

NON-PERFORMING LOANS AND PROFITABILITY: EVIDENCE FROM LISTED BANKS IN SRI LANKA

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ABSTRACT

Non-performing loans are the consequence of ineffective management of loan assets of the financial institutions. Tstudy's primary aim is to examine the impact of non-performing loans on the profitability of listed banks in Sri Lanka. The secondary data was collected for 11 individual banks for the period from 1998 to 2018 based on Central Bank's publications. In order to test the hypothesis, time series analysis was carried out by the researcher. The study incorporates, non-performing loan as an independent variable, return on the asset as the dependent variable and capital adequacy ratio, liquidity ratio as control variables. The study employed descriptive statistics, unit root test, multicollinearity test, correlation analysis, regression analysis and co-integration test as research techniques to analyze the data. Using E-views 8 software application, the study revealed a negative significant impact of the non-performing loan on return on assets of listed banks in Sri Lanka, which implies that the increasing level of default loan repayments negatively impacts the profitability of the banks in Sri Lanka. Concerning control variables, capital adequacy ratio and liquidity ratio do not significantly impact the profitability of banks listed in Sri Lanka. The significant impact of the non-performing loan on profitability suggests that the banks should consider when they provide loans to their customers. The banks' efficient mechanisms to investigate the ability to repay the loans by the customers at the point of granting the loans. The study's findings provide more insights to the financial institutions, including banks and other finance companies, to make fruitful decisions on loan asset creation.

Keywords: *non-performing loan, ordinary least squares, profitability, return on assets*

INTRODUCTION

Banks play a significant role in the development of a sound economy. Its main business is to furnish the financial institutions generally serve as financial intermediaries. It is their function to mobilize funds savers by issuing to their securities. Banks are financial institutions whose primary objective is the management of assets and liabilities. Credits and advances and to act as depositories of public savings. The source of income to the banks is from collecting interest on loans and interest or dividends payments from the securities they own. Therefore, a loan is a significant asset the banks own, however, it is the riskiest asset of the bank.

Credit creation explained as the primary income generating activity of banks (Kargi, 2011). However, it exposes the banks to account for credit risk. Credit risk is an internal factor that influences the bank performance. The higher chances of a bank to credit risk, the higher the bank's tendency to experience financial crisis and vice-versa. Financial institutions worldwide face several risks of nonperforming loans, it is prudent for these institutions to introduce monitoring mechanisms to follow up with borrowers' activities. Credit risk management's significance has increased significantly in the developing countries for both lenders and borrowers.

Non-performing loans interrupt on banks' objectives in several ways. The adverse effect of credit risk and non-performing loans on banks performance and the economy has made the issue of Non-performing loans a global one and of great importance in the last decades. According

to Hou and Dickinson (2007), many researches carried out to find out the factors influencing the bank failures found that asset quality is a statistically significant factor of insolvency. That implied that the failing banks experienced a massive level of Non-performing loans before failure.

Non-performing loans are considered an important factor because they affect the financial intermediation role of commercial banks, which constitutes the banks' main source of their income and, ultimately, the economy's financial stability (Klein, 2013)—considering the impact non-performing loans highly attracted that a consequence of a large amount of NPLs in the banking system is bank failure and a symptom of economic slowdown (Lata, 2014). This is largely because any commercial bank's financial performance is measured in terms of profitability and Non-performing loans have a direct adverse impact on the bottom line since the allocation which the banks are forced to make on account of the Non-performing loans (Balasubramaniam, 2013). Some researchers have stated that an increase in Non-performing loans rate reflects the failure of credit policy (Saba, Kouser and Azeem, 2012). Khemraj and Pasha (2012) explain that high percentages NPLs are often associated with banks' performance problems and financial crises in both developing and developed countries. Fofack (2005) associates the occurrence of banking crises with a massive accumulation of NPLs and further observes that the NPLs account for a significant portion of total assets of insolvent banks and financial institutions. Even though the level banks 'asset growth is analyzed the level of default in repayments is also required to analyze to make the banking system's effectiveness.

Therefore, the researcher identified as the opposite of the asset growth analysis, which can be explained as non-repayment of loans and the impact on profitability on listed banks in Sri Lanka and the lack of recent research on this topic as the research gap developed the present study.

On this premise, therefore, some of the pertinent questions to be addressed by the study are as follows:

To what extent do non-performing loans affect the performance of banks in Sri Lanka?; To what extent does loan loss provision affects the performance of banks in Sri Lanka?; To what extent do loans and advances impact on the performance of banks in Sri Lanka? Consequently, this study's direction is to empirically establish the effect of non-performing loans on the performance of commercial banks in Sri Lanka.

Problem Statement

Non - performing loans are directly affecting the profitability of the banks adversely. Since the opportunity cost arises due to investing in a way where interest margins are not receivable and if it is invested in a different investment method from which the revenue can be generated (Kirui, 2014). Therefore, there enough researchers carried out previously by authors to find out the relationship between non-performing loan and profitability. Since most of the studies are analysed the relationship between the two variables is from outside Sri Lanka (Kirui, 2014; Akter & Roy, 2017; Ozurumba, 2016; Mwinlaaru, Ofori, Adiyiah & Idun, 2016; Ozili, 2019). However, in Sri Lanka, most of the analysis is based on finding out the determinants of the non-performing loan (Suganya & Kengatharan, 2018; Ekanayake & Azeez, 2015; Amarathunga, 2015).

Therefore, the direct impact of the non-performing loan on the profitability of the banking sector in Sri Lanka is being an under-researched area; the researcher develops the research problem for the study as follows:

“This paper will investigate whether or not, the non-performing loan has an impact on the profitability of the banks listed in the Colombo Stock Exchange of Sri Lanka.”

Objectives of the Study

The following can be mentioned as the main objective of this study.

- To find out the impact of the non-performing loan on the banks' profitability listed in the Colombo Stock Exchange of Sri Lanka.

Significance of the Study

Non-performing loans within the banks should be carefully monitored and the continuous follow-ups need to be carried out to avoid the disputes. Therefore, it is important for the management of the banking sector to understand how significantly the non-performing loans influence the banks' profitability. Further, the significant amount is tied up with the investment over a non-performing loan; the liquidity position also becomes a big issue in this regard. By considering the above-mentioned significance of non-performing loans, this study would contribute to ensuring the relationship and the impact of non-performing loans and the banks' profitability in Sri Lanka. Also,

- This study provides an overview of the significance of appropriate management of non-performing loans to the banks.

- This study provides an evidence of whether or not the non-performing loans affect the profitability of the banks listed in the Colombo Stock Exchange of Sri Lanka.

LITERATURE REVIEW

In order to gain an idea about the previous researches carried out in the area of non-performing loan and the impact on bank performance, the literature review has been carried out and this has been summarized below.

Kumarasinghe (2017) analyzed the determinants of non-performing loans in the licensed commercial banks in Sri Lanka based on the data from 1999 to 2012. The study employed non-performing loan, operation expense, return on assets, loans to total assets ratio, loan growth, size of the bank, gross domestic product, inflation, unemployment rate and average prime lending ratio as independent variables and found that non-performing loans negatively contributes to the bank efficiency operations. Also revealed that a positive correlation between loans to asset ratio and non-performing loan, the high level of credit growth associated with a lower level of non-performing loans and larger banks incurred reduced level of loan defaults compared to smaller banks.

Rathnasiri, (2016) investigated the impact on credit risk on the profitability of commercial banks in Sri Lanka according to the data collected from 2005 to 2015 over 5 domestic banks. The researcher considered non-performing loans to total loans, provision for loan losses, total loans to total assets, total loans to total deposits, size of the banks, annual inflation rate, gross domestic product growth as independent

variable in the study. The regression results revealed that other than provision for loan losses, total loans to total assets ratio and gross domestic product, the other variables considered in the study revealed a significant impact on the commercial banks' profitability in Sri Lanka.

Nkegbe and Ustarz (2015) examined the trends and determinants of bank performance in Ghana using the data collected from 2000 to 2010 for 27 banks by employing a panel data regression model. The study incorporated return on equity, return on assets and net interest margin as proxies of the dependent variable, profitability and liquidity, non-performing loans, bank size and operational efficiency as the independent variable. The study's findings reported a negative direction in bank performance and a positive relation between the market of loan and bank performance. Results further indicated that liquidity, market share of loans and operational efficiency positively associated all profitability indicators. However, the non-performing loan was reported as having a negative relation with ROE and ROA. Provision of training to the informal sector on financial statement preparation was suggested as a means of dealing with non-performing loans.

Kozaric and Zunic (2015) analyzed the relation between risks to which banks are exposed, the rate of non-performing loans, and the rate of capital adequacy in Bosnia and Herzegovina's banking system. They used the indicators of profitability ROAA and ROAE, risk-weighted assets, the share of loans in total assets, the ratio of loans/deposits, ratio for the share of liquid assets in total assets and liquid assets terms of long-term obligations as indicators of bank's performance. They

concluded a strong correlation between the rate of capital adequacy and non-performing loans, ROAA and ROAE. The non-performing loans have a strong negative correlation with indicators of liquid assets participation in total assets and liquid assets in long-term liabilities. Authors recommend that banks in Bosnia and Herzegovina pay more attention to non-performing loans, which are among the biggest dangers for their liquidity and stability.

Bank profitability and sustainability can only be provided through a proper flow of interest income generated through banks' lending function. However, since banks are no longer able to generate enough interest income through classical safe credit and are required to maintain reserves in the form of provisions to cover for eventual loan losses, bank capital decreases with their health, which is becoming fragile, increasing the trend of NPLs. Therefore, banks are required to take proactive action to deal with the phenomenon of borrowers' bad choice by identifying and understanding the macroeconomic factors that contribute to the rise of classified credit in the banking system (Anjom and Karim, 2015).

Nikolaidou and Vogiazas (2014) analyzed the determinants of credit risk in the Bulgarian banking sector during the decade 2001-2010 through the movement of non-performing loans. The survey shows that the movement of non-performing loans is significantly affected by construction activity, the unemployment rate and credit growth, both in the short and long term. The conclusions are that the global financial crisis and the domestic regulatory framework for banks have a significant impact, but the Greek crisis plays a nonmaterial role. This is explained

with effective regulation and strong supervisory cooperation between Greece and Bulgaria's central banks.

Asantey & Tengey (2014) emphasized the effects of bad loans on banks' lending ability and financial performance using the data collected from 2008 to 2013 for four listed commercial banks. Using Ordinary Least Square model, the study discovered a high negative correlation between bad loans and lending ability and a high negative correlation between bad loans and financial performance, measured as return on investment or net profit.

Kithinji (2010) investigated the impact of credit risk management on the profitability of Deposit Money Banks in Kenya using the data on the amount of credit, level of non-performing loans and profits collected for the period from 2004 to 2008 found that the bulk of the profits of Deposit Money Banks are not influenced by the amount of credit and non-performing loans, therefore concluded that other variables other than credit and non-performing loans impact on profits.

Felix and Claudine (2008) analyzed the relationship between bank performance and credit risk management. The findings revealed that return on equity and return on assets both measuring profitability were inversely related to the ratio of non-performing loans to total loan of financial institutions, therefore resulting in a decline in profitability.

Stallion (2004) assessed the impact of non-performing loans as a major cost of bank failure. Therefore, the results positively stated that, although

poorly managed trading risk can quickly distress a bank, the oldest and most significant cause of bank failure is still loans that turn sour (Nwankwo, 1990). The banks with high levels of non-performing loans largely constitute bank failures, which would stop further lending business relations by the affected banks and adversely affect economic development. The effect of non-performing loans can be destructive to an economy if not checked as a multiple of failure banks can erode the banking public's confidence, which will harm the whole banking industry.

Credit risk exposure to the bank's performance is a serious threat; therefore, various researchers have examined banks' impact on banks in different perspectives. This has been commented that credit risk management greatly influences or prevents the failure of a bank. The quality of the credit decisions taken by the management of a bank is influenced to a huge extent for the banks' failure. Quality of the bank's credit portfolio can be measured based on credit risk management. (McNaughton, 1994).

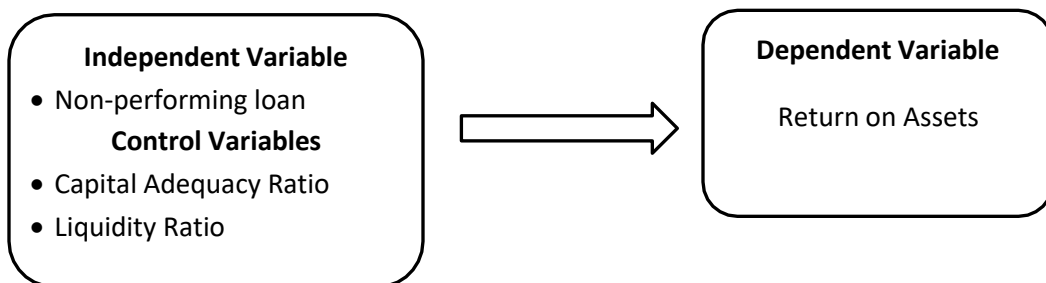
RESEARCH METHODOLOGY

Data Collection and Sampling

This study's sample is confined to the 11 individual licensed domestic banks listed in the Colombo Stock Exchange of Sri Lanka. Since the banking industry mostly accounts for the non-performing loans, domestic licensed commercial banks are considered in this study. Using time-series model the data has been collected and descriptive statistics, unit

root test, multicollinearity test, correlation test, regression test and Co-Integration test were carried out to analyze the significant relationship between non-performing loan and profitability. The data is collected from the year 1998 – 2018.

Conceptual Framework



Source: developed by the researcher

Figure 1: Conceptual Model

Operationalization

Table 1: Measurement of variables

Variables	Acronyms	Measures
Dependent variable		
Return on Assets	ROA	$\frac{\text{Net Profit before tax}}{\text{Total Assets}} * 100$
Independent variable		
Non-Performing Loan	NPL	$\frac{\text{Non – Performing Loan}}{\text{Total Loans}} * 100$
Control variables		
Capital Adequacy Ratio	CAR	$\frac{\text{Tier I + Tier II}}{\text{Risk Weighted Assets}} * 100$

Liquidity Ratio	LQR	$\frac{\text{Current Assets}}{\text{Current Liabilities}} * 100$
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Hypothesis of the Study

In this research, the following hypotheses are formulated to examine the relationship between variables.

Hypothesis (H₁): Non-performing loan significantly impacts on the profitability of banks listed in Sri Lanka.

Regression Equation

To examine the extent to which non-performing loan affects profitability, we estimate the following time series data regression model that links non-performing loan with profitability:

$$ROA_{it} = \beta_0 + \beta_1 NPL_{it} + \beta_2 CAR_{it} + \beta_3 LQR_{it} + \varepsilon_{it}$$

Where ROA – Return on Assets
NPL – Non-performing Loan
CAR – Capital Adequacy Ratio
LQR – Liquidity Ratio

ε – Error
i - Firms
t – Years

DATA ANALYSIS

Descriptive Statistics

Descriptive statistics are useful to make general observations about the data collected. They report on the trends and patterns of data and provide the basis for comparisons between variables.

Table 2: Summary Statistics

	NPL	CAR	LQR	ROA	ROE
Mean	4.205	14.203	32.557	1.176	15.579
Median	3.037	14.474	31.701	1.235	16.156
Maximum	9.519	17.601	39.501	1.804	22.027
Minimum	1.248	10.398	27.579	-0.065	-1.023
Std. Dev.	2.806	2.165	3.241	0.410	4.851
Skewness	0.850	-0.286	0.872	-1.171	-1.778
Kurtosis	2.205	1.864	2.944	5.243	7.649
Jarque-Bera	3.080	1.415	2.667	9.202	29.978
Probability	0.214	0.493	0.264	0.010	0.000
Sum	88.314	298.253	683.695	24.702	327.155
Sum Sq. Dev.	157.472	93.743	210.109	3.366	470.614
Observations	21	21	21	21	21

Table 2 presents descriptive statistics for the variables used in the analysis for our pooled sample. The pooled mean (median) ROA is 1.176 (1.235), respectively. The average of ROE is 15.579 (the median is 16.156). The average of NPL is 4.205% (the median is 3.037%). Concerning the control variables included in our model, the average of CAR is 14.203 (the median is 14.474) and the average of LQR is 32.56 (with the mean of 31.701). These summary statistics indicate that the sample used in this study is comparable to those used in prior research in the context of Sri Lanka.

Unit root test

Table 3: Stationary test

Variables	Level			First Difference		
	Test with intercept	Test with trend and intercept	Lag length	Test with intercept	Test with trend and intercept	Lag length
NPL	-	-	-	-0.2119	-3.8892	2
CAR	6.2672	-2.9547	1	-	-	-
LQR	-	-	-	-0.4078	-3.6737	2
ROA	-	-	-	11.1050	-4.0046	2

The above table displays the unit root test results to test the data set's stationary. The results indicate that the variables non-performing loan, liquidity and return on assets are stationary at the first level difference and the capital adequacy ratio evidence the stationary in the data at 1 lag difference level. Therefore, the data can be used for the analysis based on the Ordinary Least Squares method.

Multi collinearity Test

Multi colinearity can be measured using the Variance Inflation Factor or Tolerance test. In this study, VIF was used.

Table 4: Variance inflation factor

Variable	Coefficient Variance	Centered VIF
Constant	630	NA
AUSIZ	0.001	2.100
AUINDE	0.002	2.510

Regression Analysis

Table 6: Relationship between non-performing loan and ROA

Dependent Variable: ROA

Method: Least Squares

Sample: 1 22

Included observations: 22

Variable	coefficient	std error	t-statistic	prob
C	0.701	0.794	0.883	0.389
NPL	-0.104	0.035	-2.988	0.008
CAR	-0.011	0.049	-0.229	0.822
LQR	0.032	0.024	1.371	0.187
Adjusted R Squared	0.441		Durbin-Watson stat	1.598
Prob (F-statistic)	0.004			

As observed, the results show that non-performing loans have a coefficient of -0.104 with t statistics of -2.988 and a p value of 0.008. The results indicate that there is a significant negative relationship between non-performing loan and profitability. (Akter & Roy, 2017; Batra, 2003; Mausya, 2009). About control variables, the results indicate that capital adequacy ratio and liquidity ratio do not show a significant impact on profitability (Kirui, 2014).

The adjusted R square shows that the model explained 44.1% of the dependent variable's total variations is described by these explanatory variables in the model. Probability of F- statistics indicates a value of 0.004, which indicates that the model selected perfectly fits the study.

The Durbin-Watson stats indicate a value of 1.598, which is less than 3. Therefore, it can be concluded that there is no auto-correlation issue in this study.

Co-Integration test using Johansen model

Co-integration test was carried out to test the co-integration among the variables and, therefore, ensure the long-term relationship. The table below shows the results of the test.

Table 7: Co-Integration test

Hypothesized no.	Trace test			Maximum eigenvalue test		
	Test Statistic	Critical value 5%	Prob.**	Test Statistic	Critical value 5%	Prob.**
of CE(s)						
NPL, CAR, LQR, ROA						
None *	107.9367	47.8561	0.0000	72.9709	27.5843	0.0000
At most 1 *	34.9659	29.7971	0.0116	18.6288	21.1316	0.1081
At most 2 *	16.3370	15.4947	0.0373	11.3754	14.2646	0.1364
At most 3 *	4.9616	3.8415	0.0259	4.96160	3.8415	0.0259

The maximum eigenvalue test results show that the variables non-performing loan, capital adequacy ratio, liquidity ratio and return on assets show co-integration among the variables since the probability values are more than the critical value in this test. Therefore, the variables considered to analyze the impact of the non-performing loan on

the listed commercial banks' profitability posits a long term negative significant relationship.

CONCLUSION

Based on the study's analysis, it was evidenced that there is a significant negative relationship with non-performing loan and profitability of the study. The results imply that if the level of the non-performing loan increases the profitability of the bank gets reduce. Therefore, the management over the non-performing loan is crucial for the banks in order to maintain their profitability. Using time series data for the period from 1998 to 2018, it was found that in the banking sector of Sri Lanka, the non-performing loans significantly impact the profitability. Therefore, the finding of the study is in line with the previous findings of Akter & Roy, 2017; Batra, 2003 and Mausya, 2009. Further, this shows a long term relationship based on the evidence of Co-Integration test. Malpractice within the banks is to achieve the target for a particular period which is motivated by attractive incentive schemes. Therefore, the management would try to provide more loans without the proper investigation on repayment, which causes to increase in non-performing loans. Therefore, the study suggests employing a proper mechanism to investigate the loan repayments to avoid the default payments. Decision-makers in the banking industry, students, and academicians can benefit from the results of the study's findings. Therefore, the study contributes to making an appropriate decision over assets growth for the banks and to significant concern over the collateral requirements at the time of granting loans. Further, the findings of this study is based on the secondary data collected. The consideration of direct interviews or

questionnaires over the management would provide more information and this provides more validity towards the findings.

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