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## **E-Banking and Financial Performance of the Domestic Commercial Banks in Sri Lanka**

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### **Abstract**

Advancement of the Information and Communication Technology (ICT) and rapid increase in the usage of ICT in financial markets all over the world can be identified as one of the main reasons behind increased complexity and competition in financial markets today. Sri Lankan banks also have adopted E-banking to deliver their services for a few decades. However, only a limited number of studies have been conducted in the Sri Lankan context to identify the impact of E-banking on the profitability of banks in Sri Lanka. The main objectives of the study are to investigate the effect of E-banking on financial performance and to examine whether the degree of the firm size affects the financial performance of commercial banks in Sri Lanka. To investigate the impact of E-banking on the financial performance of the commercial banks in Sri Lanka, this study has been selected twelve domestic commercial banks in Sri Lanka as the sample and the data has been gathered over the period of 2012 to 2017 based on the published annual reports of selected banks. Further, to assess the impact of E-banking on bank performance, this study observed the Return on Assets (ROA) as the dependent variable and E-banking as the independent variable. Distribution of ATM network and fee and commission income of each bank has been selected as indicators of E-banking. Size of the bank has been considered as the controlled variable of this study which has been indicated by the total assets and number of branches. This study has used the regression model to investigate the impact of E-banking on bank financial performance and it was found that E-banking had a significant positive impact on the financial performance of commercial banks by number of ATMs, net fee and commission income and the number of branches. Only the total assets showed a significant negative impact on the financial performance of banks.

**Keywords:** Bank performance, Commercial banks, E-banking, Return on assets

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## 1. Introduction

The origin of Information and Communication Technology (ICT) was a turning point in every sector in the business industry. Among the dominant customers who embossed ICT, banks stood at the top of the list other than capital goods manufacturers and transportation. Electronic banking (E-banking) offers a number of banking activities through electronic and telecommunication networks for the purpose of delivering value-added products and services to its customers. Basically, E-banking includes Automated Teller Machines (ATMs), mobile banking, electronic fund transfer, online payments, credit and debit cards, and extended opening hours.

Labour cost represented a considerable percentage in banks which were manually operated. As a result, banks identified the need for reducing paperwork and personnel as a mode of reducing costs. With this, human errors were reduced, the accuracy level of the operations increased, and time was saved. As per Tunay, Tunay, and Akhisar (2015), banks powered with E-banking facilities were more efficient and profitable compared to non-internet banks due to the replacement of paperwork and labour-intensive work with automated processes. Karimzadeh and Sasouli (2013) suggested that E-banking led to a higher level of consumer satisfaction and retention. Software research and development cost, promotional expenses, and employee training cost were essential costs which created a high cost in E-banking (Sullivan, 2000). Sumra and Manzoor (2011) stated that E-banking not only created a direct cost to the banks but also it created an indirect cost to the customers as they were charged certain amount or flat charges or fees on E-banking products and services. Many of the banks with weak physical and system security collapsed when their exposure to risk substantially increased (Masocha & Matiza, 2017). Therefore, E-banking should be consistent with the overall strategies and business plans of the bank, and adequate expertise should be employed to operate and maintain such systems which create a high cost for the banks.

Banking sector of Sri Lanka comprises private banks, state banks, and foreign banks. Most of the banks increase the usage of E-banking to deliver superior service to the customers. Expansion of island-wide ATM network, the introduction of mobile banking and online banking provide evidence for this. With the enhancement of the commercial banks in Sri Lanka, it enables the customers to access their remittances twenty-four hours through their mobile and ATM network as they combined mobile banking with their E-remittance systems to provide greater convenience. So, it is clear that ICT has done a revolution in the banking sector and this effort is to find out how far E-banking has supported to improve the financial performance of Sri Lanka.

Even though E-banking generally results in positive outcomes, the empirical evidence is mixed. As Tunay et al. (2015) state in terms of profitability, the banks with E-banking facilities can outperform their counterparts in terms of profitability. As E-banking reduces waiting time on extra paperwork and the operating cost for banks, it gives benefits to both banks and customers. Musiega (2016) has found that there is a positive impact of ICT on the bank's performance by analysing the profitability measures. However, E-banking has some demerits as well. Oginni, Abba, Jibreel Gambo, and Abam (2013) have stated that the performance of the banks in Nigeria has decreased in the year of adoption to E-banking because of high cost on ICT. Delgado, Hernando, and Nieto (2004) have stated that while other banks have shown profitable results, 1994-2002 European internet banks have shown negative performance results.

However, only a limited number of studies have been conducted in the Sri Lankan context to identify the impact of E-banking on the profitability of banks in Sri Lanka. Lack of evidence pertaining to the Sri Lankan context and the lack of consensus of the findings in internationally available literature puzzle the bankers and the policymakers regarding the impact of E-banking on the financial performance of Sri Lankan banks. Therefore, the policymakers have seemingly failed to develop appropriate strategies and policies to boost the performance in the Sri Lankan banking system through effective adoption of E-banking.

In general, E-banking has a sizable effect on the performance of individual banks as well as on the banking system as a whole. Further, the discussions reveal that sufficient empirical investigations have not been conducted in the Sri Lankan context to investigate this phenomenon. Therefore, this study attempts to address whether E-banking affects the performance of Sri Lankan private commercial banks? To this end, the objectives would be, investigating the effect of E-banking on financial performance and examining whether the degree of firm size affects the financial performance of private commercial banks in Sri Lanka.

This study would help the top-level managers to identify the factors that would retain the customers which is important than customer attraction. Further, the customers can gain an idea of the benefits and costs that they can gain and bear via using E-banking services by referring to this study. Also, this study would help any further researchers regarding the E-banking adoption and the financial performance in Sri Lanka or any other country.

## **2. Literature Review**

E-banking services enable maximizing profits (Karimzadeh & Sasouli, 2013),(Sumra & Manzoor, 2011). Tunay et al. (2015) have found that ATMs, Online banking and point of sales

terminals improve the profitability of commercial banks in Kenya. E-banking allows banks to expand their geographical reach and provide customers with an easier way to compare the products and services offered by different banks (Haque, Tarofder, Rahman, & Abdur Raquib, 2009). Without physical boundaries, the internet is used as a strategic and differentiating channel to deliver high-valued financial services and upgraded quality at lower costs (Sumra & Manzoor, 2011). The use of E-banking can contribute to increase market share, expand the product range, customize products and provide better response to customer demand (Akhisar, Tunay, & Tunay, 2015).

Evolution of money occurred from coins to paper cash and today it is available in the form of electronic money or plastic cards due to the introduction of E-banking (Ramasamy, Guru, Nair, & Vaithilingam, 2006). Tunay et al. (2015) stated that E-banking has produced changes in the structure of bank income. Apart from delivering services, ICT has become a major channel for banks in propagating information because the use of the web as a communication medium has increased rapidly (Tan & Teo, 2000). E-banking improves the effectiveness and efficiency of the banks (Ahmad Bello, 2005). Sumra and Manzoor (2011) have stated that E-banking has revolutionized the banking sector. Further E-banking reduces human errors, increases accuracy and saves time (Karimzadeh & Sasouli, 2013). Akhisar et al. (2015) have discovered a strong positive relationship between overall bank performance and E-banking services in relation to the efficiency and effectiveness of the banks. Performance of the bank has shown a strong positive relationship with the bank size in the study of Shah and Jan (2014). Results in a comparable study made by Prasetyantoko and Parmono (2012) showed that firm size influences negatively a bank's performance.

E-banking increases the operating cost for the bank due to the software, research and development cost, amortization of purchased software, data processing cost, promotional expenses and employee training cost that are essential for providing such services (Sullivan, 2000). Banks charge fees, service charges and brokerage commissions from E-banking users to overcome the cost of E-banking. High start-up cost, research and development cost of software, affect to reduce the profitability in the year of adoption to E-banking. Oginni et al. (2013) have also stated that E-banking begins to improve bank performance in terms of ROA after two years of adoption and a negative impact was observed in the first year of adoption. Michal and Tomasz (2009) have stated that the profitability of click and mortar banks in Spain is negative because of higher financial cost and lower fee income. Further, they mentioned that banks cannot charge a high fee for their E-banking services due to high competition in the banking sector in Spain. Oginni et al. (2013) also stated that the performance of the banks in Nigeria decreased in the year of adoption to E-banking because of high cost on IT. Further, Dangolani (2011) showed that both cost and profit frontier shifts were strongly correlated with IT capital accumulation. Other than the direct cost and the

revenue there can be other sources that could affect the financial performance of a bank. Bikker and Bos (2008) have stated that as information systems become more connected and interdependent, the risks of computer intrusion increases. This is a serious challenge to electronic delivering systems. Direct currency loss, reduce reputation, improper disclosure, and lawsuits or regulatory sanction can directly affect the financial performance of a bank due to that relationship. The danger of invasion of the system by fraudsters and on the sequence of any break down could be occurring. Therefore, the banks which are deploying this technology need to pay clear attention to monitor the occurrence of breakdown and good maintenance culture.

As per a study conducted by Kumari (2016), it has been found that in Sri Lanka, most of the customers trust private commercial banks compared to state banks. Compared to developed countries, Sri Lankan banks show a lower profit percentage related to E-banking (Kariyawasam & Jayasiri, 2016). Further, he has found that due to security issues, Sri Lankans are not motivated to use E-banking services. As per the study by Premarathne and Gunatilake (2016), no relationship has been found between the implementing cost of E-banking facility and the financial performance. According to Jayasiri and A S P Weerathunga (2018), in Sri Lanka, though the banks are in a pressure to move on with the technology, still cultural boundaries demotivate the customers to shift to E-banking transactions. However, Premarathne and Gunatilake (2016) stated that internet bank users appear to represent a more rich status of the Sri Lankan society.

### 3. Methodology

In order to achieve the two objectives; investigating the effect of E-banking on financial performance and examining whether the degree of firm size affects the financial performance of commercial banks in Sri Lanka, twelve licensed domestic commercial banks in Sri Lanka have been selected. By the 16<sup>th</sup> March 2018, twenty-six commercial banks were licensed by Central Bank of Sri Lanka (CBSL).

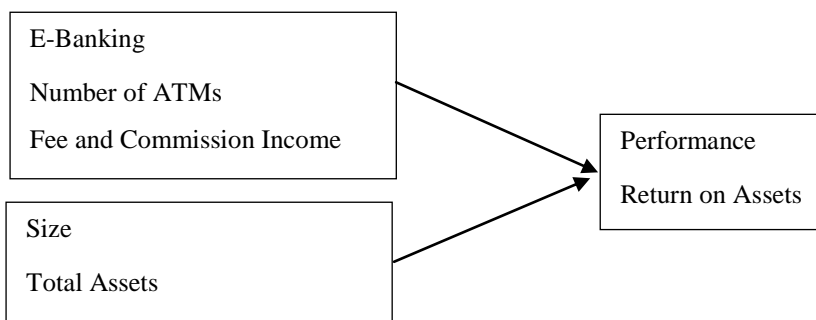


Figure 1: Conceptual Framework

From this, only the domestic banks were selected which considered as the finite population. There are thirteen licensed domestic commercial banks in Sri Lanka. Based on the availability of all six compositions of E-banking, Purposive random method has been used to select the sample. Data required to complete the study has been gathered from published annual reports of each selected banks by covering the period of 2012 to 2017.

To complete the study, E-banking has been selected as the independent variable. Internet Banking facility, Mobile Banking, SMS Banking, Phone Banking, ATM Facility and Credit and Debit Card Facility are some common compositions for the availability of E-banking. To this study, a number of ATMs and fee and commission income has been used as the indicators of E-banking as those are the indicators which can be measured easily.

Further, fee and commission income of commercial banks consist of trade and other related activities, loans, investment banking, foreign remittances related services and other banking services. Majority of the fee and commission income represents the E-banking related services. Most of the banks have disclosed only the net fee and commission rather than the components of fee and commission income separately. Hence, this study has used the net fee and commission income of each bank to assess the impact of E-banking on bank performance. Michal and Tomasz (2009) had the same approach where net fee and commission income was used for their study.

The financial performances of commercial banks are widely different from one bank to another bank. In addition to E-banking, a number of factors have affected this variability such as bank size, location, structure, assets portfolios, and liability composition. Hence, size of the bank would be considered as a controlled variable of this study based on Tunay et al. (2015) and Karimzadeh and Sasouli (2013), while total assets and the number of branches have been used as determinants of the bank size.

Return on Assets has been used as the dependent variable in this study. Karimzadeh and Sasouli (2013) and Oginni et al. (2013) have considered Profit Before Tax (PBT) to measure ROE and ROA in measuring financial performance. Following a similar way to complete the study, return on assets has been taken as the financial performance indicator. The profit before tax has been considered in calculating the ROA in order to eliminate the tax effect.

Multiple Regression Analysis methods have been used to determine the impact of the E-banking on bank performance. This is applied to access the quantitative data from the annual reports of selected banks to access impact from E-banking on bank performance.

$$FPER = \alpha + \beta_1 EB + \beta_2 Size + \dots \dots \dots (1)$$

Where, FPER= financial performance of the banks (ROA),  $\alpha$  = constant,  $\beta$  = degree of sensitivity of independent variable, EB = E-banking (Numbers of ATMs and fee and commission), Size = Size of the firm (Total assets and number of branches) and  $\varepsilon$  = random errors.

#### Hypotheses

H<sub>1</sub>: there is a significant impact of EBon FPER

H<sub>0</sub>: there is no significant impact of EB on FPER

H<sub>1</sub>: there is a significant impact of Size on FPER

H<sub>0</sub>: there is no significant impact of Size on FPER

## 4. Results and Findings

### 4.1 Regression Results

Table 1: Descriptive Statistics

	Minimum	Maximum	Mean	Std. Deviation
ATM	10	775	261	220
Fee & Commission	68	8,602	3,590	2,695
Branches	11	855	221	216
Total Assets	16,717	1,951	474,014	469,872
ROA	2.21	-0.8	1.44	0.70238

*Note:* Amounts are reported in LKR Mn; N=72

According to the results of the regression; the number of ATMs, fee and commission income, number of branches and Total Assets explained 33.4% of the variance in ROA. On the other hand, the descriptive ability between dependent and independent variables are at a significant level ( $p < 0.001$ ,  $F = 8.417$ ). Further, Statistical amount of the Durbin-Watson of this study is 1.240.

Table 2: Regression Results

R Square	Adjusted R Square	Change Statistics		Durbin-Watson
		F Change	Sig. F Change	
0.326	0.286	8.109	.000	1.253

As per the rule of thumb, the value is close to 2, so it shows that the values of the residuals are not correlated. As a whole, the E-banking which is the independent variable, and ROA which is dependent variable have considerable descriptiveness according to the results driven from the Regression Statistics. Accordingly, the model fitness of selected variables is successful.

Table3: Regression Results

Variable	B	Coefficient		Sig.	VIF
		$\beta$	Std. Error		
(Constant)	.843	-	0.131	.000	-
ATM	.001	.307	.001	.100	5.579
Fee_commission	1.723	.646	.000	.000	1.866
Branches	.002	0.535	.001	.012	4.309
Total_assets	-1.362	-.911	.000	.009	6.234

$$FPER = 0.307ATM + 0.646NFC + 0.535NB - 0.911TA$$

Considering the regression results, ATMs and ROA has a 0.307 significant positive impact. Fee and commission income shows a significant positive impact of 0.646 on ROA. The number of branches shows a significant positive impact of 0.535 on ROA. Total assets show a significant negative impact of 0.911 on the ROA.

The main effect of the number of ATMs, fee and commission income, number of branches and total assets was found for ROA,  $F = 8.109$ ,  $p < .001$ . When considering the VIF values all the variables showed lower Multi collinearity (ATM = 5.779, Fee and Commission = 1.866, Branches = 4.309, Total Assets = 6.234). Further, the standardized distribution of the variables; fee and commission income, number of branches, total assets, number of ATMs and Return on Assets was taken into account in this study. Further, the normal P-P Plot of regression standardized residuals were also considered to check the normality of the data



which were used in this study. The normality of data indicated through standardized distribution and normal P-P Plot of regression standardized residuals.

This research consists of the descriptive statistics of data and analysis of the hypothesis. In order to hypothesis test, number of ATMs, fee and commission income, number of branches and number of branches together showed a significant positive impact on ROA and only the total assets showed a significant negative impact. Therefore, an alternative hypothesis is accepted, and the null hypothesis is rejected.

## **5. Conclusion and Implications**

Bankers started transactional websites rather than information presenting websites along with the development of ICT. Hence, this study investigated the websites of selected banks to assess the degree of adoption of E-banking. According to the investigation, all the selected banks have adopted E-banking to deliver services such as ATMs, mobile banking, online banking, phone banking, and SMS banking. E-banking has spread among all the selected commercial banks during the period of 2012 to 2017 by improving a number of facilities. ICT has enhanced the services of each bank. Hence, all the commercial banks in Sri Lanka demonstrate a higher degree of adoption of E-banking.

The other objective of this study was to assess the effect of E-banking on bank performance. The effect of the number of ATMs and fee and commission income has indicated a significant impact on bank performance. Furthermore, the number of ATMs and fee and commission income has obviously correlated with Return on Assets (ROA) of the bank. Hence, the results of this study indicate that E-Banking related services have created a significant positive impact on the performance of commercial banks in Sri Lanka. Therefore, there is a significant positive statistical impact on ROA by the number of ATMs and fee and commission variables. According to Karimzadeh and Sasouli (2013), Sumra and Manzoor (2011), Akhisar et al. (2015), and Musiega (2016), there is a positive impact of E-banking on the financial performance.

A number of factors have affected the variability of bank profitability. The findings of this study suggest that the effect of the number of branches and total assets have indicated a significant impact on bank performance. Further, these variables have obviously correlated with the ROA of the bank. Hence, the results of this study indicate that the size of the bank has created a significant positive impact on the performance of the commercial banks in Sri Lanka when it comes to total assets, but the number of branches showed a negative impact on E-banking. Similarly, Prasetyantoko and Parmono (2012), Oginni et al. (2013) and (Michal and Tomasz (2009)) have shown that there is a negative impact on financial performance by

bank size but (Shah and Jan (2014)) stated that there is a positive impact on E-banking by Total assets. Therefore, there is a significant positive statistical impact between the ROA and above variables except for the number of branches.

The findings of this study suggest that E-banking improves performance in the Sri Lankan banking industry. The adoption of E-banking has affected commercial banks of Sri Lanka by making it productive and effective. The findings suggest that banks with an extended branch network have higher ROA and total assets. Hence, the size of the bank has affected the Sri Lankan banking sector by building it more profitability. Therefore, these symptoms reflected that the size of the bank has positively affected the bank performance. According to these findings, this study discovered a significant positive impact of the bank size on bank performance of commercial banks in Sri Lanka.

This study discovered that E-banking increases bank performance by offering value-added products and services through ICT. Therefore, the bank can acquire the right technology by focusing on their needs and goals rather than acquiring technology because other banks have it. Therefore, if the banks take remedial actions to develop mobile banking, it positively affects to improve bank performance. The awareness of customer on E-banking is also a vital factor to improve bank performance. Additionally, the study can also be extended to evaluate whether E-banking has helped to improve bank performance, especially in rural areas.

However, the research has reviewed only the data from 2012 to 2017-time period of twelve systematically important private commercial banks in Sri Lanka. Therefore, the generalizability of the findings is limited. On the other hand, the study has been investigated only the effect of E-banking and firm size. Still, there can be many other variables that affect financial performance. Also, ROA has been used to measure the financial performance of the banks, rather than CAMEL approach in the study, which can be identified as a highly confidential approach to evaluate the bank performance.

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