



## The Impact of Bank-internal factors on Profitability of the Banking industry in Sri Lanka

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### ABSTRACT

The financial industry in Sri Lanka started as a part of total economic growth and development. The profitability of the bank has become vital for financial stability. This study aims to examine how the bank-internal factors impact the profitability of the banking industry in Sri Lanka. Capital Adequacy Ratio (CAR), Tier 1 Capital Ratio (T1CR), Non-performing Loans to Total Loans and Advances (NPL\_TO\_TLA), Specific Provision Coverage Ratio (SPCR), Statutory Liquid Assets Ratio (SLAR), Borrowings to Total Assets Ratio (BTAR) and Foreign Currency Denominated Liabilities to Total Liabilities (FCDLTA) are considered as bank-internal factors. Return on Assets (ROA), Net Interest Income to Gross Income (NIIGI), and Efficiency Ratio (ER) are considered as profitability measures. The study used a quantitative research approach. Based on the data during the sample period from the year 2008 Quarter 1 to 2021 Quarter 3, the time-series data were collected from the website of the Central Bank of Sri Lanka (CBSL). The results revealed that CAR, T1CR, and NPL\_TO\_TLA have contributed significantly to the profitability of commercial banks as measured by ROA and NIIGI. NPL\_TO\_TLA has contributed significantly to the profitability as measured by ER. SLAR, BTAR, and FCDLTA exposed the statistically insignificant impact on profitability. Findings will be useful to the financial institutions, policymakers, and future researchers regarding bank-internal factors and their impact on profitability.

**Keywords:** Bank-internal factors, Capital Adequacy Ratio (CAR), Efficiency Ratio (ER), Net Interest Income to Gross Income (NIIGI), Profitability

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### 1. Introduction

A steady banking industry would play the prominent role of financial intermediaries in every economy. (Saira, Jamil, Khalid & Abdul, 2011 & Lisa & Aliya, 2021). The financial system is one of the most important factors in every economy. The banking industry performs crucial financial functions in the world. In Sri Lanka, the banking industry takes a significant part in operating the economy by their process. The banking industry of Sri Lanka comprises Licensed Commercial Banks (LCBs) and Licensed Specialized Banks (LSBs), They dominate the financial system having a big share of the total assets. Banks play an important role within the financial system of Sri Lanka as they transform the risk characteristics of assets while providing liquidity to the entire economy (CBSL, 2021).

LCBs dominate the financial system and have a large market share in the assets of the entire financial system. The health of the financial system in Sri Lanka depends largely on the resilience of LCBs. The

formal signing of the LSB industry is relatively small compared to LCBs, their impact on the size and financial structure (CBSL, 2021).

Previous research studies reveal that there are many factors that influence the profitability of banks such as GDP, inflation, economic growth, bank size, assets growth, credit risk, capital adequacy, liquidity and loan structure. The profitable commercial banking industry can tolerate the adverse and accumulate strength and power in the economic system of the country (Aburime, 2009, Chandan & Abdullah, 2018, Lisa & Aliya, 2021). The factors that may impact the profitability of banks can be classified as bank internal factors and external factors (Lisa & Aliya, 2021). Bank internal factors are capital adequacy, asset quality, liquidity, and asset funding structure (CBSL, 2021). Profitability is necessary for a bank to keep the routine activities. The empirical studies found that profitability was explained by bank-internal factors (Lisa & Aliya, 2021, Bandara, 2015, Sanathanee, 2020, Rasika & Sampath, 2015, Gunawardhana & Damayanthi 2020). Many factors affect commercial bank profitability while some factors directly influence and some factors are indirectly influenced commercial banks' profitability. There is a need to have identification of the most suitable factors for measuring the profitability of the banking industry in Sri Lanka.

As a result of the global financial crisis in 2008, as per the Basel III requirements, the banking industry has been more concerning about capital adequacy, asset quality, liquidity, and the asset funding structure to meet the financial obligations (Chandan & Abdullah, 2018). CAR is a significant ratio that guards the banks against additional leverage and insolvency. The banking industry of Sri Lanka completed its capital phase-in arrangement under Basel III by January 2019, where Sri Lankan banks were expected to raise the minimum CAR on a staggered basis (Gunawardhana & Damayanthi, 2020). The CAR and Tier I capital ratio encompass the capital conservation buffer of the banking industry (CBSL, 2019). The lower assets quality/ non-performing loans (NPAs) may lead to bankruptcies as evidenced by the 2008 global crisis (Adhikary (2006) as cited in Sanathanee (2020)). In accord with Section 86 of the Banking Act, No.30 of 1988. the CBSL deems some asset items of the bank balance sheet as liquid assets considering their liquidity generating capacity. The banks should maintain a minimum of 20% of statutory liquidity assets of their liabilities (CBSL, 2017). Asset funding structure Higher reliance on foreign currency borrowings may adversely affect the profitability of the industry if the rupee depreciates (CBSL, 2019).

To compete in the financial market, from an investment and policymakers' point of view there is a need to have clear understandability about the factors that follow the commercial banks' profitability. Even though many research studies have been focused on this subject area to identify the determinants of profitability in commercial banks, a lack of studies has been conducted on developing countries like Sri Lanka. The available literature on the determinants of profitability of banks in Sri Lanka has only tested ROA and return on equity (ROE). The current study focuses on net interest income to gross income (NIIGI) and efficiency ratio (ER).

This study intends to expand the available knowledge and identify the bank-internal factors that guide the bank profitability in Sri Lanka. Research questions of this study are 'What is the impact of the bank-internal factors on profitability of banking industry in Sri Lanka?' and 'What would be the relationship between bank- internal factors and profitability of banking industry in Sri Lanka?' Accordingly, the objectives of the study are to examine the impact of the bank-internal factors on the profitability of the banking industry in Sri Lanka and to identify the relationship between bank-internal factors and the profitability of the banking industry in Sri Lanka. This study is expected to contribute to the financial institutions, policymakers, regulators, and future researchers regarding bank-internal factors and their impact on profitability. The remaining of the paper was structured as follows: Section 2 shows the literature review. Section 3 describes the methodology. Section 4 pronounces the results and analysis. The conclusion is explained in the last section.

## 2. Literature Review

### Theoretical Review

Capital adequacy measures the financial soundness of the banks (Kosmidou, 2008 & Iskandar, Yahya & Wahid, 2019). Asset quality measures the loan quality of banks (Lisa & Aliya, 2021). Liquidity measures the banks' ability to meet its financial obligations (Bhusare & Pol, 2020). Asset funding structure of the banks measures the proportion of bank's deposits, borrowings and capital to total assets CBSL (2020).

### Empirical global studies

Using a time series analysis, Lisa and Aliya (2021) examined the influence of the bank-internal factors and macro-economic factors on the profitability of the Tanzanian private and public commercial banks for the period of seven years from 2013 to 2019. The findings revealed that capital adequacy, asset quality, loan composition, and cost efficiency were found statistically significant. Macroeconomics as measured by GDP and inflation rate were found statistically significant. Susan (2014) studied the impact of the bank-internal factors on the profitability of the top six commercial banks in Kenya over six years from 2008 to 2013. The analysis found that bank size, capital strength, ownership, operations expenses and diversification had a significant influence on ROA.

During the period of European Union financial integration, Kosmidou (2008) investigated the profits of banks in Greece and found that CAR had a significantly positive relationship with the bank's performance. Higher ROA was found to be associated with banks that have a lower cost-to-income ratio. Liquidity had a positive and insignificant impact on ROA. Bank size had an insignificant impact on ROA. Muhammad (2014) investigated the impact of bank-internal factors, industry-specific factors, and macroeconomic factors on the profitability of 73 UK commercial banks before, during, and after the financial crisis of 2008 for the period from 2006 to 2012. Findings show that bank size, capital ratio, loan, deposits, liquidity, and interest rate had a positive and significant impact on ROA. GDP and inflation rate had a negative impact on ROA. Brunilda and Elvana (2015) examined the factors influencing the profitability of the Albania banks for the period from 2007 to 2014. The findings showed that the NPL ratio had an insignificant impact on profitability whereas liquidity had a significant impact on profitability.

As a comparative study between Saudi and Jordanian banks, Ahmad (2014) explored a study to identify the impact of bank-internal factors on the profitability of banks for 161 observations for the period from 2005 to 2011. Results found that there was a significant positive impact of total equity to assets ratio, total investment to total assets ratio, and liquidity variables on ROA and found a negative impact of net credit facilities to total assets ratio, net credit facilities to total deposits ratio, cost income ratio and size variables on ROA of Saudi banks. Jordanian banks found to be a significant positive impact of liquidity, net credit facilities to total assets ratio, total equity to assets ratio, and net credit facilities to total deposits ratio variables on ROA and a negative impact of cost income ratio, total investment to total assets ratio and size on ROA. Abuzar (2013) discovered the determinants of profitability of banks in Sudan. The study revealed that internal factors showed a significant impact on ROA, return on equity, and NIM. LR and bank size were found as positive significant effects on ROA. Saira et al. (2011) analyzed the bank-internal factors on profitability of 10 banks in Pakistan over five years from 2004 to 2008. They found that assets, loans, equity, and deposits had a significant impact on ROA. Equity and Deposits had statistically significant on ROA.

For the Turkish Commercial Banks, Topak and Talu (2017) studied bank-internal factors and macroeconomic factors as the determinants of profitability. They used the ratio of interest on loans to the interest on deposits as a measurement scale of NIM and non-performing loans to total loans to represent credit risk. Findings found that the profitability of the banks is significantly influenced by bank

size. NPL ratio and CAR have depicted a negative influence on profitability. Having panel data from 2008 to 2017 for 69 LCBs in India, Almaqtari, Al-Homaidi, Tabash and Farhan (2018) conducted a study to examine the determinants of profitability. The study found that bank size, operational efficiency, and CAR have a positive impact on ROA. LR has a significant positive impact on ROE. In Malaysia, Iskandar, Yahya and Wahid (2019) investigated the determinants of commercial banks' profitability by selecting ROA and ROE as dependent variables and CR, CAR, management efficiency, and LR as independent variables using 8 commercial banks from 2011 to 2017. The findings concluded that LR, CR, and management efficiency were the most significant determinants of banks' profitability. CAR was not found to be a statistically significant impact on profitability.

For the Indian banking industry over the period from 2008 to 2018, Bhusare and Pol (2020) investigated the relationship between bank-internal factors on profitability. The findings of the study revealed that all the determinant variables have a statistically significant impact on Indian banks' profitability. The findings showed that bank size, operational efficiency, assets management ratio, and leverage were significantly affected the ROA. Further, bank size, liquidity, assets management ratio, and assets quality ratio had a significant positive impact on ROE. Koroleva et al. (2021) explored a study to identify the relationship between internal and external factors and commercial banks' profitability in China from 2007 to 2019. The findings of their study revealed that the loan quality had positive and significant impact on the banks' profitability. Liquidity had a significant positive impact on profitability. Non-Performing Loan to Total Asset Ratio had a significant negative impact on ROA and ROE. Using the panel data from 2011 Quarter 1 to 2017 Quarter 4 of the 62 commercial banks of Gulf Cooperation Council countries, Alfadli and Husam (2021) inspected the impact of bank-internal, industry-specific and macroeconomic variables on the financial performance. The study found that CAR had a positive impact on the bank's performance.

### **Sri Lankan studies**

Bandara (2015) studied eight Sri Lankan commercial banks over 14 years from 2001 to 2014 using ROA, ROE, and NIM as profitability measures and cost to income ratio, CAR, loan to deposit ratio, loan loss provision, and bank size. The findings proved that the Cost to income ratio had an inverse relationship with profitability. There was a negative relationship between the loan loss provision ratio and profitability. CAR, loans to deposits ratio, and bank size were not significant with profitability. Hirindu and Kushani (2017) explored the impact of bank-internal factors on the profitability of 12 commercial banks of Sri Lanka for 60 observations over 5 years from 2011 to 2015. Capital ratio and deposit ratio were the positive significant determinants of ROA. Liquidity was found to be an insignificant determinant of ROA. Muhammad (2016) examined the impact of bank-internal and external factors on the profitability of 34 Pakistan banks from the 2006 to 2013 period. The findings showed that non-interest income had a positive significant impact on ROA. Liquidity had an insignificant impact on ROA. Macro-economic factors were found to be insignificant on profitability.

Sanathanee (2020) investigated a study to identify the impact of asset quality on the profitability of 09 commercial banks in Sri Lanka for the period of 08 years from 2008 to 2016. The analysis found that asset quality had a negative insignificant impact on profitability. Capital adequacy, management efficiency, earnings performance, and liquidity were contributed to profitability. Rasika and Sampath (2015) investigated the impact of credit risk on the financial performance of Commercial banks in Sri Lanka. The findings revealed that the NPL ratio and CAR had a significant and negative impact on ROE. NPL ratio had a higher significant impact on ROE. A study by Suganya and Kengatharan (2018) on nine commercial banks listed CSE in Sri Lanka to examine what level of bank internal factors impact the profitability of commercial banks from 2006 to 2015. The finding of the study showed that CAR had a significant positive impact on bank profitability while OC and the non-performing loans had a negative and significant influence on profitability and LR, bank size, managerial efficiency, and assets quality did not have any significant impact on bank profitability.

### **Empirical research gap**

Having reviewed the above literature, the research gap is identified in terms of empirically that the majority of the prior studies used the panel data of the individual banks to examine the impact of bank-internal factors and profitability. Also, prior local studies used the individual banks' data to perform the analysis considering the period of a five- or ten-year period. There is a dearth of studies that used the times series data, especially on this subject. The main purpose of this study is to bridge the gap identified in the literature and examine how the bank's internal factors will have an impact on the profitability of the banking industry as a whole in Sri Lanka using time-series data from the period 2008. By the Basel III requirements, the capital adequacy ratio is the main requirement as the minimum maintenance should be maintained by the banks. Further, the bank-internal factors were categorized as the proxies to measure the capital adequacy, asset quality, liquidity, and asset funding structure by the CBSL's datasheet.

In addition to the ROA, this study also used Net interest income to the gross interest income ratio and efficiency ratio as the measurements for the profitability of the banks. But prior studies commonly used the ROE and NIM as the main measurements for the banks' profitability. Having considered all the above, the data were analyzed whether they are contributing as the significant determinants of the profitability of the banking industry. Thus, this study fulfills the research gap. The next section elaborates on the methodology employed in this study.

## **3. Research Methodology**

### **Type of study**

This study is quantitative research.

### **Sample**

Based on the data availability, the sample period from the year 2008 Quarter 1 to 2021 Quarter 3 was considered in this study.

### **Data collection**

The data has been collected from the website of the CBSL. A time-series data of 55 observations from the year 2008 Quarter 1 to 2021 Quarter 3 was used.

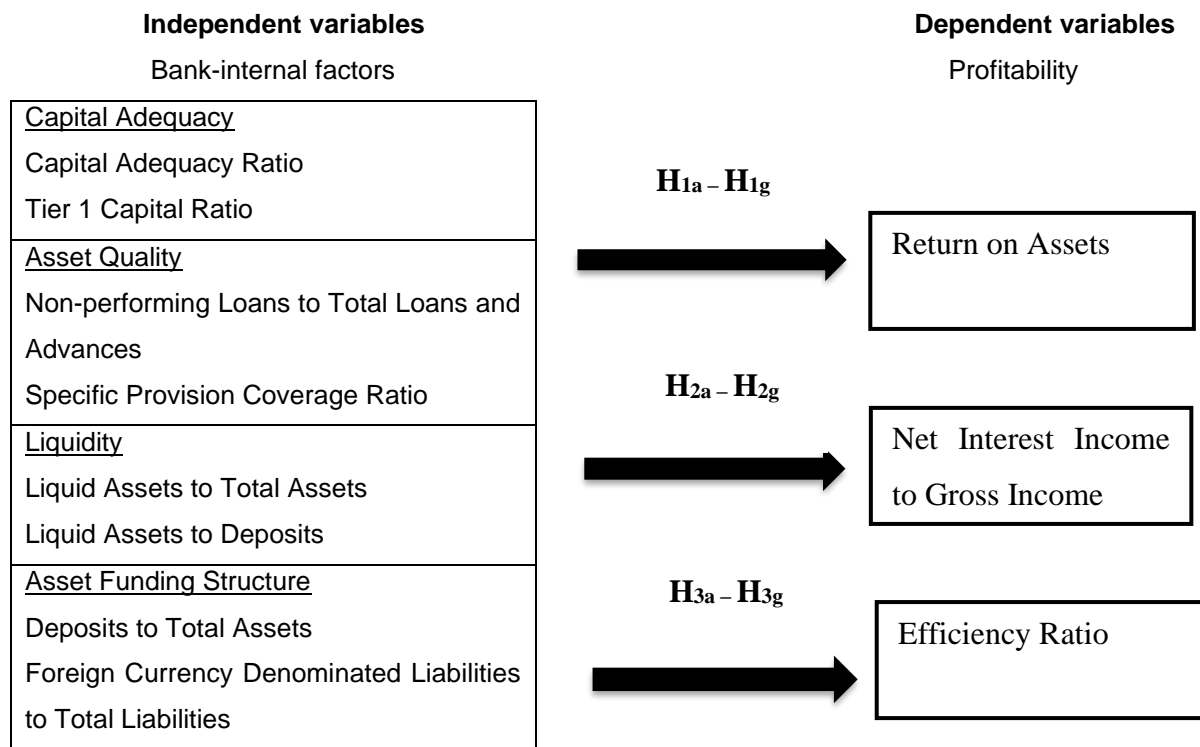
### **Mode of data analysis**

Descriptive statistics, data diagnostics inference statistics like bivariate analysis, and multiple regression analysis were performed by the EViews statistical software.

### Conceptual Framework

Based on the literature review, the following conceptual framework is developed for this study:

**Figure 1: Conceptual Framework**



**Source: Developed by the Author based on the Literature review.**

**Table 1: Profile of the variables of the study**

Variable type	Proxies	Ratios	Acronym	Measurement	Source
Independent variable	Capital Adequacy	Capital Adequacy Ratio	CAR	Bank's capital/ risk-weighted assets.	Almaqtari et al. (2018), Kosmidou (2008), Iskandar, Yahya and Wahid (2019), Rasika and Sampath (2015), Suganya and Kengatharan (2018), Alfadli and Husam (2021)
		Tier 1 Capital Ratio	T1CR	Tier 1 capital/ total risk-weighted assets	
	Asset Quality	Non-performing Loans to Total Loans and Advances	NPL_TO_T LA	Non-performing Loans/ Total Loans and Advances	Koroleva et al. (2021), Rasika and Sampath (2015), Lisa & Aliya, 2021
		Specific Provision Coverage Ratio	SPCR	specific provisions to non-performing advances net of interest in suspense	
	Liquidity	Statutory Liquid Assets Ratio	SLAR	The ratio of liquid assets to total liabilities	Almaqtari, Al-Homaidi, Tabash and Farhan (2018), Bhusare and Pol (2020), Suganya and Kengatharan (2018), Muhammad (2014)
	Asset Funding Structure	Borrowings to Total Assets Ratio	BTAR	The share of total borrowings in total assets/(total liabilities & equity)	Koroleva et al. (2021), CBSL (2020)
Foreign Currency Denominated Liabilities to Total Liabilities		FCDLTA	Foreign Currency Denominated Loans/ Total Loans and Advances	CBSL (2020)	

Dependent variable	Profitability	Return on Assets	ROA	Profit after tax/ Total Assets	Almaqtari, Al-Homaidi, Tabash and Farhan (2018), Bhusare and Pol (2020), Iskandar, Yahya and Wahid (2019)
		Net Interest Income to Gross Income	NII_TO_GI.	Net Interest Income / Gross Income	Bandara (2015)
		Efficiency Ratio	ER	non-interest expenses to (gross income + recoveries - specific provision charged to income - write off – provision)	CBSL (2020)



### Econometric Model

$$\text{Model – 1 (ROA)} = \beta_0 + \beta_1 \text{ CAR} + \beta_2 \text{ T1CR} + \beta_3 \text{ NPL\_TO\_TLA} + \beta_4 \text{ SPCR} + \beta_5 \text{ SLAR} \\ + \beta_6 \text{ BTAR} + \beta_7 \text{ FCDLTA} + \varepsilon$$

$$\text{Model – 2 (NII to GI)} = \beta_0 + \beta_1 \text{ CAR} + \beta_2 \text{ T1CR} + \beta_3 \text{ NPL\_TO\_TLA} + \beta_4 \text{ SPCR} + \beta_5 \text{ SLAR} \\ + \beta_6 \text{ BTAR} + \beta_7 \text{ FCDLTA} + \varepsilon$$

$$\text{Model – 2 (ER)} = \beta_0 + \beta_1 \text{ CAR} + \beta_2 \text{ T1CR} + \beta_3 \text{ NPL\_TO\_TLA} + \beta_4 \text{ SPCR} + \beta_5 \text{ SLAR} \\ + \beta_6 \text{ BTAR} + \beta_7 \text{ FCDLTA} + \varepsilon$$

Where:

CAR:	Capital Adequacy Ratio
T1CR:	Tier 1 Capital Ratio
NPL_TO_TLA:	Non-performing Loans to Total Loans and Advances
SPCR:	Specific Provision Coverage Ratio
SLAR:	Statutory Liquid Assets Ratio
BTAR:	Borrowings to Total Assets Ratio
FCDLTA:	Foreign Currency Denominated Liabilities to Total Liabilities
ROA:	Return on Assets
NIIGI:	Net Interest Income to Gross Income
ER:	Efficiency (operating cost) Ratio
$\varepsilon$ :	Error term

### Hypotheses of the study

According to the above literature review and the requirements of the CBSL, seven specific determinants were identified as significant bank-internal factors that predict the profitability of the banking industry in Sri Lanka. Accordingly, as a follow-up to the research questions and objectives of the study, the following series of hypotheses were formulated:

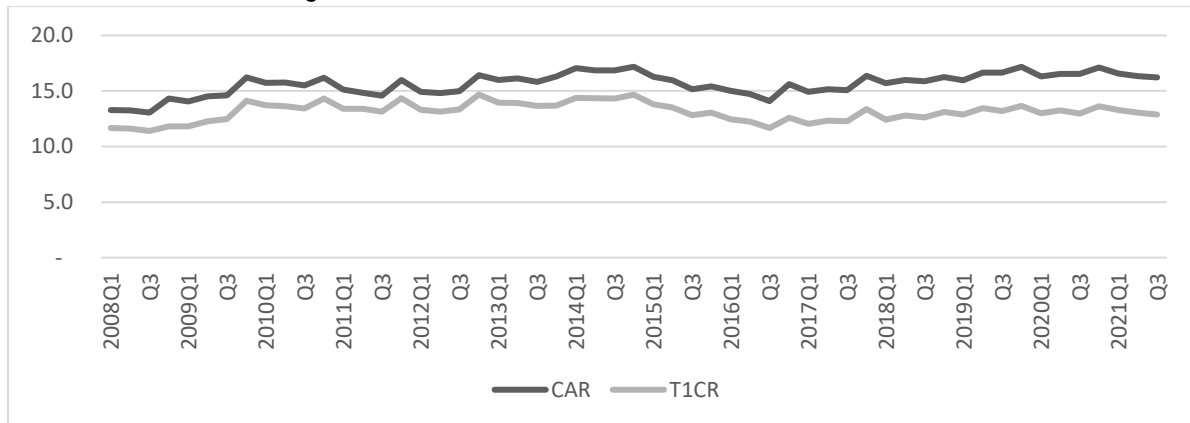
- H1a: There is a significant impact of CAR on ROA.
- H1b: There is a significant impact of T1CR on ROA.
- H1c: There is a significant impact of NPL\_TO\_TLA on ROA.
- H1d: There is a significant impact of SPCR on ROA.
- H1e: There is a significant impact of SLAR on ROA.
- H1f: There is a significant impact of BTAR on ROA.
- H1g: There is a significant impact of FCDLTA on ROA.
- H2a: There is a significant impact of CAR on NII TO GI.
- H2b: There is a significant impact of T1CR on NII TO GI.
- H2c: There is a significant impact of NPL\_TO\_TLA on NII TO GI.
- H2d: There is a significant impact of SPCR on NII TO GI.
- H2e: There is a significant impact of SLAR on NII TO GI.
- H2f: There is a significant impact of BTAR on NII TO GI.
- H2g: There is a significant impact of FCDLTA on NII TO GI.
- H3a: There is a significant impact of CAR on ER.
- H3b: There is a significant impact of T1CR on ER.

- H<sub>3c</sub>: There is a significant impact of NPL\_TO\_TLA on ER.
- H<sub>3d</sub>: There is a significant impact of SPCR on ER.
- H<sub>3e</sub>: There is a significant impact of SLAR on ER.
- H<sub>3f</sub>: There is a significant impact of BTAR on ER.
- H<sub>3g</sub>: There is a significant impact of FCDLTA on ER.

The next section interprets the statistical results and discusses the key findings of this study.

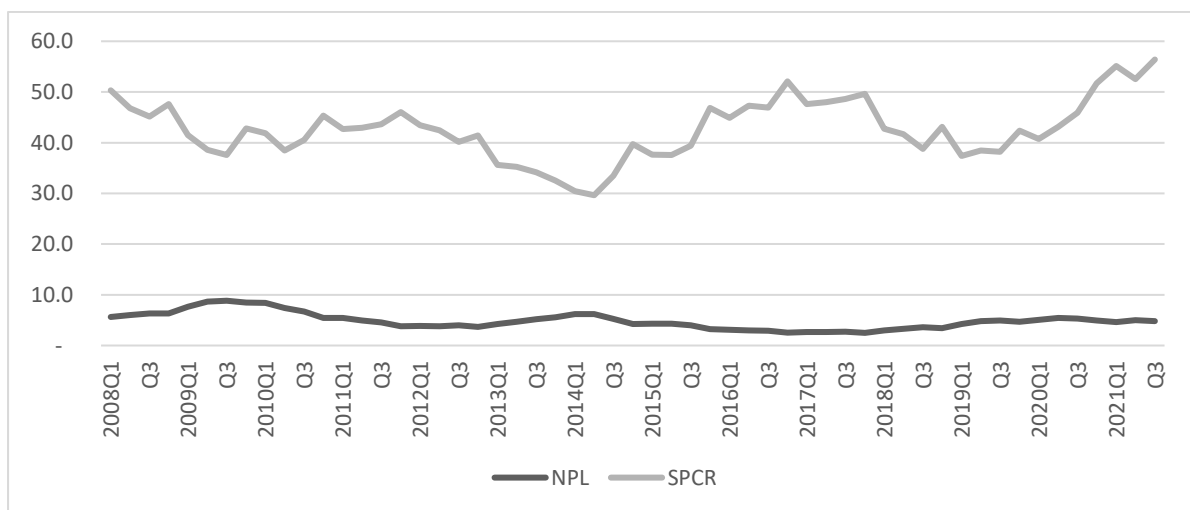
#### 4. Data Analysis and Results

This section shows the pattern of variables used in this study and the statistical results which were derived from the EViews as well as the discussion of key findings and highlights the consistency and contradiction of the findings with the literature reviewed in section 2.



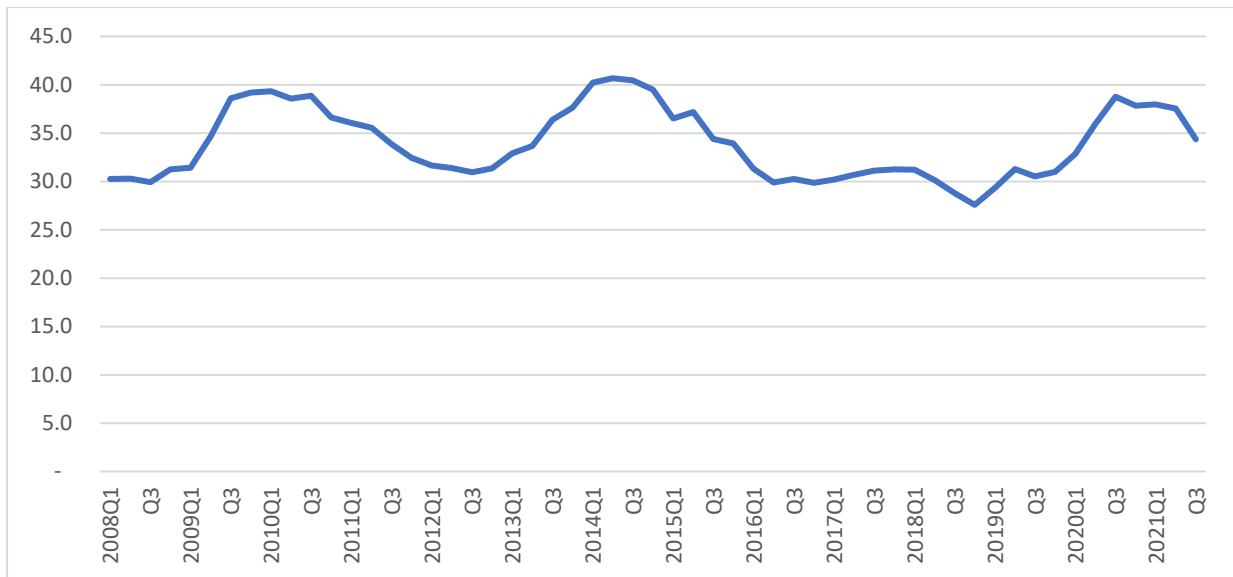
**Figure 2: Capital adequacy of the banking industry of Sri Lanka from 2008 to 2021**

Figure 2 shows that the CAR reached an all-time high of 17.18% in 2014Q4 and a record low of 13.06% in 2008Q3. T1CR reached an all-time high of 14.68% in 2012Q4 and a record low of 11.4% in 2008Q3.



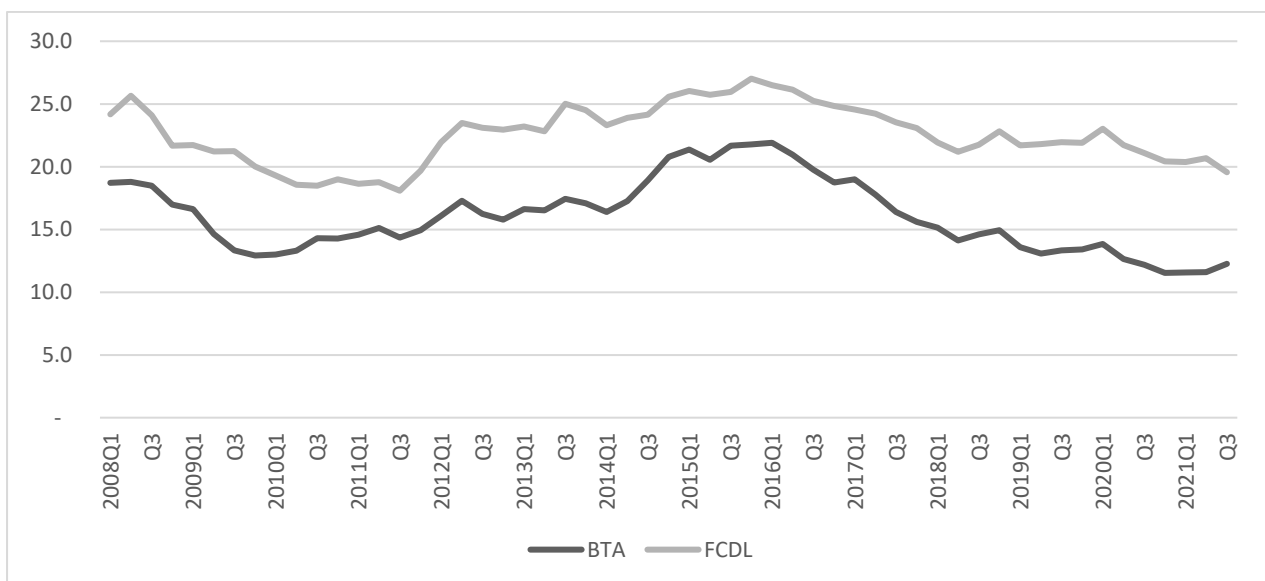
**Figure 3: Asset Quality of the banking industry of Sri Lanka from 2008 to 2021**

Figure 3 shows that the NPL reached an all-time high of 8.84% in 2009Q3 and a record low of 2.5% in 2017Q4. SPCR reached an all-time high of 56.4% in 2021Q3 and a record low of 29.64% in 2014Q2.



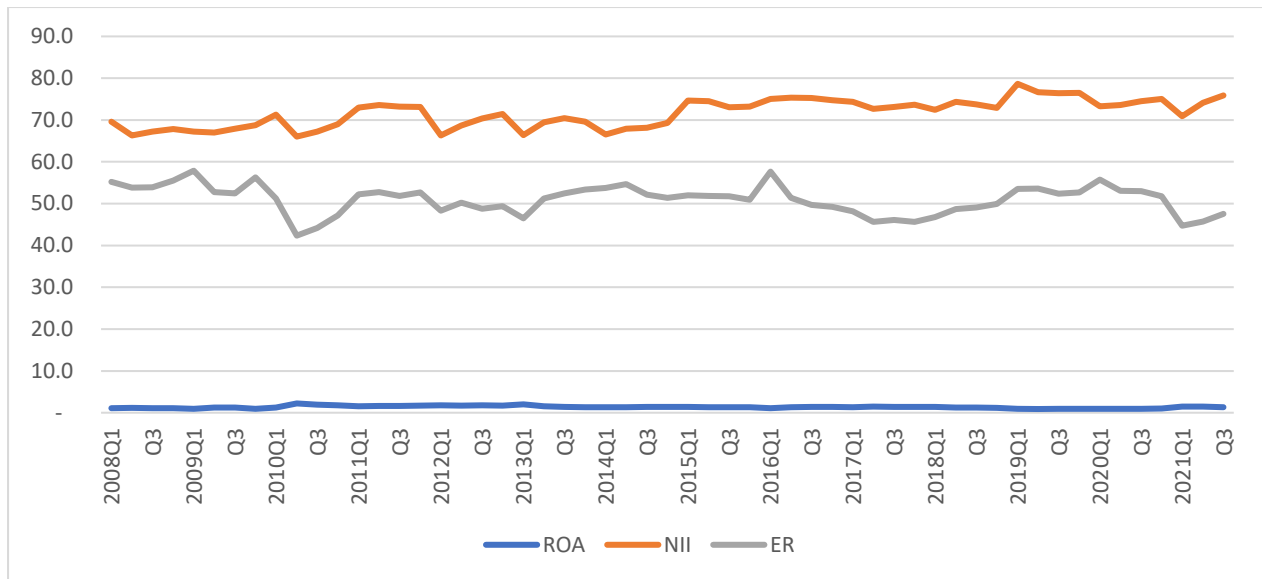
**Figure 4: Liquidity of the banking industry of Sri Lanka from 2008 to 2021**

Figure 4 shows that the SLAR reached an all-time high of 8.84% in 2009Q3 and a record low of 40.7% in 2014Q2.



**Figure 5: Asset-Funding structure of the banking industry of Sri Lanka from 2008 to 2021**

Figure 5 shows that the BTA reached an all-time high of 21.9% in 2016Q13 and a record low of 11.5% in 2020Q4. FCDL reached an all-time high of 27% in 2015Q4 and a record low of 18.1% in 2011Q3.



**Figure 6: Profitability of the banking industry of Sri Lanka from 2008 to 2021**

Figure 6 shows that the ROA reached an all-time high of 2.22% in 2010Q2 and a record low of 0.89% in 2019Q2. NII TO GI reached an all-time high of 78.66% in 2019Q14 and a record low of 66.04% in 2010Q2. ER reached an all-time high of 57.89% in 2009Q1 and a record low of 42.36% in 2010Q2.

## Descriptive statistics

**Table 2: Descriptive Statistics**

	CAR	T1CR	NPL	SPCR	SLAR	BTA	FCDL	ROA	NII	ER
Mean	15.64	13.13	4.85	42.64	33.9	16.1	22.53	1.34	71.67	50.97
Median	15.86	13.20	4.70	42.66	32.9	15.8	22.82	1.33	72.91	51.78
Max	17.18	14.68	8.84	56.40	40.7	21.9	27.02	2.22	78.66	57.89
Min	13.06	11.40	2.50	29.64	27.6	11.5	18.09	0.89	66.04	42.36
SD	1.01	0.82	1.62	5.87	3.7	2.9	2.35	0.30	3.34	3.45
Skew	-0.66	-0.17	0.76	0.08	0.3	0.4	-0.07	0.60	-0.15	-0.37
Kurtos	2.91	2.41	3.12	2.84	1.7	2.2	2.13	3.16	1.88	2.70
Prob	0.13	0.59	0.07	0.95	0.1	0.2	0.41	0.19	0.21	0.49

**Note:** Please see Table 1 for a profile of variables.

According to the descriptive statistics as presented in Table 2, the average value of the CAR is 15.64 and the median value is 15.86 while the standard deviation is recorded as 1.01. The minimum requirement of CAR under Basel III is 7.5%. The results for this variable shows that there are no significant variations. The average value of the T1CR is 13.13 and the median value is 13.20. The minimum requirement of Tier I Capital Ratio is 9%. The standard deviation is recorded as 0.82. The results for this variable shows that there is no significant variation. The average value of the NPL\_TO\_TLA is 4.85 and the median value is 4.70 while the standard deviation is recorded as 1.62. The results for this variable shows that there is no significant variation. The average value of the SPCR is 42.64 and the median value is 42.66 while the standard deviation is recorded as 5.87. The results for this variable shows that there are no significant variations. The mean and median values of SLAR are 33.9 and 32.9 respectively. The Sri Lankan banks are required to maintain a minimum of 20% of statutory liquidity assets of liabilities. On average, the BTA was recorded as 16.1 while FCDL was

recorded as 22.53. Profitability measures as proxied by ROA. NII TO GI and ER recorded their average values as 1.34, 71.67, and 50.97 respectively. Skewness and kurtosis are considered data is normally distributed.

### Data diagnostics tests

**Table 3: Unit root test**

Variables	Level			First Difference			Order of I
	Constant	Constant and trend	None	Constant	Constant and trend	None	
CAR	-3.5020**	-4.0312**	0.1925	-2.3304	-2.3592	-2.3486**	I(0)
T1CR	-3.4060**	-3.6276**	0.1532	-2.5969	-2.7191	-2.6072**	I(0)
NPL	-3.1612**	-2.4578	-1.7186	-4.2851***	-4.7104***	-4.2188***	I(0)
SPCR	-3.0967**	-3.3369	0.6746	-1.7364	-5.0646***	-1.6925	I(0)
SLAR	-3.6053***	-3.9619**	-0.1948	-4.2095**	-4.1809**	-4.2603***	I(0)
BTA	-1.5361	-0.9522	-0.9290	-4.9346***	-4.8788***	-4.9151***	I(1)
FCDL	-1.2746	-1.2263	-0.7987	-6.1991***	-6.1373***	-6.1747***	I(1)
ROA	-2.6344	-2.9693	-0.3974	-7.4934***	-7.4300***	-7.5670***	I(0)
NIIGI	-2.6111	-4.4672	0.2446	-9.0237	-8.9347	-9.0598	I(0)
ER	-3.4065**	-3.4565*	-0.5660	-7.6674***	-7.5918***	-7.7288***	I(0)

**Notes:** Augmented Dickey-Fuller (ADF) test (t) statistics are provided with the statistical significance level \*\* and \*\*\* indicate at the 5% and 1% respectively; Please see Table 1 for a profile of variables.

The result of the unit root test is depicted in Table 3. As revealed, all variables employed in the study are stationary since the ADF Statistics is less than the critical values at 5% and significant. It was noted that the first differences of BTA and FCDL are used for further statistical analysis

Independent variables	VIF
CAR	6.6896
T1CR	5.0434
NPL	3.8044
SPCR	1.9246
SLAR	3.3942
BTA	8.4690
FCDL	6.4412

**Note:** Please see Table 1 for a profile of variables

According to Table 4, VIFs are not exceeded 10 and variables are not signing of serious multicollinearity.

**Table 5: Breusch-Godfrey Serial Correlation LM Test**

	ROA	NII TO GI	ER
F-statistic	6.1522	5.0092	8.4733
Obs*R-squared	11.8008	10.0151	15.0150
Prob. F(2,44)	0.0544	0.0510	0.0508
Prob. Chi-Square(2)	0.0527	0.0567	0.0505

Null hypothesis: No serial correlation at up to 2 lags

**Note:** Please see Table 1 for a profile of variables.

According to Table 5, the prob. F(2,44) and prob. Chi-Square(2) obtained for the models for ROA, NIIGI, and ER are greater than 0.05. The Breusch-Godfrey serial correlation LM test proves that the residuals obtained are free from serial correlation.

**Table 6: Breusch-Pagan-Godfrey Test**

	ROA	NII TO GI	ER
F-statistic	1.4620	1.0554	0.8442
Obs*R-squared	9.8275	7.4726	6.1479
Scaled explained SS	20.6558	3.3724	7.8481
Prob. F(7,46)	0.2046	0.4070	0.5568
Prob. Chi-Square (7)	0.1986	0.3814	0.5226
Prob. Chi-Square (7)	0.1843	0.8485	0.3462

Null hypothesis: Homoskedasticity

**Note:** Please see Table 1 for a profile of variables.

According to the Table 6, the Prob. F(7,46), and prob. Chi-Square(7) obtained for the models for ROA, NII TO GI, and ER are greater than 0.05. The Breusch-Pagan-Godfrey test proves that the residuals obtained are free from heteroscedasticity. It refers to the residuals are homoskedasticity, which makes the models fit.

### Correlation analysis

Pearson's bivariate analysis shows the relationship between the two variables. According to Table 7, it is noted that CAR had a weak negative relationship with ROA and ER and had a weak positive relationship with NII TO GI. T1CR, DBTA, and DFCDL had a weak positive relationship with ROA and had a weak negative relationship with NII TO GI and ER. NPL TO TLA ratio had a weak negative relationship with ROA, a strong negative relationship with NII TO GI, and had a weak positive relationship with ER. SPCR had a weak negative relationship with ROA and ER and had a weak positive relationship with NII TO GI. SLAR had a weak positive relationship with ROA and ER and had a weak negative relationship with NII TO GI.

**Table 7: Correlation analysis**

Variables	CAR	T1CR	NPL	SPCR	SLAR	DBTA	DFCDL	ROA	NII	ER
CAR	1									
T1CR	0.7640***	1								
NPL	-0.0849	0.0975	1							
SPCR	-0.2142	-0.4240***	-0.3264**	1						
SLAR	0.4232***	0.5745***	0.5738***	-0.2976**	1					
DBTA	0.2544*	0.4442***	-0.0440	-0.2110	0.2718**	1				
DFCDL	0.0833	0.2818**	-0.1685	-0.1604	-0.0091	0.6468***	1			
ROA	-0.0909	0.3342**	-0.1359	-0.0558	0.1543	0.3101**	0.2366*	1		
NII	0.2676*	-0.1209	-0.5607***	0.3503***	-0.3524***	-0.2071	-0.1453	-0.4128***	1	
ER	-0.1097	-0.0635	0.3370**	-0.3297**	0.0316	-0.0664	-0.0327	-0.6634***	0.0224	1

**Notes:** \* $p < 0.10$ ; \*\* $p < 0.05$ ; \*\*\* $p < 0.01$

Please see Table 1 for profile of variables.

## Regression analysis

**Table 8: Multiple Regression Analysis**

Variables	Model - 1	Model - 2	Model - 3
	ROA	NII TO GI	ER
	-0.3221***	2.2294***	0.2957
CAR	(0.0525, -6.1269)	(0.58289, 3.8247)	(0.7770, 0.3806)
	0.3924***	-1.5694*	-0.7838
T1CR	(0.0745, 5.2657)	(0.8261, -1.8996)	(1.1013, -0.7117)
	-0.0823***	-0.7633**	0.7965*
NPL	(0.0271, -3.0293)	(0.3011, -2.5346)	(0.4014, 1.9838)
	0.0052	0.0784	-0.1924**
SPCR	(0.0061, 0.8633)	(0.0679, 1.1538)	(0.0906, -2.1238)
	0.0200	-0.1116	-0.1906
SLAR	(0.0137, 1.4612)	(0.1521, -0.7336)	(0.2028, -0.9399)
	0.0368	-0.4714	-0.1155
DBTA	(0.0503, 0.7318)	(0.5583, -0.8443)	(0.7442, -0.1552)
	-0.0312	-0.2003	0.1476
DFCDL	(0.0446, -0.6993)	(0.4953, -0.4045)	(0.6602, 0.2235)
	0.7239	61.484	67.3698***
C	(0.7595, 0.9530)	(8.4208, 7.3014)	11.225, 6.0014)
R <sup>2</sup>	0.5455	0.5482	0.2318
Adjusted R <sup>2</sup>	0.4764	0.4795	0.1149
F-statistic	7.8902	7.9762	1.9835
Prob(F-stat)	0.0000	0.0000	0.0479
Durbin-Watson	1.1822	1.1418	1.0076
Obs.		55	

**Notes:**\*p< 0.10; \*\*p< 0.05; \*\*\*p< 0.01

Numbers in parentheses are Std. Error and t-statistics respectively; Please see Table 1 for a profile of variables.

After the objectives of this study, Table 08 shows the statistical significance of the independent variables in the three models. The R<sup>2</sup> value of model 1 is 0.5455 which indicates that 54.55% of the variation in model 1 is explained by the variables in model 1. F-statistic for model 1 proves that model 1 was fit since its Prob(F-stat) value is 0.0000 which is less than 0.05. Durbin-Watson stat is 1.1822 which is closer to 2 infers evidence in favor of no autocorrelation. According to the multiple regression analysis, the findings revealed that CAR had shown a negative significant relationship with the ROA. This study is consistent with the previous studies of Kosmidou (2008), Almaqtari et al. (2018), Iskandar, Yahya, and Wahid (2019), and Lisa and Aliya (2021)



and found inconsistent with Bandara (2015) who found an insignificant impact of CAR on ROA. NPL had shown a negative significant relationship with the ROA. This study is consistent with the previous studies of Lisa and Aliya (2021) and Koroleva et al. (2021) and found inconsistent with Brunilda and Elvana (2015) who found NPL ratio had an insignificant impact on profitability. T1CR has shown a positive significant relationship with the ROA. Other variables namely SPCR, SLAR, DBTA, and DFCDL were found insignificant relationship with ROA. This study is consistent with the previous studies of Kosmidou (2008) and contrary with Muhammad (2016) who found a significant impact of Liquidity on ROA. The hypotheses  $H_{1a}$ ,  $H_{1b}$ , and  $H_{1c}$  were accepted while other hypotheses from  $H_{1d}$  to  $H_{1g}$  were rejected. Further by using the results of the Table 08, the econometric model for the ROA (model 1) can be expressed as follows:  $ROA = 0.7239 + -0.3221 CAR + 0.3924 TICR + -0.0823 NPL\_TO\_TLA + 0.0052 SPCR + 0.0200 SLAR + 0.0368 BTAR + -0.0312 DFCDL + \epsilon$

The  $R^2$  value of model 2 is 0.5482 which indicates that 54.82% of the variation in model 2 is explained by the variables in model 2. F-statistic for model 2 proves that model 2 was fit since its Prob(F-stat) value is 0.0000 which is at less than 0.05. Durbin-Watson stat is 1.1418 which is closer to 2 infers evidence in favor of no autocorrelation. According to the multiple regression analysis, the findings revealed that only two variables namely T1CR and NPL\_TO\_TLA have shown a negative significant relationship with the NII TO GI. CAR has shown a positive significant relationship with the NII TO GI. Other variables namely SPCR, SLAR, DBTA, and DFCDL were found insignificant relationship with NII TO GI. Therefore, the hypotheses  $H_{2a}$ ,  $H_{2b}$ , and  $H_{2c}$  were accepted while other hypotheses from  $H_{2d}$  to  $H_{2g}$  were rejected. The econometric model for the NII TO GI (model 2) can be expressed as follows:  $NII TO GI = 61.484 + 2.2294 CAR + -1.5694 TICR + -0.7633 NPL\_TO\_TLA + 0.0784 SPCR + -0.1116 SLAR + -0.4714 BTAR + -0.2003 DFCDL + \epsilon$

The  $R^2$  value of model 3 is 0.2318 which indicates that 23.18% of the variation in model 3 is explained by the variables in model 3. F-statistic for model 2 proves that model 2 was fit since its Prob(F-stat) value is 0.0479 which is less than 0.05. Durbin-Watson stat is 1.0076 which is closer to 2 infers evidence in favor of no autocorrelation. According to the multiple regression analysis, the findings revealed that only two variables namely NPL\_TO\_TLA and SPCR have shown a negative significant relationship with the ER. Other variables namely CAR, SPCR, SLAR, DBTA, and DFCDL were found insignificant relationship with ER. Therefore, the hypotheses  $H_{3c}$  and  $H_{3d}$  were accepted while other hypotheses from  $H_{3a}$  to  $H_{1b}$  from  $H_{3e}$  to  $H_{1g}$  were rejected. The econometric model for the ER (model 3) can be expressed as follows:  $ER = 67.3698 + 0.2957 CAR + -0.7838 TICR + 0.7965 NPL\_TO\_TLA + -0.1924 SPCR + -0.1906 SLAR + -0.1155 BTAR + 0.1476 DFCDL + \epsilon$

The next section shows the conclusion of the study.

## 5. Limitations

Because of the multicollinearity issue among the independent variables this study only used seven proxies as bank-internal factors. Common equity tier 1 ratio, tier 1 capital to total assets ratio, equity capital and reserves to total assets ratio, non-performing loans to equity capital and reserves, and net non-performing loans to equity capital and reserves can be used to measure the capital adequacy. The total provision coverage ratio, total loans and advances to total assets, foreign currency-denominated loans to total loans, and advances, and investments to total assets can be used to measure the asset quality. Current and savings deposits to total deposits, credit to total deposits, credit to deposits and borrowings, liquid assets to short-term liabilities, and deposit to total loans can be used to measure the liquidity of the banks. Deposits to total assets and capital to total assets can be used to measure the asset funding structure of the banks. Return on equity, total income to average assets, net interest margin, and non-interest income to average assets can be used to measure the profitability measurement. Future researchers should focus on the above bank-internal factor to examine whether they significantly impact the profitability of the banking industry.

This study has only been used the bank-internal factors but there are macroeconomic indicators like GDP rate, inflation rate, interest rates, and market growth which may lead to influence the banks' performance. Future researchers should also focus on macroeconomic factors as well. Further, the researchers should investigate the impact of bank-internal factors on profitability as a comparative study between LCBs and LSBs to get more insights.

## 6. Conclusion

This study attempts to examine how the Bank-internal factors impact the profitability of the banking industry in Sri Lanka. Based on the findings obtained from the multiple regression analysis it can be concluded that CAR had a negatively significant impact on ROA and a positive significant impact on NII TO GI. But CAR had an insignificant impact on ER. T1CR had a positively significant impact on ROA and a negatively significant impact on NII TO GI. But T1CR had an insignificant impact on ER. NPL\_TO\_TLAR had a negatively significant impact on both ROA and NII TO GI. Also, NPL\_TO\_TLAR had a positively significant impact on ER. SPCR had a negatively significant impact on ER. Other internal factors such as SLAR, DBTA, and DFCDL were found to be insignificant with the profitability measures. The findings of the study seem to suggest that CBSL policies should boost the banking industry to raise its assets and capital base. The banks need to maintain the minimum required rates of capital adequacy and statutory liquid assets. Also, it needs to maintain the asset quality systematically by managing the NPL ratios to enhance the banking industry's profitability.

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