Impact of Non-Performing Loans on the Financial Performance of Non-Bank Financial Institutions in Sri Lanka

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Abstract

Non-performing loans (NPLs) have become a significant challenge for financial institutions, especially in economies experiencing macroeconomic instability. Although there have been many studies on the banking sector, few empirical studies have been conducted on Non-Bank Financial Institutions (NBFIs) in Sri Lanka. This study examines the effect of NPLs on the financial performance of NBFIs in Sri Lanka over the period from 2015-2024. Return on Assets (ROA) and Return on Equity (ROE) were used to measure financial performance. The study employed a quantitative explanatory research design, using balanced panel data, comprising 90 firm-year observations from nine listed NBFIs. Secondary data were analyzed using descriptive statistics, correlation analysis, and panel data regression techniques. The Hausman specification test indicated that the Random Effects model was the most appropriate estimator. The results show a statistically significant negative relationship between NPL ratios and profitability indicators, indicating that higher levels of non-performing loans adversely affect the profitability of NBFIs. Among control variables, GDP growth and inflation show a significant positive impact on profitability, whereas policy interest rates do not exert a statistically significant consistent impact on profitability. The study underscores the importance of strengthening a proper and effective credit risk management system to enhance the profitability and stability of NBFIs in Sri Lanka.

Keywords: Financial Performance; Non-Performing Loans; Non-Bank Financial Institutions; Panel Data

1 Introduction

The financial sector plays a fundamental role in promoting economic growth, financial stability, and efficient resource allocation. Although commercial banks dominate formal financial systems, Non-Bank Financial Institutions (NBFIs) have become increasingly significant, particularly in emerging economies where they contribute to financial inclusion and credit accessibility. Globally, NBFIs are generally defined as financial institutions that do not possess full banking licenses and are typically restricted from accepting public deposits (World Bank, 2016). However, the institutional structure of NBFIs varies across jurisdictions depending on regulatory frameworks. In Sri Lanka, the NBFI sector comprises Licensed Finance Companies (LFCs) and Specialized Leasing Companies (SLCs), both regulated by the

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Central Bank of Sri Lanka. Unlike the conventional global definition, LFCs in Sri Lanka are permitted to accept public deposits (Central Bank of Sri Lanka, 2026).

Sri Lankan NBFIs play a critical role in providing leasing, hire purchase, consumer credit, pawning, and SME financing services, particularly to underserved market segments that may have limited access to traditional banking services (Ekanayake et al., 2023). Their importance within the financial system has expanded considerably in recent years. By the third quarter of 2025, the sector recorded total assets amounting to LKR 2.49 trillion, representing a year-on-year growth of 35.3%, significantly exceeding the banking sector's asset growth rate of 15% (Central Bank of Sri Lanka, 2025). This rapid expansion highlights the growing systemic importance of NBFIs within Sri Lanka's financial architecture.

Despite this growth, the sustainability and profitability of NBFIs remain highly dependent on the quality of their loan portfolios. Compared to commercial banks, Sri Lankan NBFIs are more heavily exposed to borrowers with irregular income streams, lower collateral capacity, and greater sensitivity to economic shocks. Consequently, these institutions face elevated credit risk and greater vulnerability to NPLs. According to the International Monetary Fund (IMF, 2005), an NPL refers to a loan where principal or interest payments remain overdue for 90 days or more, or where repayment is otherwise considered unlikely. Persistent increases in NPLs indicate deteriorating asset quality and directly weaken profitability by reducing interest income and increasing loan-loss provisioning requirements. NPLs are a main indicator of asset quality. Asset deterioration could directly affect profitability, capital adequacy, and long-term viability (Basuriya, 2023). During periods of economic stress, declining credit quality manifests in elevated NPLs and increasing provisioning requirements, which erode earnings and constrain the institution's capacity for new lending, thereby threatening its operational sustainability (Sariffodeen, 2025).

NPLs have become a critical concern globally as rising credit risk has been widely linked to declining financial performance (Klein, 2013; Louzis et al., 2012). Empirical evidence consistently shows that rising NPL ratios weaken financial performance (Berger & DeYoung, 1997). In the Sri Lankan context, the failure of several financial institutions such as Pramuka Savings and Development Bank in 2002 highlights the vulnerability of NBFIs to poor loan recovery (Ekanayake et al., 2023). NPLs reduce interest income since loans classified as NPLs generally stop generating interest revenue once borrowers fail to meet repayment obligations for an extended period. This may require institutions to suspend or reverse the recognition of interest income, which reduces bank earnings (IMF,2020). Rising NPLs also increase credit risk, which forces financial institutions to allocate more resources for loan monitoring, restructuring, and recovery processes. These additional costs further erode profitability and limit the institutions' capacity to expand lending activities (Demirgüç-Kunt & Huizinga, 1999). High levels of NPLs increase loan loss provisions, reduce income, and limit funds for new lending. This constrains corporate access to working capital and investment, potentially causing business failures that further worsen loan quality. In extreme cases, this feedback loop can trigger a self-reinforcing cycle of credit tightening and financial instability (Silva, Perera, & Madhushani, 2024)

The significance of this issue became particularly evident in Sri Lanka during recent periods of economic instability in Sri Lanka, including the COVID-19 pandemic and the 2022 sovereign debt crisis. These macroeconomic disruptions severely weakened borrower repayment capacity and intensified financial distress across the NBFI sector (Central Bank of Sri Lanka, 2023). Rising NPLs constrain institutions' ability to generate income, expand lending activities, and maintain operational sustainability. Existing literature consistently identifies a negative relationship between NPLs and financial performance, suggesting that deteriorating asset quality undermines institutional profitability and efficiency (Berger & DeYoung, 1997; Klein, 2013; Louzis et al., 2012).

Although the relationship between NPLs and financial performance has been extensively examined in the banking literature, there is limited empirical evidence focusing specifically on NBFIs (Kapilarathne & Weligamage, 2023). Most local studies concentrate on commercial banks and confirm a statistically significant negative relationship between NPLs and profitability indicators such as ROA and ROE (Kapilarathne & Weligamage, 2023). Certain credit risk mechanisms of banks are applicable to NBFIs due to the common activities such as leasing. However, structural and operational differences between banks and NBFIs limit the direct generalization of banking-sector findings. NBFIs differ in funding composition, regulatory frameworks, loan concentration patterns, and borrower risk profiles. These distinctions suggest that the magnitude and dynamics of the NPL- profitability relationship, despite their growing systemic relevance, empirical evidence specific to Sri Lankan NBFIs remains limited (Ekanayake et al., 2023). These distinctions differ from those observed in commercial banks. Furthermore, existing Sri Lankan NBFI research primarily investigates the determinants of NPLs rather than their direct impact on financial performance. For example, Ekanayake et al. (2023) analyse macroeconomic and firm-specific factors influencing NPL levels in Sri Lankan NBFIs, but do not empirically estimate how NPLs affect profitability measures such as ROA and ROE. This leaves an important direction of causality insufficiently explored. Addressing this existing gap in the literature that has largely focused on the banking sector this study examines the impact of NPLs on the financial performance of Sri Lankan NBFIs over the period 2015-2024.

2 Literature Review

In most empirical studies, NPLs are operationalized using the "90-days past due" rule, where loans are treated as non-performing when principal and/or interest is overdue by at least 90 days, or where repayment is otherwise unlikely (IMF, 2005). This definition is widely used because it imposes a clear, time-based threshold that supports comparability. However, it is not immune to classification discretion: institutions can restructure, roll over, or grant forbearance to distressed borrowers, potentially postponing NPL recognition and weakening the comparability of NPL ratios across firms and years (Basel Committee on Banking Supervision, 2017; EBA, 2018). At a macro-statistical level, NPL ratios are frequently measured as NPLs to gross loans, a definition formalized in global databases to promote standardization (World Bank, 2026). Yet firm-level disclosure still varies because reporting regimes interact with

supervisory guidance and internal credit policies, meaning that measured NPLs may not fully reflect the underlying credit impairment at a given point in time.

Financial performance reflects an institution's profitability and efficiency in utilizing resources. In this study, financial performance is assessed using ROA and ROE, which capture the institution's ability to generate returns from its assets and shareholders' equity, respectively (Athanasoglou et al., 2008; World Bank, 2018). ROA is valued for its ability to reflect how efficiently institutions convert total assets into profits, which is particularly relevant for balance-sheet-driven firms such as NBFIs. ROE reflects shareholder returns and is central to solvency and valuation discussions, but it is also sensitive to leverage and capital structure, which can mechanically inflate ROE even when asset quality worsens (Athanasoglou et al., 2008). This creates a critical implication for empirical modelling: profitability indicators should not be interpreted without controlling for firm characteristics that shape risk-bearing capacity (e.g., capital adequacy and liquidity), otherwise, NPL coefficients may partially reflect leverage effects rather than pure asset-quality deterioration (Athanasoglou et al., 2008).

The *Credit risk theory* lays the primary theoretical foundation for this study. At its core, deteriorating asset quality is expected to reduce profitability through three principal channels: reduced interest income, increased loan loss provisioning, and heightened capital pressure. When loans cease to generate interest payments, revenue declines directly, while regulatory and accounting requirements necessitate provisions that reduce net income. This dual impact implies a negative association between NPL ratios and profitability measures such as ROA and ROE. A foundational contribution to this debate is provided by Berger & DeYoung (1997), who propose competing hypotheses explaining the interaction between loan quality and performance. The "bad management" hypothesis argues that inefficient management practices result in poor credit screening and monitoring, leading to higher NPLs and lower profitability. Conversely, the "bad luck" hypothesis suggests that external economic shocks increase borrower defaults regardless of managerial quality, thereby reducing profitability. Importantly, their analysis demonstrates that causality may run in both directions: deteriorating performance may weaken monitoring capacity, which subsequently increases NPLs (Berger & DeYoung, 1997).

Banking efficiency theory presents a complementary view as it explains the real reasons behind NPLs. The theory assumes that the inefficiencies in financial institutions that finally result in high rates of loan defaults as well as deteriorating asset quality are caused by inefficiencies in financial institutions. Berger & DeYoung (1997) state that poor performance of managers may create low monitoring of borrowers, which increases the chances of NPLs. This also reduces the ability of the institution to recover distressed loans, leading to negative outcomes on financial performance. Empirical evidence further supports the view that inefficiency and credit risk are closely interrelated, as higher levels of NPLs are associated with lower profitability and weakened institutional capacity (Podpiera & Weill, 2008; Berger & DeYoung, 1997). This perspective is relevant to NBFIs, which operate in high-risk lending segments and depend on effective credit risk management practices.

The formation and persistence of NPLs are deeply embedded in macroeconomic dynamics. A substantial body of empirical literature demonstrates that credit risk is procyclical,

intensifying during economic downturns and moderating during periods of expansion. Louzis et al. (2012) provide empirical evidence from Greece showing that GDPG significantly reduces NPL ratios across mortgage, business, and consumer loan portfolios. Similarly, Klein (2013), analyzing Central, Eastern, and South-Eastern European countries, finds that weaker economic growth and rising unemployment are strongly associated with increasing NPL levels. These findings suggest that macroeconomic downturns amplify credit risk, which in turn may depress financial performance. Louzis et al. (2012) find that higher interest rates significantly increase NPL ratios, reinforcing the argument that monetary tightening can indirectly impair bank and non-bank profitability through increased credit losses. Beyond standard macro variables, crisis dynamics play a critical role in shaping NPL evolution. Jordà et al. (2021), using a comprehensive database of banking crises, show that NPL ratios typically surge following financial crises and remain elevated for prolonged periods. Taken together, the literature establishes that NPLs are not purely institution-specific phenomena; they are shaped by broader economic conditions and crisis dynamics. Therefore, any empirical investigation of the NPL–profitability relationship must incorporate macroeconomic variables such as GDPG, INFR, and interest rates to ensure accurate identification of the direct credit risk effect. This macroeconomic grounding is particularly important when analyzing extended periods that include economic instability, as is the case in the 2015–2024 timeframe examined in this study.

One of the earliest and most influential empirical investigations is Berger & DeYoung (1997), who document a negative relationship between problem loans and cost efficiency in U.S. commercial banks. Their findings suggest that deteriorating asset quality increases operational inefficiency and reduces profitability, while also highlighting potential reverse causality. Subsequent cross-country studies reinforced this negative association. For instance, Athanasoglou et al. (2008), examining Greek banks, demonstrate that asset quality is a statistically significant determinant of profitability even after controlling for bank-specific and macroeconomic variables. Dynamic panel studies further strengthen this evidence. Louzis et al. (2012) show that increases in NPL ratios are associated with lower bank profitability, with effects persisting across different loan portfolio categories. Similarly, Klein (2013), using panel data from Central, Eastern, and South-Eastern Europe, finds that rising NPLs negatively influence financial sector stability and profitability, particularly in emerging markets exposed to macroeconomic volatility. Mwanjilinji et al. (2025), employing panel quantile regression across major global economies, find that the adverse impact of credit risk is more pronounced for lower-profit institutions than for highly profitable ones. This suggests that the profitability effect of NPLs may be conditional on baseline performance levels, implying that average-effect models may obscure distributional differences. Similarly, Balgova et al. (2020) show that elevated NPL levels constrain bank lending in Europe, indirectly suppressing profitability by reducing revenue-generating opportunities. Evidence from crisis periods further demonstrates amplification effects. Jordà et al. (2021) show that following systemic banking crises, NPL ratios rise sharply and remain elevated, exerting sustained pressure on financial institutions. Such persistence suggests that profitability effects may intensify during prolonged downturns. Bischof et al. (2022) similarly find that macroeconomic conditions and legal efficiency

influence the speed of NPL resolution, implying that institutional factors mediate profitability outcomes.

Empirical research within Sri Lanka has predominantly concentrated on the commercial banking sector, with comparatively limited attention given to NBFIs. Several local studies confirm a statistically significant negative relationship between NPLs and bank profitability. For instance, Kapilarathne & Weligamage (2023) find that higher NPL ratios significantly reduce ROA and ROE among Sri Lankan commercial banks. Similar findings are reported in studies focusing on listed banks, which demonstrate that deteriorating asset quality weakens earnings performance and financial stability (Journal of Business Management, 2023). However, the transferability of banking-sector findings to NBFIs remains theoretically and empirically questionable. NBFIs in Sri Lanka, particularly LFCs and SLCs, operate with distinct funding structures, heavier exposure to leasing and consumer credit, and often thinner capital buffers. These structural differences imply potentially greater sensitivity to borrower income volatility and macroeconomic shocks. Despite this, existing Sri Lankan NBFI research largely focuses on the determinants of NPLs rather than on the direct impact of NPLs on profitability. For example, Ekanayake et al. (2023) examine macroeconomic and firm-specific factors influencing NPL levels in Sri Lankan NBFIs but do not estimate the profitability consequences of rising NPL ratios. Regulatory reports further highlight the relevance of this issue. The Central Bank of Sri Lanka (2023) notes that asset quality deterioration has been particularly pronounced within the finance and leasing sector during recent economic disruptions. Yet academic evidence quantifying how such deterioration affects NBFI profitability remains limited. This imbalance indicates that while the negative NPL–profitability relationship is established for banks, equivalent sector-specific evidence for Sri Lankan NBFIs is still insufficient, thereby justifying focused empirical investigation.

3 Methods

The study adopts a positivist research philosophy as the proposed relationships are tested using observable financial ratios and statistical inference to generate empirical evidence. The deductive approach is employed, whereby the hypotheses are developed based on theoretical perspectives on credit risk and efficiency that predict an inverse relationship between problem loans and profitability (Berger & DeYoung, 1997; Bholat et al., 2016). The study follows a quantitative and explanatory research design, and employs panel regression to estimate the average effect of NPLs on profitability while controlling for relevant firm-specific and macroeconomic factors. Prior empirical studies demonstrate that both bank-specific and macroeconomic variables influence financial performance, justifying a controlled regression structure rather than bivariate correlation (Athanasoglou et al., 2008). Sri Lankan evidence also motivates a panel approach because credit quality and profitability co-move strongly during macroeconomic stress periods (Kapilarathne & Weligamage, 2023).

This study used secondary, annual panel data. Firm-level variables were compiled from audited annual reports of selected Sri Lankan NBFIs (listed entities) for each year from 2015 to 2024. Macroeconomic variables GDPG, INFR, and INTR were obtained from available sources to ensure reliability and avoid measurement ambiguity. The 2015-2024 window is methodologically justified because NPL dynamics are persistent and path-dependent: problem

loans tend to evolve with lagged macro-financial conditions and feed back into lending capacity and profitability (Klein, 2013; Louzis et al., 2012). Extending to 2024 strengthens inference by increasing time variation and improving the ability to distinguish structural effects from short-run shocks.

The population consisted of 17 NBFIs operating in Sri Lanka, specifically LFCs and SLCs. The nine listed NBFIs that were selected based on predetermined criteria. Specifically, the selected NBFIs were required to have continuous availability of annual reports for the period from 2015 to 2024, consistent reporting of NPL measures, and sufficient financial information to calculate ROA and ROE. These criteria were applied to ensure the availability, consistency, and comparability of the data required for the analysis and to construct a balanced panel dataset. The NBFIs that did not meet these criteria, as well as those that experienced major structural changes, such as reverse listing without restated historical data, were excluded from the sample to minimize potential inconsistencies in the analysis (Bholat et al., 2016). Purposive sampling was used to select institutions with continuous annual report availability from 2015 to 2024, consistent reporting of NPL measures, and sufficient financial information to calculate ROE and ROA (Etikan, Musa and Alkassim, 2016).

To examine the influence of NPLs on the financial performance of NBFIs, the study employs a panel data regression model. For NBFI *i* in year *t*, the model is specified as follows:

$$Performance_{it} = \beta_0 + \beta_1 NPL_{it} + \beta_2 CAR_{it} + \beta_3 GDPG_{it} + \beta_4 INFR_{it} + \beta_5 INTR_{it} + \mu_i + \varepsilon_it \quad \text{----------(1)}$$

Where $Performance_{it}$ represents the financial performance of the institution measured by ROA and ROE. β_0 is the constant; NPL_{it} denotes the non-performing loan ratio of the institution; CAR_{it} represents the capital adequacy ratio; $GDPG_{it}$ is the annual real GDP growth rate; $INFR_{it}$ denotes the annual inflation rate; $INTR_{it}$ denotes the representative interest rate; μ_i captures unobserved, time-invariant firm-specific effects. (ε) denotes the random error, (i) stands for firms, and (t) stands for the period.

This specification is consistent with established profitability frameworks that emphasize the joint role of firm-specific characteristics and macroeconomic conditions in determining financial performance (Athanasoglou et al., 2008). It also aligns with empirical credit-risk literature that highlights strong interactions between asset quality and macroeconomic dynamics (Louzis et al., 2012; Klein, 2013). The model is estimated separately using ROA and ROE as alternative measures of financial performance. Table 1 provides explanations of variable measurements of the study. The hypothesis to be tested in the study is as follows:

H_1: There is a significant impact of NPLs on the financial performance of NBFIs in Sri Lanka

The study estimates both the Fixed Effects (FE) and Random Effects (RE) models to account for unobserved heterogeneity across institutions. The FE model allows firm-specific effects (μ_i) to be correlated with the explanatory variables, whereas the RE model assumes no such correlation. To determine the appropriate estimator, the Hausman specification test is employed. Moreover, diagnostic tests for Multicollinearity, normality and heteroskedasticity were conducted to determine the validity and reliability of the regression estimations.

Table 1: Measurement of Variables

Variable	Type	Measurement	Reference
NPL Ratio	Independent	Gross Non-Performing Loans / Total Loans	(Louzis et al., 2012; Klein, 2013)
Return on Assets (ROA)	Dependent	Net Profit After Tax / Total Assets	(Athanasoglou et al., 2008)
Return on Equity (ROE)	Dependent	Net Profit After Tax / Shareholders' Equity	(Berger and DeYoung, 1997)
Capital Adequacy Ratio (CAR)	Control (Firm-level)	Total Equity / Total Assets	(Wood & Skinner, 2018; Ekanayake et al., 2023)
GDP Growth (GDPG)	Control (Macro)	Annual Real GDP Growth Rate (%)	(Klein, 2013)
Inflation Rate (INFR)	Control (Macro)	Annual Inflation Rate (%)	(Louzis et al., 2012)
Policy Interest Rate (INTR)	Control (Macro)	Central Bank Policy Rate (%)	(Ekanayake et al., 2023)

4 Results and Findings

Descriptive statistics showed that the mean ROA across the sample was 3.10, while the mean ROE was 16.00. These values indicate that, on average, the sampled NBFIs remained profitable throughout the study period. However, the dispersion around these means was substantial. ROA ranged from 0.22 to 5.68, and ROE ranged from 0.96 to 45.73. This wide variation suggests that profitability was far from stable across firms and years. Such dispersion is analytically useful because it indicates enough variability in the dependent variables for econometric estimation, but it also reflects the uneven performance of NBFIs during a period that included both normal operating conditions and severe macroeconomic disruption. The distribution of ROA was relatively symmetric, with a skewness of -0.09 and kurtosis of 1.88, whereas ROE exhibited moderate positive skewness of 0.71 and kurtosis of 3. The mean NPL ratio was 7.23, with a minimum of 0.94 and a maximum of 24.36, showing that credit risk conditions varied sharply across the sample. Its positive skewness, 1.24 and kurtosis of 4.92 indicate that the distribution was right-skewed with relatively heavier tails and some comparatively high NPL observations. CAR averaged 21.11, while macroeconomic variables also displayed considerable variation, especially inflation, which ranged from 0.9 to 46.4. These figures are consistent with the argument in Chapter 1 that the study period captured major macroeconomic instability, particularly the inflationary and financial shocks associated with the Sri Lankan crisis years. These descriptive statistics already provide a preliminary indication that the sample captures a meaningful profitability-risk relationship.

The normality of residuals was assessed using the Shapiro–Wilk test. The deviation does not invalidate the regression results. In panel data analysis, particularly with a moderate sample

size, estimators such as Random Effects remain consistent and reliable even when residuals are not perfectly normally distributed. Therefore, the results of the ROE model can still be interpreted with confidence. The presence of heteroskedasticity was examined using the Breusch–Pagan / Cook–Weisberg test, where the null hypothesis assumes constant variance of the error terms. Table 4 shows that overall, heteroskedasticity is not a major concern in this dataset.

Table 2: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min.	Max.	Skewness	Kurtosis
ROA	90	3.102	1.544	0.220	5.680	-.091	1.884
ROE	90	16.005	9.632	0.960	45.730	.705	3.003
NPL RATIO	90	7.231	4.595	0.940	24.360	1.246	4.918
CAR	90	21.106	8.968	12.100	54.880	1.772	6.211
GDPG	90	1.350	4.506	-7.300	6.500	-.675	2.064
INFR	90	9.570	13.095	0.900	46.400	2.198	6.459
INTR	90	8.958	2.407	5.685	13.541	.753	2.605

Table 3: Shapiro -Wilk test results

Variable	Obs.	W	V	Z	PROB>Z
RESID_ROA	90	0.992	0.572	-1.232	0.891
RESID_ROA	90	0.958	3.182	2.553	0.005

Table 4: Heteroskedasticity test Results

	ROA	ROE
Ho	Constant Variance	Constant Variance
Variables	Fitted Values of ROA	Fitted Values of ROE
$Chi^2(1)$ =	2.21	2.9
Prob > Chi^2	0.1374	0.0883

Table 5: Variance Inflation Factor Test (VIF)

Variable	VIF	1/VIF
INFR	3.35	0.298
GDPG	2.25	0.444
INTR	2.24	0.446
CAR	1.24	0.807
NPL RATIO	1.22	0.819
MEAN VIF	2.06	

To test whether correlations among independent variables were severe enough to distort the regression estimates, VIFs were calculated. According to the Table 5 the mean VIF was 2.06, while the highest individual VIF was 3.35 for inflation. All values were comfortably below the conventional threshold of 10 and even below more conservative warning levels often discussed in applied research. This indicates that multicollinearity was not a major concern in this dataset.

The results show that the NPL ratio was negatively correlated with both profitability measures. As per Table 6, the correlations between the NPL ratio and ROA and the NPL ratio and ROE were statistically significant (r = -.541, r = -.640). This provides preliminary support for the central hypothesis. The stronger negative correlation with ROE suggests that shareholder returns may be even more sensitive to deteriorating asset quality than asset-based profitability. This is intuitively plausible because ROE reflects the effect of credit losses after those losses pass through earnings and ultimately affect equity.

Table 6 Correlation Matrix

	ROA	ROE	NPL RATIO	CAR	GDPG	INFR	INTR
ROA	1.000						
ROE	0.602***	1.000					
NPL RATIO	-0.541***	-0.641***	1.000				
CAR	0.326***	-0.251**	0.324***	1.000			
GDPG	0.116	0.201	-0.305***	-0.143	1.000		
INFR	0.065	-0.024	0.193	0.211**	-0.722***	1.000	
INTR	0.001	-0.069	0.195	0.339***	-0.482***	0.718***	1.000

*Note: *Significance: ***p < .01, ** p< .05, *p < .10*

Pooled OLS regression was employed to examine the relationship between the independent and dependent variables by combining cross-sectional and time-series observations. It assumes that there are no significant individual-specific or time-specific effects and that the relationship between the variables is homogeneous across entities and over time. The pooled OLS regressions provided baseline estimates before moving to panel-specific models. From a critical perspective, however, the pooled OLS results are useful but incomplete. They provide a strong initial indication that NPLs matter, but they ignore institution-specific heterogeneity. Since different NBFIs may differ systematically in governance, client base, risk appetite, or market strategy, pooled OLS may suffer from omitted-variable bias. The pooled OLS results are therefore best treated as a baseline benchmark rather than the final basis for inference.

The Breush-Pagan Lagrange Multiplier (LM) test was conducted to determine whether the RE model was more appropriate than the pooled OLS model. The null hypothesis states that the between-firm variance is zero, indicating no significant panel effects. The results were significant for both ROA and ROE, producing a chibar^2 statistic of 65.46 ($p < .001$) and 110.76 ($p < .001$). Therefore the null hypothesis was rejected for both models, confirming that the RE model is more appropriate than pooled OLS for both ROA and ROE.

The Hausman specification test was employed to determine the most appropriate panel data model between FE and RE. The null hypothesis states that the RE estimator is consistent and efficient, while the alternative hypothesis suggests that the FE model is more appropriate due to such correlation (Hausman, 1978). For the ROA model, as per Table 7, the Hausman test produced a Chi-square statistic of 6.62 with a probability value of .2503. For the ROE model, as per Table 7, the Hausman test produced a Chi-square statistic of 2.13 with an associated probability value of .300. Since the p value exceeds the conventional significance level of .05, the null hypothesis cannot be rejected. This indicates that there is no statistically significant evidence of correlation between the individual effects and the regressors, and therefore, the RE model is considered appropriate. Overall, the Hausman test results support the use of the RE

model for both profitability measures. This allows the analysis to capture both cross-sectional and time-series variations in the data while maintaining efficiency in estimation.

Table 7: Hausman Test Results

Statistic	ROA	ROE
Chi-squared	6.62	2.13
Prob > Chi^2	0.250	0.300

Table 8: Random Effects - Dependent Variables ROA& ROE

Variable	ROA		ROE	
	Coefficient	Std.Error	Coefficient	Std.Error
NPL Ratio	-0.174***	0.023	-0.609***	0.152
CAR	0.050***	0.016	-0.257**	0.105
GDPG	0.057**	0.026	0.612***	0.165
INFR	0.039***	0.011	0.214***	0.068
INTR	-0.102**	0.049	-0.008	0.321
Constant	3.750***	0.456	23.039***	3.097
R-squared (within)	0.495		0.486	
R-squared(overall)	0.572		0.364	
Wald Chi^2 (5)	84.44		72.51	
Prob > Chi^2	0.000		0.000	

*Note : *Significance: ***p < .01 ,**p < .05, *p < .10*

The RE model produced broadly similar results. In the RE ROA model, NPL ratio had a coefficient of -.174 and was statistically significant at the 1% level (p = .000). This confirms that higher NPLs significantly reduce profitability. CAR, GDPG, and INFR were positive and significant, while INTR was negative and significant. Overall, most variables were statistically significant in this model, highlighting the strong explanatory power of both firm-specific and macroeconomic variables determining ROA.

The model summary statistics for the RE ROA model given in Table 8 indicate satisfactory explanatory power. The overall R-squared of .5724 indicates that approximately 57.24% of the variation in ROA is explained by the independent variable. In the RE ROE model, the NPL ratio had a coefficient of -.6093 and was statistically significant at the 1% level (p = .000). This confirms that an increase in NPLs substantially reduces shareholders' returns. CAR was significantly negative, GDPG and INFR were significantly positive, and INTR remained insignificant. Once again, the main substantive conclusion remained stable: deteriorating asset quality reduced profitability. Overall variables except INTR were significant in this model, highlighting that NPLs play a critical role in reducing financial performance, while macroeconomic conditions and capital structure significantly influence profitability.

The model summary statistics for the RE ROE model indicate slightly lower explanatory power when compared to the ROA model. The overall R-squared of .364 indicates that approximately 36.44% of the variation in ROE is explained by the independent variable. The Wald Chi-square is statistically significant (*prob > Chi^2 = .0000).*

The most important empirical finding is that the NPL ratio had a consistently negative and statistically significant effect on both ROA and ROE across pooled OLS and RE. This is the central contribution. It provides sector-specific evidence that asset-quality deterioration weakens profitability in Sri Lankan NBFIs, thereby addressing the gap identified. The sign of the NPL coefficient is fully consistent with the theoretical expectation that worsening loan performance reduces interest income, increases provisions, and weakens capital-adjusted returns (Berger & DeYoung, 1997). It is also consistent with the broader profitability literature, including Athanasoglou et al. (2008), Louzis et al. (2012), and Klein (2013), all of whom show that asset quality is a critical driver of financial performance.

These results are highly consistent with the theoretical foundations discussed in the literature review, particularly the bad management hypothesis proposed by Berger & DeYoung (1997). This theory suggests that higher levels of non-performing loans reflect inefficiencies in credit appraisal, monitoring, and risk management practices. The empirical findings of this study strongly support this argument, as institutions with higher NPL ratios experienced lower profitability, implying weaknesses in credit risk governance and operational efficiency.

Furthermore, these findings are consistent with the Credit risk theory which say that higher levels of credit risk as shown by NPLs reduce financial performance. The results support the theoretical argument that NPLs do not generate interest income and require the allocation of loss loan provisions thereby reducing profitability. The results also align with the broader credit risk–profitability nexus established in prior studies such as Louzis et al. (2012) and Klein (2013), which argue that deteriorating asset quality reduces interest income while simultaneously increasing provisioning requirements. The consistency of the negative coefficients across pooled OLS, Fixed Effects, and Random Effects models strengthens the validity of this relationship and suggests that it is not driven by model specification or unobserved heterogeneity. The stronger magnitude of the negative effect on ROE compared to ROA further reinforces theoretical expectations. Since equity absorbs losses after they pass through earnings, credit risk shocks have a more pronounced impact on shareholder returns. This confirms that the transmission mechanism of NPLs operates more intensely at the equity level, amplifying financial strain. The results are consistent with the banking efficiency theory too. The significant negative impact of NPLs on financial performance suggests that inefficiencies in credit risk management contribute to the accumulation of NPLs. According to Berger & DeYoung (1997), institutions with lower efficiency tend to experience higher levels of loan problems which in turn affect profitability.

The results also resonate with the Sri Lankan context discussed before. Ekanayake et al. (2023) focused on the determinants of NPLs in Sri Lankan NBFIs, but the present study extends that work by showing the profitability consequences of those NPLs. This is a significant extension because determinants and consequences are not the same empirical question. Similarly, Kapilarathne & Weligamage (2023) found that NPLs reduce profitability in Sri Lankan commercial banks. The current study shows that the same broad negative relationship also exists in NBFIs, but within a sector-specific sample and across a period of macroeconomic instability. In that sense, the findings both align with the local banking literature and provide new evidence for the NBFI segment.

The positive coefficient on GDPG in the panel models is also theoretically consistent. Stronger economic growth improves borrower cash flows and debt-servicing capacity, thereby easing pressure on credit quality and profitability. This matches the macro-financial logic emphasized by Louzis et al. (2012) and Klein (2013). Inflation was positive and significant in several models, which is more complex to interpret. A simplistic reading might conclude that inflation improves profitability, but such a conclusion would be too crude. In the Sri Lankan case, inflation may have coincided with higher nominal rates, reprising of assets, and temporary increases in nominal financial returns. Yet the broader welfare and stability implications of inflation remain negative, especially when inflation becomes volatile and interacts with borrower distress. Therefore, the positive coefficient should be interpreted as a statistical association within the model, not as evidence that inflation is economically beneficial in general.

Capital adequacy produced mixed results across ROA and ROE models, but this is not surprising. In asset-based profitability terms, stronger capital may support resilience and improve the capacity to absorb shocks. In equity-based profitability terms, higher capital can reduce leverage and therefore dampen ROE. Rather than being contradictory, these results underline the importance of using both ROA and ROE. They show that profitability is a multi-dimensional concept and that prudential strength does not always translate into higher shareholder return linearly. Overall, the empirical evidence provides strong support that the alternative hypothesis cannot be rejected (H_1). Therefore, it can be concluded that NPLs have a statistically significant and economically meaningful negative impact on the financial performance of NBFIs in Sri Lanka.

5 Conclusions and Implications

This study aimed to examine the impact of non-performing loans on the financial performance of NBFIs in Sri Lanka over the period 2015–2024. To achieve this objective, a panel dataset comprising nine NFBIs were constructed. The study employed key financial performance indicators, namely ROA and ROE, as dependent variables, while the NPL ratio was the primary independent variable. Control variables included CAR, GDPG, INFR and INTR, consistent with prior studies such as Athanasoglou et al. (2008) and Klein (2013). The study provides strong empirical support for the existence of a significant relationship between NPLs and financial performance. The consistency of the negative coefficients across pooled OLS, Fixed Effects, and Random Effects models strengthens the validity of this relationship and suggests that it is not driven by model specification or unobserved heterogeneity. These results are highly consistent with the theoretical foundations discussed in the literature review.

This study provides significant insights for the management of NBFIs, particularly in relation to credit risk management and profitability sustainability. The consistently negative and statistically significant relationship between NPLs and financial performance highlights that poor asset quality directly undermines institutional profitability. This reinforces the critical importance of adopting proactive and structured credit risk management strategies. From a regulatory standpoint, the results of this study highlight the importance of establishing robust

frameworks that promote financial stability and prudent lending practices within the NBFI sector. The strong negative impact of NPLs on profitability underscores the need for regulatory authorities, particularly the Central Bank of Sri Lanka, to enhance oversight mechanisms related to asset quality and risk exposure. Macroeconomic factors such as GDP growth and inflation influence profitability, emphasizing the importance of the broader economic environment. Future research can include a larger sample of financial institutions, incorporating both NBFIs and commercial banks, and could also incorporate additional variables, such as cost efficiency, liquidity ratios, and governance indicators, to provide a more holistic analysis of financial performance determinants. Potential endogenity can be addressed by employing appropriate econometric techniques.

The analysis utilized panel data econometric techniques, including pooled OLS and RE models. The findings of the study consistently demonstrate that NPLs have a statistically significant and negative impact on both ROA and ROE across multiple model specifications. This confirms the central hypothesis of the study and aligns with theoretical expectations and empirical evidence in the literature.

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