FACTORS AFFECTING CUSTOMER SATISFACTION ON E-BANKING SERVICE QUALITY IN VIETNAMESE COMMERCIAL BANKS

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ABSTRACT

E-banking service is a new service, applying technology, plays an important role in improving the business efficiency of banks and becomes an indispensable force in the business model of the Industry 4.0 era. This article studies the factors affecting customer satisfaction about the quality of e-banking services in Vietnamese commercial banks.


1. INTRODUCTION

Over the years, Vietnamese commercial banks have actively improved their competitiveness and made the most of market opportunities, especially in the retail banking segment. A big challenge for this segment is the increasing competitive pressure in the domestic market when Vietnam opens for consolidation and the changing needs of customers are forced to use information technology, commercial banks, etc. Vietnam's commerce has introduced new ways of providing products and services through telecommunications networks and the Internet, referred to as "e-banking".

E-banking is a new service, an application of technology, plays an important role in improving the business performance of banks and has become an indispensable force in the modern business model in the context of Industrial revolution 4.0. In order to succeed and survive in the competitive market of e-banking services, managers must grasp the intention to use the service for reference and propose sales strategies to the needs of the customer. However, in choosing a sales strategy, a business needs to first determine the perception of most customers about what elements the e-banking service concept includes. On the bank's side, the first part of the investment is relatively expensive, and the bank's charm will reduce the spread of human investment; No need to invest in location and printing and record-keeping costs for traditional transactions. Not simply an application for transfer transactions - a receipt of money, a payment of bills... A number of electronic banking applications have been developed by banks with many new features, designed to increase real convenience for customers.

2. THEORETICAL BASIS

2.1. Overview of e-banking services at commercial banks

E-banking services have been established by leading international banking organizations as independent activities and are an integral part of a banking service upon its establishment (Hughes, 2003 and Hilal, 2015). The advent of e-banking has changed and redefined both the way it works and the fundamentals of doing business (Berza et al, 2009). Banking via the internet has been widely accepted as a new distribution channel of banking services, it has brought forward the conditions of increasing global competition, a constantly changing market and a changing demand for service quality on the part of customers (Tushmana et al., 2002). Today's technology is considered as a determinant of success and a determinant of the success and competitiveness of organizations (Kombe and Wafula, 2015). The integration of technological innovation and virtual relationship in the banking industry is promoted by the strong expansion of the internet and through innovation in the field of information and communication technology (ICT) has been invented a number of applications such as ATM, a telephone bank (M-Banking) and an electronic bank (e-banking) (Sankaria et al., 2015; Toufailya et al., 2009).
2.2. Overview of customer satisfaction

Customer satisfaction is a key content in business activities, so there is a point of view on this issue. According to Spreng et al. (1996), customer satisfaction is considered to be the foundation of the marketing concept of satisfying customer needs and desires. There are many different perspectives on customer satisfaction. Customer satisfaction is their response to the perceived difference between known experience and expectations. That is, the customer's known experience of using a service and the results after the service is delivered.

According to Kotler and Keller (2006), satisfaction is the degree to which a person's feeling state derives from comparing the perception of a product with his or her expectations. Accordingly, satisfaction has the following three levels: If the customer's perception is smaller than the expectation, the customer feels unsatisfied; if perceived by expectations, customers feel satisfied; if the perception is greater than the expectation, the customer perceives it as satisfied or delighted.

2.3. Overview of service quality

Lehtinena and Lehtinena (1982) show that a service quality should be assessed on two dimensions, a service delivery process and a service outcome. Gronroos (1984) also mentions two dimensions of service quality, namely technical quality and functional quality. Technical quality relates to what is served and functional quality refers to how well they are served.

According to Hurberta (1995), before using the service, the customer has built a "scenario" about that service. When the customer and supplier's scenario is not the same, the customer will feel unsatisfied.

Zeithaml (1987) explains: Service quality is a customer's assessment of the transcendence and general excellence of an entity. It is a variety of attitudes and consequences of an event comparing what is expected and perceived as what we get.

Parasuraman et al (1985, 1988) define service quality as the gap between customer service expectations and customers' perception when they have used the service, finally giving a scale of 5 components: (1) reliability, (2) responsiveness, (3) empathy, (4) service capacity, (5) tangible means. Each component is measured by many observed variables with a total of 21 observed variables and is referred to as the SERVQUAL scale (Parasuraman et al., 1988).

3. MODEL

The proposed research model includes the following 6 elements. Ease of use; Ensure safety and security; Ability to meet; Modern technology; Website design; Affordability. The multi-variable regression model represents the factors affecting customer satisfaction to the quality of e-banking services at Vietnamese commercial banks as follows:

\[ HL = \beta_0 + \beta_1 \times DD + \beta_2 \times DB + \beta_3 \times DU + \beta_4 \times CN + \beta_5 \times TK + \beta_6 \times CP + \varepsilon_i \]

The dependent variable (HL) is the satisfaction with e-banking services at commercial banks.

DD; DB; DU; CN; CP is the independent variable, representing the group of factors Ease of use; Ensure safety and security; Ability to meet; Modern technology; Website design; Reasonable cost affects satisfaction with e-banking service quality at commercial banks

4. RESEARCH METHODS

Samples were selected by convenience sampling method. The sample size is 400 observations. The author surveys customers who are using e-banking services at Vietnamese commercial banks. Conduct a survey to collect survey data for analyzing factors affecting customer satisfaction with e-banking services at Vietnamese commercial banks. Data was collected from January to February 2023. The author uses an indirect survey form through sending questionnaires via e-mail which is also used. The total number of questionnaires sent was 400 questionnaires. After that, the data will be entered and cleaned for analysis.

After sending out 400 questionnaires, 387 were collected, of which 20 answered incorrectly with incorrect information and regulations, which should be eliminated. Therefore, the official sample number from the questionnaires collected is 367 observations.

5. RESULTS OF DATA ANALYSIS

5.1. Cronbach's Alpha reliability test results
To test the reliability of the factor and the measurement scale, the author uses Cronbach’s Alpha test. The results are shown in the following table:

Table 1: Summary of Cronbach’s Alpha test results

<table>
<thead>
<tr>
<th>Observed variables</th>
<th>Scale average if variable type</th>
<th>Scale variance if variable type</th>
<th>Total variable correlation</th>
<th>Cronbach’s Alpha if variable type</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Easy-to-use scale with Cronbach’s Alpha = 0.896</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DD1</td>
<td>14.49</td>
<td>15.515</td>
<td>0.731</td>
<td>0.877</td>
</tr>
<tr>
<td>DD2</td>
<td>14.47</td>
<td>15.612</td>
<td>0.732</td>
<td>0.876</td>
</tr>
<tr>
<td>DD3</td>
<td>14.40</td>
<td>15.603</td>
<td>0.724</td>
<td>0.878</td>
</tr>
<tr>
<td>DD4</td>
<td>14.21</td>
<td>15.775</td>
<td>0.717</td>
<td>0.879</td>
</tr>
<tr>
<td>DD5</td>
<td>14.38</td>
<td>14.993</td>
<td>0.817</td>
<td>0.857</td>
</tr>
<tr>
<td><strong>Scale to ensure security with Cronbach’s Alpha = 0.784</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DB1</td>
<td>10.66</td>
<td>5.417</td>
<td>0.514</td>
<td>0.768</td>
</tr>
<tr>
<td>DB2</td>
<td>10.70</td>
<td>4.293</td>
<td>0.649</td>
<td>0.702</td>
</tr>
<tr>
<td>DB3</td>
<td>10.64</td>
<td>4.691</td>
<td>0.721</td>
<td>0.666</td>
</tr>
<tr>
<td>DB4</td>
<td>10.59</td>
<td>5.418</td>
<td>0.498</td>
<td>0.775</td>
</tr>
<tr>
<td><strong>Scale of modern technology with Cronbach’s Alpha = 0.885</strong></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CN1</td>
<td>12.30</td>
<td>7.867</td>
<td>0.773</td>
<td>0.851</td>
</tr>
<tr>
<td>CN2</td>
<td>12.25</td>
<td>7.363</td>
<td>0.761</td>
<td>0.852</td>
</tr>
<tr>
<td>CN3</td>
<td>12.19</td>
<td>7.697</td>
<td>0.663</td>
<td>0.875</td>
</tr>
<tr>
<td>CN4</td>
<td>12.19</td>
<td>7.979</td>
<td>0.614</td>
<td>0.886</td>
</tr>
<tr>
<td>CN5</td>
<td>12.21</td>
<td>7.338</td>
<td>0.824</td>
<td>0.837</td>
</tr>
<tr>
<td><strong>Website design scale with Cronbach’s Alpha = 0.766</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TK1</td>
<td>9.90</td>
<td>3.528</td>
<td>0.682</td>
<td>0.644</td>
</tr>
<tr>
<td>TK2</td>
<td>10.10</td>
<td>4.110</td>
<td>0.537</td>
<td>0.726</td>
</tr>
<tr>
<td>TK3</td>
<td>10.02</td>
<td>4.181</td>
<td>0.548</td>
<td>0.721</td>
</tr>
<tr>
<td>TK4</td>
<td>9.65</td>
<td>3.995</td>
<td>0.508</td>
<td>0.744</td>
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<tr>
<td><strong>Reasonable cost scale with Cronbach’s Alpha = 0.910</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CP1</td>
<td>14.68</td>
<td>15.530</td>
<td>0.758</td>
<td>0.893</td>
</tr>
<tr>
<td>CP2</td>
<td>14.63</td>
<td>15.493</td>
<td>0.771</td>
<td>0.890</td>
</tr>
<tr>
<td>CP3</td>
<td>14.68</td>
<td>15.652</td>
<td>0.732</td>
<td>0.898</td>
</tr>
<tr>
<td>CP4</td>
<td>14.68</td>
<td>15.063</td>
<td>0.761</td>
<td>0.893</td>
</tr>
<tr>
<td>CP5</td>
<td>14.70</td>
<td>14.816</td>
<td>0.842</td>
<td>0.875</td>
</tr>
<tr>
<td><strong>Satisfaction scale with Cronbach’s Alpha = 0.822</strong></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HL1</td>
<td>6.39</td>
<td>2.342</td>
<td>0.674</td>
<td>0.757</td>
</tr>
<tr>
<td>HL2</td>
<td>6.73</td>
<td>2.255</td>
<td>0.715</td>
<td>0.714</td>
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<tr>
<td>HL3</td>
<td>6.65</td>
<td>2.694</td>
<td>0.647</td>
<td>0.786</td>
</tr>
</tbody>
</table>

(Source: Author’s data analysis, 2023)

According to Table 1 results, variables include Ease of use (DD); Ensure security (DB); Responsiveness (DU); Modern technology (CN); Website Design (TK); Reasonable cost (CP) and satisfaction (HL) have Cronbach’s Alpha coefficient of 0.896, respectively; 0.784; 0.885; 0.766; 0.910; 0.822 are all greater than 0.6 and the total correlation coefficients of the observed
variables of the scales are all greater than 0.3, so the factor and the measurement scales for the factors both meet the reliability.

5.2. Exploratory factor analysis (EFA)

After testing the reliability of Cronbach's Alpha of the components of the scale, the study continued to perform EFA analysis for the scales. The purpose of the EFA analysis technique is to determine which factors really represent the observed variables in the scales. The factors represent 31 observed variables obtained from EFA exploratory factor analysis. The EFA analysis was performed through the following tests:

Table 2: EFA analysis results for measurement concepts of independent variables

<table>
<thead>
<tr>
<th></th>
<th>Factor 1</th>
<th>Factor 2</th>
<th>Factor 3</th>
<th>Factor 4</th>
<th>Factor 5</th>
<th>Factor 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>CP5</td>
<td>0.872</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>CP2</td>
<td>0.842</td>
<td></td>
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</tr>
<tr>
<td>CP4</td>
<td>0.811</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>CP3</td>
<td>0.799</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CP1</td>
<td>0.797</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DU5</td>
<td>0.872</td>
<td>0.858</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>DU2</td>
<td>0.860</td>
<td>0.830</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>DU1</td>
<td>0.796</td>
<td>0.812</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>DU3</td>
<td>0.796</td>
<td>0.777</td>
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<tr>
<td>DU4</td>
<td>0.783</td>
<td>0.740</td>
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</tr>
<tr>
<td>DD5</td>
<td></td>
<td></td>
<td>0.891</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DD2</td>
<td></td>
<td></td>
<td>0.857</td>
<td></td>
<td></td>
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<tr>
<td>DD3</td>
<td></td>
<td></td>
<td>0.846</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DD4</td>
<td></td>
<td></td>
<td>0.761</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CN5</td>
<td></td>
<td></td>
<td>0.729</td>
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<td></td>
</tr>
<tr>
<td>CN2</td>
<td></td>
<td></td>
<td>0.850</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CN1</td>
<td></td>
<td></td>
<td>0.854</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>CN3</td>
<td></td>
<td></td>
<td>0.683</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CN4</td>
<td></td>
<td></td>
<td>0.688</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DB3</td>
<td></td>
<td></td>
<td>0.674</td>
<td>0.855</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DB2</td>
<td></td>
<td></td>
<td>0.784</td>
<td>0.689</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DB4</td>
<td></td>
<td></td>
<td>0.683</td>
<td>0.688</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DB1</td>
<td></td>
<td></td>
<td>0.683</td>
<td>0.683</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TK1</td>
<td></td>
<td></td>
<td>0.854</td>
<td>0.854</td>
<td>0.683</td>
<td></td>
</tr>
<tr>
<td>TK4</td>
<td></td>
<td></td>
<td>0.689</td>
<td>0.689</td>
<td>0.683</td>
<td></td>
</tr>
<tr>
<td>TK3</td>
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<td></td>
<td>0.688</td>
<td>0.688</td>
<td>0.683</td>
<td></td>
</tr>
<tr>
<td>TK2</td>
<td></td>
<td></td>
<td>0.688</td>
<td>0.688</td>
<td>0.683</td>
<td></td>
</tr>
</tbody>
</table>

KMO Coefficient: 0.845
Sig.: 0.000
Eigenvalue: 1.577
Extracted variance: 69.087%

(Source: Author's data analysis, 2023)
According to the results of Table 2, it can be concluded that the coefficient $KMO = 0.845$ rabbits satisfy the condition $0.5 < KMO < 1$, showing that the EF analysis is appropriate for the actual data. The results of Bartlett's test have a Sig level of significance less than 0.05 shows that the observed variables have a linear correlation with the representative factor. Exploratory factor analysis EF extracted 6 factors representing 24 observed variables with Eigenvalues standard of 1,577 greater than 1. Cumulative variance table shows that the extracted variance value is 69.087%. This means that the representative factors explain 69.087% of the variability of 28 observed variables in the scales. The factors and observed variables in each specific factor are presented in the factor rotation matrix. The observed variables in each factor satisfy the requirement of factor loading factor greater than 0.55.

### 5.3. Regression analysis

Multivariate regression analysis was used to test the research hypotheses. To identify factors affecting customer satisfaction with e-banking service quality, a multiple regression model was built with the form:

$$HL = \beta_0 + \beta_1 \times DD + \beta_2 \times DB + \beta_3 \times DU + \beta_4 \times CN + \beta_5 \times TK + \beta_6 \times CP + \epsilon_i$$

Table 3: Results of multiple regression analysis

<table>
<thead>
<tr>
<th></th>
<th>Coefficient</th>
<th>Standard error</th>
<th>t</th>
<th>Sig.</th>
<th>Tolerance</th>
<th>VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Unnormalized</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>regression coefficients</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>-0.718</td>
<td>0.180</td>
<td>-3.981</td>
<td>0.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DD</td>
<td>0.185</td>
<td>0.029</td>
<td>0.241</td>
<td>0.000</td>
<td>0.754</td>
<td>1.326</td>
</tr>
<tr>
<td>DB</td>
<td>0.239</td>
<td>0.037</td>
<td>0.229</td>
<td>0.000</td>
<td>0.807</td>
<td>1.239</td>
</tr>
<tr>
<td>DU</td>
<td>0.194</td>
<td>0.025</td>
<td>0.273</td>
<td>0.000</td>
<td>0.860</td>
<td>1.162</td>
</tr>
<tr>
<td>CN</td>
<td>0.156</td>
<td>0.037</td>
<td>0.143</td>
<td>0.000</td>
<td>0.891</td>
<td>1.123</td>
</tr>
<tr>
<td>TK</td>
<td>0.269</td>
<td>0.043</td>
<td>0.230</td>
<td>0.000</td>
<td>0.786</td>
<td>1.272</td>
</tr>
<tr>
<td>CP</td>
<td>0.126</td>
<td>0.029</td>
<td>0.164</td>
<td>0.000</td>
<td>0.755</td>
<td>1.324</td>
</tr>
</tbody>
</table>

(Source: Author's data analysis, 2023)

In Table 3, the Sig level of significance column shows the regression coefficients of all variables DD; DB; DU; CN; TK; CP has significance level less than 0.05. Thus, the regression coefficients of the variables DD; DB; DU; CN; TK; CP are all statistically significant. The model of factors affecting customer satisfaction for e-banking service quality at commercial banks is built in the form of:

$$HL = 0.241 \times DD + 0.229 \times DB + 0.273 \times DU + 0.143 \times CN + 0.23 \times TK + 0.164 \times CP$$

We can see that the correlation coefficient of influence of the variable responsiveness is highest at 0.273, which means that when customers use e-banking services, they are most interested in the issue of needs or expectations being met. Next is the factor of ease of use with a correlation coefficient of 0.241 for all customers, e-banking services have access to technology at personal computers or smartphones instead of traditional methods. Therefore, it needs to be easy to use to attract and receive customer satisfaction.

Next is the website design with a correlation coefficient of 0.23 showing the great interest of customers with this factor in order to meet the requirements or be convenient in use, the web design must show having all the information on it and the transaction function is also arranged reasonably will be liked and appreciated by customers. From the reasonable website design, new customers are satisfied with their personal safety when using the service, so the correlation coefficient is 0.229, not too much of a gap with the website design.
According to the results of Table 4, the coefficient of determination R² is 0.598, so 59.8% of the change of the dependent variable is explained by the independent variables of the model or in other words 59.8% of the change of the satisfaction. Customer satisfaction is explained by the factors in the regression model.

5. MANAGEMENT IMPLICATIONS

5.1. For Ease of use

Currently with e-banking services, customers comment that transactions are being performed with easy-to-understand operations; a quick completion of the service, and a modified interface of the service. Online is very easy to use. However, customers who say that making transactions is not really easy still have some problems. Therefore, the author proposes the following management implications:

- The staff need to guide the customer in more detail in the process of login, and perform the operations quickly and accurately. The instructions are divided with pictures and explain clearly to the customer how to fully implement a transaction. The quality of the team and the infrastructure to take care of the customers and the use of the service must always pay attention to both specialized skills and knowledge and about the application of the service, has ability to handle arising situations to be able to best support and advise customers.

- Each service should have very clear and easy to understand instructions for use. Banks need to focus on personalization according to customer preferences, optimizing the customer’s personal experience. On the other hand, the transparency and clarity of transfer-receiving information will help the account holder verify the source of the money, even if the sender does not specify the content. The interface and features of e-banking services need to be regularly upgraded to increase attractiveness and bring new experiences to customers.

5.2. For Ensure security

The customer commented that the customer’s e-banking system is securely protected, and there are no problems, and the website is rated as having a high level of security, and is stable. Customers do not really trust the website or the interface when making online payments or it still has errors that make customers not fully confident. Therefore, the author proposes management implications as follows:

- The recipient's information needs to be displayed more clearly on the interface screen to avoid customer misinterpretation leading to a mistake.

- Implement standards in information technology management and security work such as: implementation of ISO standards, practical training for technology staff in anti-intrusion work, etc. implement good security procedures to prevent the abuse of information of customers using the service.

5.3. For responsiveness

Customers are not really satisfied with the ability to respond to the service of an electronic bank and are not ready to recommend their friends and family to use the service. The management implications are as follows:

- Employees need to market the consultant to customers more widely, make customers better understand the benefits of the product from the illustration, and it will be easier to introduce to friends and relatives.

- Cooperate more with securities companies to expand the customer base and repair electronic banking services by exploiting more customers of securities companies. Provide more customers Financial services via electronic banking such as: buying and selling securities, transferring and receiving money for securities accounts, viewing information...
5.4. For technology and website design
Banks need to focus on new technologies, typically eKYC solutions - online customer identification and Insider. In addition, in order to optimize and personalize customer experiences, banks need to integrate biometric technology platforms (biometrics), artificial intelligence (AI) technology, electronic signatures, intelligent user data processing and analysis platforms with high performance and outstanding speed.

5.5. For the cost of using the service
Banks need to consider the factor of serving customers who have frequent and continuous transactions in order to have a preferential policy on fees for those customers. It is necessary to provide more added utilities of Mobile Banking, which means that when customers use Mobile Banking service, they will receive additional usage values (these added values may not be available when doing banking transactions), increasing the benefits received by customers, enhancing the value of Mobile Banking services, thereby reducing the relative cost of the service (even though the fee remains the same or increases slightly compared to before).

REFERENCES


