The Effect of Financial Innovation on Licensed Commercial Banks Performance in Sri Lanka

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Introduction –Technology change and competitiveness has spurred financial innovations and the innovation in the financial sector has developed the commercial banking sector in Sri Lanka. This study attempts to identify the effect of financial innovation on financial performance of licensed commercial banks in Sri Lanka.

Design/Methodology/Approach – This study incorporated with bank performance through financial innovation whereas financial innovation variable comprises with mobile banking, internet banking, number of ATM's and number credit cards. The study follows the purposive sampling method to collect secondary data from 10 licensed commercial banks during the period of 2011 to 2019.

Findings - Based on the analyzed result every dependent variable contains stationarity and model residuals are normally distributed whereas analysis has followed a fixed effect model and it includes mobile banking is positively significant towards financial performance of commercial banks whereas internet banking and number of ATM's are negatively significant towards financial performance of commercial banks.

Conclusion - The result emphasizes that the overall model is statistically significant, and researcher conclude that there is a relationship between financial innovation and commercial bank performance hence different financial innovations affect differently towards commercial bank performance.

Keywords: *Automated Teller Machine, Credit cards, Financial Performance, Internet banking, Mobile banking*

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1. Introduction

Financial innovation is defined as the creation or designing of new financial products, better processes, efficient systems and institution alliances. Financial innovation has become more significant particularly a result of three major trends those are intense competition among local and international, fragmented and demanding markets, and diverse and rapidly changing technologies (Clark, K.B., Wheelwright, S.C., 1992). Developments of financial system together with information technology have shifted entire commercial banking system in to a new development era.

According to the Tidd & Hull (2003), Liberalized domestic regulation has accelerated international competition, rapid innovations in new financial instruments, and the explosive growth in information technology to evolve these changes. Due to that reason firms must change in order to survive.

Liberalization policies have been established in Sri Lanka in 1977 by allowing market forces to operate in the financial market and similarly opened the doors for foreign banks to start bank branches in Sri Lanka. Due to this, number of domestic and foreign bank was established their bank branches during last three decades and continues its business. As a result, a dramatic change can be seen within the Commercial Banking system by financial sector innovation. These changes mainly explained by variety of bank products, services and bank marketing and establishment of new banking institutions and also developments of distributional channel system, payment and settlement system.

Though adding new distributional channels incur significant costs to the bank, on the other hand cutting as much as possible in the back office, banks have realized that the key to profitability is through revenue enhancement (Cainelli, G. , Evangelista, R., & Savona, M., 2004). Platform automation of branches and phone center employees and in the newest distribution channel like internet and mobile banking are the primary revenue-enhancing innovations at the present. Kalakota and Winston (2009), who arguably indicated that e-payment systems are getting central to online business process innovation, as companies search for ways to serve customers faster and at lower cost.

According to Schumpeter (1934), who has categorized innovation into two major categories are product and process innovations. Product innovations consists of the creation of a new good which more adequately satisfies existing or previously satisfied needs (Schumpeter, 1934). Product innovation strategies adopted by the commercial banks were credit cards and unsecured loans. Process innovation refers to the introduction of new business processes leading to increased efficiency or market expansion like process innovation include office automation and use of computers with accounting, RTGS, mobile and internet banking and client data management software.

Eventually the ultimate objective of those firm level innovations is to establish cost effective operating system with the close corporation of its stakeholders, enhancing performance of commercial banks in Sri Lanka. Many researches have examined the effects of financial innovation on the financial performance of commercial banking sector but most researches are available for international context. So, the need for the research is to examine the effect of firm level financial innovation on the financial performance of licensed commercial banks in Sri Lanka.

The importance of this study will add more knowledge on the concept of financial innovation particularly product and process innovation and give more empirical findings on the relationship between financial innovation and performance of commercial bank sector in Sri Lanka for new researchers. The results of the study will help to bank managers to make decision and it will be helpful for policy makers whose involve in making policies for banks and financial services.

1.1 Research Problem

Despite the undeniable importance of financial innovation in explaining commercial banking performance, the effects of financial innovation on licensed commercial bank performance according to the Sri Lankan context is questionable. Few studies have been carried out by Malak (2013); Joseph, A. & Mark, K. (2003); Muia (2017); Nyathira (2009); Shihadeh, Azzam, Hannon, & Jian (2018) on the contribution of financial innovation to the financial performance in the banking sector internationally. Therefore, the problem arises, how does and what extent do financial innovation impact on financial performance?

1.2. Objective of the Study

This study aims to evaluate the effect of financial innovation, particularly product and process innovation on financial performance of licensed commercial banks in Sri Lanka. Therefore, the problem statement of the study is, “To determine whether there is a significant effect of financial innovation on financial performance of licensed commercial banks in Sri Lanka.”

This is study identifies the effect of financial innovation on performance of licensed commercial banks in Sri Lanka and the study limits its’ analysis to 10 licensed commercial banks in Sri Lanka including government commercial banks over the period of 2011 – 2019. Following limitations can be seen relevant to this study.

I. The research identifies only domestic licensed commercial banks in Sri Lanka.

II. The research is limited to the 2011-2019 time period.

III. The research identifies only firm level innovations particularly product and process innovation.

2. Literature Review

2.1. Theoretical Literature Review

In this paragraph it reviews theories relevant to this study. This study will be guided by four innovation theories. These includes Constraint - induced Financial Innovation Theory, Circumvention Innovation Theory, Regulation Innovation Theory, Transaction Cost Innovation Theory.

2.2.1 Constraint Induced Financial Innovation Theory

Silber (1983) has developed the theory of advanced constraint-induced financial innovation which has stated that the key reason of doing financial innovation is to maximize profit of financial institution.

2.2.2 Circumvention Innovation Theory

Kane (1981), who is the originator of circumvention innovation theory, has pointed out that government form of regulations and controls in financial sector, Therefore, financial innovation is mostly stimulated by the expectation of earning profit and circumventing government regulations.

2.2.3 Regulation Innovation Theory

Regulation innovation theory was introduced by Scylla et al (1982), who has argued that financial innovation from his point of view related to historical development of economy. Scylla et al has (1982), further described the difficulty to have space of financial innovation in the planned economy with strict control and in the pure free market economy, so any change brought about by regulation reform in financial system can be regarded as financial innovation.

2.2.4 Transaction cost innovation theory

The transaction cost innovation theory has been developed by (Hicks, D. & Niehans J., 1983). They outlined that the reduction of transaction cost is the dominant factor of financial innovation and they have further explained that financial innovation is the response of the advance in technology which caused the transaction cost to reduce.

2.3 Review of Empirical Literature

Schumpeter (1934), who is usually credited with the initial concept that innovations can cause competitive advantage which will be exploited by innovative firms. According to this, a substantial body of research suggests that the association between firm level of innovation and financial performance should be positive. For instance, a study done by Stavins (2011) in US on community banks, studied the effect of consumer characteristics on the utilization of payment instruments. It has shown that consumers are varied on how they used payment options based on gender, size of transactions and occupation. The study further established that community banks that adopted many payment options did better than their peers. This shows that innovation provides firms with commercially superior products, better mechanisms to deal with environmental uncertainties, and an increased ability to make new resource configurations (Stavins, 2011).

According to Hayashi & Klee (2003), Financial innovations can be grouped as new products (such as securitized assets), new services (such as internet banking and mobile banking), new processes (such as RTGS, CEFT), or new organizational forms like agency banking and internet-only banks. Recent service innovations primarily relate to enhanced account access and new methods of payment – each of which better meets consumer demands for convenience and ease. A study carried out in Australian corporate banking sector proposed that having innovative and differentiated products made commercial banks attract more corporate clients (Cainelli, G. , Evangelista, R., & Savona, M., 2004). Cohen (1995), in his study within the British banking sector found that Automated teller machines (ATMs), significantly enhanced retail bank account access and value by providing customers with around-the-clock access to funds. Over the past decade, remote access has migrated from the telephone to the personal computer. Online banking, which allows customers to monitor accounts and originate payments using “electronic bill payment,” is now widely used.

Ngigi Carolyne Nyathira (2012), who has examined the effects of financial innovation particularly payment and settlement system on performance of commercial banks in Kenya in 2012, obtaining secondary data published in central banks’ annual reports for all 43 registered commercial banks for a period of 4 years. Independent variables used by researcher were RTGS transaction throughput for the year and Automate Clearing House throughput (ACH) for the year while dependent variable was consolidated profit after tax and exceptional items for the year of all banks. The researcher has found out that there is a positive relationship between RTGS transaction throughput and commercial bank’s performance, a negative significant relationship between Automated Clearing House throughput and commercial bank’s profitability and it further identified that two independent variables are negatively correlated.

Ngari et al (2014), identified the relationships between credit cards, mobile banking, influence of internet banking and agency banking on the performance of commercial banks in Kenya. This study was done obtaining 40 commercial banks registered under the central bank of Kenya for the period 2008-2012. Secondary data has been obtained from published financial statements whereby the independent variables were credit cards, internet banking, mobile banking, and agency banking and the dependent variable was financial performance to run this study. Finally, study has been found out that some banks in Kenya had adopted some financial innovations such as credit cards, mobile, internet and agency banking and indeed financial innovations had great impact on the financial performance of the banks.

Financial innovation within the banking system has been spurred on by the forces described by particularly in terms of latest distribution channel systems, like internet and mobile banking (Noyer, 2007). When the industry has provided more ways for consumers to access their accounts, they have to bear significant costs on each institution. A requirement to combat these costs resulted a major cost savings period, where many banks successfully got much of the cost out of the back office. These cost savings came largely through back-office automation, which is a technological innovation that has recently been accomplished.

According to Noyer (2007), financial innovation has not only created new opportunities for the sector participants, but also enabled new market participants to arise, introducing new products to the financial market. These developments have increased the range of financing and investment opportunities available to economic agents besides changing the role of banks with expanded diversification choices in terms of portfolio and sources of financing. Such developments affect the speed and strength of the channels of monetary policy mechanism in the economy. As financial markets become more liquid and complete, changes in official interest rates are more readily transmitted to the entire term structure and more generally to financial asset prices. The primary revenue-enhancing innovations occurring today are in platform automation for branch and phone center employees, and within the newest distribution channel, internet and mobile banking. While these innovations have aspects in common, they each serve different needs within the distribution strategy of economic banks (Mansury, M. A & Love J. H , 2008).

Yin and Zhengzheng (2010), who has done research in China with the expectation of analyzing the operational changes due to technology innovations. In his study it shown that if banks adopted to processes innovations which can be more profitable. When a bank adopts streamlined operations like using internet banking, it may result low operational costs. Thus, the commercial bank may save on costs hence improving on its performance. Thus, it's a process whose effect on performance of commercial banks need to be determined.

Francesca and Claeys (2010), carried out a study with an aim of examining the role of online banking services in contributing to the strategic goals. The study was carried out among 60 large banks operating in the European Union. The study revealed that those banks that had a goal of increasing their market share were likely to adopted financial innovations such as internet banking because they could reach more customers. However, the performance of banks that solely dependent on internet was noted to be low because the banks had spent a lot of money in venturing to internet banking and subsequent labour cost savings could not be sufficient to recoup the initial capital outlay. For this reason, it is important for banks to prudently decide on which financial innovations to adopt.

DeYoung, Lang, & Nolle (2007), has explained that internet adoption improved U.S. community bank profitability basically via deposit related charges. After that Hernando & Nieto (2007), found that online banking was associated with lower costs and higher profitability for a sample of Spanish banks. Both papers have been concluded that the internet channel is a complement to, rather than a substitute for, physical bank branches. Further it has described that any implementation of internet banking, requires investment to be made on information technology by internet banking service providers. In addition to that, study has been concluded that to be succeed in such investments, bank customers must see value in the technology since they might be unlikely to use it much. In some areas, things have not moved as quickly as some anticipated in turning these benefits into reality in the banking sector, and many bank customers still hesitate in switching to web-based service transactions.

Nyangosi and Aora (2011), conducted a study with the aim of examining the impact of information technology and banking performance in Kenya. The study adopted a descriptive research design and had a population of all commercial banks in Kenya. The study established that the use of internet banking and mobile banking had been adopted by most banks. The study has found that use of ATM and mobile banking led to service excellence and thus improved the performance of financial institutions. Further, the study revealed that information technology is an important development in the banking sectors.

According to Nader (2011), who has pointed out that the fact that commercial banks adopted mobile and internet banking, was not a reason enough to expect more profits. This study had sought to establish the profitability of banks in the Saudi for a period of 10 years. The study tested contradicting results for the various aspects of financial innovations. It stated that use of mobile banking and Automated teller Machines (ATM) had a positive effect on profitability of commercial banks in Saudi Arabia. On the contrary, availability of these services did not necessarily indicate a chance of more profits. Thus, the study implies that financial innovations may or may not lead to improved financial standings. This instant study seeks to establish the effects of financial innovations on total income and return on assets of commercial banks in Kenya.

Scholnick (2006), who has noted that the use of ATMs increases transactions of the large commercial banks hence more business is realized but this is not so for the small banks. It is crucial to note that when the transactions with the bank increases, the income of the bank may increase due to charging of transaction costs. However, some of online banking services are free of charge. A study of the impact of information technology on the banking industry was carried out by (Shirley, J.H. & Sushanta, K.M., 2006). The study had a general objective of establishing the effects of information technology on the profitability of commercial banks. The study had a target population of 68 US banks and data was collected over a period of 20 years. The study found out that adoption of IT to service delivery may increase the profits due to cost savings. However, the study also found out that the profitability depended on the network effect which if too low would lower the profits of the banks. Thus, the study was not conclusive on the effect of innovations due to technology adoption.

Malhotra and Singh (2010), who has carried out a study with the aim of establishing the impact of internet banking on financial performance of commercial in India. The study had a keen interest in establishing whether the period of adoption of internet banking had an impact on performance. Specifically, the study sought to establish whether, banks that had adopted internet banking for longer periods had superior performance over those that had adopted banking for a shortest time period. A multiple regression model was used and 82 banks were selected. The study found out that there was no statistically significant difference among those banks that had adopted internet banking for a longer time than those which had recently adopted internet banking. Further, the regression model established that their internet banking had no positive effect on financial performance of commercial banks in India.

Financial innovation can be critical in overcoming the two main challenges that financial intermediation faces in developing countries the high costs and the high risks (Gitonga, 2003). For instance, mobile banking relies to a greater extent on variable rather than fixed costs, which implies that even customers who undertake small and few transactions are viable or bankable relative to banking through conventional channels. Second, trust between customer and service provider can be built much more easily by mitigating the risk from the customer's and the provider's viewpoint. Financial innovation can thus be critical in helping reduce the large share of population that is currently unbanked.

3. Methodology

This study investigates the effect of financial innovation on performance of licensed commercial banks in Sri Lanka. It is based on secondary data collected from annual reports. Data collection has been done manually from banks annual reports of selected 10 licensed commercial banks for the period 2011 - 2019. The researcher has analyzed the data by multiple regression analysis using E-Views 10 software. The population of this study is 26 licensed commercial banks in Sri Lanka. To perform the study, 10 licensed commercial banks has been selected using purposive sampling method.

3.1. Conceptual Framework

As per the conceptual framework, it defines that the impact of mobile banking, internet banking, credit cards in use and number of ATM's as independent variables and Return on Equity and Return on Asset as dependent variables.

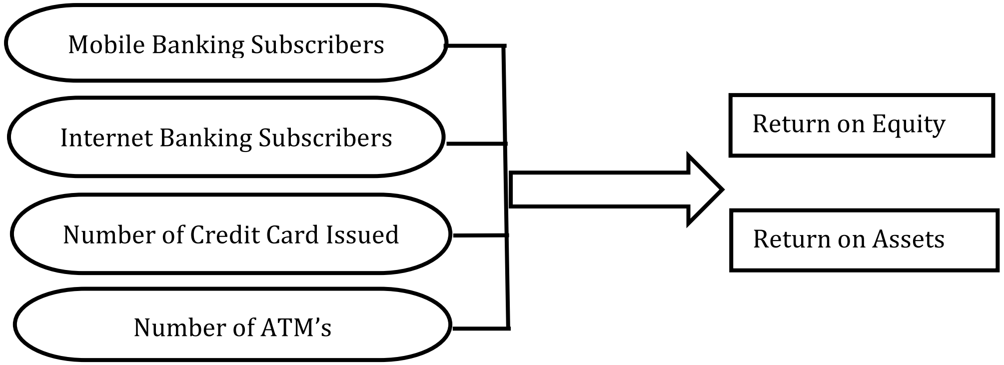

Figure 3.1 – Conceptual Framework

Source: Author Compiled

3.2. Model formulation

The following econometrics models will be used to test the said hypothesis for achieve the research objectives.

$$Y_{1it} = \alpha_i + \beta 1X1_{it} + \beta 2X2_{it} + \beta 3X3_{it} + \beta 4X4_{it} + \mu_{it} \quad (1)$$

$$Y_{2it} = \alpha_i + \beta 1X1_{it} + \beta 2X2_{it} + \beta 3X3_{it} + \beta 4X4_{it} + \mu_{it} \quad (2)$$

Where: α_i = intercept

Y_{1it} = Return on Equity

Y_{2it} = Return on Assets

$X1_{it}$ = Number of mobile banking subscribers of the year

$X2_{it}$ = Number of internet banking subscribers of the year

$X3_{it}$ = Number of credit cards in use of the year

$X4_{it}$ = Number of ATM's of the year

$\beta 1$, $\beta 2$, $\beta 3$ $\beta 4$ = coefficients of independent variables

u_{it} = error term

3.3. Hypotheses Development

Based on conceptual framework and varied findings on the relationship between financial innovation and financial performance following statements are made in order to test how these variables are interrelated in the case of commercial banks performance in Sri Lanka.

01. H1: There is a significant association between mobile banking and ROE

02. H2: There is a significant association between internet banking and ROE

03. H3: There is a significant association between number of credit cards and ROE

04. H4: There is a significant association between number of ATM's and ROE

05. H5: There is a significant association between mobile banking and ROA

06. H6: There is a significant association between internet banking and ROA

07. H7: There is a significant association between number of credit cards and ROA

08. H8: There is a significant association between number of ATM's and ROA

3.4. Instruments used for data analysis

Quantitative approach was considered as the suitable approach for the study because numerical and secondary data was employed. The multiple regression analysis was carried out by the using E- views 10 econometrics computer software.

4. Findings and Discussion

4.1 Descriptive Statistics

Table 4.1 – Descriptive Statistics

	ROE	ROA	LMB	LIB	LCC	ATM
Mean	0.164103	0.014906	10.03765	10.27273	11.02452	325.7111
Median	0.164600	0.014558	10.01391	10.37642	11.29990	235.0000
Maximum	0.312000	0.021084	11.67617	12.56459	12.86502	1033.000
Minimum	0.045150	0.008596	8.235891	7.107425	7.745003	31.00000
Std. Dev.	0.065711	0.003985	1.164050	1.689002	1.361931	253.1602
Skewness	0.249694	0.042948	-0.017946	-0.422451	-1.035863	0.721183
Kurtosis	2.986802	1.982224	1.614444	2.173676	3.514271	2.492262
Jarque-Bera	0.935857	3.912172	7.203956	5.237519	17.08697	8.768317
Probability	0.626298	0.141411	0.027270	0.072893	0.000195	0.012473
Observations	90	90	90	90	90	90

Source – Author Compiled

Skewness is a term in statistics used to describe asymmetry from the normal distribution in statistical data, skewness has a zero skewness in normal distribution, but in reality, data points may not be perfectly symmetric.

When considering the skewness of LMB, LIB and LCC variables are negatively skewed, while ATM, ROE and ROA are positively skewed.

The standard deviation is the most common measure of dispersion, or how spread out the data around the mean. A large standard deviation indicates that the data points can spread far from the mean and small deviation indicates that the data set is around the mean. In this research, all the independent and dependent variables have a low standard deviation, which emphasize that data set is closely around the mean.

4.2 Correlation Analysis

Table 4.2 – Correlation matrix

	ROE	ROA	LMB	LIB	LCC	ATM
ROE	1.0000	0.6254	0.2563	0.4180	0.3592	0.4260
ROA	0.6254	1.0000	-0.0545	-0.0534	-0.0771	0.1561
LMB	0.2563	-0.0545	1.0000	0.6212	0.4650	0.6086
LIB	0.4180	-0.0534	0.6212	1.0000	0.6057	0.6316
LCC	0.3592	-0.0771	0.4650	0.6057	1.0000	0.5001
ATM	0.4260	0.1561	0.6086	0.6316	0.5001	1.0000

Source – Author Compiled

The graph shows how the independent and dependent variables are correlated to each other. In order to get a prior understanding related to the correlation between the variables the above study is assisting. Accordingly, there is a positive impact of mobile banking, internet banking, number of credit card and number of automated teller machines on return on equity. As well as above graph indicates that there is a negative relationship between return on assets and internet banking, mobile banking, number of credits while it shows that return on assets and number of automated teller machines have a positive relationship. According to obtained results there is no any significant correlation between independent variables (no multicollinearity) since probability values are less than 70%. Therefore, all the variables have been continued for multiple regression.

4.3. Multiple Regression Analysis

As stated in the methodology, two dependent variables used to measure the financial performance of licensed commercial banks in Sri Lanka. Therefore, it used two separate models to run the regression for those variables.

Model 01: Return on equity

Model 02: Return on assets

After running the Hausman test for both models, results showed that fixed effect model is suitable for all the models.

4.4 Regression Result

Table 4.3 – Regression outcome

	Model – 01		Model – 02	
Coefficients and Significance of the independent variables				
	Coefficient	Prob.(t-stat)	Coefficient	Prob.(t-stat)
C	0.110025	0.2490	0.028164	0.0003
LMB	0.028271	0.0292	0.002035	0.0340
LIB	-0.018827	0.0266	-0.001604	0.0022
LCC	-0.001825	0.8277	-0.001250	0.0994
ATM	-0.000178	0.0013	-1.05E-05	0.0385
Overall significance of the model				
F-statistic	24.43332		6.613679	
Prob(F-statistic)	0.000000		0.000000	
Goodness of fit in the model				
R-squared	0.840321		0.530800	
Adjusted R-squared	0.805929		0.450542	
autocorrelation in the model				
Durbin-Watson stat	1.950217		1.758569	

Source – Author Compiled

In terms of fitness of the model, the coefficient of multiple determinations R^2 indicates 84.032%, 53.08% respectively for both models. Probability value of F-statistics reveals that overall model is significant at 5 percent level hence probability value of F-statistics indicates 0.00000 for both models. The estimated Durbin Watson statistics are 1.950217 and 1.758569 respectively. Since the value is approximately closer to 2.00, it is accepted that there is no autocorrelation among the successive values of the variables in the autoregressive model. From regression result shown in the table 03 which indicates that all the independent variables (other than credit cards) under both models are statistically significant to the model since Prob. (t-statistic) are less than 0.05.

Moreover, beta values indicate the strength of the impact of each individual independent variable to the dependent variable. Beta coefficient of mobile banking indicates positive relationship on financial performance of licensed commercial banks in Sri Lanka for both models and internet banking, No. of credit cards, No. of ATM's indicates negative relationship on financial performance of licensed commercial banks in Sri Lanka under both models.

5. Conclusion

5.1. Conclusion of the study

This study investigated whether licensed commercial banks in Sri Lanka can accelerated their performance by enhancing financial innovation. From this research, it is found that mobile banking has a positive significant effect on financial performance while internet banking has a negative significant effect on financial performance of licensed commercial banks in Sri Lanka. The results of current study in line with the previous empirical studies carried out by other researchers.

Daniel Mwangi Kamau & Josphat Oluoch (2016), stated that increase in mobile banking subscribers have a positive significant effect on return on assets. According to the Makur Peter Malak (2014) established that mobile banking has positive significant effect on return on equity also. Humphrey (1994) has concluded that ATMs offer easy and convenient services to customers, but the cost for this service is slightly higher. When the number of ATMs increased, ultimately it reduces the cost of each depositor transaction. Further it revealed that, when the number of ATM transactions executed by customer increases, the amount of total costs was relatively equal to or slightly higher than previous costs. Ultimately it revealed that ATM's have and negative significant effect on performance of commercial banks. Akhisar et al. (2015), examined the effect of electronic banking services as innovation tools on bank performance while gathering relevant data from 23 countries for the period of 2005 to 2013. The performance measurements used in their study were ROA and ROE. By using dynamic panel data models, the study found that internet banking has a negative effect on financial performance of commercial banks. According to Fadil Shihadeh, Jian Guan, Azzam Mohammed Tayaseer & Ihtisham ul haq (2018), have revealed that number of credit cards issued have an insignificant effect on performance.

Mobile banking is a service provided by a bank to their customers, allowing to execute financial transactions remotely employing a mobile device which uses software, usually called an app. So, it is easy for operating mobile application because its' appearance is easy to understand. Similarly, nowadays mobile phone usage also at the top.

Due to that reason, there is a positive trend that people tend to subscribe mobile banking. Ultimately it creates efficiency to the bank and generates fee income also from some particular transactions like CEFT.

However, internet banking has a lengthy process to execute a transaction compared to mobile banking. Normally, people do not like to follow lengthy process and it is harder to remember because it used by people who are in different age level. Internet banking has become failure in some extent because customer don't have a sufficient knowledge to operate it. Due to that reason expected result of internet banking on financial performance would not be received.

Further the current study found that number of ATM's have a negative significant effect financial performance of licensed commercial banks in Sri Lanka. Frequency of using ATM has been reduced due to the arrival of alternative channels. In addition to that, Processing time and service quality of ATM's is lower in some extent. Then people tend to innovative alternatives to execute their transactions. Ultimately it does not provide expected result on performance. As well as can be identified another issue regarding the installation of ATMs. If an ATM was set up in a particular area in which population density is at a lower level, it does not create expected performance on particular investment.

Further this study revealed that number of credit card issued does not have a significant effect on financial performance of licensed commercial banks in Sri Lanka. The common reason to buy a credit card by customers is to get purchase related benefits, offers and discounts other than that people do not use their credit card frequently. Due to this it may not provide a significant impact on financial performance. At present credit card market is adversely affected by fraudulent activities. Then banks have to implement mitigating actions to reduce risk arising from credit card business. Ultimately banks have to bear significant cost on those action also. Again, it can be identified that NPA issue relate with credit cards. Ultimately it may not provide expected results on performance. The main objective of the study is to identify whether there is any impact of independent variable on dependent variables. The objectives are successfully achieved as the researcher identified significant relationship between the independent variables and dependent variables.

5.2 Recommendation

The study recommends a mix result in relation to the effect of financial innovation on commercial banks performance. Since all the financial innovations don't have a positive impact on performance. But the study has established a positive relationship between mobile banking and performance of commercial banks in Sri Lanka. For this reason, it is important that commercial banks to develop mobile banking platform. Mobile banking enables commercial banks to cut down on costs since customers do not have to travel to the banking halls for financial services.

Contrary to the above that internet banking has a negative effect on commercial bank performance. This can be attributed to the fact that adopting internet banking involves high cost in IT and modern technology. In addition to that people are moving fast to mobile banking from internet banking. So, at the present mobile banking has popular among people than internet banking. So, it will be another reason for showing negative relationship between internet banking and commercial bank performance.

Further this study revealed that ATM's have a negative effect on commercial bank performance. Implementing of ATM's also expect huge investment on that. If an ATM set up in an area in which population density is low, it doesn't create expected performance on particular investment. So, it is must to identify by banks to set up their ATMs at correct location also.

Generally, banks earn considerable profits from credit card business, especially if these cards are used outside the issuing country. In this study, the effect of credit cards was insignificant when ROE and ROA are used as performance indicators. This study used the number of credit cards issued even when they were unused by customers. Instead of using number of credit cards issued, it is better to take total active cards in use currently.

Government through the financial sector regulatory authorities should encourage banks to engage in financial innovation but at the same time closely regulating such developments to assure on the integrity of more so the payment systems. Ultimately, this will enhance effective and efficient delivery of services by the financial sector to all sectors of the economy. In addition to that the awareness of customers on these innovations to execute banking services is more important because it takes huge investment on financial innovation. If the opportunity taken by customers from these innovations are less, the investment made on financial innovations by bank will not be effective. So, customer adoption on these innovations are must to take the expected performance from innovations.

5.3 Suggestions for Future Researchers

This study mainly concentrated on establishing the relationship between financial innovations and financial performance of commercial banks in Sri Lanka. There is also need to carry out similar tests for a longer time period of time and on quarterly on country level innovation like RTGS. This will identify more precise and diverse information on the changes in the independent variables along the years. Ultimately, the scope of the research will be broader, and it will give clear indication of financial innovation on the economy as a whole.

In addition to that, there is need for categorization of commercial a comparative study between listed and none listed commercial banks. Further, there is need to evaluate the qualitative influences of commercial banks innovation.

Similar study to be carried out among specialized finance companies and banks and all financial institutions to identify the impact of financial innovation on these institution since are geared towards taking deposit from members.

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