THE EFFECT OF LEVEL OF DEPOSITS ON FINANCIAL PERFORMANCE - A STUDY ON LISTED COMMERCIAL BANKS IN SRI LANKA

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Abstract

Deposit portfolio is identified as a key financial indicator that determines the profitability of a commercial bank. Hence, for a commercial bank to be profitable, it must be able to collect deposits at reasonable rates to lend to the customers. Therefore, it implies that a bank that can generate more deposits will generate more profits, if all other factors remain constant. The aim of this study is to investigate extensively whether there is a relationship between the deposit portfolio in terms of demand deposits, savings deposits and fixed deposits and commercial banks' financial performance and the correlation between those variables. This was evaluated using a quantitative research approach and cross sectional design method and this study examined the impact of the level of deposits towards the financial performance of the listed commercial banks in Sri Lanka during the period from 2013 to 2017. For this study, it used all twelve (12) commercial banks listed in Colombo Stock Exchange as of 31 December 2017 and the financial data was gathered by using the annual reports published by each commercial bank during the respective period. When it comes to Sri Lankan context, a dearth of researches could be noted that has been carried out on the level of deposit portfolio and financial performance of commercial banks. Therefore, this study contributed to analyze the impact of level of deposits on financial performance of commercial banks in Sri Lanka.

Keywords: Commercial Banks**,** Deposit Portfolio, Return on Assets, Return on Equity

1. Introduction

Deposits play a fundamental role in the financing of the bank, since a predominant part of the commercial bank's assets is usually financed by customer deposits. (Bologna, 2011) The major expense of any commercial bank is the interest expense and therefore, for a commercial bank to be profitable, it must be able to collect deposits at reasonable rates to lend to the customers. Therefore, it implies that a bank that can generate more deposits at low cost will be able to offer more loan facilities in a competitive manner and thereby will generate more profits, if all other factors remain constant.

This study assessed whether a higher level of deposits held by a bank translates into a better performance. Performance measures can be identified as quantitative or qualitative aspects of characterizing and defining performance. They provide a tool for an organization to manage the progress towards predetermined goals by defining key indicators of organizational performance and customer satisfaction. Measuring performance is a process of determining the success of organizational activities towards achieving organizational objectives. Guest et al. (2003) defined performance as positive or negative outcomes, end results and achievements of the organization's activities. They have argued that it is necessary to measure strategic practices in terms of outcomes. These outcomes can be distinctive among the categories such as financial measures (ROA, ROE, PBT, and Turnover), measures of the production outputs (the number of units produced, the number of customers processed and the number of errors in the process), the customer satisfaction, measures of employee satisfaction and so on.(Guest et al, 2003). The scope for the study was 12 commercial banks listed in Colombo Stock Exchange (CSE) as of 31 December 2017 and data was collected from annual reports of those commercial banks for the period from 2013 to 2017. When carrying out this study, it is obvious that, there were existent inherent limitations based on the accuracy of the data used for the study and those limitations were explored in detail through this research study.

In Sri Lanka, customer deposits continue to be the main source of financing for the banking sector, accounting for 70 percent of total funding liabilities. As of December 2016, total bank deposits amounted to Rs. 6,295.6 billion with a growth of 16.5 percent during the year 2016(Central Bank of Sri Lanka, 2016). The deposit base of the banking sector has increased in 2016 mainly due to the growth in fixed deposits denominated in Sri Lankan rupees. According to data collected from the Central Bank of Sri Lanka, it can be noted an upward trend in the level of deposits in the past few years.

When it comes to Sri Lankan context, a dearth of researches could be noted that has been carried out on the level of deposit portfolio and financial performance of commercial banks. However, many studies have been carried out on this relationship in foreign countries by many scholars. Some studies had directed towards positive relationship while others had linked the level of deposits to negative financial performance and some researchers had still found no relationship at all. Gul, Irshad and Zaman (2011) showed that deposits have positive correlation with ROA and ROE. Another study showed that banks that rely largely on deposits for their funding were less profitable, since deposits require more branching and other expenses. (Demirguc-Kunt & Huzinga, 1998). Dietrich and Wanzeried (2009) had found no empirical evidence that commercial banks in Switzerland had the ability to convert more deposit liabilities into higher income earning assets. Accordingly, there is mixed evidence on the selected problem statement.

1.1. Research Question

Based on the problem statement, the following research questions are developed in the context of listed commercial banks in Sri Lanka.

1. What is the relationship between the deposit portfolio in terms of demand deposits, savings deposits and fixed deposits and financial performance of commercial banks?
2. Whether the deposit portfolio of a commercial bank is affecting the commercial banks' financial performance?

1.2. Research Objectives

The objective of the study is to determine the effect of level of deposits on financial performance of commercial banks in Sri Lanka by examining deposit portfolio and the financial performance of all commercial banks (12) listed in Colombo Stock Exchange as of 31 December 2017.

In order to understand whether there is positive, negative or no relationship between level of deposits and the financial performance of commercial banks, this study expects to observe about;

1. How deposits support as a main source of funding for the Sri Lankan banking sector while being a major part of the total funding liabilities of commercial banks.
2. To examine the impact of deposit mixture (Savings, Demand and Fixed) towards the financial performance of commercial banks.

1.3. Significance of the study

Deposits play a significant role regarding financing a bank since a dominant part of assets of a commercial bank is usually financed by customer deposits. The major expense of any commercial bank is the interest expense paid over customer deposits and therefore, for a commercial bank to be profitable, the bank should be able to collect deposits at reasonable rates from the customers. However, the commercial banks having different levels of deposits will try to achieve the best set in optimal financial performances. Though the effect of level of deposits over banks' financial performance has been researched in world context, in Sri Lanka, the impact of deposit portfolio of commercial bank over its financial performance is still unaddressed research area. Therefore, this study attempted to provide answers to the question, "how the deposit portfolio of a commercial bank affects to its financial performance?"

The study is important to researchers, customers as well as banks to identify the effect of level of deposits on financial performance of commercial banks in Sri Lanka. It adds to prevailing literature to verify the facts relating to the factors that influence the profitability of commercial banks all around the world. This study assessed whether a higher level of deposits held by a bank result into a better performance. When considering the performance measurement, it could be identified either as quantitative or qualitative performance measurement. Measuring performance would indicate the negative or positive impact of organizational activities towards achieving organizational objective as a whole.

The performance can be defined either through positive or negative outcomes relating to the goals and objective of an organization. The outcomes can be distinctive among the categories such as financial measures (ROA, ROE etc.), measures of the production outputs (number of units produced, number of customers processed etc.) and the customer satisfaction and so on.

With the intention of analysing the effect of deposit portfolio on financial performance of commercial banks in Sri Lanka, this study attempted to evaluate financial performance measurement variables such as Return on assets (ROA) and Return on Equity (ROE) of commercial banks in Sri Lanka. The study on this topic will contribute to the literature of Sri Lanka. Similarly, the findings of the research will be useful for managers and other decision makers for their decisions.

2. Literature Review

Sustainable economic growth of a country largely depends on the healthy and strong banking system. Therefore, it is important to study the factors affecting the financial performance of banks. However, due to the inconvenience of studying the all factors which have the impact of banks' financial performance, this study focused on the effect of the level of deposits on the financial performance of commercial banks. Overtime many researches have studied the determinants of banks' financial performance considering the level of deposits as a significant variable of profitability. This chapter will explore the available literature with empirical studies with the intention of discovering what has been done by other scholars in the selected area. Similarly, by reviewing the empirical literature, it will try to identify the missing contextual and conceptual knowledge gaps of the study. The level of deposits, financial performance of commercial banks, relationship between these variables, control variables affected and a summary will be explored in this chapter.

2.1. Defining the deposit portfolio

Islam et al. (2017, p.6) specified in their study that the main source of funding of any commercial bank is the deposits and it could be considered as the lowest cost of funds. Bologna (2011) stated that predominant part of the commercial bank's assets is usually financed by customer deposits. A comprehensive study conducted in 2010 indicated that the liability portfolio of a bank consists mainly of deposit component which has an influence on the profitability of commercial banks. (Rasiah, 2010) Further, that study have described that funds deposited with commercial banks by the public could be categorized into three namely, Current or Demand deposits, Fixed or Time deposits and Savings deposits. Rasiah (2010, p.78) has specifically explained the unique characteristics of these three types of deposits. Commercial banks are not paying any interest on current deposits and at any time current deposits can be withdrawn by issuing cheques. Time deposits which pay higher interest for depositors are left with the bank for a certain period of time so that they cannot be withdrawn prior to the maturity except after giving due notice. Savings deposits are the deposits which can be withdrawn at any time and pay an interest for customers which are lower than fixed deposits. Moreover, researcher highlighted that commercial banks are competing with each other for customers' deposits to be more profitable and however, it depends on the interest expense and additional expenses to be incurred for attracting and retaining deposits.

2.2. Defining the financial performance of commercial banks

Another key factor which this study highlights is the “Financial Performance” of commercial Banks. Ongore (2013) stated that financial performance of commercial banks will generate critical implications on economic growth of a country and shareholders will be rewarded by better financial performance for their investment and further to encourage additional investments. On the other hand, research indicated that poor financial performance will always direct towards a failure of the banking system which could lead to a crisis to cause negative impact on economic growth. (Ongore, 2013) Guest et al. (2003) defined performance as positive or negative outcomes, end results and achievements of the organization's activities. They have argued that it is necessary to measure strategic practices in terms of outcomes. These outcomes can be distinctive among the categories such as financial measures (ROA, ROE, PBT, and Turnover), measures of the production outputs (the number of units produced, the number of customers processed and the number of errors in the process), the customer satisfaction, measures of employee satisfaction and so on. (Guest et al, 2003). Islam et al. (2017) mentioned in their research that “Profitability” could be treated as a vital aspect in measuring the financial performance of a commercial bank. Naeem, Baloch and Khan (2017) used Return on Assets (ROA), Return on Equity (ROE) and Net Interest Margin (NIM) in measuring the profitability of commercial banks in Pakistan in their study. They defined ROA as one of the most critical and useful measurement of commercial banks’ profitability which is computed by dividing net income over total assets whereas, ROE is the ratio of net income to total equity. Naceur (2003) employed Return on Assets (ROA) in assessing the profitability of Tunisian banking industry. A research study (Flamini, 2009) chosen ROA to analyse the banking profitability instead of ROE, due to the reason that ROE does not take into consideration financial leverage and the risk associated with it. Gul, Irshad and Zaman (2011) analysed the bank profitability in Pakistan in terms of ROA, ROE and ROCE. (Return on Capital Employed)

2.3. Empirical evidences on relationship between level of deposits and commercial banks’ financial performance

By reviewing the literature on empirical studies, it will assist to understand the relationship between the level of deposit portfolio and banks’ financial performance. The level of deposit portfolio in commercial banks is considered as the independent variable, while financial performance of commercial banks is treated as the dependent variable.

Positive Relationship

Gul, Irshad and Zaman (2011) investigated the impact of assets, loans, equity, deposits, economic growth, inflation and market capitalization on profitability indicators such as Return on Assets (ROA), Return on Equity (ROE), Return on Capital Employed (ROCE) and Net Interest Margin (NIM). Their results showed that deposits have positive correlation with ROA and ROE. Trujillo (2013) analysed the factors that determine the profitability of Spanish banks for the period of 1999–2009. Finally, the researcher has highlighted that the liabilities of the Spanish banks are characterized by a high proportion of customer deposits which appears to have a positive effect on their profitability as measured both by ROA and ROE. The research study (Naceur & Goiaed 2001) investigated the determinants of the Tunisian banks' performance during the period 1980 to 1995. The researchers have used two measures of performance in their study: the Net Interest Margin (NIM) and the Return on Assets (ROA). Bank loans have considered as the main source of the income of the bank and expected to generate a positive influence over the bank performance. The higher deposits have transferred into loans, the higher the interest margin and profits of a bank. They have also considered the size of a bank as an independent variable since it is affected to economies and diseconomies of scale. Empirical evidence of the study indicated that the banks who maintained higher level of deposit accounts compared to their assets are the banks with better performances. Olweny and shipho (2010, p.23) analysed effects of banking sectorial factors on the profitability of commercial banks in Kenya. There were two main objectives of the study. First, is to determine and evaluate the effect of bank specific factors on the profitability of commercial banks in Kenya. Second is to determine and evaluate the effects of market structure factors on the profitability of commercial banks in Kenya. The analysis demonstrated that all the bank specific factors had a statistically significant impact on profitability, while none of the market factors had a significant impact on it. Capital adequacy, Asset quality, liquidity, operational cost efficiency and income diversification were the banking specific factors which Olweny and shipho used for their analysis. Based on the findings, the study recommended the policies that would encourage revenue diversification, reduce operational costs, minimize credit risk and encourage banks to minimize their liquidity holdings. In the case of liquidity holdings, they measured liquidity using a ratio of liquid assets to total liability deposits. Therefore the recommendation they made on this analysis, to maintain law level of liquidity holdings suggested that, having high level of deposit liabilities compared to liquid assets will increase the profitability of commercial banks in Kenya. Hubarieva, Lebid, and Zuieva (2017) pointed out that the attraction of deposits by the banks in Ukraine can be considered as the foundation of the resource base, an essential component of the financial ability of the banks.

Further, researchers reviewed that in order to increase the efficiency and effectiveness of banks' financial potential, it is important to consider a systematic approach into the deposit management process and the criteria of attracting funds such as maturity, risk, cost and so on. Finally, this study suggested that the attraction of more deposits leads to the higher financial ability of commercial banks in Ukraine.

Negative Relationship

Empirical investigations on the effect of deposits on performance of commercial banks have generated mixed results. The article of "Determinants of Commercial Bank Interest Margins and Profitability: Some International Evidence" investigated the determinants of commercial banks interest margins and profitability using bank data for 80 countries between 1988-1995 .Their results showed that banks that rely largely on deposits for their funding were less profitable, since deposits require more branching and other expenses. (Demirguc-Kunt & Huzinga, 1998).

No Relationship

Dietrich and Wanzeried (2009) examined the determinants of commercial banks' profitability in Switzerland by analysing the yearly growth in deposits as the independent variable using 1919 observations from 453 banks. Through their study, they concluded that the yearly growth in deposits had no significant effect to the banks' profitability. No empirical evidence had been found that commercial banks in Switzerland had the ability to convert more deposit liabilities into higher income earning assets.

2.4. Defining control variables

When studying the relationship between the level of deposit portfolio and financial performance of commercial banks, it is essential to assess the effect of control variables on the relationship which was analysed. Islam et al. (2017) indicated that total assets of the bank could be considered as to capture the possible impact of bank's size on the profitability of commercial banks and researcher further specified that assets size might be expected to be nonlinear. Similarly, a recent study (Schipper, 2013) has used the logarithm of total assets to capture the relationship between the deposit portfolio and commercial banks' profitability. In addition to that, Schipper (2013) analysed the impact of funding cost on the relationship and that was the interest expense on deposits.

2.5. Literature gap

When analysing the literature, it seems to highlight that still there is no consensus with regards to the relationship between the level of deposit portfolio and the financial performance of commercial banks. Some studies had directed towards positive relationship while others had linked the level of deposits to negative financial performance and some researchers had still found no relationship at all. When it comes to Sri Lankan context, the researcher was unable to find any relationship between the level of deposit portfolio and commercial banks' financial performance by using available literature. Therefore, this study focused on the relationship between the deposit portfolio and financial performance of commercial banks in Sri Lanka.

3. Research Methodology

This section presents the research approach, population and study sample, conceptual diagram, hypothesis, operationalization, data collection and data analysis strategies adopted in this study.

3.1. Research Approach

The relationship between the deposit portfolio (demand, savings, fixed) and the financial performance of commercial banks in Sri Lanka was evaluated using a quantitative research approach. The researcher used the cross sectional design method to examine the impact of deposit portfolio on financial performance of commercial banks in Sri Lanka.

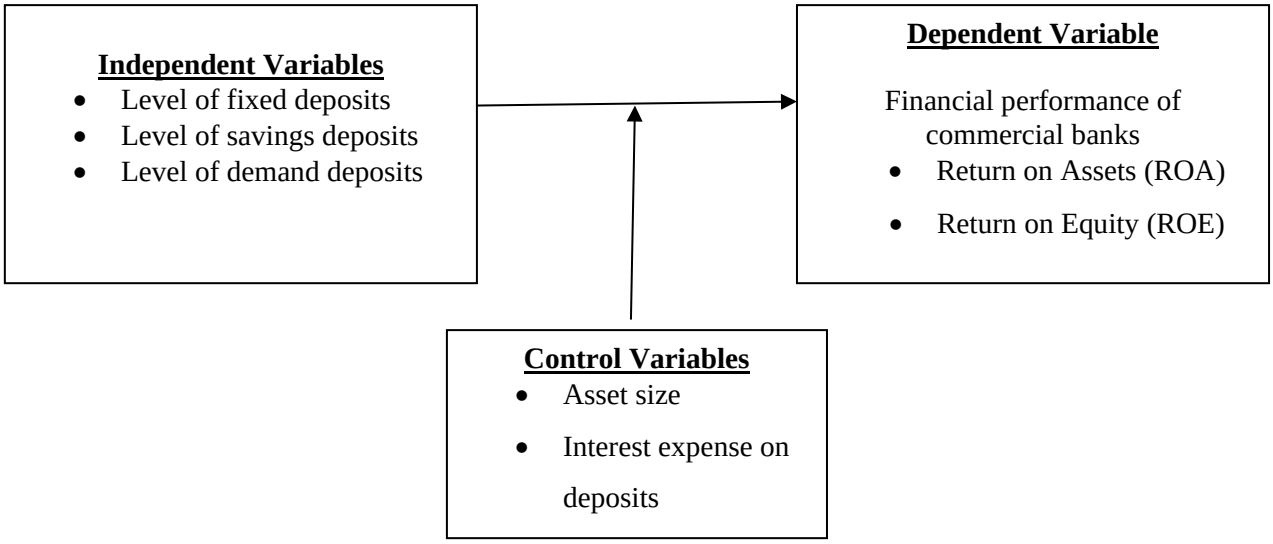
3.2. Population and Study Sample

All the commercial banks which have been listed in the Colombo Stock Exchange (CSE) as of 31 December 2017 were selected as the population (12 commercial banks). In order to mitigate the sampling error, the researcher has selected the entire population as the sample of the study. The researcher excluded the DFCC Wardhana Bank from the study as this bank has not published financials for the recent five years period.

3.3. Conceptual Diagram

The conceptual diagram is shown in figure 1 below based on the literature review. This diagram indicates the relationship between the deposit portfolio and commercial banks' financial performance.

Figure 1: Conceptual diagram



Source: Developed by authors

3.4. Hypotheses Development

Gul, Irshad and Zaman (2011) investigated the impact of deposits on profitability indicators such as Return on Assets (ROA) and Return on Equity (ROE). Their results showed that deposits have positive correlation with ROA and ROE. Trujillo (2013) has highlighted that the liabilities of the Spanish banks are characterized by a high proportion of customer deposits which appears to have a positive effect on their profitability as measured both by ROA and ROE. These studies have indicated positive relationship between the deposit portfolio and financial performance of commercial banks. Based on this evidence, the following hypotheses are developed.

H1: There is a positive relationship between deposit portfolio and financial performance (ROA).

H2: There is a positive relationship between deposit portfolio and financial performance (ROE).

3.5. Operationalization

Table 1 elaborates on the operationalization of the variables considered in this study.

Table 1: Operationalization

Variables	Definitions	Measurements	Related Studies
Dependent variables			
Financial Performance ($FP_{i,t}$)	Guest et al. (2003) defined performance as outcomes of the) arising out of organizational activities which have end results and achievements negative or positive.	Return on Assets ($ROA_{i,t}$) for the firm *i* in year *t :* ROA is a ratio calculated by dividing the net income over total assets. Calculated as : $\frac{\textit{Profit after tax}_{i,t}}{\textit{Total Assets}_{i,t}}$ Return on Equity ($ROE_{i,t}$) for the firm *i* in year *t:* ROE measures the rate of return on the ownership interest (shareholders' equity) of the common stock owners Calculated as : $\frac{\textit{Profit after tax}_{i,t}}{\textit{Total Equity}_{i,t}}$	Gul, Irshad and Zaman (2011) , Petria, Capraru and Ihnatov (2015), Guest et al. (2003), Trujillo (2013)
Independent variables			
Level of Deposits ($LOD_{i,t}$)	Deposits are the main source of bank funding.(Gul, Irshad and Zaman , 2011)	Ratio of total deposits to total assets for the firm *i* in year *t* Calculated as : $\frac{\textit{Total Deposit}_{i,t}}{\textit{Total Asset}_{i,t}}$	Gul, Irshad and Zaman (2011), Naceur (2003), Trujillo (2013)

Control variables			
Asset size (AS i,t)	Asset size means that the total assets of the banks (Islam et al, 2017)	Natural Logarithm of Total Assets for the firm *i* in year *t*	Islam et al (2017)
Interest Margin (IM i,t)	Interest expense on Customer deposits is Proxy for the funding Costs of a commercial bank. (John, 2013)	Interest expense on customer deposit to total average customer deposits for the firm *i* in year *t* Calculated as: $\frac{\textit{Interest expense on customer deposit } i,t}{\textit{total average customer deposits } i,t}$	John (2013)

3.6. Sample Size and Selection of Sample

All the 12 commercial banks listed in Colombo Stock Exchange as of 31 December 2017 have been selected which have 5 years of most recent financials from 2013 to 2017.

3.7. Sources and Collection of Data

The main source of data collection for this study is secondary data gathered from annual reports of selected companies published from 2013 to 2017 and reports published by Central Bank of Sri Lanka.

3.8. Data Analysis Strategies

This section describes about the strategies that were used in analysing data. In order to check the relationship between the deposit portfolio and financial performance of commercial banks, correlation and multiple regression models will be performed. The researchers used E-views and Microsoft Excel as analysis tools to analyse the data collected through annual reports and other reports. As first step of the analysis, the data screening and cleaning was performed to check each of variables for scores that are out of range and find whether there are errors occurred. The regression model which will be applied is as follows:

$$FP_{i,t}\ (ROE\ \&\ ROA) = \alpha + \beta_1 LOD_{(i,t)} + \beta_2 AS_{(i,t)} + \beta_3 IM_{(i,t)} + \varepsilon$$

$FP_{i,t}$ - Financial Performance

$ROA_{i,t}$ - Return on Assets

$ROE_{i,t}$- Return on Equity

$LOD_{i,t}$ - Level of Deposits

$AS_{i,t}$ - Asset size

$IM_{i,t}$ - Interest Margin

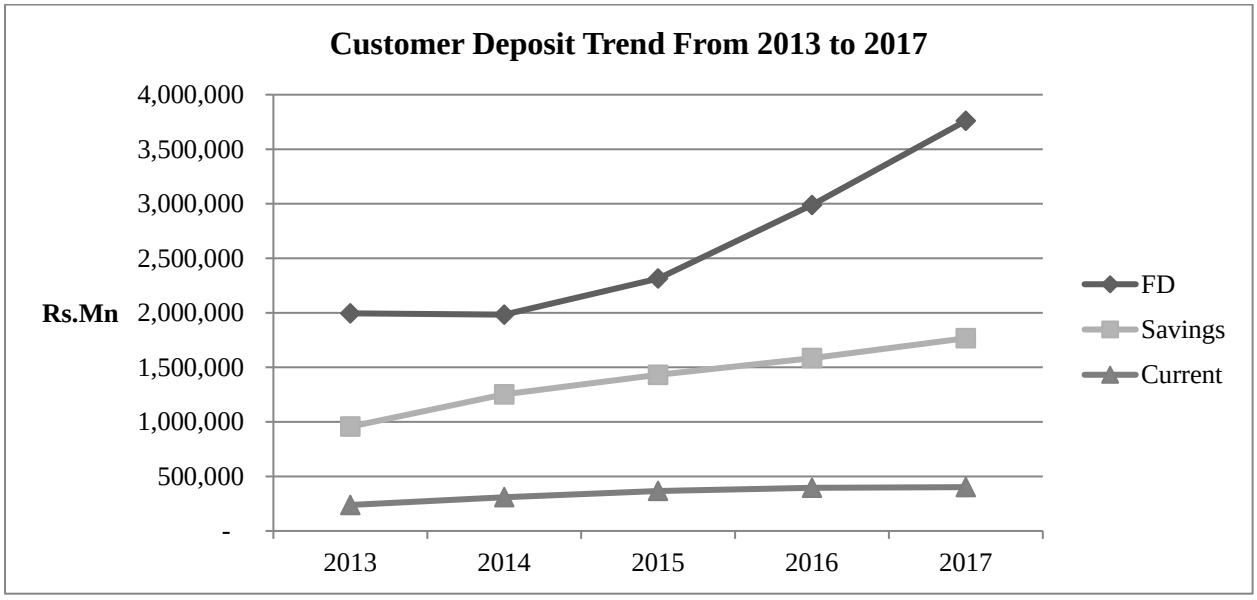
Definitions of each variable are provided in Table 1 and the findings obtained by using analysis strategies are discussed in next chapter.

4. Analysis and Discussion

This section consists of statistical analysis and discussion of the findings as well. Accordingly, the results of trend analysis, descriptive analysis, correlation analysis and regression analysis are presented with the discussion of findings.

4.1. Trend Analysis

Figure 2: Trend Analysis



Source: Developed by authors

This section analyzed the demographic characteristics/summary statistics for banks. This graph indicates how the total deposit amount of listed banks has grown over the time in terms of savings fixed and current deposit categories. The results in above graph indicates that the listed commercial banking sector have witnessed a gradual rise in the customer deposit amount throughout the last few years.

According to the above graph, listed commercial banking sector has an increasing trend in customer deposits. Among that fixed deposit category demonstrate a significant growth .The fixed deposits in 2013 amounted around Rs.2, 000,000 Mn similarly saving and current deposit amounted Rs.1000, 000 Mn and R.250, 000 respectively. By 2017 all these deposit categories has grown by showing an increasing trend. When it comes 2017, fixed deposits portfolio balance has been increased up to Rs.3, 500,000 Mn and also saving and Current Deposit amount has been increased up to Rs Rs.7, 500,000 and Rs.500, 000 Mn respectively.

4.2. Descriptive Analysis

As the initial step, researchers have performed a descriptive analysis in order to provide an overall interpretation on the data base. In this regard, researcher has built up a table to represent basic measures namely, minimum, maximum, mean and standard deviation.

Table 2: Descriptive Analysis

Variables	*N*	*Min*	*Max*	*Mean*	*SD*
Current Deposit Ratio	55	0.0300	0.5200	0.0664	0.0642
Fixed Deposit Ratio	55	0.3400	1.5600	0.4725	0.1606
Savings Deposit Ratio	55	0.0900	0.7300	0.2153	0.1093
Interest Expense	55	0.0100	0.1100	0.0716	0.0229
Log Total Assets	55	23.1490	28.2998	26.4343	1.2371
ROA	55	0.0019	0.0600	0.0194	0.0131
ROE	55	0.0110	0.4469	0.1604	0.0876

*Definitions of these variables are indicated in Table 1.

According to the above Table , Return on Assets (ROA) ranges from 0.0019 to 0.0600 with a mean of 0.0194. As the standard deviation of ROA is 0.0131, it could be concluded that the deviation of current deposits in banking industry is less significant even though there are few outperforming and underperforming banks in the industry. Moving forward, minimum Return on Equity (ROE) of listed commercial banking industry is 0.0110 and the maximum 0.4469, while having a mean of 0.1604 with a standard deviation of 0.0876. Similar to ROA, deviation of ROE is significant.

Current deposits of the listed commercial banking industry ranges from 0.0300 to 0.5200 and the Fixed Deposits lay within a minimum of 0.3400 to 1.5600. Further, savings deposits amount

ranges between 0.0900 and 0.7300. According to the observations it is concluded that the deposit mixture of a listed commercial bank heavily comprised of fixed deposits without depending excessively on current deposits and savings deposits by customers.

According to Table 1, industry's minimum log total assets is 23.1490 and maximum is 28.2998, and it indicates that one bank operates in the industry represent 28.2998 of the total assets in the listed commercial banking industry while other banks represent the rest.

4.3. Correlation Analysis

The correlation indicates the relationship between the two variables and the significance of the relationship.

Table 3: Correlation results

Correlation Probability	CURRENT DEPOSITS RATIO	FIXED DEPOSITS RATIO	INTEREST MARGIN	ASSETS SIZE	ROA	ROE	SAVING DEPOSITS RATIO
CURRENT DEPOSITS RATIO	1.0000						
FIXED DEPOSITS RATIO	0.8882	1.0000					
	0.0000						
INTEREST MARGIN	-0.2048	0.0134	1.0000				
	0.1335	0.9224					
ASSETS SIZE	-0.3802	-0.3712	-0.0273	1.0000			
	0.0042	0.0053	0.8427				
ROA	0.4185	0.2784	-0.0471	-0.5405	1.0000		
	0.0015	0.3950	0.7326	0.0000			
ROE	0.1975	0.1628	0.1377	0.7224	0.3790	1.0000	
	0.0148	0.2347	0.3160	0.0000	0.0043		
SAVING DEPOSITS RATIO	0.6490	0.4705	-0.4780	0.0056	0.6553	0.6993	1.0000
	0.0000	0.0003	0.0002	0.9674	0.0061	0.0059	

*Definitions of these variables are indicated in Table 1.

Results in Table 3 reveal that the correlation between ROE and ROA is positive and significant (R=0.3790, p value=0.0043). This implies that an increase in ROA is associated with an increase in ROE and a decrease in ROA is associated with a decline in ROE.

Findings also show that correlation between ROE and Saving Deposits Ratio is positive and significant (R=0. 6993, p value=0.0059). And also correlation between ROA and Saving Deposits Ratio is positive and significant (R=0.6553, p value=0.0061). This implies that an increase in Saving Deposits Ratio is associated with an increase in ROE & ROA and decrease in Saving Deposits Ratio is associated with a decline in ROE & ROA. Further it can be seen that Current Deposits Ratio has a positive and significant relationship with ROE and ROA (ROE R=0.1975, p value= 0.0148), (ROA R=0.4185, p value=0.0015). According to the study, even though, there is a positive relationship between Fixed Deposit Ratio and ROE & ROA, those relationships are not significant since p value is greater than 0.05. (ROE R=0.1628, p value=0.2347), (ROA R=0.2784, p value=0.3950).

Findings also show that correlation between ROE and Assets Size is positive and significant (R=0.7224, p value=0.000) while the correlation between ROA and Assets Size is negative and significant (R= -0.5405, p value=0.000) .This implies that an increase in Assets size is associated with an increase in ROE and decrease in Assets Size is associated with a decline in ROE while an increase in Assets Size is associated with an decrease in ROA and vice versa.

When considering correlation between Interest Margin and ROA & ROE gives mixed result. That is Interest Margin has positive and insignificant relationship with ROE (R=0.1377, p value=0.3160) while having negative and insignificant relationship with ROA (R= -0.0471, p value= 0.7326). We can see that both relationships are having p values which are greater than 0.05.

4.4. Regression Analysis

Regression analysis is considered as a statistical process estimating relationships among variables. The relative relationship between two variables could be demonstrated using the regression equation and it is used to forecast and predict variables. The following regression equations were formulated to demonstrate the relationship between deposit portfolio and commercial banks' financial performance using a panel regression model.

$$ROA = \beta 0 + \beta 1LOFD + \beta 2LOSD + \beta 3LOCD + \beta 4AS + \beta 5IM$$

$$ROE = \beta 0 + \beta 1LOFD + \beta 2LOSD + \beta 3LOCD + \beta 4AS + \beta 5IM$$

Where;

ROA – Return on Assets (Profit after Tax / Total Assets)

ROE – Return on Equity (Profit after Tax / Total Equity)

LOFD – Level of fixed deposits (Ratio of total fixed deposits to total assets)

LOSD – Level of savings deposits (Ratio of total savings deposits to total assets)

LOCD – Level of current deposits (Ratio of total current deposits to total assets)

AS – Assets Size (Natural Logarithm of total assets)

IM – Interest Margin (Interest expense on customer deposits to total average customer deposits)

Results of the regression analysis for the relationship between ROA and fixed deposits, savings deposits, current deposits, assets size and interest expense have been illustrated in the Table 4.

Table 4: Regression Analysis (ROA)

Independent Variables	**Dependent Variable: Return on Assets (ROA)**	
	Co - efficient	**P - Value**
Fixed Deposits	0.0180	0.318
Savings Deposits	0.0556	0.012
Current Deposits	0.0223	0.014
Assets Size	-0.0053	0. 000
Interest Expense	-0.1066	0.074
Constant	0.1462	0.000
Adjusted R-squared	0.2510	

*Definitions of these variables are indicated in Table 1.

The regression coefficients and their associated *p* values are presented in table 4. The results indicate that there is a positive relationship between deposit portfolio in terms of fixed deposits, savings deposits and current deposits and ROA. The reported p values suggest the significance of independent variables as predictors of the model. Accordingly, reported p values of savings deposits and current deposits are less than the critical p value of 0.05 which indicate that they are statistically significant whereas fixed deposit cannot be considered as significant variable since its reported p value (0.318) is greater than 0.05. The relationship can be illustrated in a regression formula as follows.

$$ROA = 0.1462 + 0.0180LOFD + 1.0556LOSD + 0.0223LOCD - 0.0553AS - 0.1066IM$$

Regression results indicate that an increase in fixed deposits by one unit causes an increase in ROA by 0.0180 units. Similarly, when savings deposits increase by one unit, ROA will increase

by 1.0556 units and one unit increase in current deposits will lead to 0.0223 units increase in ROA. Further, the above formula shows that when all independent variables are zero, ROA will be 0.1462. When the asset size of the firm changes by 1 unit, ROA will decrease by 0.0553 indicating a significant relationship between those two variables. However, as per the findings there is a negative and insignificant relationship between interest expense and ROA. An adjusted R-squared of 0.251 indicates that 25.1% of the variation in ROA is explained by the independent variables and 74.9% of the variations in ROA are explained by other factors not included in the model.

Results of the regression analysis for the relationship between ROE and deposit portfolio (fixed, savings and current deposits), asset size and interest expense have been illustrated in below table.

Table 5: Regression Analysis (ROE)

Independent Variables	**Dependent Variable : Return on Equity(ROE)**	
	Co - efficient	**P - Value**
Fixed Deposits	0.0666	0.582
Savings Deposits	0.0293	0.034
Current Deposits	0.3647	0.025
Assets Size	0.0546	0.000
Interest Expense	0.6847	0.097
Constant	1.3183	0.000
Adjusted R-squared	0.4108	

*Definitions of these variables are indicated in Table 01.

As per the above findings in table 05, it could be observed the same relationship for ROE as well. There is a positive and significant relationship between savings deposits and ROE and between current deposits and ROE. Even though fixed deposits have positive relationship with ROE it has no significant impact on ROE. The relationship can be illustrated in a formula as follows.

$$ROE = 1.3183 + 0.0666LOFD + 0.0293LOSD + 0.3647LOCD + 0.0546AS + 0.6847IM$$

Further, the above formula shows that when all independent variables are zero, ROE will be 1.3183. When the asset size of the firm changes by 1 unit, ROE will increase by 0.0546 indicating a significant relationship between those two variables. However, as per the findings there is a positive and insignificant relationship between interest expense and ROE. An adjusted

R-squared of 0.4108 indicates that 41.08% of the variation in ROE is explained by the independent variables and 58.92% of the variations in ROE are explained by other factors not included in the model.

5. Conclusion, Limitations and Future Directions

5.1. Conclusion

Deposit level is a crucial factor which determines the financial performance of a bank and this study addressed the relationship between the level of deposits and financial performance of listed commercial banks in Sri Lanka. For the analysis, it has been selected all 12 commercial banks listed in Colombo Stock Exchange as of 31 December 2017 and 5 years of most recent financials from 2013 to 2017 were evaluated to measure the relationship between the level of deposits and banks' financial performance during the respective study period. The study examined the ratios such as return on assets (ROA) and return on equity (ROE) calculated by commercial banks and the data collection was conducted through quantitative secondary data collection methods which have given prominence to annual reports of selected banks during the period from 2013 to 2017. The E views and Microsoft Excel have been used as the analysis tools to analyse the data collected from annual reports.

The study indicated that the commercial banking sector has witnessed a gradual rise in the customer deposits in terms of fixed deposits, saving deposits and demand deposits throughout the last few years. As per the trend analysis which has been performed, by 2017 all three main categories of customer deposits in commercial banking sector have increased significantly amounting to Rs.3,500,000 Mn of fixed deposits and Rs.7,500,000 Mn and Rs.500,000 Mn of savings and demand deposits respectively. As study indicated, Return on Assets (ROA) ranges from 0.0019 to 0.0600 with a mean of 0.0194. As the standard deviation of ROA is 0.0131, it could be concluded that the deviation of current deposits in banking industry is less significant even though there are few outperforming and underperforming banks in the industry. Moving forward, minimum Return on Equity (ROE) of listed commercial banking industry is 0.0110 and the maximum 0.4469, while having a mean of 0.1604 with a standard deviation of 0.0876. Similar to ROA, deviation of ROE is significant.

Results revealed that the correlation between ROE and ROA is positive and significant. Findings also showed that correlation between ROE and saving deposits ratio is positive and significant. Similarly, correlation between ROA and saving deposits ratio is positive and

significant. Further, it could be noted that current deposits ratio has a positive and significant relationship with ROE and ROA. According to the study, even though, there is a positive relationship between fixed deposit ratio and ROE & ROA, those relationships are not significant since p value is greater than 0.05.

According to the regression analysis, the study indicated that there is a positive relationship between deposit portfolio in terms of fixed deposits, savings deposits and current deposits and ROA. Even though savings and current deposits are statistically significant, fixed deposit cannot be considered as significant variable since its reported p value (0.318) is greater than 0.05. It could be observed the same relationship for ROE as well. There is a positive and significant relationship between savings deposits and ROE and between current deposits and ROE. Even though fixed deposits have positive relationship with ROE it has no significant impact on ROE.

5.2. Limitations of the study

In order to gather information, the researchers mainly used secondary data which are already available to the public**.** Hence, the researchers may not aware how the data were collected initially and various manipulations and assumptions could be used in preparation and presentation of those secondary data. Especially, for an organization like commercial bank, ROA and ROE would not be the suitable performance measures though the researchers mainly focused on those variables. Since the study mainly focuses on deposit level, the examination extricated qualitative information that would have explained the soft and hidden issues that affect the relationship between customer deposits and financial performance of commercial banks.

5.3. Areas for further research

The study suggests that further studies should include a qualitative analysis of the relationship between deposits and financial performance of banks. Such a study would involve interview of key informants in the banking sector and would provide hidden insights into the intricate relationship between deposits and financial performance of commercial banks.

Further areas of study should be focused on a longer time span, probably 20 to 30 years. This would clarify whether the observed relationship changes over the years and it would be better to include other components of deposits to take a more portfolio approach to deposits and their effects of financial performance of commercial banks.

References

1. Bologna, P 2011, Is there a role for funding in explaining recent US banks' failures, *IMF Working Paper*, July 2011, International Monetary Fund, pp.2-28.
2. Demirguc-Kunt, A & Huizinga, H 1998, 'Determinants of commercial bank interest margins and profitability: some international evidence', *World Bank Economic Review*, pp.1-24.
3. Dietrich, A & Wanzeried, G 2009, 'Determinants of bank profitability before and during the crisis: Evidence from Switzerland', *Journal of International Financial Markets*, pp.3-43.
4. Flamini, V, McDonald, C & Schumacher, L 2009, 'The determinants of commercial banks profitability in Sub-Saharan Africa', *IMF Working Paper*, January 2009, International Monetary Fund, pp.2-29.
5. Gul, S, Irshad F & Zaman, K 2011, 'Factors affecting bank profitability in Pakistan', *Romanian Economic Journal*, vol.14, no.39, pp.61-85.
6. Guest, DE, Michie, J, Conway, N & Sheehan, M 2003, Human resource management and corporate performance in the UK, *British Journal of Industrial Relations*,vol.41,no. 4,pp.291-314.
7. Hubarieva, I, Lebid, O and Zuieva, O 2017, 'Determining the priority sources for attracting deposits in the formation of the financial potential of banks', *Banks and Bank Systems*, vol. 12, no.3, pp.215-227.
8. Islam, A, Sarker, NI, Rahman, M, Sultana, A & Prodhan, S 2017, 'Determinants of profitability of commercial banks in Bangladesh', *International Journal of Banking and Financial Law*, vol.1, no.1, pp.001-011.
9. Naeem, M, Baloch, QB & Khan, AW 2017, 'Factors affecting banks' profitability in Pakistan', *International Journal of Business Studies Review*, vol.2, no.2, pp.33-49.
10. Naceur, SB & Goiaed, M 2001, 'The determinants of the Tunisian deposit banks' performance', *Applied Financial Economics*, vol.5, no.2, pp.2-17.
11. Olweny, T. & Shipho, TM 2010, 'Effects of banking sectorial factors on the profitability of commercial Banks in Kenya', *Economics and Finance Review*, vol.1, no.5, pp.1-30.
12. Ongoro, VO & Kusa, GB 2013, 'Determinants of financial performance of commercial banks in Kenya', *International Journal of Economics and Financial Issues*, vol.1, no.3, pp.237-252.

13. Petria, N, Capraru.B and Ihnatov, I 2013, 'Determinants of bank's profitability: evidence from EU 27 banking systems', *Economics & Finance, vol.20, pp.518-524.*

14. Rasiah, D 2010, 'Theoretical framework of profitability as applied to commercial banks in Malaysia', *European Journal of Economics,* no.19, pp.75-96.

15. Schipper, JE 2013, 'The determinants of bank profitability through the global financial crisis: evidence from Slovakia and Poland', *Banks and Bank Systems, pp.1-39.*

16. Trujillo, A 2013, 'What determines the profitability of banks? Evidence from Spain, Accounting and Finance', *Pablo De Olavide* University, Seville, vol.53, pp.561-586.