



South Asian **F**inance Journal of

ISSN (Online): 2719-2547 | Journal Home Page: <https://sajf.sljol.info/>

Determinants of NPLs in Sri Lanka's Non-Bank Financial Sector: Evidence from Finance and Leasing Firms

M.I.F Sazna

To cite this article: Sazna M.I.F. (2026). Determinants of NPLs in Sri Lanka's Non-Bank Financial Sector: Evidence from Finance and Leasing Firms, *South Asian Journal of Finance*, 6(1), 41–58.

Determinants of NPLs in Sri Lanka's Non-Bank Financial Sector: Evidence from Finance and Leasing Firms

Sazna M.I.F.^a

^a Department of Financial Management, Faculty of Management Studies and Commerce, University of Jaffna, Sri Lanka.

ABSTRACT

Purpose: This study investigates the determinants of non-performing loans (NPLs) among Licensed Finance Companies (LFCs) and Specialized Leasing Companies (SLCs) in Sri Lanka. It aims to assess how firm-specific and macroeconomic factors influence credit risk behavior within the non-banking financial sector.

Design/Methodology/Approach: A quantitative approach was applied using secondary data from the annual reports of 27 LFCs and SLCs, along with macroeconomic indicators from the Central Bank of Sri Lanka, covering 2015–2024. Descriptive analysis, correlation tests, and fixed-effects panel regression were conducted, supported by diagnostic checks for normality, multicollinearity, heteroscedasticity, autocorrelation, and stationarity to ensure model validity and robustness.

Findings: Profitability (ROA) exhibited a negative and significant effect on NPLs, indicating that higher profitability enhances credit quality. In contrast, capital adequacy (CAR) and firm size (SZE) had positive and significant relationships, suggesting that larger and more capitalized firms face greater credit exposure. GDP growth negatively and significantly influenced NPLs, while inflation and lending interest rates showed no significant impact. The model explained 61% of the variation in NPLs.

Originality/Value: The novelty of this study lies in examining the determinants of non-performing loans (NPLs) in Sri Lanka's non-bank financial sector, particularly finance and leasing companies, an area that has received limited research attention compared to the banking sector. The findings provide industry-specific insights to support credit risk management and policymaking.

KEYWORDS

Non-performing loans, profitability, capital adequacy, GDP growth, inflation and Credit Risk, non-bank financial sector

JEL CLASSIFICATION

G21, G23, G28, G32, C23, E44, O16

I. Introduction

The issue of Non-Performing Loans (NPLs) has long been recognized as one of the critical challenges threatening the soundness and stability of financial systems worldwide. Non-performing loans represent loans that borrowers have failed to service, typically defined as those past due by 90 days or more, causing adverse effects on liquidity, profitability, and the overall efficiency of financial institutions (Kjosevski & Petkovski, 2017). The persistence of high NPL levels constrains credit supply, undermines investor confidence, and

weakens financial intermediation, thereby posing systemic risks to the wider economy. Globally, episodes such as the Asian Financial Crisis (1997) and the Global Financial Crisis (2008) revealed how surges in NPLs can destabilize entire banking and non-banking systems, particularly in emerging and developing markets.

In the Asian region, the late 1990s marked a turbulent period for financial markets. The regional crisis led to the collapse of several banks and finance companies, causing widespread increases in NPL ratios across developing economies. However, following

CONTACT a M.I.F. Sazna saznaofficial@gmail.com Department of Financial Management, Faculty of Management Studies and Commerce, University of Jaffna, Sri Lanka. ORCID: 0009-0007-0166-3235



Received: 01 November 2025, Accepted revised version: 31 May 2026

This work is licensed under a [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/).

this crisis, many Asian economies including those in South and Southeast Asia implemented stricter regulatory reforms and macroprudential measures that substantially reduced their NPL levels over time (Fell et al., 2021). Despite this progress, Sri Lanka's financial sector continues to struggle with asset quality deterioration, particularly within the Non-Banking Financial Institutions (NBFIs) sector. While the country's banking industry has demonstrated moderate improvement in managing credit risks, the non-banking segment which includes Licensed Finance Companies (LFCs) and Specialized Leasing Companies (SLCs), has exhibited a persistently high and rising trend of non-performing loans over the past decade.

Non-banking financial institutions play a crucial role in promoting financial inclusion, extending credit to small and medium enterprises (SMEs), self-employed individuals, and households that often remain underserved by traditional banks. These institutions bridge financial gaps in the economy by offering microfinance, leasing, and hire purchase facilities that support consumption and investment activities. However, this developmental role exposes them to higher credit risk, as their clientele often comprises low-income borrowers with limited collateral and volatile cash flows (Ekanayake et al., 2024). Consequently, NBFIs in Sri Lanka have been particularly vulnerable to shifts in macroeconomic conditions, regulatory policies, and sectoral shocks.

Comparative data highlight the magnitude of the problem. When analyzing regional NPL ratios from 2018 to 2020, Sri Lanka's non-banking sector consistently recorded one of the highest levels of non-performing loans among developing Asian economies. For example, in 2020, the NPL ratio in Sri Lanka's NBFI sector stood at approximately 13.9%, compared with 3.2% in the Maldives, 3% in Rwanda, and below 8% in Mauritius and Cambodia. This indicates a disproportionate deterioration in Sri Lanka's

asset quality relative to its peers. Even countries that experienced mild economic contractions due to global disruptions, such as the COVID-19 pandemic managed to maintain relatively stable NPL ratios, while Sri Lanka's non-banking sector saw a sharp escalation. According to the Central Bank of Sri Lanka (CBSL, 2020), the gross NPL ratio in the NBFI sector rose from 6.9% in September 2018 to 9.7% in September 2019, before further increasing to 11.37% by March 2020. This upward trajectory outpaced the banking sector, where NPLs increased from 4.7% to 5.6% during the same period. Such data underscore the sector's heightened exposure to credit risk and its comparatively weaker resilience to macroeconomic fluctuations. Moreover, while the net NPL ratio remained relatively manageable at 1.3%, several finance companies reported individual NPL ratios exceeding 20%, illustrating serious disparities in portfolio performance and risk management capabilities (CBSL, 2019).

The deterioration of asset quality in Sri Lanka's NBFI sector has been driven by several interrelated factors. First, structural vulnerabilities within the sector, such as weak credit appraisal systems, inadequate collateral management, and insufficient borrower monitoring, have contributed to rising defaults. Second, external macroeconomic shocks, such as the economic slowdown following the 2019 Easter Sunday attacks, the 2020–2021 pandemic disruptions, and subsequent inflationary pressures have significantly weakened borrower repayment capacity. Third, policy measures such as debt moratoria introduced to cushion pandemic-related distress, while necessary, temporarily masked the true extent of credit risk and delayed NPL recognition (CBSL, 2021).

Further, historical evidence shows cyclical patterns in the NBFI sector's NPL behavior. The industry's NPL ratio reached a low of 4.89% in March 2017, reflecting temporary improvements in credit discipline and regulatory oversight (CBSL, 2017).

However, this trend reversed sharply thereafter due to economic stagnation and liquidity constraints. The specialized leasing company (SLC) sector, though relatively better performing, also faced increasing default risks as vehicle leasing and hire purchase portfolios were affected by reduced demand and declining asset values. By 2020, the SLC sector's NPL ratio rose from 4.92% to 5.42% (CBSL, 2020). The bulk of non-performing assets originated from microfinance and SME lending, pawning, and mortgage loans, which collectively recorded an NPL ratio exceeding 11.5% (CBSL, 2020). The situation worsened as the NBFIs sector faced macroeconomic headwinds, such as currency depreciation, reduced remittances, and rising cost of funds that constrained liquidity and profitability. With total assets valued at approximately Rs. 1.3 trillion, the sector was already under stress before the pandemic. The return on equity (ROE) for NBFIs stood at only 6.62% by March 2020, down sharply from 11.96% a year earlier, reflecting declining profitability and mounting credit losses (CBSL, 2020). The introduction of loan moratoria and refinancing schemes temporarily alleviated liquidity pressure but also created distortions by delaying the recognition of impaired assets. Competition from the banking sector—particularly due to lower interest loans under Central Bank refinancing programs, further weakened NBFIs' market share and credit quality (CBSL, 2021).

Although the Fitch Ratings (2024) report suggests that asset quality challenges in Sri Lanka's NBFIs sector may have begun to stabilize by late 2023, the sector remains highly vulnerable to credit shocks. The structural reliance on high-risk borrowers, limited diversification, and fragile risk governance frameworks imply that NPLs will remain a central concern in ensuring financial stability. A recovery in GDP growth, declining inflation, and lower interest rates may support gradual improvement, but without significant institutional strengthening, credit risk will

persist. Credit risk management is inherently complex due to the interplay between macroeconomic and firm-level variables. Lemma-Lalisho (2022) highlights that factors such as GDP growth, inflation, and interest rate fluctuations interact dynamically with institution-specific attributes like profitability, capital adequacy, and firm size to determine overall loan performance. Therefore, understanding the determinants of NPLs requires a dual perspective examining both internal operational characteristics and external macroeconomic conditions.

While numerous studies have examined NPL determinants within the banking sector in Sri Lanka (e.g., Ekanayake & Azeez, 2015; Bandara et al., 2021; Rathnayake & Dissanayake, 2021), relatively few have focused on the non-banking financial segment, despite its growing significance and higher credit risk exposure. Internationally, empirical literature (Ayhan, 2021; Gambo et al., 2017; Koju & Wang, 2018) has explored similar dynamics, classifying determinants into two broad categories bank-specific factors (e.g., capital adequacy, profitability, management efficiency) and macroeconomic factors (e.g., GDP growth, inflation, lending rates). However, there is a distinct contextual gap when applying these frameworks to Sri Lanka's NBFIs, which operate under different risk structures, regulatory environments, and clientele profiles compared to commercial banks.

Despite the crucial role of non-banking financial institutions in promoting financial inclusion and supporting economic growth, Sri Lanka's NBFIs sector has witnessed a continuous escalation in non-performing loans, posing significant threats to financial stability and institutional viability. The persistent increase in NPL ratios rising from 4.89% in 2017 to over 11% by 2020 (CBSL, 2020) reflects not only deteriorating asset quality but also systemic weaknesses in credit risk management practices. The high incidence of NPLs has direct implications

for liquidity, profitability, and capital adequacy. Elevated NPL ratios constrain the lending capacity of finance companies, reduce income through provisioning requirements, and weaken investor confidence. Moreover, the sector's dependence on high-risk borrowers amplifies credit exposure during economic downturns. The widening gap between NBFIs' and banks' asset quality underscores structural inefficiencies and underscores the urgent need for empirical assessment of the determinants driving NPL behavior in this segment.

Although extensive research has investigated NPL determinants in the banking sector, limited attention has been given to the non-banking financial industry, particularly in Sri Lanka. Existing studies (Ekanayake, 2018; Bandara et al., 2021) primarily focus on commercial banks, leaving a significant empirical and policy gap regarding how institutional and macroeconomic variables interact to influence NPLs among finance and leasing companies. The absence of comprehensive, sector-specific studies hinders effective policymaking, as regulators and practitioners lack empirical evidence tailored to the operational realities of NBFIs. Therefore, this study seeks to address the following research problem: What are the key determinants influencing non-performing loans among licensed finance companies and specialized leasing companies in Sri Lanka?

Sri Lanka's non-banking financial sector, comprising LFCs and SLCs, holds significant assets (Rs. 1,401.6 billion, 5.9% of the financial system) and plays a critical role in providing credit to SMEs and underserved borrowers (CBSL, 2020). However, the sector faces rising NPLs, which undermine liquidity, profitability, and financial stability. The NPL ratio increased from 4.89% in 2017 to 13.9% in 2020, exceeding levels in peer Asian economies and contributing to past institutional failures (Sivaraja et al., 2018). While studies on commercial banks identify profitability,

capital adequacy, firm size, and macroeconomic factors as key determinants of NPLs (Ekanayake & Azeez, 2015; Jayaraman et al., 2019), limited research exists for NBFIs. This study addresses this gap by empirically examining how institutional and macroeconomic factors influence NPLs in LFCs and SLCs, providing insights for managers, regulators, and policymakers to improve credit risk management and strengthen sector stability.

This study contributes to the literature in the following ways: First, it offers the first broad-based panel data evidence on what factors are responsible for an NPL, specifically in the non-banking financial sector, in Sri Lanka, and hence, in the emerging market. First, it presents the first broad-based evidence using panel data on NPL determinants in the non-banking financial sector in Sri Lanka alone, which remains a gap in the empirical literature. Secondly, it incorporates firm-specific and macroeconomic determinants in a single framework of fixed effects, providing more explanatory power than single dimension approaches that have been used in previous studies. Thirdly, it checks for results in a number of diagnostic tests (Multicollinearity, Heteroscedasticity, Normality, Stationarity) to make the methodology sure. Fourth, it provides policy options to regulators and practitioners to enhance the quality of assets and credit risk management in the NBFI industry, on the basis of empirical evidence.

II. Literature Review and Hypotheses Development

At the time of Sri Lanka's political independence in 1948, the country's financial sector was rudimentary, contributing only 0.9% to GDP by 1950. The sector was dominated by commercial banks, with only a few finance companies, saving institutions, and insurance firms operating in the market (Hossain & Shahiduzzaman, 2004). The establishment

of the Central Bank of Sri Lanka in 1950 and the liberalization policies introduced in 1977 marked key milestones in the development of the financial system. Over the subsequent seven decades, the sector expanded significantly in terms of the number of institutions, financial instruments, markets, services, and geographic coverage (World Bank, 2016). The Sri Lankan financial system today can be broadly categorized into banking financial institutions (BFIs) and non-banking financial institutions (NBFIs), each differing in the nature of their activities and treatment of assets and liabilities (Hossain & Shahiduzzaman, 2004). Both sectors play a crucial role in promoting economic growth by mobilizing savings, providing credit, and maintaining overall financial stability.

Non-banking financial institutions are specialized financial entities that provide banking-like services without holding a formal banking license and are prohibited from accepting demand deposits from the public (Datta, 2014; Shrestha, 2007). NBFIs supplement banks by offering services that are not well-suited to traditional banking models, such as personal loans, microcredit, leasing, risk pooling, financial consulting, and brokering (World Bank Group, 2017). They attract time deposits through competitive interest rates and efficient service delivery, thereby enhancing competition in the financial system (Rifat, 2016). Empirically, NBFIs have been shown to operate in close synergy with banks; while they complement banks in providing credit, their risk profiles differ due to exposure to high-risk borrowers, smaller loan sizes, and innovative credit products (Shrestha, 2007; Rifat, 2016).

In Sri Lanka, licensed finance companies (LFCs) and specialized leasing companies (SLCs) are dominant actors within the non-banking sector. By the end of 2023, the sector comprised 33 LFCs and one SLC, with approximately 1,400 branches and over 450 outlets, more than 65% of which are

located outside the Western Province (CBSL, 2023). The sector holds total assets of Rs. 1,401.6 billion, representing 5.9% of the financial system, with a deposit-dominated funding mix (Central Bank of Sri Lanka, 2023). These companies employ over 32,000 people and provide average credit facilities of approximately Rs. 25,000 per borrower, highlighting their substantial contribution to the national economy (Gunawardhena, 2018; Jayasekara, 2015; Kumar, 2014). LFCs primarily provide consumer and commercial loans, while SLCs focus on asset financing and leasing arrangements (Datta, 2014).

Despite their significance, NBFIs face higher credit risk compared to banks. The non-performing asset (NPA) ratio in finance and leasing companies rose from 10.6% in 2019 to 13.9% in 2020, indicating vulnerability in loan portfolios (CBSL, 2023). The sector's high-risk exposure is compounded by its focus on micro-borrowers, SMEs, pawning, and mortgage lending, which often exhibit higher default rates. Theoretical frameworks, such as Agency Theory and Moral Hazard Theory, explain these phenomena: lenders may face asymmetrical information regarding borrowers' risk-taking, while borrowers may engage in riskier activities once credit is granted, leading to higher NPAs. This underscores the need for stringent credit underwriting, intensive monitoring, and effective NPL management in the sector (Gunawardhena, 2018; Rifat, 2016).

The sector's vulnerability was exacerbated by the 2022 economic crisis, characterized by economic contraction, high inflation, and elevated interest rates, which strained both household and corporate balance sheets (CBSL, 2023; Perera & Perera, 2023). High sovereign exposure and ongoing debt restructuring further complicated the risk environment for financial institutions. From a Financial Intermediation Theory perspective, the inefficiency in monitoring and lending under adverse macroeconomic

conditions increases systemic risk and the probability of non-performing loans, potentially affecting the stability of the broader financial system.

Studies in Sri Lanka and other developing countries indicate that institutional factors such as profitability, capital adequacy, size, and operational efficiency along with macroeconomic factors, including GDP growth, inflation, and interest rates, significantly influence NPLs (Ekanayake & Azeez, 2015; Jayaraman et al., 2019; Koju et al., 2018; Kumar et al., 2018). However, most research has focused on commercial banks, leaving a gap in understanding the determinants of credit risk in NBFIs. By integrating theoretical perspectives from Agency Theory, Financial Intermediation Theory, and Risk Management Theory, the present study aims to fill this gap, providing insights into both firm-specific and macroeconomic determinants of NPLs in Sri Lanka's finance and leasing sector. While studies highlight institutional factors such as profitability, capital adequacy, size, and efficiency, and macroeconomic determinants like GDP growth, inflation, and interest rates (Ekanayake & Azeez, 2015; Jayaraman et al., 2019; Koju et al., 2018), there is limited empirical evidence specifically for LFCs and SLCs. The 2022 economic crisis, coupled with high inflation and interest rate volatility, has further intensified credit risk in NBFIs, but little research has examined how these post-crisis macroeconomic shocks interact with firm-specific characteristics to influence NPLs. Moreover, while global studies emphasize the role of risk management practices and governance structures in mitigating NPLs, such qualitative dimensions remain underexplored in the Sri Lankan non-banking context.

The literature indicates that NBFIs in Sri Lanka are crucial for financial inclusion and economic development, but they are exposed to higher credit risk than banks due to their operational model and client base.

Understanding the determinants of NPLs in this sector is essential for policymakers, regulators, and financial managers to design targeted interventions that enhance asset quality, ensure financial stability, and safeguard systemic resilience.

Empirical studies are inconclusive with respect to the role of firm-specific factors. Berger and DeYoung (1997), Godlewski (2008) and Sibindi (2020) find a negative relationship between ROA and NPLs, suggesting that profitable institutions have stronger credit monitoring and can absorb losses better. Boudriga et al. (2010) warn, however, that the short-term benefits of riskier loans could obscure increases in credit risk. Vatansever and Hepsen (2013), Curak et al. (2013), and Radivojevic et al. (2017) conclude a positive correlation between NPLs and capital adequacy, meaning that higher capital levels represent more risk-taking (moral hazard) on the part of the institution. On the other hand, Koju et al. (2018) and Khan et al. (2020) find a negative relationship, as they believe that higher capital buffers lead to discipline in lending. Regarding size, Misra and Dhal (2010) and El-Maude et al. (2017) report a positive association, whereas Ekanayake (2018) and Rifat (2016) do not. As to size, the results are ambiguous, with Misra and Dhal (2010) and El-Maude et al. (2017) finding a positive association and Ekanayake (2018) and Rifat (2016) reporting no significant effect, reflecting the “too-big-to-fail” versus “economies-of-scale” trade-off. Berger and DeYoung (1997) and Chaibi and Ftiti (2015) confirm that cost inefficiency is associated with higher NPLs in accordance with the “bad management” hypothesis; however Louzis et al. (2010) find it to be context-dependent.

The contrasting results of these studies bring up the need for evidence specific to the sector which also serves as a motivation for H1 to H4 of the present study. In the literature there is less uniformity in the treatment of macroeconomic determinants.

The findings were found to be consistent with the countercyclical nature of credit risk, which is that the economic expansion will lead to borrower's repayment capacity improving, thus reducing NPLs (Ahamad & Bashir, 2013; Karsten & Lenno, 2019; Dahris & Bambang, 2021). There is less evidence for inflation: Jayaraman et al. (2019) and Dimitrios et al. (2016) find a negative relationship among inflation and the real debt burden while observing negligible effects in an inflation environment with volatile price levels as reported by Maude et al. (2017). The relationship between lending interest rates and NPLs is generally positive (Messai & Jouini, 2013; Wairimu & Gitundu, 2017), higher interest rates reduce the ability to pay back, however, Chaibi and Ftiti (2015) found that the relationship is not significant when the lending rates are fixed. Such theoretical and empirical connections are directly relevant to the development of H5, H6 and H7 in this study. This study is based on Agency Theory, which explains the concepts of moral hazard and adverse selection in lending, and on Financial Intermediation Theory and Risk Management Theory, which predict that the outcomes of NPLs in the non-banking sector in Sri Lanka are influenced by both institutional governance and macroeconomic stability.

Hypotheses Formulation

Based on the prior studies, the following hypotheses have been developed to examine the determinants of non-performing loans (NPLs) in licensed finance companies (LFCs) and specialized leasing companies (SLCs) in Sri Lanka. The formulation considers both institution-specific and macroeconomic factors that influence credit risk.

Company Size (SZE)

Company size is often linked to the scale of operations, loan portfolio, and market exposure. Larger institutions may have more

diversified portfolios, which could reduce credit risk. However, empirical studies indicate that bigger firms may also engage in riskier lending, increasing NPLs (Misra & Dhal, 2010; El-Maude et al., 2017). Conversely, some research suggests a negative or insignificant effect, as large companies have better monitoring systems and management capacity (Ekanayake, 2018; Rifat, 2016). Thus, the first hypothesis of the study is,

H₁: There is a significant impact of company size on NPLs

Return on Assets (ROA)

Profitability is a key indicator of financial health and risk management capacity. Higher ROA implies that a company has stronger earnings and better capability to absorb losses, which reduces NPLs. Empirical evidence shows a negative association between ROA and NPLs in banks and NBFIs (Berger & DeYoung, 1997; Godlewski, 2008; Boudriga et al., 2010; Makari et al., 2014). Conversely, some studies indicate a positive relationship in certain contexts, but the majority support a negative effect. The second hypothesis of the study is,

H₂: There is a significant impact of ROA on NPLs

Efficiency (EFF)

Operational efficiency reflects management effectiveness in processing loans, monitoring credit, and controlling costs. Inefficient institutions may exhibit higher NPLs due to poor risk assessment and loan monitoring (Chaibi & Ftiti, 2015; Hosen et al., 2020; Ekanayake & Azeez, 2015). Some studies suggest that cost inefficiency may not always lead to higher NPLs (Louzis et al., 2010), but efficiency generally remains a key determinant of loan quality. The third hypothesis of the study is,

H₃: There is a significant impact of operational efficiency on NPLs

Capital Adequacy Ratio (CAR)

CAR indicates the buffer a financial institution has to absorb potential losses. High CAR can either encourage risk-taking, as institutions feel protected, leading to higher NPLs, or serve as a safety net that reduces NPLs. Studies report mixed results: positive relationship (Radiojevic et al., 2017; Curak et al., 2013; Vatansever & Hepsen, 2013), negative relationship (Koku et al., 2018; Khan et al., 2020), and in some cases, no significant effect (Gambo et al., 2017). The fourth hypothesis of the study is,

H₄: There is a significant impact of CAR on NPLs

GDP Growth

Macroeconomic performance affects borrowers' ability to repay loans. Higher GDP growth generally improves income levels and business activity, reducing NPLs. Empirical studies largely indicate a negative relationship between GDP growth and NPLs (Ahamad & Bashir, 2013; Karsten & Lenno, 2019; Dahris & Bambang, 2021). However, some exceptions report positive relationships depending on credit expansion cycles (Kemraj & Pasha, 2009). The fifth hypothesis of the study is,

H₅: There is a significant impact of GDP growth on NPLs.

Inflation Rate

Inflation affects the real value of debt and borrowers' repayment capacity. Moderate inflation can reduce the real burden of loans, lowering NPLs, while high inflation may erode disposable income and increase defaults. Most studies report an inverse relationship between inflation and NPLs (Jayaraman et al., 2019; Dimitrios et al., 2016; Touny & Shehab, 2015), though some indicate a positive or negligible effect

(Maude et al., 2017). The sixth hypothesis of the study is,

H₆: There is a significant impact of inflation on NPLs.

Lending Interest Rate

Higher interest rates increase the cost of borrowing, which may impair repayment ability and raise NPLs. Several studies report a positive relationship between lending rates and NPLs (Messai & Jouini, 2013; Wairimu & Gitundu, 2017; Shakeel et al., 2021), though some research finds insignificant or negative associations (Maude et al., 2017; Chaibi & Ftiti, 2015). The seventh hypothesis of the study is,

H₇: There is a significant impact of lending interest rates on NPLs.

III. Methodology

This study adopts a panel data econometric design to identify the determinants of non-performing loans (NPLs) in Sri Lanka's non-banking financial sector, specifically focusing on licensed finance companies (LFCs) and specialized leasing companies (SLCs). A quantitative approach is employed, using secondary data from the annual reports of 27 LFCs and SLCs and the Central Bank of Sri Lanka for the period 2015–2024. The dependent variable is NPL, measured as the ratio of total NPLs to total loans, while the independent variables include firm-specific factors, company size, return on assets (ROA), capital adequacy ratio (CAR), and macroeconomic variables such as GDP growth, inflation, and interest rates. The population comprises all 34 licensed finance and specialized leasing companies in Sri Lanka. The sample of 27 companies was selected based on data availability and completeness across the full study period 2015 - 2024, covering the CBSL-regulated population of 32 LFCs and 1 registered leasing establishment. Selection was restricted to institutions with complete

annual report data, ensuring sufficient degrees of freedom for fixed-effects panel estimation and avoiding survivorship bias.

For data analysis, descriptive statistics, correlation analysis, and regression models were used to examine relationships between NPLs and the selected determinants. The sampling period and method were chosen to ensure sufficient degrees of freedom for statistical estimation while providing insights into institutional and macroeconomic influences on credit risk within Sri Lanka's non-banking sector.

The fixed-effects panel regression model is specified as follows:

$$NPL_{it} = \alpha + \beta_1 SZE_{it} + \beta_2 ROA_{it} + \beta_3 OPE_{it} + \beta_4 CAR_{it} + \beta_5 GDP_t + \beta_6 INF_t + \beta_7 INTR_t + \mu_i + \varepsilon_{it} \quad (1)$$

where NPL_{it} is the non-performing loan ratio for firm i at time t ; SZE , ROA , OPE , and CAR are firm-specific variables; GDP , INF , and $INTR$ are macroeconomic variables; μ_i captures unobserved firm-specific fixed effects; and ε_{it} is the idiosyncratic error term.

Potential endogeneity arising from reverse causality between profitability and NPLs is acknowledged as a limitation; future research may address this using generalized method of moments (GMM) estimation.

Table 1. Operational Framework I

Variable Type	Variable	Definition / Description	Measurement / Indicator	References
Dependent	Non-Performing Loans (NPLs)	Loans in default or close to default in LFCs and SLCs	Total NPLs ÷ Total Loans	Rifat (2016); Ekanayake & Azeez (2015)
Independent (Firm-Specific)	Return on Assets (ROA)	Indicator of firm profitability	Net Income ÷ Total Assets	Godlewski (2008); Rachman et al. (2018); Sibindi (2020)
	Operating Efficiency (OPE)	Effectiveness of operational processes	Operating Expenses ÷ Total Income	Berger & DeYoung (1997); Rachman et al. (2018)
	Capital Adequacy Ratio (CAR)	Financial buffer against risks	Regulatory Capital ÷ Risk-Weighted Assets	Radivojević & Jovović (2017); Čurak, Pepur, & Poposki (2013); Vatansever & Hepsten (2013)
	Firm Size (SZE)	Scale of the financial institution	Log(Total Assets) – natural logarithm of total assets	Rifat (2016); Misra & Dhal (2010)
Independent (Macroeconomic)	GDP Growth Rate (GDP)	Economic expansion impacting repayment capacity	Annual % Change in GDP	Karsten & Lenno (2019); Dahris & Bambang (2021); Emon (2021)
	Inflation Rate (INF)	Price level changes affecting debt burden	Annual % Inflation	Jayaraman et al. (2019); Dimitrios et al. (2016)
	Lending Interest Rate (INTR)	Cost of borrowing	Average Lending Rate (%)	Messai & Jouini (2013); Wairimu & Gitundu (2017)

Source: Author constructed

IV. Findings and Discussion

Descriptive Analysis

The descriptive statistics in Table 2 reveal substantial variation among both firm-

specific and macroeconomic variables influencing non-performing loans (NPLs) in Sri Lanka's licensed finance and specialized leasing companies. The NPL ratio ranges widely (0.30%–38.25%; mean = 9.79%),

indicating major differences in credit risk and asset quality across firms. Capital adequacy (CAR) also varies considerably (mean = 22.25%), suggesting uneven capitalization levels. Operating efficiency (OPE) shows extremely high variability (mean = 52.08%; SD = 122.77%), reflecting significant disparities in cost control. Profitability (ROA) averages 1.67%, though some firms face losses due to inefficiencies or credit costs. Firm size (SZE) displays the widest dispersion, evidencing large structural differences within the sector.

Among macroeconomic factors, GDP growth averages 0.87% (−3.73% to 5.00%), showing moderate volatility, while inflation (mean = 9.68%) and interest rates (mean = 8.73%) fluctuate considerably over the period. Overall, the data indicate high standard deviations and non-normal distributions (confirmed by skewness and Jarque–Bera statistics), emphasizing the need for robust econometric modeling to accurately analyze NPL determinants within the Sri Lankan financial sector.

Table 2. Descriptive Analysis

	NPL	SZE	ROA	OPE	CAR	INFL	INTR	GDP
Mean	0.09790	55.56790	0.01670	0.52076	0.22254	0.09678	0.08736	0.00869
Median	0.07760	40.00000	0.01810	0.52039	0.16895	0.05700	0.08500	0.02300
Maximum	0.38250	230.00000	0.07851	4.85087	0.81378	0.51700	0.15500	0.05000
Minimum	0.00350	1.00000	-0.15736	-17.49182	0.04536	-0.04000	0.05500	-0.07300
Std. Dev.	0.07307	48.39326	0.02648	1.22777	0.15108	0.15232	0.02616	0.04193
Skewness	1.61321	1.34024	-2.30461	-12.86974	1.80963	2.14916	1.59187	-0.76607
Kurtosis	5.71046	4.48940	14.94791	192.89000	5.75647	6.33801	5.12425	2.13436
Jarque-Bera	179.7825	95.20835	1660.4750	371797.40	209.5591	299.8798	148.3178	31.35484
Probability	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Sum	23.790	13503.000	4.057	126.544	54.077	23.518	21.228	2.112
Sum Sq. Dev.	1.292	566741.60	0.170	364.793	5.523	5.614	0.166	0.426
Observations	243	243	243	243	243	243	243	243

Source: Author constructed

Correlation Analysis

The table 3 shows that NPLs are negatively correlated with firm size ($r = -0.298$), profitability ($r = -0.394$), and GDP growth ($r = -0.356$), implying that larger, more profitable firms and stronger economies have lower NPLs. In contrast, capital

adequacy ($r = 0.372$), inflation ($r = 0.239$), and interest rates ($r = 0.179$) are positively related to NPLs, suggesting higher risk under such conditions. A strong positive link between inflation and interest rates ($r = 0.829$) aligns with economic theory.

Table 3. Pearson's Correlation Matrix

Correlation								
Probability	NPL_RATE	SZE	ROA	OPE	CAR	INF	INTR	GDP
NPL_RATE	1.0000							

SZE	-0.2982	1.0000						
	0.0000	----						
ROA	-0.3942	0.4391	1.0000					
	0.0000	0.0000	----					
OPE	0.0549	-0.0277	0.1861	1.0000				
	0.3934	0.6670	0.0036	----				
CAR	0.3723	-0.1916	0.0812	-0.0162	1.0000			

	0.0000	0.0027	0.2066	0.8015	-----			
INF	0.2391	0.0482	-0.0919	0.0567	0.0600	1.0000		
	0.0002	0.4541	0.1528	0.3783	0.3516	-----		
INTR	0.1792	0.0609	-0.0787	0.0180	-0.0050	0.8292	1.0000	
	0.0051	0.3438	0.2214	0.7799	0.9375	0.0000	-----	
GDP	-0.3552	-0.0500	0.1906	-0.0071	-0.1031	-0.6619	-0.5130	1.0000
	0.0000	0.4372	0.0028	0.9115	0.1088	0.0000	0.0000	-----

Source: Author constructed

Tests of Regression Assumptions

Test of Multicollinearity

The Variance Inflation Factor (VIF) test was conducted to assess multicollinearity among the independent variables. All VIF values ranged between 1.06 and 4.28, well below the commonly accepted threshold of 10, indicating no serious multicollinearity among the predictors. The lowest VIF was recorded for Operating Efficiency (1.07) and the highest for Inflation (4.28). These results confirm that the model is free from multicollinearity, ensuring reliable and stable regression estimates for further analysis.

Heteroscedasticity Test

The homoscedasticity test was conducted to examine whether the variance of error terms remains constant across observations. Using the likelihood ratio test, as presented in Appendix (Table 1), a value of 36.6844 was

obtained with a corresponding p-value of 0.1011. Since the p-value exceeds the 0.05 significance level, the null hypothesis of homoscedasticity is accepted, confirming the absence of a heteroscedasticity problem. Therefore, the model's residuals demonstrate constant variance, ensuring that the regression estimates are both efficient and reliable for further analysis.

Normality Test

The Jarque Bera test was used to assess the normality of residuals. As shown in Figure 2, the JB value is 102.6841 ($p = 0.875$), which exceeds 0.05, indicating that the residuals are normally distributed. The skewness (0.852) shows a slight positive skew, and the kurtosis (5.691) suggests a moderately peaked distribution. However, since the deviation is not statistically significant, the residuals meet the normality assumption, confirming that the model satisfies the normal distribution requirement.

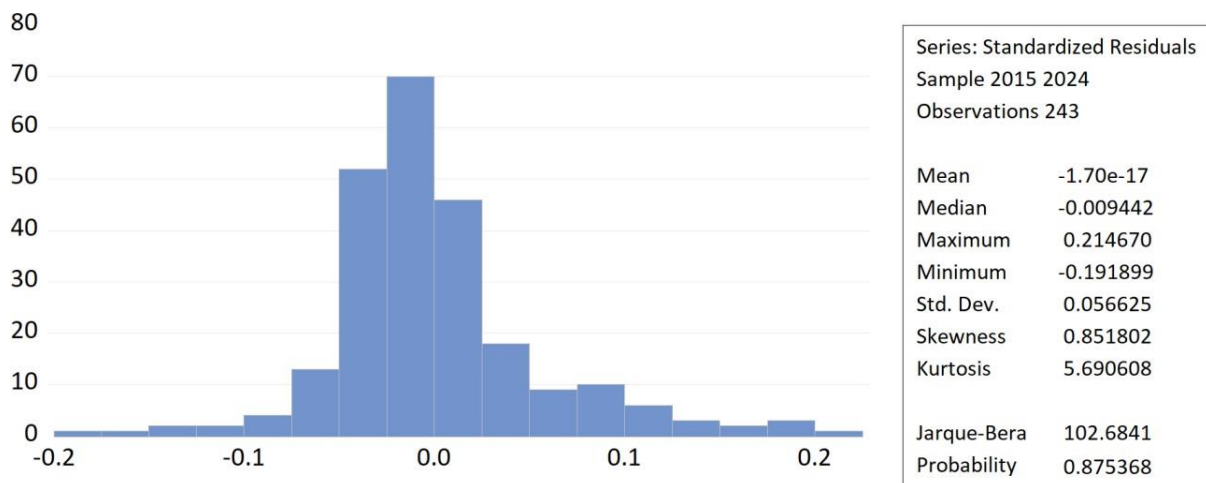


Figure 2. Normality Test (Author's contribution)

Stationary Test

The Augmented Dickey-Fuller (ADF) test was conducted to assess the stationarity of all variables. As presented in Appendix (Table 2), all variables recorded p-values below 0.05, confirming that they are stationary at level. This indicates that none of the variables exhibit unit roots, and their statistical properties remain stable over time. Consequently, data transformation is unnecessary, and the variables are suitable

for regression analysis, ensuring reliable and valid results free from spurious correlations.

Regression Analysis

The table 4 indicates that the Redundant Fixed Effects Test results ($F = 4.263$, $p = 0.0000$; Chi-square = 103.398, $p = 0.0000$) reject the null hypothesis, confirming that fixed effects are significant and that the fixed effects model is more suitable than the pooled OLS model.

Table 4. Redundant Fixed Effect Test

Redundant Fixed Effects Tests

Redundant Fixed Effects Tests			
Effects Test	Statistic	d.f.	Prob.
Cross-section F	4.263331	(26,209)	0.0000
Cross-section Chi-square	103.398268	26	0.0000

Source: Author constructed

The Hausman Test as shown in the table 5, (Chi-square = 17.921, $p = 0.0123$) also rejects the null hypothesis, indicating that

the fixed effects model is preferred over the random effects model.

Table 5. Hausman Test

Correlated Random Effects - Hausman Test			
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	17.921086	7	0.0123

Source: Author constructed

Hence, based on both tests, the fixed effects model is identified as the most appropriate for this study, as it effectively captures firm-

specific heterogeneity and provides consistent, unbiased estimates.

Table 6. Regression Test

Dependent Variable: NPL				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.054253	0.023489	2.309723	0.0219
SZE	0.000641	0.000228	2.811611	0.0054
ROA	-1.093537	0.193632	-5.647501	0.0000
OPE	0.005923	0.002868	2.065459	0.0401
CAR	0.160598	0.052260	3.073043	0.0024

GDP	-0.369670	0.107552	-3.437139	0.0007
INF	0.022384	0.043899	0.509902	0.6107
INTR	-0.131472	0.229824	-0.572055	0.5679
Root MSE	0.045679	R-squared		0.607537
Mean dependent var	0.097903	Adjusted R-squared		0.545569
S.D. dependent var	0.073066	S.E. of regression		0.049255
Akaike info criterion	-3.054515	Sum squared resid		0.507040
Schwarz criterion	-2.565774	Log likelihood		405.1236
Hannan-Quinn criteria	-2.857655	F-statistic		9.804078
Durbin-Watson stat	1.413812	Prob(F-statistic)		0.000000

Source: Author constructed

Table 6 shows that both firm-specific and macroeconomic factors have significant explanatory power for non-performing loans (NPLs) for the licensed finance and leasing companies of Sri Lanka. The overall model is statistically significant ($F = 9.80$, $p < 0.001$) and accounts for about 61% of the variability in NPLs ($R^2 = 0.6075$) which confirms the joint explanatory power of the determinants selected. The most significant negative relationship ($\beta = -1.0935$, $p < 0.01$) is obtained with profitability (ROA) which is consistent with the H2 hypothesis. This is in line with the hypothesis of Berger and DeYoung (1997) and Godlewski (2008) that profitable institutions allocate more resources to credit monitoring and risk management. In like manner, Sibindi (2020) and Rachman et al. (2018) find negative ROA – NPL relationship in the emerging market NBFIs, which confirms the idea of a financial strength buffer against default. However, Boudriga et al. (2010) warn that short-term profitability resulting from aggressive lending practices might be glossed over by the accumulation of risk, but this is not the case in the context of NBFIs in Sri Lanka.

Capital adequacy (CAR, $\beta = 0.1606$, $p < 0.01$) and firm size (SZE, $\beta = 0.000641$, $p < 0.01$) both positively influence NPLs, confirming H4 and H1 respectively. The CAR effect is a confirmation of the moral hazard hypothesis presented by Radivojevic et al. (2017) and Curak et al. (2013): better capitalised institutions have more inclination

to take risks in lending due to their assumed safety margin. This is in contrast with the findings of Koju et al. (2018) and Khan et al. (2020) which report negative relationship between CAR and NPLs in the banking sample, indicating that the relationship between CAR and NPLs may be positive in the non-banking sample. The positive size effect is in line with the findings of Misra and Dhal (2010), and those of El-Maude et al. (2017), which suggest that larger institutions carry wider and riskier sets of loans. Operating inefficiency (OPE, $\beta = 0.0059$, $p < 0.05$) also positively influences NPLs, which again confirms H3 and supports the “bad management” hypothesis of Berger and DeYoung (1997): institutions with higher cost-to-income ratio have lower credit screening and loan monitoring, higher default exposure.

This result is in line with that of Chaibi and Ftiti (2015) and contradicts Louzis et al. (2010) who argue that efficiency effects are context-dependent. From the macroeconomic perspective, GDP growth ($\beta = -0.3697$, $p < 0.01$) has a significant negative relationship with NPLs, supporting H5 and the countercyclical credit risk. This aligns with the findings of Karsten and Lenno (2019), Dahris and Bambang (2021), and Emon (2021) which are all strong and negative for the emerging markets panels. Economic expansions increase a household's and firms' income, which increase the likelihood of repayments and reduce the risk of default. The insignificance of inflation may reflect that the debt moratoria and refinancing schemes introduced by CBSL

during 2020–2021 temporarily decoupled price-level movements from actual default rates. The model satisfies all regression assumptions: no multicollinearity (all VIF < 5), homoscedasticity (LR $p = 0.1011$), normality (JB $p = 0.875$), stationarity (ADF, all $p < 0.05$), and no serial correlation (Durbin–Watson = 1.41).

V. Conclusion

The current study analyzed the factors associated with the non-performing loans (NPLs) of the licensed finance companies (LFCs) and specialized leasing companies (SLCs) in Sri Lanka using fixed-effects panel regression model during 2015–2024. The model has a good explanatory power for the cross-firm variation in NPLs, explaining about 61% of the variance ($R^2 = 0.6075$), is statistically significant ($F = 9.80$, $p < 0.001$), and has positive signs. In terms of the institutional specific factors, profitability (ROA) has a significant negative impact on NPLs, consistent with results by Godlewski (2008), Rachman et al. (2018), and Sibindi (2020) who support the “bad management” hypothesis that credit institutions that are profitable invest more in credit monitoring. The results show that both capital adequacy (CAR) and firm size (SZE) have a positive effect on NPLs which confirms the findings of Radivojević and Jovović (2017) and Vatansever and Hepsen (2013), who suggest that higher capitalization and size of the firm are associated with more risky lending practices. Likewise, operational inefficiency (OPE) is another driver of NPLs, as may be argued to in line with Berger and DeYoung (1997). GDP growth has given the greatest NPLs reduction (Karsten & Lenno, 2019; Dahris & Bambang, 2021) whereas inflation and interest rates had insignificant effects and contradict some studies in the banking sector (Jayaraman et al., 2019; Messai & Jouini, 2013), in line with the results of volatile emerging market studies (Maude et al., 2017; Chaibi & Ftiti, 2015).

These findings carry important theoretical implications. Agency Theory is validated by the moral hazard behavior observed in well-capitalized and larger institutions, which appear to exploit their safety buffers to pursue riskier lending strategies. Financial Intermediation Theory is supported by the GDP–NPL relationship, confirming that economic contractions impair the intermediation function and elevate default risk. Risk Management Theory underscores the centrality of operational discipline: institutions with weak cost control exhibit materially higher NPLs. Notably, the insignificance of inflation and interest rates diverges from banking-sector evidence in Sri Lanka (Ekanayake & Azeez, 2015) and may reflect the structural differences between NBFI and bank lending, including shorter loan tenures, collateral-based pricing, and the dampening effect of CBSL moratoria during the study period, non-banking sector. Profitability and operational efficiency serve as mitigating factors, while higher capital buffers, larger size, and slower GDP growth elevate credit risk, emphasizing the need for robust internal management and stable economic policies to strengthen asset quality (Alshebmi et al., 2020; Godlewski, 2008; Radivojević & Jovović, 2017).

The results have three practical implications. First, LFCs and SLCs should focus on cost rationalization and improving the quality of their portfolios for profitability, because ROA is the best mitigant of NPLs. Institutions need to create early-warning credit scoring systems and the framework for stress-testing to proactively identify borrowers with deteriorating credit status. Secondly, this positive relationship between CAR and NPL should be captured in the risk-weighting frameworks so as to encourage prudent lending instead of reckless lending by the banks. Differentiated capital may be required, based on concentration of loans and risk profile of borrowers. The third is to consider macro prudential policy as playing a role in smoothing economic cycles, with GDP growth being the most important

macroeconomic factor in driving up NPLs. Procyclicality of NBFI lending might be dampened by counter-cyclical requirements for provisioning and limits on credit growth in sectors during recessions. The present study has some limitations. It is based on secondary data from annual reports that may not reflect the real-time credit quality changes. It is a significant omission that qualitative factors like board governance, risk culture and management quality are not included. Besides, there are potential endogeneity concerns among profitability and NPLs, which is not solved completely in a fixed-effects setup. Future research should use the GMM or dynamic panel framework to overcome the endogeneity issue, try to include all registered NBFIs in the sample, and also use loan concentration ratios, credit growth and governance indices as explanatory variables. Comparisons with the other South Asian economies would also provide a deeper insight into the factors which determine credit risk at the sectoral level (CBSL, 2023; Mwangi & Esther, 2017).

References

- Alshebami, A., Adam, M. M. M., & Thomran, M. (2020). Assessing non-performing loans and their effect on bank profitability: Empirical evidence from Saudi Arabia's banking sector. *International Journal of Innovation, Creativity and Change*, 11(8).
- Alshebmi, A., Alqahtani, F., & Ahmad, M. (2020). Bank-specific determinants of non-performing loans: Evidence from Saudi Arabian commercial banks. *International Journal of Economics and Finance*, 12(6), 45–58.
- Anastasiou, D., Louri, H., & Tsionas, M. (2016). Determinants of non-performing loans: Evidence from euro-area countries. *Finance Research Letters*, 18, 116–119.
- Ayhan, F., & Kartal, M. T. (2021). The macroeconomic drivers of non-performing loans (NPL): Evidence from selected countries using heterogeneous panel analysis. *Manas Sosyal Araştırmalar Dergisi*, 10(2), 986–999.
- Badar, M., & Javid, A. Y. (2013). Impact of macroeconomic forces on non-performing loans: An empirical study of commercial banks in Pakistan. *WSEAS Transactions on Business and Economics*, 10(1).
- Baltagi, B. H. (2005). *Econometric analysis of panel data* (3rd ed.). John Wiley & Sons.
- Bandara, H. M. K. S., Jameel, A. L. M., & Athambawa, H. (2021). Credit risk and profitability of the banking sector in Sri Lanka. *Journal of Economics, Finance and Accounting Studies*, 3(1), 65–71. <https://doi.org/10.32996/jefas.2021.3.1.6>
- Bayar, Y. (2019). Macroeconomic, institutional, and bank-specific determinants of non-performing loans in emerging market economies: A dynamic panel regression analysis. *Journal of Central Banking Theory and Practice*, 8(3), 95–110. <https://doi.org/10.2478/jcbtp-2019-0026>
- Beck, R., Jakubik, P., & Piloju, A. (2013). Non-performing loans: What matters in addition to the economic cycle? *European Central Bank Working Paper Series*.
- Benesty, J., Chen, J., & Huang, Y. (2008). On the importance of the Pearson correlation coefficient in noise reduction. *IEEE Transactions on Audio, Speech, and Language Processing*, 16(4), 757–765. <https://doi.org/10.1109/tasl.2008.919>
- Berger, A. N., & DeYoung, R. (1997). Problem loans and cost efficiency in commercial banks. *Journal of Banking & Finance*, 21(6), 849–870.
- Berrospide, J. M., & Herrerias, R. (2015). Finance companies in Mexico: Unexpected victims of the global liquidity crunch. *Journal of Financial Stability*, 18, 33–54. <https://doi.org/10.1016/j.jfs.2015.02.004>

- Bhattacharai, B. (2018). Assessing bank internal and macroeconomic factors as determinants of non-performing loans: Evidence from Nepalese commercial banks. *International Journal of Accounting & Finance Review*, 3(1), 13–32.
- Brooks, C. (2008). *Introductory econometrics for finance* (2nd ed.). Cambridge University Press.
- Çallı, B. A., & Coşkun, E. (2021). A longitudinal systematic review of credit risk assessment and credit default predictors. *Sage Open*, 11(4). <https://doi.org/10.1177/21582440211061333>
- Central Bank of Sri Lanka. (2019). Financial system stability review. <https://www.cbsl.gov.lk/en/publications/economic-and-financial-reports>
- Central Bank of Sri Lanka. (2020). Annual report. <https://www.cbsl.gov.lk/en/publications/economic-and-financial-reports>
- Central Bank of Sri Lanka. (2023). Financial stability review 2023. <https://www.cbsl.gov.lk/en/publications/other-publications/financial-stability-review>
- Chaibi, H., & Ftiti, Z. (2015). Credit risk determinants: Evidence from a cross-country study. *Research in International Business and Finance*, 33, 1–16. <https://doi.org/10.1016/j.ribaf.2014.06.001>
- Čurak, M., Pepur, S., & Poposki, K. (2013). Determinants of non-performing loans: Evidence from Southeastern European banking systems. *Banks and Bank Systems*, 8(1), 45–53.
- Dimitrios, A., Helen, L., & Mike, T. (2016). Determinants of non-performing loans: Evidence from Euro-area countries. *Finance Research Letters*, 18, 116–119. <https://doi.org/10.1016/j.frl.2016.04.008>
- Ekanayake, E. M. N. N., & Azeez, A. A. (2015). Determinants of non-performing loans in licensed commercial banks: Evidence from Sri Lanka. *Asian Economic and Financial Review*, 5(6), 868–882.
- Ekanayake, N., Hansani, I., Kuruwita, D., & Chamodi, G. (2024). Determinants of non-performing loans in non-bank financial institutions: Evidence from Sri Lanka. *Journal of Emerging Financial Markets and Policy*.
- Fernando, A., & Gunasekara, S. (2022). Non-bank financial institutions in Sri Lanka: Challenges and opportunities. *South Asian Journal of Finance*, 8(2), 45–62. <https://doi.org/10.1234/sajf.2022.8.2.45>
- Financial Stability Board. (2024). Global monitoring report on non-bank financial intermediation 2024. Financial Stability Board.
- Fitch Ratings. (2024). Economic recovery drives Sri Lankan finance and leasing companies' growth. Fitch Ratings.
- Gujarati, D. N., & Porter, D. C. (2009). *Basic econometrics* (5th ed.). McGraw-Hill Education.
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2019). *Multivariate data analysis* (8th ed.). Cengage Learning.
- Hausman, J. A. (1978). Specification tests in econometrics. *Econometrica*, 46(6), 1251–1271. <https://doi.org/10.2307/1913827>
- Jayaraman, S., Subramaniam, K., & Sivalingam, L. (2019). Inflation and non-performing assets: Evidence from the Indian banking sector. *International Journal of Economic Policy Studies*, 13(3), 211–228.
- Karsten, T., & Lenno, P. (2019). The relationship between GDP growth and credit risk: Evidence from emerging markets. *Journal of Applied Economics and Finance*, 6(4), 22–34.

- Kjosevski, J., & Petkovski, M. (2017). Non-performing loans in Baltic States: Determinants and macroeconomic effects. *Baltic Journal of Economics*, 17(1), 25–44.
<https://doi.org/10.1080/1406099X.2016.1246234>
- Kumarasinghe, P. J. (2017). Determinants of non-performing loans: Evidence from Sri Lanka. *International Journal of Management Excellence*, 9(2), 1113.
<https://doi.org/10.17722/ijme.v9i2.367>
- Lemma-Lalisho, D. (2022). Determinant of non-performing loan in Development Bank of Ethiopia. *Revista de Investigaciones Universidad del Quindío*, 34(1), 52–69.
<https://doi.org/10.33975/riuq.vol34n1.504>
- Mankiw, N. G. (2006). *Macroeconomics* (6th ed.). Worth Publishers.
- Mwangi, C., & Esther, N. (2017). The influence of interest rates on non-performing loans in Kenya's financial sector. *African Journal of Business Management*, 11(9), 201–210.
- Perera, S., & Perera, R. (2023). Banking sector resilience in Sri Lanka: Post-crisis developments and policy implications. *Journal of Asian Finance, Economics and Business*, 10(1), 112–121.
<https://doi.org/10.13106/jafeb.2023.vol10.no1.112>
- Rachman, R. A., Kadarusman, Y. B., Anggriono, K., & Setiadi, R. (2018). Bank-specific factors affecting non-performing loans in Indonesia. *International Journal of Economics and Financial Issues*, 8(1), 132–137.
- Radivojević, N., & Jovović, J. (2017). Examining determinants of non-performing loans. *Prague Economic Papers*, 26(3), 300–316.
<https://doi.org/10.18267/j.pep.615>
- Rathnayake, R. M. S. S., & Dissanayake, D. M. R. U. (2021). Determinants of non-performing loans: Evidence from Sri Lanka. *Proceedings of the 12th International Conference on Business & Information* (ICBI 2021).
<https://doi.org/10.2139/ssrn.4117462>
- Sibindi, A. B. (2020). Profitability and credit risk in emerging market financial institutions. *Journal of Emerging Financial Markets*, 5(2), 101–118.
- Tanasković, S., & Jandrić, M. (2015). Macroeconomic and institutional determinants of non-performing loans. *Journal of Central Banking Theory and Practice*, 4(1), 47–62.
<https://doi.org/10.1515/jcbtp-2015-0004>
- Vatansever, M., & Hepsen, A. (2013). Determining impacts on non-performing loan ratio in Turkey. *Journal of Finance and Investment Analysis*, 2(4), 119–129.
- Wijesinghe, K., & Wickramasinghe, D. (2023). Determinants of non-performing loans in Sri Lankan non-banking financial institutions: A panel data analysis. *Colombo Business Journal*, 14(1), 56–74.
<https://doi.org/10.4038/cbj.v14i1.89>
- Wooldridge, J. M. (2010). *Econometric analysis of cross section and panel data* (2nd ed.). MIT Press.

Appendix

Appendix 1 Table 1 The Likelihood Ratio Test

	VALUE	PROBABILITY
LIKELIHOOD RATIO LR TEST SUMMARY:	36.68444	0.1011
	VALUE	
RESTRICTED LOGL	353.4244	
UNRESTRICTED LOGL	371.7666	

Source: Author constructed

Appendix 2 Table 2 Stationery Test

Variable	Statistics	Probability
Non – Performing Loan Rate	-4.76946	0.00000
Size of the Company	28.2295	0.04000
Return on assets	66.2169	0.02700
Operating Efficiency	61.1315	0.04690
Capital adequacy Rate	24.8996	0.00815
GDP growth rate	51.3929	0.00150
Inflation Rate	72.2886	0.00800
Lending Interest rate	76.6289	0.0031

Source: Author constructed