;
- Hypothesis H2: Expectation efforts to positively affect customers' decisions to use e-banking;
- Hypothesis H3: Favorable conditions positively affect customers' decisions to use e-banking;
- Hypothesis H4: Social influences positively affect customers' decision to use e-banking;
- Hypothesis H5: Service value affects the conversion from customer satisfaction to e-banking decisions;
- Hypothesis H6: Perception of trust affects customers' decisions to use e-banking.

Research Methods

Sample of the survey: The selected sample is 214 customers living in the city. HCM City, from 9/2020 to 12/2020. The feature of the sample is that individual customers use e-banking.

They have a lot of knowledge and experience with existing electronic banks in the city market. HCM City. Samples are selected according to a convenient method based on individual referrals. Respondents will answer that the e-banking they are using.

Table 1: Summary of descriptive statistics according to some customer behaviors

Characteristics		Number (person)	Proportion (%)
Starting time of trading	Less than 1 year	25	11.68%
	From 1 to less than 2 years	100	46.73%
	From 1 to less than 2 years	89	41.59%

Evaluate the scales: First, the scales will be preliminarily evaluated through two methods: Cronbach's Alpha's confidence coefficient and exploratory factor analysis (EFA). Next, the scales are tested by the method of confirmation factor analysis (CFA) and linear structure model (SEM).

Discovery Analysis (EFA)

The results of the discovery factor analysis showed that 24 observed variables in the 6 components of the scale of the customer's decision to use e-banking remained the same 6 factors with 24 observed variables. KMO coefficient = 0.845, so the EFA is consistent with the Chi-square data and statistics of the Bartlett test reaching 4141,201 with the significance level of 0.000; Therefore, the observed variables are correlated with each other on the overall scale. The variance extracted by 72,049 shows that the factors extracted are explained from the 72,049% variation of the data (> 50%), at the coefficient of specific value equal to 1,282. Therefore, the scales drawn are acceptable.

Table 2: Summary of the reliability and total variance extracted of the scales

No.	Scales	Number of observed variables	Confidence coefficient	Total variance extracted (%)	Conclusion
1	Expected effect (EE)	4	0,817	72.049	The scales are reliable
2	Effortless expectations (EFE)	4	0,870	62.428	
3	Good condition (GN)	4	0,939	51.122	
4	Social influence (SI)	4	0,849	39.182	
5	Service value (SV)	4	0,876	27.010	
6	Awareness of beliefs (AB)	4	0,734	14.583	

Source: Summary of author's calculation results

Confirmation Factor Analysis (CFA)

Regarding the general suitability level, factor analysis confirmed that this model has a chi-squared statistical value of 318.167 with 150 degrees of freedom (p = 0.000). Relative chi-squared with degrees of freedom CMIN / df is 2.121 (<3). Other indicators such as GLI = 0. 901 (> 0.9),

TLI = 0.930 (> 0.9), CFI = 0.944 (> 0.9) and RMSEA = 0.064 (<0.08). Therefore, this model is suitable for market data. This also allows drawing comments on the unidirectional of the observed variables. Regarding the convergence value, the normalized weights of the scales are> 0.5 and have a statistical significance of p <0.5. Therefore, the scales achieve convergent values.

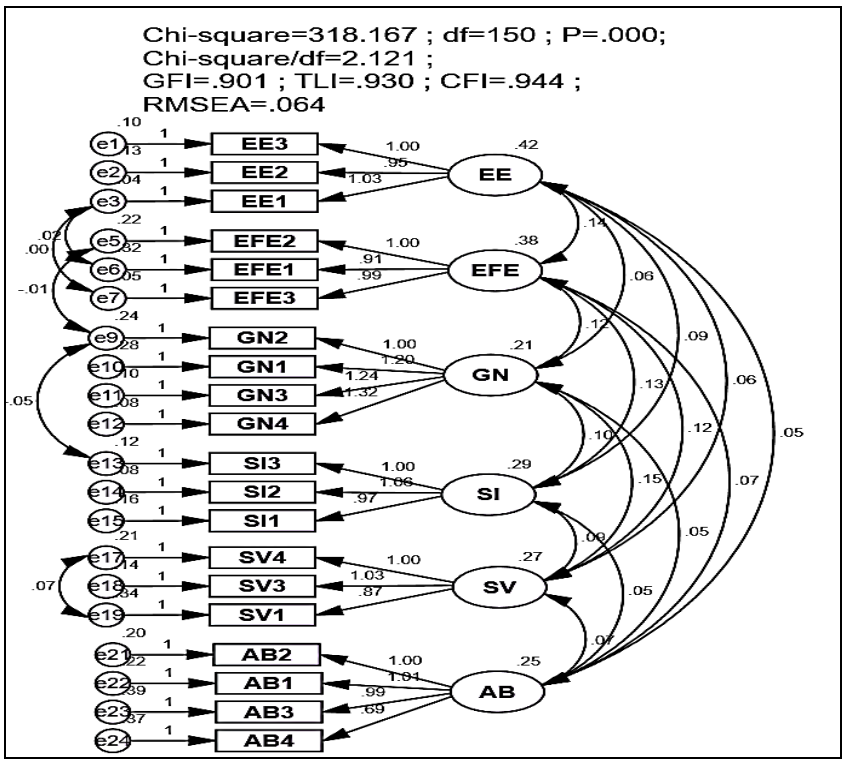

Fig 2: CFA analysis results

Analysis of Linear Structure Modeling (SEM)

Structural Model Analysis (SEM)

In the research model, there are 6 research concepts. Expected effect (EE), Effortless expectations (EFE), Good condition (GN), Social influence (SI), Service value (SV), Awareness of beliefs (AB). The results showed that the linear structural model has a chi-squared statistical value of 308.941 with 127 degrees of freedom (p = 0.000). Relative chi-squared with the degrees of freedom CMIN / df is 2.433 (< 3). Other Indicators such as GLI = 0.895 (> 0.8), TLI = 0.923 (> 0.9), CFI = 0.9943 (> 0.9) and RMSEA = 0.073 (<0.08). Therefore, this model achieves compatibility with market data. This means the acceptance of hypotheses H1, H2, H3, H4, H5, and H6.

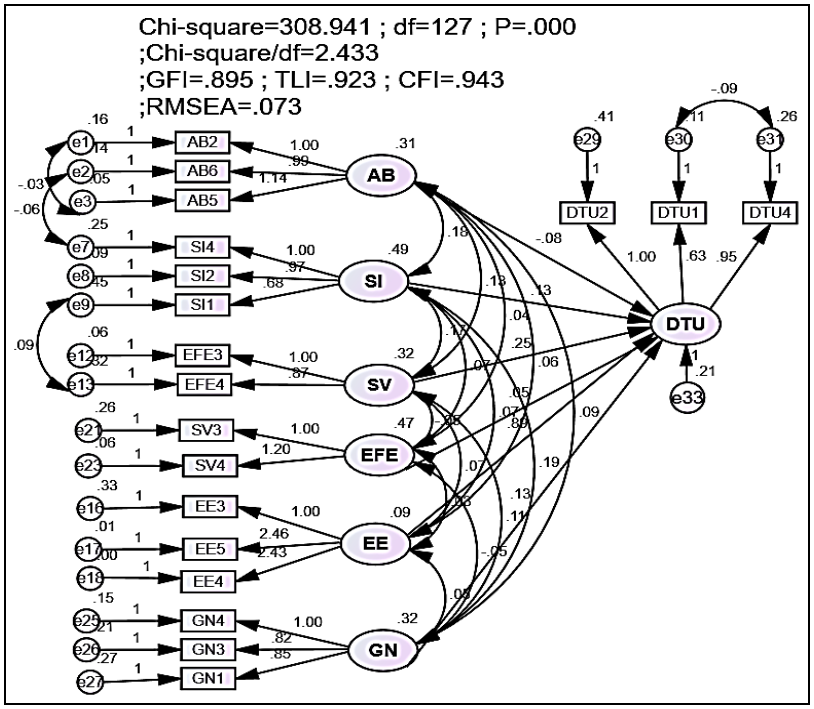

Fig 3: Results of a calibrated structural model (SEM).Source: Author's calculations in SPSS 23.0

Discuss the results and the next research direction

The expected effect is the factor that has the strongest impact on a customer's decision to use e-banking with a standardized beta of 0.367. This shows that individual customers want to use e-banking services to bring service value with a standardized beta of 0.336 many benefits to customers, help customers save time, improve transaction efficiency as well as productivity customer action.

The second most powerful factor in the decision to use e-banking services in Vietnam is awareness of beliefs with a standardized beta coefficient of -0.316. However, the relationship between awareness of beliefs to the dependent variable is inverse. The news on the radio about the account holder losing money on the card, revealing information about the account, login password,. has more or less affected the customers' awareness of beliefs, making customers not reassured. Expectation effort is the fourth most influential factor in a customer's decision to use e-banking with a standardized beta of 0.234. The positive relationship between expected effort and the decision to use e-banking services shows that customers want e-banking services to be designed for easy use and manipulation of transactions.

Another factor that has a significant impact on the decision to use e-banking services of individual customers in Vietnam is a social influence with a standardized beta coefficient of 0.232 showing that this is a positive relationship. Relatives, friends, colleagues, and managers can all influence customers' decisions to use e-banking services.

Favorable conditions have a positive influence on the decision to use e-banking services in Vietnam with a standardized beta of 0.174. To use e-banking service requires customers to have a smartphone or device that can connect to the internet, 3G, Wi-Fi. and install supported applications to perform transactions.

Table 3

Coefficients[a]								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.812	.300		2.702	.007		
	EFE	.204	.072	.234	1.877	.062	.747	1.338
	AB	-.296	.056	-.316	-.814	.416	.540	1.852
	SI	.226	.059	.232	1.586	.114	.664	1.506
	SV	.329	.053	.336	9.464	.000	.733	1.365
	GN	.155	.060	.174	.835	.404	.660	1.516
	EE	.363	.044	.367	.747	.456	.862	1.160
a. Dependent Variable: DTU								

Source: Author's calculations in SPSS 23.0

Conclusion

Based on the results of determining the factors affecting the individual's decision to use e-banking in Vietnam, the article gives some recommendations for commercial banks to attract customers to use e-banking. Commercial banks need to improve the convenience and transaction quality of e-banking services. Convenience emphasizes that customers can perform banking transactions (excluding cash withdrawals) anywhere at any time with an internet device. Commercial banks need to increase the level of system security by continually improving technology to limit error transactions, system risks as well as network security risks. Commercial banks need to provide knowledge and information to customers so that customers can evaluate and be aware of the dangers of using electronic banking; Always warn, warn and guide customers to be aware of the risks, threats, and sophisticated fraud of bad actors. Commercial banks need to design e-banking service interfaces and operations on e-banking service delivery platforms must be regularly renewed and updated in an easy-to-use, simplified, and capture the trends and needs of society. In addition, commercial banks also need to improve a number of procedures, design operations, or automation shortcuts to help customers save transaction time; at the same time, actively researching the market, identifying target customers to attract customers to use e-banking services. Advertising through word of mouth from customers who have used e-banking services also needs to be focused on by the bank. Although the level of impact is not high, in order to attract new customers, commercial banks need to set up a fee schedule consistent with the service quality and ensure competitiveness in the market.

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