

DETERMINANTS OF FINANCIAL PERFORMANCE OF LICENSED DOMESTIC COMMERCIAL BANKS IN SRI LANKA

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ABSTRACT

Primary objective of this study was to identify the determinants of financial performance of licensed domestic commercial banks in Sri Lanka. Data were collected from randomly selected nine licensed domestic commercial banks among thirteen listed on Colombo Stock Exchange in Sri Lanka for the period of ten years from 2006 to 2015. Return on assets (ROA) and Return on equity (ROE) have been considered as financial performance measures. Bank specific characteristics such as capital adequacy ratio, operating cost efficiency, nonperforming loans, liquidity and size as well as macroeconomic variables such as gross domestic product and interest rate have been treated as explanatory variables. Descriptive and inferential statistics have been used to examine the determinants of financial performance. The results of the study revealed that operating cost efficiency and nonperforming loans have negative and significant impact on return on assets while capital adequacy and economic growth have positive and significant impact. Further, nonperforming loans have negative and significant impact on return on equity. Finally, most of the bank specific factors have higher influence in determining financial performance of licensed domestic commercial banks rather than macro-economic factors.

Keywords: *Operating cost efficiency, non performing loans, capital adequacy ratio, gross domestic product, financial performance*

1. INTRODUCTION

Financial sector is considered as one of the most important sectors contributing to continuous economic growth of Sri Lanka as it contributed around 12.8% to the gross domestic product (GDP) in 2016. Banking sector is the most important constituent of this sector. Banks play a critical role within Sri Lankan financial system, as they are acting as intermediary in that way they collect money from those who have excess and lend it to others who need it for their investment. Banks are also engaged in providing payment services, thereby facilitating all entities to carry out their financial transactions. A sound and profitable banking sector is an essential condition to eliminate negative shocks in financial sector and to contribute for development of the financial system.

Banking sector in Sri Lanka constitutes of 25 licensed commercial banks including 13 domestic banks and 12 foreign banks and 7 licensed specialized banks. Probability of risk occurrence is higher in banking sector as they are handling huge amount of money for their day to day operations. Therefore, department of bank supervision in Central Bank of Sri Lanka involves in monitoring of entire banks functioning in Sri Lanka.

Basically, major risks occurring in an organization can be categorized as systematic and unsystematic risk. Systematic risk can be external, uncontrollable, unavoidable and undiversifiable. A change of macroeconomic factors in a country is being as major reason for occurring systematic risk. Unsystematic risk can be internal, controllable, avoidable and diversifiable as it occurs due to the changes in internal

factors of an organization. However, both can impact on financial performance of an organization. Numbers of researches have been conducted to find out determinants of financial performance of banks in developed and developing countries. Impact of determinant factors on financial performance of banks found in previous studies are not consensus. Thereby, intention to carry out this study has been generated.

The aim of this study was to identify the determinants of financial performance of licensed domestic commercial banks in Sri Lanka. Bank specific factors such as capital adequacy ratio, operating cost efficiency, nonperforming loans, liquidity and bank size as well as macroeconomic variables such as GDP and interest rate have been used as independent variables. Return on assets and return on equity were considered as dependent variables as they reflect objective side of the financial performance. Efficiency of the firm and resource exploitation are measured using return on assets (Snell and Youndt, 1995) while, return on equity measures strength of any financial organization (Richard and Johnson, 2001).

2. LITERATURE REVIEW

2.1. Bank specific factors

a. Capital adequacy ratio

Internal strength of the bank can be examined with capital adequacy ratio (Dang, 2011). According to the Basel III minimum tier I capital adequacy ratio should be 7.25% for banks with assets less than Rs.500 billion while banks with assets over Rs.500 billion should maintain 7.75% since July 2017. Many researchers in the developing and developed countries have found that banks with higher level of capital earn more than others. Murerwa (2015) carried out a research to find out determinants of bank's financial performance using 44 commercial banks in Kenya, through which he found that capital adequacy has a positive relationship with performance of commercial banks. Ongore and Kusa (2013) have revealed that there is a positive and significant impact of capital adequacy ratio and return on assets from their research using commercial banks in Kenya. However, insignificant impact of capital adequacy on profitability of the bank has been identified in some studies carried out among commercial banks in Sri Lanka (Weersainghe and Perera, 2013 and Swarnapali, 2014). Therefore, this study tries to find out the impact of capital adequacy on financial performance of Sri Lankan commercial banks and it can be hypothesized that as

H₁: There is a significant impact of capital adequacy ratio on financial performance.

b. Operating cost efficiency

In the previous literatures operating cost efficiency has been treated to show efficiency of management in the firm. According to Pasiouras and Kosmidou (2007) operating costs have a negative effect on profit measure among European Union countries. Bandara (2015) has found that cost to income ratio has a negative and statistically significant relationship with the profitability in a study carried out for commercial banks in Sri Lanka. However, there was a positive relationship between operating cost and profitability of banks in a study carried out by (Flamini et al, 2009). Therefore, inconsistencies in findings have been noted from the literature and thus following hypothesis has been formulated to in this study

H₂: There is a significant impact of operating cost efficiency on financial performance.

c. Nonperforming loans

According to the data provided by the World Bank, Sri Lanka was at the 60th place in global ranking with the average value of Non-performing loans as percent of all bank loans was 3.86% from 2011 to 2016. Akter and Roy (2017) identified that nonperforming loans have statistically significant and negative impact on profitability of listed banking Sector on Dhaka Stock Exchange. Kaaya and Pastory (2013) and Kirui (2014) confirmed that nonperforming loans negatively affects profitability of commercial banks in Kenya.

But, some of counter parts Hou (2001) and Fan and Shaffer, (2004) argued that non-performing loans have non-linear negative effect on banks' lending behavior. Therefore, this study tries to find out the relationship between non-performing loans and financial performance of Sri Lankan banks. Hypothesis has been formulated as

H₃: There is a significant impact of nonperforming loans on financial performance.

d. Liquidity

Assets management and liability management are practiced by the banks to maintain liquidity for their operations as it is acting as intermediary institution in an economy. Weerasinghe and Perera (2013) and Husain and Abdullah (2008) have found that there is a significant and negative relationship between liquidity and profitability of banks in Sri Lanka as holding liquid assets has an opportunity cost of higher returns. However, Athanasoglou et al, (2005) and Demirguc-Kunt and Huizinga (1999) found a positive significant link between bank liquidity and profitability. Therefore, there is contradiction in findings from previous studies and thus following hypothesis formulated in the current study.

H₄: There is a significant impact of liquidity on financial performance.

e. Bank size

Madhushani and wellappuli (2016), Weerasinghe and Perera (2013), (Isik and Hassan, 2003), Sufian and Chong (2008), Flamini et al. (2009), Deger and Adem (2011) found that increases of bank size positively affects profitability of bank. But some of other researchers have revealed that there was a negative relationship between profitability and size of the bank (Yong and Floros, 2012), (Staikouras and Wood, 2003). However, Pasiouras and Kosmidou (2007) and Athanasoglou et al, (2005) supported to the findings that there is an insignificant relationship between liquidity and profitability of the banks. Since findings of the studies are not similar, some researchers concluded that it may be positive up to a certain limit and then it would be negative as per the difference in sample selection and period of research. Hypotheses of the current study formulated as

H₅: There is a significant impact of bank size on financial performance.

2.2. Macro-economic factors

a. Gross domestic product

Gross domestic product (GDP) is considered as best measure of the market value of all final goods and services produced in a particular time period in a country. Dietrich and Wanzenried (2009), Ghazali (2008) and Kosmidou (2008) have shown that GDP significantly and positively related with the performance of banks. But very few have revealed that there was a negative impact of GDP on profitability of the bank (Staikouras and Wood, 2003). In order to find out the relationship between gross domestic product and financial performance following hypothesis formulated as

H₆: There is a significant impact of gross domestic product on financial performance.

b. Interest rate

Fluctuation of interest may lead to interest rate risk particularly in banking sector since interest is concerned as major form of income in banking sector. Weerasinghe and Perera (2013) that lower interest rate scenario would accounted a higher level of profitability with the expansion of banking activities as they found an inverse relationship between them. Podder (2012) have clearly shown that there is a positive relationship between interest rates and the financial performance of commercial banks through his study. To evaluate the relationship between interest rate and financial performance hypothesis formulated as

H₇: There is a significant impact of interest rate on financial performance.

3. METHODOLOGY

3.1. Research design

An explanatory study has been conducted using secondary data. Panel data on bank specific factors have been derived from the published annual report of licensed domestic commercial banks listed on Colombo Stock Exchange in Sri Lanka and data on macro-economic factors have been collected from the annual report of Central Bank of Sri Lanka for the period of 10 years from 2006 to 2015.

3.2. Sample design

There are 25 commercial banks listed on Colombo Stock Exchange in Sri Lanka. Domestic commercial banks are only thirteen while foreign commercial banks are twelve. Nine domestic commercial banks have been selected randomly among them to carry out this study. The purpose of selecting domestic commercial banks for this study is to show the way of enhancing their financial performance.

3.3. Variables

Capital adequacy ratio (CA), Operating cost efficiency (OCE), Nonperforming loan (NPL), Liquidity (LQ), Bank size (BZ), Gross domestic product (GDP), Interest rate (IR) were explanatory variables while Return on assets (ROA), Return on equity (ROE) were treated as response variables in this study. Measurements of selected variables are given follows:

Variables	Indicators	Measurement
Capital adequacy	Capital adequacy ratio	$\frac{\textit{Tier 1 capital} + \textit{Tier 2 capital}}{\textit{Total Risk Weighted Assets}}$
Operating efficiency	cost Cost income ratio	$\frac{\textit{Total operational expenses}}{\textit{Total operational Income}}$
Nonperforming loans	Nonperforming loan ratio	$\frac{\textit{Total nonperforming Loans}}{\textit{Total Loans and advances}}$
Liquidity	Liquid assets among total assets	$\frac{\textit{Liquid assets}}{\textit{Total assets}}$
Bank Size	Total assets	Log of Total assets
Gross domestic product	Growth rate of GDP	Growth rate of Gross Domestic Product
Interest rate	Standing Deposit Facility Rate	The floor rate for the absorption of overnight excess liquidity
Return on assets	Ratio of return to total asset	$\frac{\textit{EBIT}}{\textit{Total assets}}$
Return on equity	Ratio of return to equity	$\frac{\textit{EAIT}}{\textit{Total assets}}$

The proposed empirical models of the study are given below:

$$ROA = \alpha + \beta_1 CAR + \beta_2 OCE + \beta_3 NPL + \beta_4 LQ + \beta_5 BS + \beta_6 GDP + \beta_7 IR + e \dots \dots \dots (1)$$

$$ROE = \alpha + \beta_1 CAR + \beta_2 OCE + \beta_3 NPL + \beta_4 LQ + \beta_5 BS + \beta_6 GDP + \beta_7 IR + e \dots \dots \dots (2)$$

4. DATA ANALYSIS

Table 1 :Descriptive Statistics

Variables	Obs	Mean	Std. Deviation	Minimum	Maximum
CAR	90	.1372	.0247	.056	.2000
OCE	90	.5269	.1376	.1132	.8567
NPL	90	.0583	.0500	.0131	.3361
LQ	90	.0852	.0273	.0402	.1540
BS	90	5.3443	.4538	4.1013	6.1954
GDP	90	6.26	1.9572	3.4000	9.1000
IR	90	7.925	1.6525	6.0000	10.5000
ROA	90	.0132	.0046	.0010	.0384
ROE	90	.1796	.0713	.0222	.4524

Source: Survey data

As result of the descriptive analysis presented in the table 1, average capital adequacy ratio is 13.72%. It shows that licensed domestic commercial banks are maintaining capital more than enough compared to the requirement of Basel III as 7.75% since 2017. It's standard deviation is also maintained at lower level 0.0247. Approximately 52.69% of operating income is used for spending as operating expenses. However, standard deviation is 0.1376. Average nonperforming loans are 5.8% of total loans as the banks are using many strategies to protect from credit risk by requiring collaterals, getting assistants from credit rating agencies and diversifications. Only 8.52% of total assets are maintained as liquid assets while rests of them are used to generate profit for the bank. GDP indicates the growth rate of gross domestic product which range is between 3.4 and 9.1 while standing deposit facility rate (SDFR) range is between 6% and 10.5 % for ten years from 2006 to 2015.

On an average, Earnings before interest and tax generated by using total assets is only 1.3% while the minimum exhibits a return of 0.1 % and maximum reached at 3.8 %. The mean value of return on equity exhibits 17.9 % with the maximum of 45% and minimum of 2%.

Table 2: Pearson Correlation Analysis

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1) Capital adequacy ratio	1						
(2) Operating cost efficiency	-0.0977 0.3596	1					
(3) Nonperforming loans	-0.1938 0.0672	0.3565 0.0006	1				
(4) Liquidity	-0.3169 0.0023	-0.0946 0.3749	-0.0203 0.8490	1			
(5) Bank Size	-0.2542 0.0156	-0.2362 0.0250	-0.2742 0.0089	0.0378 0.7237	1		
(6) Gross domestic product	-0.1959 0.0643	0.1187 0.2653	-0.1016 0.3406	0.2722 0.0094	-0.1305 0.2204	1	
(7) Interest rate	-0.3210 0.0020	0.1012 0.3426	0.1857 0.0797	0.4767 0.0000	0.2922 0.0052	-0.3699 0.0003	1
(8) ROA	0.3753 0.0003	-0.4102 0.0001	-0.4751 0.0000	0.0327 0.7600	0.1287 0.2268	-0.1349 0.2048	0.0202 0.8544
(9) ROE	-0.0403 0.7059	-0.2136 0.0432	-0.3699 0.0003	0.1751 0.0989	0.1878 0.0762	-0.1107 0.2990	0.3320 0.0014

Source: Survey data

As per the result of Pearson correlation analysis in the Table 2, capital adequacy ratio positively and significantly at 0.01 level ($r = 0.3753$, $p = 0.0003$) associates with ROA while operating cost efficiency ($r = -0.4102$, $p = 0.0001$) and nonperforming loans ($r = -0.4751$, $p = 0.0000$) negatively and significantly associate with ROA. No selected macroeconomic variables have significant relationship with ROA. Further, Operating cost efficiency ($r = -0.2136$, $p = 0.0432$) and nonperforming loans ($r = -0.3699$, $p = 0.0003$) have negative and significant relationship with ROE as well. There is a positive and significant relationship ($r = 0.3320$, $p = 0.0014$) between interest rate and ROE. GDP, bank size and liquidity have no relationship with both measures of profitability ROA and ROE of licensed domestic commercial banks listed in Sri Lanka.

Table 3: Result of Multiple Regression Model - Dependent variable ROA

	Coef.	Std.Err	t	P > t	[95% Conf. Interval]
Capital adequacy	.0596	.0195	3.05	0.003	.0207 .0985
Operating cost efficiency	-.0098	.0031	-3.15	0.002	-.0160 -.0036
Nonperforming loans	-.0265	.0090	-2.92	0.004	-.0445 -.0085
Liquidity	.0133	.0172	0.77	0.442	-.0210 .0477
Bank Size	-.0005	.0011	-0.43	0.669	-.0027 .0017
Gross domestic product	.0004	.0002	1.99	0.049	-0.9 .0008
Interest rate	-.0001	.0003	-0.50	0.618	-.0007 .0005
Constant	.0117	.0096	1.22	0.227	-.0074 .0308
R² = 0.4127		Prob> F = 0.0000		Root MSE = 0.0037	
Adjusted R² = 0.3625		F (7,82) = 8.23			

Source: Survey data

According to the results of multiple regression analysis presented in Table 3, value of coefficient of determination (R^2) of the model – 1 with all seven explanatory variables is 0.4127. It denotes that 41.2 % of total variance in ROA is explained by the variables which are treated as explanatory variables in this model. P value associates with F shows (0.0000) that prescribed model is significant. Adjusted $R^2 = 0.3625$ reveals that more useful variables were added in this model as adjusted R^2 is near to R^2 value (0.4127) .

As per the result, coefficient of capital adequacy ratio 0.0596 reveals that there is a positive and significant impact of capital adequacy ratio on ROA which is significant at 0.01 level ($p = 0.003$). This result consistent with the findings of Samangi and Prabhat, (2013), Apere and Oyinpreye (2016), Murerwa (2015) and Ongore and Kusa (2013). H_1 states that there is a significant impact of capital adequacy ratio on financial performance. The finding of this study in terms of ROA supports to this hypothesis.

However, Operating cost efficiency ($r = -0.0098$) and nonperforming loans ($r = -0.0265$) have negative and significant impact on ROA at 0.01 level ($p = 0.002$ and 0.004 respectively). Similar impact have been identified between nonperforming loans and ROA in the previous researches (Kodithuwakku, 2015; Akter and Roy, 2017; Kaaya and Pastory, 2013; and Kirui, 2014). This finding can be used to support with H_2 - there is a significant impact of operating cost efficiency on financial performance.

GDP has positive and significant impact on ROA ($p = 0.049$, $r = 0.0004$). It consistent with finding of the study done by Samarathunga and Madurapperuma (2016). It supports to H_6 states that there is a

significant impact of gross domestic product on financial performance. Liquidity and Bank Size in bank specific factors and interest rate in macro-economic factors have no significant impact on ROA.

Table 4: Result of Multiple Regression Model - Dependent variable ROE

	Coef.	Std.Err	t	P > t	[95% Conf. Interval]
Capital adequacy ratio	.0789	.3426	0.23	0.818	-.6026 .7605
Operating cost efficiency	-.0359	.0548	-0.66	0.513	-.1450 .0730
Nonperforming loans	-.3323	.1589	-2.09	0.040	-.6484 -.0162
Liquidity	.4023	.3027	1.33	0.188	-.1998 1.004
Bank Size	.0384	.0195	1.97	0.052	-.0003 .0772
Gross domestic product	.0070	.0038	1.84	0.069	-.0005 .0147
Interest rate	-.0039	.0056	-0.70	0.486	-.0151 .0072
Constant	-.0455	.1686	-0.27	0.788	-.3811 .2900
R² = 0.2546		Prob> F = 0.0008		Root MSE = 0.6413	
Adjusted R² = 0.1910		F (7,82) = 4.00			

Source: Survey data

The results presented in table 4 shows that 25.46% changes in ROE is due to the changes of independent variables used in the study as R² of the model is 0.2546. Developed model for this analysis can be seen as significant (P(F) = 0.0008). As per the result, nonperforming loan has negative and significant impact on ROE. Similar finding has been reported in the study done by Lasika and Sampath (2015) and Rasika, Hewage and Thennakoon (2016). H₃ states that there is a significant impact of nonperforming loans on financial performance. The finding of this study concerned with ROA and ROE supports to this hypothesis (r = -.3323 and p = 0.040).

As per the data analysis of this study, no findings are supported to H₄, H₅ and H₇ developed concerning impact of liquidity, bank size and interest rate on regarding concerned states here is a significant impact of interest rate on Financial Performance of Licensed Domestic Commercial Banks in Sri Lanka.

5. CONCLUSION

Every organization in banking sector should fight with many challenges generating due to the systematic and unsystematic risks in current environment. This study has been conducted to provide constructive ideas to protect their business by analyzing impact of bank specific and macroeconomic factors on financial performance of licensed domestic commercial banks listed in Sri Lanka. Data have been collected from nine licensed domestic commercial banks for ten years from 2006 to 2015 from annual reports of selected banks and Central Bank of Sri Lanka. The findings of the study revealed that capital adequacy ratio and gross domestic product have positive and significant impact on ROA while operating cost efficiency and nonperforming loans have negative and significant impact on ROA. Further nonperforming loans have negative and significant impact on ROE. Rest of other factors such as liquidity, bank size and interest rate didn't play any significant role to determine financial performance of licensed domestic commercial banks.

There are some limitations in this study. Inflation and market structure behavior were not considered in this study and this can be the most important limitation here. It is suggested that, a future research should include more bank internal factors as well as bank external factors in the determinants of bank financial performance.

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