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Determinants of Individual Customer Satisfaction with Internet Banking Services: A Case Study from an Emerging Market

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ABSTRACT: With the rapid development of information technology, Internet banking has become a critical channel for delivering banking services, significantly influencing customer satisfaction. This study investigates the impact of four dimensions of Internet banking service quality: Efficiency, Reliability, Security and Privacy, and Responsivenessb on customer satisfaction at the Bim Son branch of VP Bank in Vietnam. A quantitative research approach was employed, collecting data from 222 customers through structured questionnaires. Reliability and validity of the constructs were confirmed using Cronbach's alpha and Exploratory Factor Analysis. Pearson correlation and regression analysis were applied to examine the relationships between variables. The results indicate that all four dimensions have a significant and positive effect on customer satisfaction, with Security and Privacy being the most influential and Responsiveness the least. These findings contribute to the academic literature by applying the e-SERVQUAL framework in the Vietnamese banking context and provide practical implications for banking managers to improve service quality, enhance customer trust, and strengthen competitiveness.

KEYWORDS: Internet banking, e-service quality, customer satisfaction, VP Bank, Vietnam

I. INTRODUCTION

In today's increasingly competitive business environment, customer satisfaction has become a critical determinant of market expansion, profitability, and sustainable business development (Colm et al., 2017). As noted by Verplanken and Orbell (2003), customers' past experiences significantly shape their habits and trust, influencing their intention to continue using a service. Prior research consistently demonstrates that meeting or exceeding customer expectations directly enhances business performance (Wolter et al., 2017). In the banking sector, where competition is intense and service differentiation is challenging, maintaining high levels of customer satisfaction is essential for retaining existing clients and attracting new ones.

With the rapid advancement of the Internet and information technologies, banks have transformed the way they deliver services. Internet banking has become a central component of digital banking worldwide (Ariff et al., 2012). Shih and Fang (2006) define Internet banking as an information system leveraging the Internet and the World Wide Web to enable customers to conduct virtual financial transactions without face-to-face interaction. Such services offer significant advantages, including reduced transaction time, enhanced payment efficiency, and increased scalability without expanding physical branches (Darwish & Lakhtaria, 2011; Couto et al., 2013). Despite these benefits, various challenges continue to hinder effective implementation, such as cybersecurity threats, privacy concerns, technological barriers, and high infrastructure costs (Akinci et al., 2004; Lee, 2009). Among these, service quality remains one of the most critical issues influencing customers' perceptions and satisfaction levels. When Internet banking services fail to meet expectations, dissatisfaction may arise, leading to reduced usage and weakened customer loyalty.

Although customer satisfaction has been widely studied, the concept remains complex due to the diversity of measurement models and contextual determinants. Many prior studies have treated service quality as a single dimension rather than examining its subcomponents. Moreover, the relationship between price and satisfaction—frequently examined in previous studies—offers limited explanatory value in the banking context, where price competition is minimal (Khan & Fasih, 2014). In Vietnam, empirical studies on customer satisfaction remain limited, and research specifically addressing Internet banking is still sparse (Nguyen & Nguyen, 2019; Vo & Vo, 2019). Given these gaps, a systematic analysis of the determinants of customer satisfaction toward Internet banking services is both academically valuable and practically necessary. VPBank, recognized as a leading institution in digital transformation, provides an ideal context for such investigation in Vietnam market. However, as competing banks have significantly improved their digital platforms, VPBank faces increasing pressure to maintain service quality and enhance customer experience. Therefore, identifying the key drivers of customer satisfaction will contribute to the literature on digital banking in emerging economies while providing actionable managerial insights for strengthening competitive advantage and fostering long-term customer loyalty.

II. LITERATURE REVIEW AND RESEARCH MODEL

Currently, with a great number of people using Internet banking on a global scale, it is crucial to prioritize the satisfaction level of customers. Therefore, Wu et al. (2008) stated that examining service quality dimensions in the context of Internet banking can help to clarify its impact on the satisfaction and trust of customers as well as their loyalty to banking organizations. Indeed, the study by Yoon (2010) found that customers having high satisfaction levels when using Internet banking services were approximately 39% more likely to purchase extra services from those banks. Gronroos (1998) found a consistent and favorable correlation between the quality of e-services and customer satisfaction. Besides, Parasuraman et al. (1988) explored a strong and long-lasting connection between service quality and the satisfaction level of customers. In order to verify this correlation, Jain and Gupta, (2004) simplified it into a more accessible equation and arrived at the finding that the degree of satisfaction among customers is significantly influenced by the provision of superior and high-quality service.

With the rapid development of the Internet and digital commerce, e-service quality has emerged as a critical concept for understanding customer satisfaction in online environments. E-service quality refers to the extent to which online platforms enable efficient searching, purchasing, and delivery of products or services, as well as the overall evaluation of users regarding these virtual services (Zeithaml et al., 2002; Duong & Nguyen, 2022; Santos, 2003). Rowley (2016) emphasized that e-service quality functions as an interactive mechanism allowing firms to differentiate their offerings and gain competitive advantage, while Parasuraman et al. (2005) highlighted its role in facilitating successful transactions. Customers typically form perceptions of e-service quality based on the entire online experience rather than individual sub-processes (Van Riel et al., 2001), and this perception influences satisfaction and loyalty.

Research Model and Hypotheses

Several models have been developed to assess e-service quality. Building on the SERVQUAL framework (Parasuraman et al., 1988), Zeithaml et al. (2002) proposed e-SERVQUAL, identifying four core dimensions: efficiency, reliability, fulfillment, and privacy, to evaluate service quality under normal conditions, and three recovery dimensions: responsiveness, compensation, and contact for situations when problems arise. In the banking context, e-SERVQUAL has been widely applied using four dimensions: efficiency, reliability, security and privacy, and responsiveness. Collectively, these frameworks provide a comprehensive basis for examining how various aspects of e-service quality influence customer satisfaction in digital banking environments.

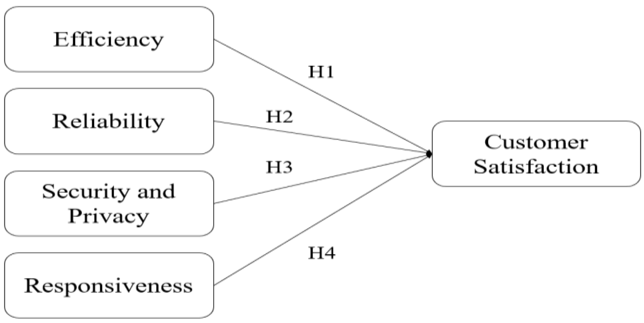

Figure 1: Conceptual Framework

Based on prior literature, several dimensions of e-service quality have been identified as key determinants of customer satisfaction in Internet banking. Efficiency, reflecting the speed and ease of completing online transactions, has been consistently shown to enhance customer satisfaction and loyalty (Kheng et al., 2010; Firdous, 2017). Reliability, which ensures accurate and dependable service, is also recognized as a crucial factor influencing customers' trust and satisfaction (Hammoud et al., 2018; Reddy & Megharaja, 2021). Security and privacy, addressing customers' concerns about data protection and cyber risks, further contribute to satisfaction by enhancing users' confidence in online banking services (Tabash et al., 2019; Yau et al., 2021). Finally, responsiveness, defined as the promptness and effectiveness in addressing customers' requests and issues, is shown to improve satisfaction and foster loyalty (Parasuraman et al., 2002; Ali & Raza, 2017). Based on these theoretical and empirical findings, the following hypotheses are proposed for the research model:

H1: Efficiency positively affects customer satisfaction;

H2: Reliability positively affects customer satisfaction;

H3: Security and privacy positively affect customer satisfaction;

H4: Responsiveness positively affects customer satisfaction.

III. RESEARCH METHOD

Research Design

This study adopts a quantitative research approach to examine the impact of identified factors on customer satisfaction in Internet banking. Primary data were collected through structured survey questionnaires distributed to targeted participants, and the collected data were analyzed to test the proposed hypotheses. Quantitative methods are advantageous for studies on human behavior due to their reliability, wide applicability, and controlled bias (Verhoef & Casebeer, 1997).

Questionnaire Design

The survey questionnaire consists of four main sections. The first section introduces the research, including objectives, contributions, and data usage policies. The second section filters participants by asking whether they hold an account at VP Bank and have used its Internet banking service; only respondents answering “Yes” to both questions continued. The third section collects participants’ demographic information (gender, age, education, income, marital status) and Internet banking usage behaviors (duration and frequency). The fourth section measures participants’ evaluations of the study constructs—Efficiency, Reliability, Security & Privacy, Responsiveness, and Customer Satisfaction—using a 5-point Likert scale ranging from strongly disagree (1) to strongly agree (5), which allows clear interpretation, reduces measurement errors, and enhances validity (Tanujaya et al., 2023; Bishop & Herron, 2015).

Sample and Data Collection

The study population includes all customers of VP Bank Bim Son branch who have used Internet banking. A convenience sampling method was applied to select participants, which is efficient and practical under time and resource constraints (Golzar et al., 2022), though it may limit representativeness and introduce bias (Shorten & Moorley, 2014). To ensure sample diversity, the study aimed to approach participants with varied personal backgrounds. The required sample size was calculated using Green’s (1991) formula: n = 50 + 8k, where k is the number of variables (5), resulting in a minimum sample of 90 participants. Data were collected via offline distribution of hard-copy questionnaires at the bank and online surveys through Google Forms. Participants were informed about the study purpose and confidentiality policies before completing the questionnaire.

Data Analysis

Collected responses were filtered to remove incomplete or invalid entries. Valid data were coded in Microsoft Excel and analyzed using SPSS v.20. Descriptive statistics, including frequency counts, percentages, mean, variance, and standard deviation, summarized demographic characteristics, usage behaviors, and construct evaluations. Reliability and validity were tested using Cronbach’s alpha and Exploratory Factor Analysis (EFA). Subsequently, Pearson correlation and linear regression analyses were conducted to test the proposed hypotheses regarding relationships between service quality dimensions (Efficiency, Reliability, Security & Privacy, Responsiveness) and customer satisfaction.

IV. RESULTS AND DISCUSTION

Descriptive Analysis

The survey collected 233 responses, of which 11 were removed due to incomplete or invalid answers, leaving 222 valid responses for analysis. Female participants accounted for 57.7%, while males represented 42.3%. Regarding age, the majority were 25–35 years old (44.6%), followed by 36–45 years (24.8%) and under 25 years (20.7%); participants aged 46 - 55 and above 55 comprised 7.7% and 2.3%, respectively. Most respondents held a bachelor’s degree (65.3%), followed by high school diplomas (22.5%), vocational certificates (7.2%), and master’s degrees (5.0%). Monthly income was mainly between 5 -15 million VND (69%), with smaller groups earning under 5 million VND (14.9%), 15–20 million VND (13.5%), and above 20 million VND (2.7%). In terms of marital status, 63.1% were married and 36.9% single.

Table 1: Personal information of participants

Gender	Female	128	57.66%
	Male	94	42.34%
Age	Under 25 years old	46	20.72%
	From 25 to 35 years old	99	44.59%
	From 36 to 45 years old	55	24.77%
	From 46 to 55 years old	17	7.66%
	Over 55 years old	5	2.25%
Education	High school diploma	50	22.52%
	Vocational certificate	16	7.21%
	Bachelor degree or equivalent	145	65.32%
	Master degree or equivalent	11	4.95%
	Others	0	0.00%
Income	Under 5 million VND	33	14.86%
	From 5 million to under 10 million VND	78	35.14%
	From 10 million to under 15 million VND	75	33.78%
	From 15 million to under 20 million VND	30	13.51%
	From 20 million VND to higher	6	2.70%

Regarding Internet banking usage, 47.8% of participants had used the service for 1–3 years, 26.6% for less than 1 year, and 25.7% for 4–7 years. Frequency of use was high, with 48.2% using it daily, 36.5% three to five times per week, 11.7% once or twice per week, and 3.6% rarely. The dataset reflects a diverse sample in terms of demographic characteristics and Internet banking experience, providing a solid basis for further analysis.

Reliability analysis

The reliability of all constructs was assessed using Cronbach's alpha, with values above 0.6 considered acceptable (Hair et al., 2009). Items were also evaluated using Corrected Item-Total Correlation with a threshold of 0.3 to ensure internal consistency. The analysis showed that all variables achieved satisfactory reliability after adjustments. Specifically, the Efficiency variable initially included an item (EFF4) with a CITC below 0.3, which was removed. After elimination, Cronbach's alpha for Efficiency increased to 0.800. The final Cronbach's alpha values for all constructs ranged from 0.800 to 0.893, indicating good internal consistency:

- Efficiency: $\alpha = 0.800$, CITC = 0.381–0.698
- Reliability: $\alpha = 0.893$, CITC = 0.622–0.799
- Security and Privacy: $\alpha = 0.859$, CITC = 0.423–0.740
- Responsiveness: $\alpha = 0.855$, CITC = 0.616–0.713
- Customer Satisfaction: $\alpha = 0.834$, CITC = 0.592–0.683
- These results confirm that all constructs and their items are reliable for further analysis.

Exploratory Factor Analysis and Pearson Correlation

The validity of all constructs was assessed using Exploratory Factor Analysis (EFA). The Kaiser-Meyer-Olkin (KMO) values were 0.849 for independent variables and 0.772 for the dependent variable, while Bartlett's Test of Sphericity was significant ($p < 0.001$), indicating the dataset was suitable for EFA (Hoang & Chu, 2005). Applying varimax rotation, 22 items of the independent variables converged into four factors with eigenvalues ranging from 1.806 to 7.308, explaining 62.52% of the total variance. Five items of the dependent variable converged into one factor with an eigenvalue of 3.006, explaining 60.13% of the variance. All factor loadings exceeded 0.4, confirming satisfactory correlations between items and their respective constructs. These results confirm that all 27 items across the five constructs are valid and suitable for subsequent analysis of relationships in the proposed model.

Pearson correlation was applied to examine the relationships between all variables in the proposed model. Results showed that all correlations were significant ($p < 0.05$). Correlations between independent variables and customer satisfaction ranged from 0.515 to 0.577, indicating strong associations. Significant correlations among independent variables also suggested the potential presence of multicollinearity, which would be further examined in the regression analysis.

Regression analysis

Regression analysis was conducted to examine the impact of four independent variables on customer satisfaction. The model showed an acceptable fit with F = 66.793 ($p < 0.001$) and $R^2 = 0.552$, indicating that 55.2% of the variance in customer satisfaction was explained by the predictors. All four variables had significant positive effects: Efficiency (β = 0.269, $p < 0.001$), Reliability (β = 0.283, $p < 0.001$), Security and Privacy (β = 0.311, $p < 0.001$), and Responsiveness (β = 0.148, $p = 0.008$), supporting hypotheses H1–H4.

Table 2: Regression analysis

	Unstandardized Coefficients		**Standardized Coefficients**	**Sig.**	**VIF**
	Beta	Std. Error	Beta		
Efficiency	0.275	0.053	0.269	0.000	1.298
Reliability	0.171	0.031	0.283	0.000	1.269
Security and Privacy	0.271	0.046	0.311	0.000	1.376
Responsiveness	0.145	0.054	0.148	0.008	1.471
Durbin-Watson	1.636				
R-square	0.552				
F-value	66.793 (sig. = 0.000)				

Based on the result analysis, a regression equation was developed to represent how predictors affect "Customer Satisfaction":

*Customer Satisfaction = 0.269*Efficiency + 0.283*Reliability + 0.311*Security and Privacy + 0.148*Responsiveness*

After proving all significant impacts of all predictors on the dependent variable, the study also found that "Security and Privacy" had the strongest impact on "Customer Satisfaction" based on the value of the beta coefficient. Following was "Reliability" as the factor having the second-largest impact on "Customer Satisfaction" with a beta coefficient of 0.283. "Responsiveness" was found to have the weakest impact on "Customer Satisfaction" as compared to other factors in the model with a beta coefficient of 0.148.

The results indicate that all four dimensions of e-service quality: Efficiency, Reliability, Security and Privacy, and Responsiveness positively influence customer satisfaction in Internet banking at VP Bank's Bim Son branch. Among these, Security and Privacy had the strongest impact, highlighting the critical role of safeguarding customers' personal information in building trust and satisfaction. Reliability and Efficiency also showed substantial effects, emphasizing the importance of accurate information and smooth, time-saving transactions in enhancing user experience. Responsiveness, while slightly lower, remains significant, suggesting that prompt support and communication contribute meaningfully to customer satisfaction. Overall, these findings confirm that a well-rounded approach to e-service quality, covering both transactional efficiency and trust-related aspects, is essential for improving customer satisfaction in the online banking context.

V. CONCLUSIONS

This study investigated the impact of four dimensions of Internet banking service quality: Efficiency, Reliability, Security and Privacy, and Responsiveness on customer satisfaction at the Bim Son branch of VP Bank. Using a quantitative research approach, data were collected from 222 participants and analyzed through reliability tests, Exploratory Factor Analysis, Pearson correlation, and regression analysis. All constructs demonstrated satisfactory reliability and validity, and the analysis confirmed that each of the four service quality dimensions had a significant and positive impact on customer satisfaction. Among them, Security and Privacy emerged as the most influential factor, highlighting the importance of protecting customer information and preventing cyber risks, while Responsiveness had the relatively weakest impact, emphasizing the need for timely and effective customer support.

The findings provide both theoretical and practical contributions. From an academic perspective, the study applied the e-SERVQUAL framework in Vietnam's banking context, offering empirical evidence on how multiple dimensions of e-service quality influence customer satisfaction. Practically, the results give banking managers actionable insights to improve service delivery in Internet banking. Specifically, banks can enhance customer satisfaction by optimizing service efficiency, ensuring reliable and consistent service, strengthening security and privacy measures, and improving responsiveness through fast and accurate handling of customer inquiries or complaints. For VP Bank, these insights can guide managerial strategies to enhance competitiveness, build customer trust, and increase loyalty in a rapidly digitalizing banking sector.

Despite these contributions, the study has several limitations. The use of a convenience sampling method may limit the representativeness of the findings, and focusing on a single branch restricts the generalizability of the results to other branches or banks. Moreover, the sample size and geographic scope were limited, which may not fully capture the diversity of customer experiences. Future research should employ probability sampling methods, such as simple random or cluster sampling, and extend the study to multiple branches or banking organizations to enhance the reliability and applicability of the findings. Additionally, further studies could explore other contextual factors, such as demographic differences or technology adoption levels, to provide a more comprehensive understanding of Internet banking service quality and customer satisfaction..

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