An Investigation on Financial Performance of Commercial Banks in Sri Lanka: Applicability of the CAMEL Model

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DOI: <http://doi.org/10.4038/sljmuok.v7i3.78>

ABSTRACT

This investigation was carried out to extensively examine the financial performance of Sri Lankan licensed Commercial banks for the period 2010- 2019. This includes both state owned and private owned banks. The CAMEL approach was used in measuring banking performance and used capital adequacy, asset quality, management quality, earnings ability and liquidity position as independent variables and return on assets for measuring financial performance as the dependent variable. Data were collected among 12 licensed commercial banks for the period from 2010 to 2019 and the CAMEL model was tested. The results reveal that capital adequacy and liquidity position are positively related to the financial performance of commercial banks in Sri Lanka, while others were not supported under the period of study. This is mostly useful for Sri Lankan banks and other policy makers in enhancing the financial performance of banks.

Keywords: *Asset Quality, Capital Adequacy, Earnings Ability, Financial Performance, Liquidity Position, Management Quality, Return on Assets*

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1. INTRODUCTION

The banking sector is a very significant part of the financial system as it plays a significant role in achieving the economic growth of nations around the globe (Tumin and Said, 2011). Mckinnon (1973), Misra and Aspal (2013) explain that part of the financial system for economic development. They explain the strong association between the growth of the economy and the development of the financial system. Economic development will heavily depend on the performance of various sectors and also on the optimal use of resources (Gupta, 2014). The banking sector assists in creating capital money in addition to facilitating monetary policies. So, there should be a careful evaluation of banks' operations to assure a healthy and stable financial system. A healthy financial system protects depositors, workers and shareholders as well as a country's entire economy (Misra and Aspal, 2013). In order to check the soundness of economic activities, it should use efficiency indicators in analyzing the performance of the banking industry. According to Dang (2011), banks are facing a range of challenges which are becoming more complex day by day.

According to Rabaa and Younes (2016), well operating financial organizations play a significant role in economic growth and development. So, the performance of the banking sector and profitability give power to economic growth and also boost its ability to contain adverse impacts. Furthermore, there is a positive and encouraging association between the growth of the economy and banks' performance (Bikker and Hu, 2002; Demircuc-Kunt and Huizinga, 1999).

An effective monitoring measure in assessing banks' overall effectiveness is the CAMEL rating system. The United States was the first nation to execute this method, and it was in 1979. U.S. watchdogs – the Federal Reserve System, the Office of Monetary Supervision (OCC) and the Federal Deposit Insurance Corporation (FDIC) are currently using the method (Nguyen et al., 2020). According to Dang (2011), it was a very effective technique for dealing with the financial crisis in the US in 2008. CAMEL is the model which measures the financial performance of the banks. CAMEL indicates Capital adequacy, Asset's quality, Management quality, Earning ability, and Liquidity. So, this paper investigates the Sri Lankan commercial banks' performance from 2010 to 2019 using the CAMEL model.

2. LITERATURE REVIEW

Analyzing banking sector performance has gained a significant deal of concentration in previous studies. So, for that, CAMEL is a popular framework which uses some financial ratios in analyzing the performance of banks (Barker and Holdsworth, 1993). According to the findings of Barker and Holdsworth (1993), even after monitoring a range of information which is publicly available on the condition and banks' performance, the CAMEL ratings are very useful. A study on "a CAMEL Rating's Shelf Life" was carried out by Cole and Gunther (1998). They reveal that CAMEL ratings consist of

very significant information. This bank's CAMEL rating is extremely confidential (Hirtle and Lopez, 1999). Only the top executive managers and appropriate supervisory staff will be exposed with the aim of business strategy projecting. The CAMEL rating is never publicly available. According to the perspective of Barr et al., (2002), "CAMEL rating has become a concise and indispensable tool for examiners and regulators". Various facets of the bank may be reviewed relying on the financial statement, funding sources, macroeconomic data, budget and cash flow of this rating system, and it assures the healthy nature of banks. The liquidity, solvency, and effectiveness of Japanese banks were investigated by Said and Saucier (2003) by using the CAMEL rating method. They have used a sample of Japanese banks from 1993 to 1999 and investigated capital adequacy, assets and management quality, earnings ability and liquidity position. For the supervision of Islamic banks by the central bank, Sarker (2005) in Bangladesh used the CAMEL rating methodology.

The competitive analysis of the Indian private sector banks on financial performance was carried out by Gupta and Verma (2008). The key to higher profitability of Indian banks was the non-performing assets management and challenges arising from the negative circumstances (Gupta and Verma, 2008). Snagmi and Nazir (2010) carried out an investigation using the CAMEL model and revealed that banks' positions were at a satisfactory level relevant to capital adequacy, asset quality, management efficiency, and liquidity. An investigation carried by Mohiuddin (2014) by considering a sample of commercial banks in Bangladesh was performed with the CAMEL model. During the investigation period, it was the best at measuring financial performance.

The performance of HDFC and ICICI, two private sector banks in India, was evaluated by Suba and Jogi (2015). They revealed that there was no significant variation between those chosen banks on certain indicators. In terms of capital adequacy ratio, there was a significant difference between the two banks. The investigation conducted by Azizi and Sarkani (2014) by considering Mellat bank in Iran, there was a prominent association betwixt financial performance and liquidity, quality of management and earnings.

To measure and compare the performance of Islamic banking with others, Jaffar and Manaryi (2011) used the CAMEL model. They mentioned that this model was a standard for analyzing the financial performance of banks. Keovongvichith (2012) investigated the performance of the banking sector through studying major indicators of financial development and applied the CAMEL model to estimate the performance of the Laos banking sector. It revealed that there were pecuniary enhancements in asset quality and management in commercial banks in Laos. But there were deficiencies in capital adequacy and profitability ratios, mostly in government banks. In implementing appropriate policies, promoting a banking industry which is healthy and stable, this outcome will support central banks and the government.

The financial performance of Kenyan commercial banks has measured rely on the profit target primarily (Ongore and Kusa, 2013). So, this investigation used the CAMEL system to investigate the performance of banks. They have used ROE, ROA and also the net profit margin. The researchers considered five Kenyan banks and revealed the association between the banks' financial performance and the factors that impacted on it.

An analysis by comparing Sri Lankan private banks and government banks was done by Balaputhiran and Nimalathashan (2013). All the corporate governance variables were positively correlated with ROE in government banks as per the findings. There is a negative association between other variables, except for BD and BMF, with ROE in private banks. A strong positive correlation is there in betwixt liquidity ratio and return on assets according to the study conducted by Jeeyarajasingam (2014). The total factor growth in productivity of Sri Lankan commercial banks was analyzed by Thayapran and Pratheepan (2014). The overall output concluded that selected private banks are more highly effective than Sri Lankan government banks comparatively within the time frame of study.

Even though the CAMEL model has been used in several countries in measuring financial performance according to the published literature, there is a lack of studies carried out in Sri Lanka. And this CAMEL model is very useful in evaluating the financial performance of the banking industry in Sri Lanka. So, this research is carried out with the aim of analyzing the financial performance of Sri Lankan commercial banks using the CAMEL system.

3. METHODOLOGY

In conducting this study, we selected twelve licensed commercial banks listed in Colombo stock exchange in Sri Lanka consisting of both private and government sector banks. As the study ensures the sensitive nature of the banking industry, the real bank names were not used. Those banks are named as AB, CD, EF, GH, IJ, KL, MN, OP, QR, ST, UV and WX. The CAMEL model was used for the presentation of the study as it is a recent innovation for evaluating banks' financial performance. Capital adequacy, Asset quality, Management quality, earning ability and liquidity Position were used as independent variables. Return on assets was used as the dependent variable in assessing financial performance.

This study uses secondary data and were extracted from annual reports of the relevant commercial banks from 2010 to 2019. All the data were analyzed using E view software as it is the best in analyzing panel data. CAMEL framework is widely used in evaluating banking performance as per the empirical evidence in the literature (Kumar et al., 2012). So, the conceptual framework can be illustrated as follows.

Figure 1: Conceptual Framework

For the convenient presentation of the research, the variables are abbreviated as follows. This can be shown in the following table.

Table 1 – Variables, Measures and Abbreviations

Variables	Measure	Abbreviations
1. Return on assets	Profit before taxation/Total assets	ROA
2. Capital Adequacy	Equity/ Total assets	CA
3. Assets Quality	Loan loss provision/ Total loans	AQ
4. Management Quality	Total loans/ Total deposits	MQ
5. Earnings Ability	Net income/ Total assets	EA
6. Liquidity Position	Liquid assets / Total assets	LP

And also, the hypothesis of the study that is going to test can be shown as follows.

- H1 - Capital adequacy impacts positively on return on Assets
- H2 - Assets Quality impacts positively on return on Assets
- H3 – Management Quality impacts positively on return on Assets
- H4 - Earnings Ability impacts positively on return on Assets
- H5 – Liquidity Position impacts positively on return on Assets

4. FINDINGS

4.1. Descriptive Analysis

Table 2 indicates how far each data value deviates, or is different from the mean through the standard deviation. Results represents that for the ROA, CA, AQ, MQ, EA and LP variables show a standard deviation of 0.016,0.093,0.131, 2.824,0.174 and 0.052 with a mean value of 0.021,0.0111,0.012, 1.513, 0.20 and 0.084 respectively which indicates MQ variable was more spread out. It means it scores vastly different to each other, comparison to others.

Table 2 – Descriptive Statistics

	ROA	CA	AQ	MQ	EA	LP
Mean	0.021	0.111	0.012	1.513	0.020	0.084
Median	0.020	0.085	0.006	0.912	0.012	0.068
Std. Dev.	0.016	0.093	0.131	2.824	0.174	0.052
Skewness	5.649	4.054	-5.437	6.221	0.058	2.574
Kurtosis	53.186	25.477	61.512	49.747	43.942	9.832
Probability	0.000	0.000	0.000	0.000	0.000	0.000

4.2. Correlation

Table 3 – Correlation output

	ROA	CA	AQ	MQ	EA	LP
ROA	1	0.244	0.044	0.307	0.226	0.040
CA	0.244	1	0.045	0.217	0.077	0.139
AQ	0.044	0.045	1	-0.001	0.002	-0.153
MQ	0.307	0.217	-0.001	1	0.019	-0.034
EA	0.226	0.077	0.002	0.019	1	-0.072
LP	0.040	0.139	-0.153	-0.034	-0.072	1

Source – EViews output

The correlation coefficient based on (Cohen & Manion, 1989) criterion values more than 0.3 are considered to be sizable. According to table 3, all independent variables depict a positive linear association with the dependent variable.

The correlation between ROA and CA is 0.244, which is less than 0.3 and therefore it is not sizable. But there is a positive association between these two variables as it is positive. The correlation between ROA and AQ is 0.044, which is so less than 0.3 and therefore it is not sizable and it is so far from +1. But there is a positive association between ROA and AQ as it is positive but it is not strong correlation. The correlation between ROA and MQ is 0.307, which is greater than 0.3 and therefore it is sizable. As the value is a positive one, there is a positive association among the two variables. The association between ROA and EA is 0.226, which is less than 0.3 and therefore it is not sizable. But there is a positive association between these two variables as it is positive and it is not a strong correlation. The correlation between ROA and LP is 0.040, which is so less than 0.3 and therefore it is not sizable. But there is a positive correlation between these two variables as it is positive as well as it is not a strong

correlation. In between all the independent variables and the dependent variable, it depicts a positive correlation while it is not a strong correlation.

The above table depicts that there is a negative correlation between AQ and MQ, AQ and LP, MQ and LP as well as in between EA and LP. But it depicts weak negative correlations as those values are far beyond from -1. Therefore, the correlation is negative but is not strong.

4.3. Regression Analysis

Hausman Test results

Table 4 – Hausman Test

Test Summary	Chi- Sq. Statistic	Chi- Sq. d.f	Prob.
Cross- section random	98.784	5	0.000

Source – EViews output

As per the table 4, the probability value is the 0.000. And in here the p value is less than 0.05. Therefore, the Hausman test rejects null hypothesis (H_0 - If Hausman Test accept H_0 or p value > 0.05, random effect should be use) and can accept H_1 (H_1 - If Hausman Test accepts H_1 or p value < 0.05, fixed effect should be use). Which means the best method that must be used is the fixed effect rather than random effect.

4.4. Fixed Effect Analysis

Table 5 – Fixed Effect Analysis Results

Variable	Coefficient	Std. Error	t- Statistic	Probability
CA	0.046	0.016	2.855	0.005
AQ	-0.002	0.009	-0.306	0.760
MQ	0.000	0.000	1.134	0.259
EA	0.009	0.006	1.461	0.147
LP	0.308	0.037	8.329	0.000
C	-0.011	0.004	-3.197	0.002
R- squared			0.635	
Adjusted R- squared			0.578	
F- statistic			11.112	
Prob (F- statistic)			0.000	
Durbin Watson Stat			2.010	

Source – EViews output

The probability value can be used for the determination of each regressor in the model. If the P value is less than 0.05, it implies that the regressor in question is statistically significant at 5% level.

The regression equation of fixed effects model panel data is as follows:

$$ROA = \beta_0 + \beta_1 + \beta_2 + \beta_3 + \beta_4$$

$$ROA = -0.011 + 0.046 CA - 0.002 AQ + 0.000 MQ + 0.009 EA + 0.308 LP$$

According to the above equation, every step improves in CA, ROA is expected to improve by 0.046 provided the other variables remain unchanged. Every step improves in AQ; ROA is expected to decline by 0.002, every step improves in MQ; ROA is expected to improve by 0.000, every step improves in EA; ROA is expected to improve by 0.009 provided the other variables remain unchanged. As well as, every step improves in LP; ROA is expected to improve by 0.308 provided the other variables remain unchanged.

Based on the probability values, CA and LP are statistically significant as its probability value is 0.005 and 0.000 respectively. For the independent variables AQ, MQ and EA the probability value is not statistically significant as its probability values are greater than 0.05.

The table 5 depicts the R-square value is 0.635, which means 63.5% of the variation in ROA (Financial performance) can be explained by capital adequacy, asset quality, management quality, earnings ability and liquidity position. Adjusted R-square is 57.8%. Above table shows that the Durbin Watson stat is 2.010 which is in the range of 1.5 to 2.5 and it is therefore relatively normal.

4.5. Hypotheses Testing

Table 6 shows hypotheses of the research and results of the analysis. The findings reveal significant associations between capital adequacy ($\beta = 0.046$, $p < 0.05$), assets quality ($\beta = -0.003$, $p > 0.05$), management quality ($\beta = 0.000$, $p > 0.05$), earnings ability ($\beta = 0.009$, $p > 0.05$), liquidity position ($\beta = 0.308$, $P < 0.05$). So according to the results, hypothesis 1 and hypothesis 5 are supported in the model.

Table 6 – Testing of hypotheses

	Hypotheses	Results
H1	Capital adequacy impacts positively on return on Assets	Accepted
H2	Assets Quality impacts positively on return on Assets	Rejected
H3	Management Quality impacts positively on return on Assets	Rejected
H4	Earnings Ability impacts positively on return on Assets	Rejected
H5	Liquidity Position impacts positively on return on Assets	Accepted

5. CONCLUSION

The influence of CAMEL model components on financial performance of Sri Lankan commercial banks were studied from this investigation. The output of the research ensures the influence of CAMEL components on Sri Lankan Commercial banks' performance. So, in here capital adequacy, asset quality, management quality, earnings ability and liquidity position were used as independent variables while financial performance was the dependent variable which was measured by return on assets. 12 Sri Lankan commercial banks which are listed in Colombo Stock Exchange were used as the sample for this study. 10 years' financial data (from 2010 to 2019) have been gathered from the annual reports of the banks which were published in CSE website.

The empirical study reveals that the capital adequacy and liquidity position impacts on the financial performance of commercial banks in Sri Lanka. According to the results, assets quality, management quality and earnings ability do not have an impact on financial performance of Sri Lankan commercial banks under the period of investigation.

6. RECOMMENDATIONS

The findings of the study reveal that the capital adequacy ratio has a direct association with the financial performance of Sri Lankan commercial banks. Therefore, all the banks have to take necessary steps to improve the capital adequacy ratio. In order to increase earnings ability, banks should consider for reducing the operating costs like loan losses and other provisions, as well as other overheads, to have a favorable profitability for banks. According to the findings, it reveals that liquidity position has a significant relationship with financial performance. The banks should be in a position to meet their liabilities when demand arises. Banks should maintain a suitable mixture of liquid and non-liquid assets. So, banks should take the necessary steps to enhance current assets and liquid assets as much as possible and to reduce current liabilities. AB and the QR have the highest liquidity ratios when compared to other banks. That means those banks have the paying ability to meet their customer obligations more than other banks. The customers have to consider interest rates, credibility and other facilities and benefits when choosing a bank for its investments.

This gives more value to the future researchers as this is a good area for investigations. The banks have the ability to change their output in the future as per anticipated data. This is mostly useful for Sri Lankan banks and other policy makers in enhancing the financial performance of banks.

When considering the limitations, descriptive analysis of data restricts generalization to a specific category of individuals observed. So, no conclusions extend beyond this category and it cannot assume any similarity to those outside the category. When conducting the study, the researchers focused only

on Sri Lankan commercial banks, although there are many banks in Sri Lanka. This is the major limitation of this analysis. As well as the researcher considers only few years for this study. That was also a major limitation when conducting the research. So, future researchers can pay attention to this area. So, they can conduct future studies by considering more banks and more years to have more realistic findings.

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