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Assessing Credit Risk Management: An Analysis of the Sri Lankan Bank of Ceylons' Profitability

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Abstract

Banks are exposed to several dangers in the quickly changing financial landscape of today, which may have a substantial impact on their overall stability and profitability. Maintaining a bank's competitive edge and long-term profitability now depends heavily on effective risk management. Examining the elements that affect Bank of Ceylons' (BOCs') operations is essential to overcoming these obstacles and enhancing their performance. Using return on assets and net interest margin as stand-ins, this study aims to examine how risk management affects Sri Lankan BOCs' performance. The research examines many facets of risk management, including operational, bank capital, credit risk, and liquidity risk, as well as how these factors impact a bank's profitability.

The study looks into how risk management affects Bank of Ceylon using panel regression analysis. Ten Sri Lankan Bank of Ceylons listed on the Colombo Stock Exchange (CSE) were included in the study. Credit risk, bank capital, and operational risk all had statistically significant effects on return on assets (ROA), and operational risk also had a statistically significant effect on net interest margin (NIM), according to the study's findings. The outcome demonstrates the statistical significance of the models as a whole. According to the study, risk management has a significant effect on Sri Lankan Bank of Ceylons' financial performance.

Additionally, the study found a substantial correlation between financial performance (ROA and NIM) and credit risk management and operational risk management. According to the study's findings, when assessing financial performance, the ROA model can serve as the most appropriate stand-in for risk management.

Key Words: *Credit Risk Management, Profitability, Bank of Ceylon, Sri Lanka.*

Introduction

Background

Every country's economic growth is greatly aided by the banking sector. Well-regulated banks provide a substantial contribution to the economy of any country by providing financial services (Kolapo, Ayeni, & Oke, 2012). Lending operations, which are central banking functions, are the most lucrative asset of credit institutions. Improving bank performance in order to maximize profits for shareholders is the core objective of bank management. The goal is achieved at the cost of increased risk, which may lead to reduced profits, caused to poor performance.

According to the business lexicon, risk is the possibility or danger of harm, wound, accountability, cost, or another unfavorable consequence resulting from inside or outside weaknesses that are preventable with proactive measures. In today's complex and dynamic business environment, banks are exposed to a number of hazards that might significantly impact their overall profitability and financial health. Banks worldwide now see risk management as a crucial discipline to protect their interests and boost performance.

A greater ROE indicates that the company is more adept at making money. This study will use ROA and ROE as the measures of profitability in Bank of Ceylons since they are markers of the strength of financial institutions and effective utilization of resources, respectively. Regulators, practitioners, and academics all concur that a crucial aspect of bank management is efficient risk management.

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The Basel Accords on international banking regulations and financial stability respond to this reality and the requirement for a holistic approach to bank risk management.

In order to maintain long-term profitability and support the nation's general economic growth, banks in Sri Lanka must give risk management first priority as their industry expands. Thus, this study's main objective is to determine how risk management affects bank profitability in Sri Lanka, a South Asian country that is growing quickly.

Research Problem Identification and Justification

Problem Statement

The impact of risk management on Sri Lankan banks' profitability is the research question this study attempts to answer. Gaining knowledge about how globally recognized risk management strategies impact Sri Lankan banks' profitability can help one better understand how these strategies interact with the unique features of the country's financial system. This study aims to improve risk management in Sri Lankan banks by investigating the effect of risk on profitability. The findings will inform policy and improve financial stability. The creation of stronger risk management frameworks and regulations which support long-term viability and resilience of the nation's banking industry can be guided by such findings.

Studies established on this theme are for various countries. Research articles focus on credit risk which is the key element of risk management in many banks globally. In order to secure better performance, it is necessary for all-inclusive risk management in all financial institutions, mainly in BOCs'. According to KPMG, Sri Lankan Banking Report in year 2020 emphasizes the need of systematic risk management in banks, especially in Sri Lanka. There is not much research on synthesizing several risk factors to investigate their incorporated impact on financial performance in Sri Lanka. This study is to bridge the empirical gap in existing research on the profitability of the banking industry in Sri Lanka by examining a wider range of factors in addition to credit risk.

Objectives

Main objective

To investigate how risk management affects Sri Lankan BOCs' profitability.

Specific Objectives

1. To determine how credit risk management affects Sri Lankan banks' return on assets (ROA) and net interest margin (NIM).
2. To determine how liquidity risk management affects Sri Lankan banks' return on assets (ROA) and net interest margin (NIM).
3. To determine how bank capital management affects Sri Lankan banks' return on assets (ROA) and net interest margin (NIM).
4. To determine how operational risk management affects Sri Lankan banks' return on assets (ROA) and net interest margin (NIM).

Significance of the Research

Objective of this study is to add to the corpus of previous work through investigating how risk management affects Sri Lankan banks' profitability, with a focus on credit risk and common exposures. For bank management, regulators, industry participants, and investors, the findings are extremely pertinent. Additionally, they provide helpful data that aid in the decision-making of lenders, bank management, shareholders, external investors, and politicians. In order to solve problems with effective risk management in BOCs', this study contributes to the corpus of novel insights in the new perspectives and allied domains.

Literature Review

This study investigates the relationship between risk management and the profitability of Sri Lankan banks, with a focus on credit risk and common exposures. Its findings are significant because they offer data that aids in the informed decision-making of investors, law makers, bank management, shareholders, and regulators. Our knowledge of these and related topics is advanced by the study, which tackles problems with effective risk management in BOCs'. Examining the relationship between risk management and Sri Lankan banks' financial performance is the aim of this research study.

- **Credit Risk Management and Profitability**

  Credit risk management is the chance that a counterparty to a contract will not live up to its contractual obligations. Credit risk arises when the other party fails to fulfill their obligations as agreed upon in the contract. Hence, credit risk establishes itself when a bank fails to recover the money it lent to a borrower, counterparty, or obliged (Comford, 2005). And the credit risk is the potentiality that the bank may be unable to receive the principal or interest on loans and securities as pledged.

  Banks are able to totally eliminate credit risk through effective risk management, which includes a complete credit risk analysis based on inspecting and observing the most creditworthy loan applications, the amount of security, portfolio diversification, and precise loan pricing based on the borrower's repayment capability and intents. A few borrowers' defaults might cause huge losses for a financial institution and perhaps generate serious financial instability for the entire economy.

- **Liquidity Risk Management and Profitability**
  Liquidity risk is a bank's failure to satisfy depositor withdrawals or other obligations quickly that could forcibly lead banks to rapidly sell up their assets (Kithinji, 2005). It potentially causes a bank to fail to fulfill its obligations. Particularly, liquidity risk arises from unexpected outflows of cash and the lack of enough readily available cash to satisfy short-term obligations of the bank.
  However, a number of financial hazards, including market, interest rate, credit, and strategic risks, are also triggered by liquidity risk. For example, because future financing and investment rates are uncertain, liquidity risk raises interest rate risk. Between 2003 and 2006, it was studied a sample of 25 banks in Bangladesh. The findings confirmed liquidity risk positively correlated with bank performance, suggesting that banks need better liquidity to function more efficiently.
- **Bank Capital Management and Profitability**
  The first step in capital that will protect the banking industry against widespread adversity is restructuring banks' existing capital structures. And, the capital is an opportunity to elevate the standard in any corporate setting. It generates outstanding outcomes while dividing up company effort. Consequently, capital promotes recapitalization when it seems to meet the requirements of certain banks by increasing the minimum paid-up capital, allowing banks to communicate with customers more successfully and efficiently. Additionally, increased bank capital strengthens to the protection of financial steadiness. Also, it lessens financial hardship of the bank.
  Capital and risk are likely to be impacted by banking companies' profitability. According to the "regulatory hypothesis", which holds that capital and risk are positively correlated, regulators push banks to raise their capital in line with the level of risk they are incurring. The "moral hazard hypothesis", which holds that banks have an incentive to exploit the existing flat deposit insurance programs, can be used to describe a negative connection.
- **Operational Risk Management and Profitability**
  Operational risk is the potentiality of directly or indirectly losing cash or assets due to failures in internal operations, people, systems, or from external incidents. Operational risk is the term used to describe the direct or indirect losses that a financial organization may sustain due to both external environmental conditions and inadequate or failed internal operations, processes, and staff, (State Bank of Pakistan, 2003). According to multiple other viewpoints, operational risk is associated with the chance of bad impacts on the bank's capital and financial performance as a result of employee carelessness, subpar internal processes, insufficient management information systems, or uncertain and unsatisfactory external occurrences.
  The Basel Accord Committee developed three pillars to help create a global standard that banking regulators can utilize when establishing laws concerning the amount of capital banks must reserve to defend against the several operational and financial risks they face. This is done for ensuring the strength of the financial system.
- **Development of Financial Performance**
  Efficiency may be used to assess the performance level of a business or decision-making unit. Three levels of efficiency may be distinguished: greater, equal, and lower than the actual or anticipated level of efficiency (Dang, 2011). The importance of investigating the efficacy of Decision-Making Units (DMU) has been emphasized in the present literature. Additionally, there is now more research on bank efficiency than ever before. Because banks must be both secure and effective, the risk factors should be taken into account while evaluating bank efficiency. As a result, the concepts of risk and efficiency are related.

Many authorities consider ROA to be the best measure of profitability. ROA indicates how much money the management can make from the total assets. Hence, ROA may be used to evaluate how efficiently bank's management generates profit from its total assets (Allharbi, 2017). ROA is the utmost reliable indicator of bank's profitability. It is due to the fact that large equity multipliers have little effect on ROA. Net interest margin (NIM) is a measure of the difference between the interest income and the interest expenses, relative to the amount of their (interest-earning) assets.

The bank does both lending and deposit collecting. It makes use of the funds that depositors provide at a reduced interest rate in order to lend money to borrowers at a greater interest rate. We must deduct the net interest expense from the net interest income in order to determine the NIM. A high NIM indicates improved bank profitability performance if asset quality is maintained.

Ng'aari (2016) asserts that as risk management practices positively affect banks' profits at any

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given period, they must be enhanced. His results demonstrate how important liquidity risk management is in influencing Kenyan banks' income statements, which leads to the presumption that managers who wish to increase their company's profits must monitor everything that can have an impact on their firms' liquidity. More critically, banks must maintain a manageable lending ratio in order to boost profitability in short-term debt crises.

And, the risk management and bank performance are closely related. Bank performance is improved by reduced expenses for poor and questionable loans, better risk management by managed funds, and a lower debt-to-equity ratio. As a result, banks need to manage risks responsibly for protecting their assets and investors' interests. For the purposes of this study, ten Nigerian banks were observed annually from 2006 to 2009.

Research Methodology

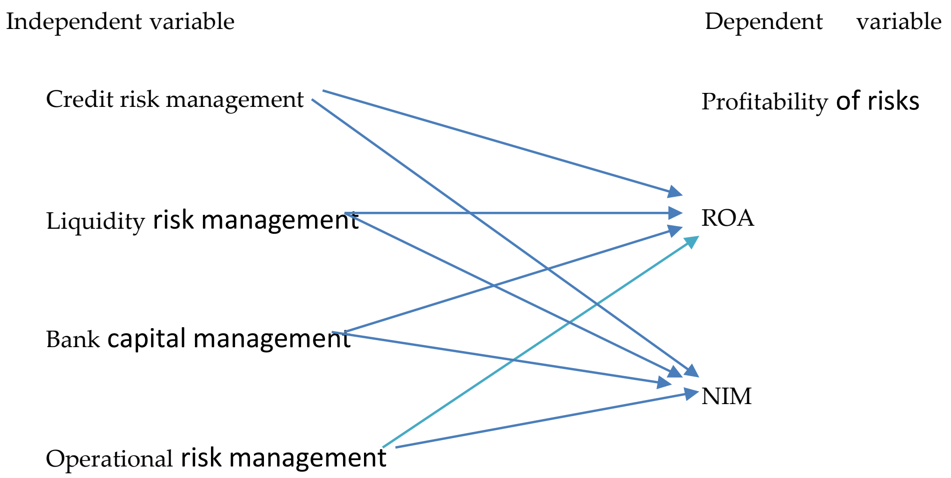
Design of Research

1. **Philosophy of Research**

The ideas and presumptions that guide a researcher's approach to knowledge and comprehension are referred to as their research philosophy. Since the reality of this study depends on a single fact, positivism is the philosophy chosen for this investigation.

2. **Logic of Research**
The logical framework and reasoning that direct the research process are referred to as research logic of quantitative investigation. Consequently, the deductive technique is linked to this study. This study uses a top-down methodology, moving from broad to specific.
3. **Methodology of the Research**
Due to its positivist and deductive nature, this study is closely linked to the quantitative method. This study uses secondary data from bank annual reports to evaluate theories while working with statistics or numbers.

4. **Conceptual Framework**



5. **Sample Identification**
The 24 BOCs listed with the Central Bank of Sri Lanka (CBSL) as of December 2022 are study's target population. The population of the research is all of the BOCs listed with the Central Bank of Sri Lanka. The sample chosen for this research study consists of 10 BOCs in the country. The argument is predicated on the market capitalization that is the highest data gathered during a ten-year period, from 2013 to 2022. Ten BOCs listed on the Colombo Stock Exchange (CSE) are chosen using purposive sampling technique.
6. **Data Collection**
The purpose of this study is to investigate the researcher's hypothesis using secondary data collected over a ten-year period (2013–2022).
7. **Data Analysis**
Multiple regression analysis was used to examine the relationship between one dependent variable and several independent factors using data gathered from the banks' annual reports. After that, STATA was used to examine the data using descriptive statistics.
The study employed annualized quarterly data from 2013 to 2022 to analyze time series data. Both banking and non-banking financial institutions subject to the Central Bank of Sri Lanka regulation were included in this data. The Central Bank of Sri Lanka's Financial Soundness Indicators (FSIs) served as the basis for data collecting. Data beyond 2022 was not included in the analysis because of anomalies

brought on by Sri Lanka's most recent economic crisis.

Analyze how the profitability of Sri Lankan financial institutions is affected by credit risk management and liquidity. To investigate this goal, the researcher created the following multiple regression model.

$$ROA_t = \beta_0 + \beta_1 (NPLA/TLA)_t + \beta_2 (TLQA/TDB)_t + \varepsilon_t \quad (1)$$

Hypothesis

H1a: A bank's return on assets (ROA) is significantly impacted by credit risk.

H1b: A bank's net interest margin (NIM) is significantly impacted by credit risk.

H2a: A bank's return on assets (ROA) is significantly impacted by liquidity risk. H2b: The bank's net interest margin (NIM) is significantly impacted by liquidity risk.

H3a: The bank's return on assets (ROA) is significantly impacted by bank capital.

H3b: The bank's net interest margin (NIM) is significantly impacted by bank capital.

H4a: The bank's return on assets (ROA) is significantly impacted by operational risk. H4b: The bank's net interest margin (NIM) is significantly impacted by operational risk.

Results and Discussion

The average Return on Assets (ROA) for Sri Lanka's banking industry was 1.228 percent per year, with a standard deviation of 0.190 percent over the studied period. The highest annual profit that was documented during this time frame was 1.434 percent. According to the average and highest ROA figures, the banking industry in Sri Lanka saw very low earnings on total assets between 2013 and 2022.

This implies that until the end of 2022, the banking industry in Sri Lanka continued to employ strong credit risk management procedures. Additionally, as a gauge of liquidity risk management, the study employed the ratio of liquid assets to deposits and borrowings. According to the statistics, the banking industry kept its liquidity assets ratio at 42.134 percent throughout the research period for satisfying the requirements of lenders and depositors. Nonetheless, the mean and maximum values indicate that in Sri Lanka's banking industry, liquidity risk management was less successful between 2013 and 2022.

And, it demonstrates the significant difference between credit risk management and liquidity risk management in Sri Lanka's banking industry prior to the 2022 financial crisis. It clearly conveys that, although credit risk management was successful, liquidity risk management was judged to be less successful between 2013 and 2022. This offers a good insight of the disparate risk management practices in the banking industry prior to the crisis.

The non-banking financial sector's mean Return on Assets (ROA) shows an average yearly profit of 2.681 percent in relation to total assets throughout the chosen time period. The yearly profit variance is displayed by the standard deviation of 1.261 percent, indicating that real earnings usually varied by this amount from the mean. Additionally, during the research period, the non-banking financial sector's most significant yearly profit was 4.620 percent.

Table 1. Descriptive statistics of banking institutions

	ROA	NPLA/TLA	TLQA/TDB
Mean	1.228	2.371	42.134
Median	1.299	2.343	41.831
Maximum	1.434	4.459	48.720
Minimum	0.888	1.248	35.749
Std. Dev.	0.190	0.833	3.693
Skewness	-0.710	0.763	0.280
Kurtosis	1.945	3.217	1.933
Jarque-Bera	4.170	3.168	1.935
Probability	0.124	0.205	0.380

Note: Author's Calculation. The results of all selected variables are in percentage.

Table 2. Descriptive statistics of non -banking financial institutions

	ROA	NPLA/TLA	TLQA/TDB
Mean	2.681	2.396	11.456
Median	2.914	2.253	11.276
Maximum	4.620	5.104	14.820
Minimum	-2.310	1.114	9.299
Std. Dev.	1.261	1.021	1.463
Skewness	-1.872	0.727	0.465
Kurtosis	8.756	2.853	2.383
Jarque-Bera	62.861	2.846	1.662
Probability	0.000	0.241	0.436

Note: Author's Calculation. The results of all selected variables are in percentage.

With non-performing loans and advances making up an average of just 2.396% of all loans over the chosen period, the ratio of non-performing loans and advances to total loans and advances shows that the non-banking financial sector has efficient credit risk management.

The above two tables 1 and 2 show that between 2013 and 2022, Sri Lanka's banking and non-banking financial sectors demonstrated efficient credit risk management, indicating that the financial sector has been successful in controlling and reducing credit risk during this time.

With non-performing loans and advances making up an average of just 2.396% of all loans over the chosen period, the ratio of non-performing loans and advances to total loans and advances shows that the non-banking financial sector has efficient credit risk management.

And, the tables 1 and 2 show that between 2013 and 2022, Sri Lanka's banking and non-banking financial sectors demonstrated efficient credit risk management, indicating that the financial sector has been successful in controlling and reducing credit risk during this time.

Prior to the economic crisis period that started in 2022, financial institutions in Sri Lanka demonstrated effective credit risk management, as evidenced by the credit and liquidity measurements of the banking and non-banking financial sectors. However, during the same period, these institutions demonstrated ineffective liquidity risk management. Between 2013 and 2022, the banking industry's management of liquidity risk was only somewhat better than that of the non-banking financial sector, but it was still below par. In order to guarantee stronger financial stability, our findings emphasize the necessity for banking and non-banking financial institutions to enhance their liquidity risk management procedures.

Conclusions and Recommendations

The study finds that there is a substantial relationship between the factors being examined and bank capital and profitability. As a result, the null hypothesis (H3) may be accepted. A bank with more capital can access more commercial prospects. And, the capable and adaptable in managing risk and reduces the likelihood of going bankrupt, which will lessen the need for borrowing and ultimately boost bank profitability.

Additionally, the study concludes that given the data have shown the significant and positive nature of the association between the two variables, the null hypothesis— that there is a substantial influence between operational risk management and banks' profit (ROA/NIM)— should be accepted.

The analysis of the relationship between risk management and Sri Lankan banks' profitability makes it abundantly evident that the adoption of effective risk management strategies has a major impact on these institutions' financial performance. In light of our results, we recommend that Sri Lankan banks focus on enhancing their risk management practices, particularly with regard to credit risk and liquidity risk, which were found to be important factors negatively influencing net interest margin and return on assets.

Additionally, in order to increase profitability, a significant quantity of bank capital must be maintained. Prioritizing effective operational risk management may also increase return on assets, to increase their financial stability and to compel banks to make investments in robust systems for risk assessment, monitoring, and mitigation.

- **Suggestions for Future Research**
  Furthermore, through this research study, it can suggest that further research be done on how risk management affects financial performance and how indicators affect the financial performance of other financial institutions, such as financial institutions (FIs) and micro-finance institutions (MFIs). The purpose of this study is to determine whether the model can be used to indirectly manage risk for the other financial institutions in the Sri Lankan market. Additional research on the risk management procedures used by businesses can also be conducted. Through the use of questionnaires, the research can include data

gathered from primary and secondary sources to determine the degree to which BOCs have implemented various risk management strategies.

- **Limitations of the Study**
  This study's main limitations are that the data collecting period was a relatively short 10 years and that it only looked at one industry in a single nation. The influence of ten years and ten banks on risk disclosure for listed BOCs is examined in this study. Using the twenty years of data, future scholars may examine the long-term impact.

Nonetheless, this study offers prospects for further research on many economic domains and nations with comparable banking and financial industries. There could be more independent variables than four because there are other factors influencing ROA and NIM with the same degree of prediction.

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Conflicts of interest
The authors declare that there are no conflicts of interest regarding the publication of this paper

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