

Institutional Level Drivers of Non-performing Loans: A Study of Licensed Commercial Banks in Sri Lanka

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Abstract

Loans are considered the major source of income for banks compared to other revenue generating sources. The increasing rate of non-performing loans is a threat to the banks since it exposes the banks to many associated risks, such as credit risk, default risk, and liquidity risk, and affects the financial condition of the banks. In general, non-performing loans could be caused by two major factors, namely institutional factors and macro-level factors. However, specific institutional factors could be controlled by the banks compared to macro-level factors. As a result, this study primarily focused on the impact of credit, due diligence practices and internal risk management within the lending division on the loan default rates of licensed commercial banks located in Colombo district in Sri Lanka. The sample of the study covers staff of thirteen local licensed commercial banks located at Colombo district in Sri Lanka, excluding other foreign commercial banks due to the differences in reporting methods and standard operating procedures. This study follows a deductive research method, using multiple linear regression analysis to identify the impact of credit assessment and due diligence practices and internal risk management on loan default rates of commercial banks. The indicates that combination of credit assessment, due diligence practices, and internal risk management can significantly predicts NPL while credit assessment is the most influential factor.

Keywords: Nonperforming loans, Due Diligence, Internal Risk Management, Credit Assessment

1.1. Background

Banks play a crucial role in any economy. Providing credit to borrowers is one way in which banks contribute to the growth of the economy. Therefore, banks perform an intermediary service by transferring funds and act as the backbone of the financial system of a country.

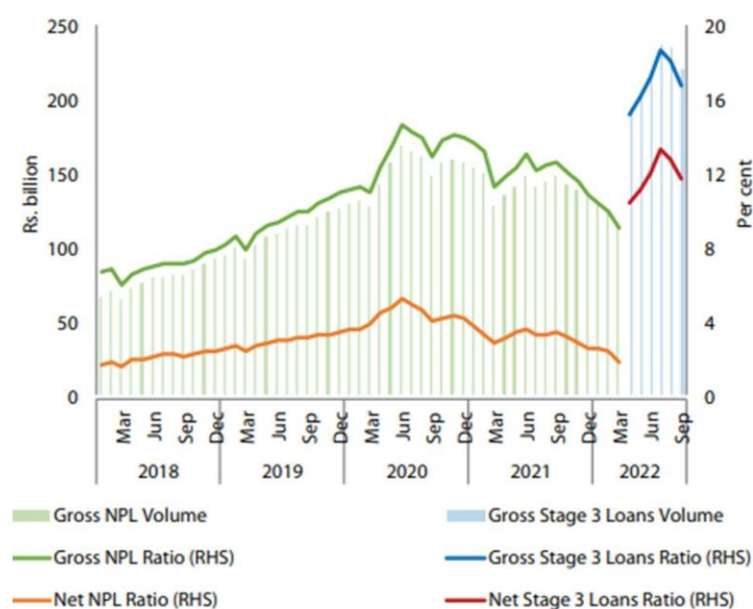
Financial sector in Sri Lanka is dominated by banking institutions. In 2022, the banking sector comprised 30 licensed banks with 11 foreign Licensed Commercial Banks (LCBs) and 19 domestic banks which include 6 Licensed specialized banks and 13 local Licensed Commercial Banks (CBSL, 2022). Licensed commercial banks support innovation and entrepreneurship in Sri Lanka by lending money to startup companies and entrepreneurs. Bank loans are a common source of

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funding for small and medium-sized businesses (SMEs), which promotes economic diversification and competitiveness. Commercial banks' lending activities are crucial to Sri Lankan economy because it stimulates entrepreneurship, boost consumer spending, aid in the construction of infrastructure, and advance financial inclusion. One of the challenges in lending such funds is predicting whether the loan will be repaid in full. Lending is the heart of the banking sector. Banks rely heavily on loans, which account for 50–75% of total assets, create the majority of operational revenue, and carry the highest risk exposure (Mac Donald and Koch, 2006). Therefore, the strength of the financial system in Sri Lanka mainly depends on the sustainability and efficiency of banking institutions.

Figure 1: Gross and Net NPL ratio of banking sector



Source: Financial system stability review, 2022

1.2. Research Problem

The Gross Non-performing loan (NPL) amount in Sri Lanka is Rs. 119 billion (CBSL, 2022) and the Gross Non-performing loan percentage is 12.7 percent in 2022. This is because licensed commercial banks are inevitably exposed to higher credit risk due to the nature of their business, which involves dealing with high-risk customers. This shows that the NPL ratio is still considerably high in comparison, and it is crucial to determine the causes of the higher loan default rates of Sri Lanka's licensed commercial banks.

Financial system shocks can occur due to bank-specific or macroeconomic variables. In the research area of non-performing loans, majority of the research study elaborates on the macro level indicators that impact the recovery of loans and advances such as inflation rate and unemployment rate prevail in the economy. The macro-economic reasons for the occurrence of NPL's which are unlikely to be recovered are cited by some researchers includes economic condition (Brownbridge,

1998; Jimenez and Saurina, 2006; Das and Ghosh, 2007; Al-Smadi and Ahmad, 2009), interest rate (Fofack, 2005; Jimenez and Saurina, 2006; AlSmadi and Ahmad, 2009), inflation (Rajan and Dhal, 2003; Al-Smadi and Ahmad, 2009; Pasha and Khemraj, 2009).

Despite the previous research studies conducted on the impact of macro level factors on problem loans, there are few studies conducted focusing on how specific institutional factors affects the recovery of loans given by licensed commercial banks. Nevertheless, most of the research studies on the macro-economic determinants of non-performing loans have been conducted in the European context. Godlewski (2008) stated that there is a direct relationship between NPLs and ROA, the lower the ROA, the higher will be NPLs and vice versa. Fiordelisi et al. (2011) found that decreased efficiency in EU banks leads to increasing risk in the future. Louzis et al. (2012) found that efficiency and performance characteristics impact non-performing loans in the Greek banking system. Dimitrios et al. (2016) found that ROA significantly impacts non-performing loans (NPLs) in the Euro banking system. Therefore, we can identify a knowledge gap on how the institutional factors such as due diligence and credit assessment and internal risk management practices impacts the loan default of licensed commercial banks in Sri Lanka. Thereby, it addresses an empirical gap that prevails.

1.3. Research Questions

- What is the impact of internal risk management practices within the lending division on higher loan default rates of licensed commercial banks in Sri Lanka?
- What is the impact of due diligence practices of within the lending division on higher loan default rates of licensed commercial banks in Sri Lanka?
- What is the impact of credit assessment practices within the lending division on higher loan default rates of licensed commercial banks in Sri Lanka?

1.4. Significance of the Research

Therefore, this study allows banking institutions to identify weaknesses in credit assessment practices and intervene promptly to ensure that executives appropriately assess the credit worthiness of the borrower and collect the loan payment on the due date. Further, this research study shows that regulatory bodies can implement measures to limit risks and ensure stability by identifying the specific institutional factors that contribute to loan default rates. In addition, by carrying out this research study, banks are assisted in improving their lending procedures, encouraging responsible lending, and bolstering economic growth. By demonstrating that the banks have efficient credit evaluation procedures in place, an understanding of the specific institutional factors influencing loan default rates contributes to investor trust.

Literature review

2.1. Impact of Institutional Factors on Non-performing Loans

According to the International Monetary Fund (IMF), 2009, a loan is considered as non-performing if interest and principal payments are past due by more than 90 days or if interest has been refinanced for more than 90 days. (Hennie and Sanja, 2009) defines nonperforming loans as assets

that do not generate income. NPLs are loans for which the interest or payment is past due, according to the Oxford dictionary of finance & banking (3rd Edition). NPLs are defined as non-performing according to Bank Negara Malaysia (BNM) Guideline (GP3) when the principal or interest is due and unpaid for 6 months or more following the initial day of default.

Even though loans are a bank's main source of revenue and assets, they also pose a risk to the banking sector. Indeed, among the many risks that banks encounter, credit risk is regarded as the worst since bad debts would reduce bank profits. As a result, non-performing loans (NPLs), a measure of a bank's credit risk, demonstrate the stability of the banking system and must be kept at a low level to promote economic growth.

Excess credit risk and poor corporate governance principals are identified to be more influential internal factors that leads to poor credit quality (Godlewski,2006). A review of bank crisis and related factors across the world has identified five common characteristics that has led the failures. Those factors are inefficient credit assessment process, management and control, inadequate monitoring, weak incentive structures, inadequate information transfers and inadequate corporate governance, (Llellewyn 2002). Intense competition in the credit market can lead banks to make risky lending decisions. As a result of financial deregulation and financial innovations, traditional banking activities are declining. In order to maintain profitability and competition, banks may be compelled to engage in either new financing activities such as off -balance sheet activities or finance riskier activities, (Godlewski, 2006, Santomero and Trester 1998). Several previous studies have concluded that the quality of institutional environment plays a key role in stakeholder protection, efficiency of capital markets and performance of financial system, (Klapper and Love ,2002, Mitton ,2002, Hussain and Wihlborg, 1999 as given in Godlewski, 2006)

Many academics have conducted research on institutional elements that influence the rate of increase of NPLs. Their results show that the non-performing loans are mainly influenced by both external and institutional factors. According to many academic research studies, the level of non-performing loans in an economy is largely determined by macroeconomic factors, (Louzis et al., 2012; Beck et al., 2015; Ghosh, 2015). Among the external factors, macro-economic and market structure factors are affecting credit risk, (Godlewski, 2006). Sinkey and Greenwalt (1991) noted in their research that the loan loss rate in the United States is influenced by both macroeconomic and bank-specific factors. Furthermore, (Washington (2012) in his paper, the macroeconomic environment is viewed as a critical driver for non-performing loans.

According to (Kasmir, 2014), internal and external variables are typically the two factors that lead to problem loans. Inaccurate analysis, collusion between loan and customer handling officials, officials' lack of understanding of the nature of the debtor's business, excessive involvement from connected parties, and deficiencies in loan counselling and monitoring are examples of internal issues. Of the two types, institutional factors can be controlled by banks, compared to external factors, in preventing higher NPLs (Nursyahriana et al., 2017). It has been discovered that both bank-related variables, such as poor management and market structure, and macro variables, such as GDP growth, unemployment, and inflation, have an impact on NPLs (Beck et al., 2015; Anastasiou et al., 2019).

As suggested in the agency theory, there is a conflict of interest created in the absence of prudential decision making by the organizations of the shareholders, Eisenhardt (1989). The credit process generates a clear information asymmetry between depositors and bank. As banks process all the sensitive information regarding the borrowers which are not transparent to the depositors, misappropriation of credits to risky borrowers could lead to agency conflicts while keeping the depositors at risk due to information asymmetry. Hard competition will always lead to accepting bad risks which will lead to higher defaults in the future. Therefore, efficiently aligned and monitored internal credit policy, risk management and governance framework is essentially important to protect the interest of the stakeholder.

In terms of variables used, most of the previous research studies limited only to the macro-economic factors and not on the due diligence practices, credit assessment practices, and internal risk management practices of executives within the lending division of licensed commercial banks. Benthem (2017) found a correlation between operating efficiency, capitalization, and NPLs in commercial banks. The study suggests that greater levels of NPLs are associated with better operating efficiency, implying that management practices impact NPLs. Moreover, (Gavetti & Levinthal, 2000) mentioned in their study that loan executives with more lending experience exhibit better self-efficacy, have distinct perspectives, and reach different loan application solutions than those with less experience. There are theoretical and empirical studies that were conducted to examine the impact of credit culture on non-performing loans (NPLs). But few research studies have been conducted in Sri Lanka to determine what factors contribute to non-performing loans of commercial banks. With respect to previous research studies, some of them focus on the effects of institutional factors on non-performing loans in state banks in Sri Lanka, and most of the studies were conducted about macro-determinants of non-performing loans of commercial banks. (Kumara et al., 2020).

2.2. Internal Risk Management Practices

Risk control techniques should be adopted at the branch level by the bank to limit the risk of loan default (Ikram et al., 2016). Credit risk has long been the banking industry's fundamental risk, and it is also the primary purpose and central content of financial institutions and regulatory agencies to regulate. Banks should strengthen their credit risk management techniques not just to raise profitability but also to maintain a high-quality asset portfolio, with special focus devoted to the NPL loss provision to total loans and growth in interest earnings, which were discovered to be significant (Serwadda, 2018). Failure to adopt proper internal risk management can lead to

H1: Internal risk management practices within the lending division have a significant impact on higher loan default rates of licensed commercial banks in Sri Lanka.

2.3. Due Diligence Practices

Due diligence involves deep scanning and reviewing all aspects of a company, including production, technology, marketing, sales, finance, the regulatory framework, human resources, and

others. (Sladjana Savovic and Dragana Pokrajic, 2013). According to (Arslan, 2009), due diligence is the investigative process of collecting and analyzing adequate, relevant data before deciding with the aim of understanding advantages, disadvantages, and risks associated with a decision. Therefore, the main areas of due diligence include financial due diligence, legal due diligence, and commercial due diligence. Furthermore, the knowledge and data acquired via due diligence practices are critical.

The empirical evidence indicates that due diligence practices of executives have a significant impact on NPL ratio of commercial banks. Banks that conduct thorough due diligence on their customers will be able to mitigate the direct and indirect costs that result from loan repayment default. Financial institutions are shielded from loan losses and their reputation is maintained when banks implement customer due diligence procedures effectively (Goldsmith et al., 2007). Due diligence procedures for customers aid in identifying and discouraging dishonest individuals from using banks and other financial institutions to carry out their illicit money laundering operations (Spedding, 2004; Ping, 2008).

H2: Due diligence practices of executives within the lending division have a significant impact on loan default rates of licensed commercial banks in Sri Lanka.

2.4. Credit Assessment Practices

The impact of credit assessment practices on non-performing loans (NPLs) is significant and can influence the overall financial health of the banks and the economy. Non recoverability of problem loans resulted from commercial banks' failure to implement the six Cs (Capacity, Capital, Collateral, Conditions, Character and Coverage) in credit appraisal, particularly insider lending and lending at excessive interest rates. Determining character, capability, current market conditions, comprehensive interviewing of the application and research of the applicant's credit history are the most important parts of credit appraisal (Kamau, 2011). Wrong selection and moral hazards have resulted in a significant accumulation of non-performing accounts in banks (Auronen, 2003). For an economy with rigid regulatory conditions, it is crucial for employees within the lending division of commercial banks to be well-informed, trained, and skilled in assessing credit risks.

Existing review of financial literature states that while assessing a borrower's ability and willingness to pay on the terms agreed upon is the primary goal of credit rating, the rating accomplishes more than simply categorizing borrowers into "pass" and "fail" categories. The likelihood of lenders defaulting, and their high credit risk raises banks' financial probability (Louzis et al., 2012). The primary cause of the massive banking crisis that banks encountered was credit risk. This resulted from the banks' involvement in credit operations without doing a thorough customer analysis or appropriately diversifying their credit operations. The effectiveness of these practices can determine whether loans are given to borrowers who can repay them, thus directly impacting the NPL ratio.

H3: Credit assessment practices of executives within the lending division have a significant impact on loan default rates of licensed commercial banks in Sri Lanka

Research Methodology

This study has adopted quantitative research, which followed a deductive method explaining the interrelationship of the variables studied.

3.1. Data Collection

The study entirely focused on primary data collected from the questionnaire responses provided by the executives of lending divisions of thirteen domestic licensed commercial banks in Colombo district of Sri Lanka

3.2. Sample and Sample selection

The Sri Lankan banking sector comprises twenty-four commercial banks in total, that is, thirteen local LCBs and eleven foreign LCBs. However, foreign commercial banks were excluded from the sample as these banks hold different financial reporting framework methods and standard operating procedures compared to domestic commercial banks. Further, their operations are different from domestic LCBs due to multi-currency transactions. We have restricted the sample to two hundred and fifty executives of licensed commercial banks due to time constraints for data collection and restricted access to banking industry personnel.

The study used a convenience sampling method by approaching executives attached to credit divisions of the 13 commercial bank branches located in Colombo district. An online questionnaire was shared among the target groups via employees attached to those banks and branches where 250 respondents have responded. Due to irrelevance of the functionalities or irrelevance of their institutions, 5 responses were removed. The final sample amounts to 245.

3.3. Variables

3.3.1. Non-Performing Loans (NPL)

The dependent variable of this study is non-performing loans of Licensed Commercial banks in Sri Lanka According to the International Monetary Fund (IMF), 2009, a loan is considered as non-performing if interest and principal payments are past due by more than 90 days. Based on the classification given by the Bank Supervision Department of CBSL, NPL has been classified into the following categories.

Overdue- Outstanding for 3 to 6 months

Substandard – Outstanding for over 6 to 12 months

Doubtful – Outstanding for over 12 to 18 months

Loss – Outstanding over 18 months

In relation to non-performing loans, a categorization is used to rank NPL in respective banks based on the range of NPL recorded by the respective respondents in the questionnaire. The categorization was based on the industry average of the NPL held by the banking industry at the time of the data collection. Accordingly, any bank maintaining less than 5% NPL was low while 5% -10% is considered medium and any NPL levels recorded exceeding 10% considered high. Accordingly, the numeric values were assigned as 3,2 and one for high, medium and low respectively based on the intensity of NPL in their respective bank reported by the respondents.

The values were standardized to remove scale differences. Though NPL ratings (high, medium and low) are considered as ordinal, research methodology literature treats ordinal response variables as numeric in survey instruments suitable for used in ordinary least square regression. Treating such scales as continuous has been discussed as widely acceptable because it facilitates interpretation and estimation, (Huh and Gim, 2025).

3.3.2. Independent Variables

The independent variables under this research study are considered as bank institutional factors, which primarily includes due diligence practices, credit assessment practices, internal risk management practices, and loan acceptance and approval procedures respectively to determine the effect of NPLs of commercial banks in Sri Lanka.

Due Diligence Practices (DD)

The empirical evidence indicates that due diligence practices of executives have a significant impact on NPL ratio of commercial banks. Banks that conduct thorough due diligence on their customers will be able to mitigate the direct and indirect costs that result from loan repayment default. Financial institutions are shielded from loan losses and their reputation is maintained when banks implement customer due diligence procedures effectively (Goldsmith et al., 2007). Due diligence procedures for customers aid in identifying and discouraging dishonest individuals from using banks and other financial institutions to carry out their illicit money laundering operations (Spedding, 2004; Ping, 2008). However, other methodologies were used to measure due diligence practices in earlier studies. In view of this, the likert scale is used in this research study to measure due diligence practices. The values were standardized to remove scale differences.

Credit Assessment Practices (CA)

Existing review of financial literature states that while assessing a borrower's ability and willingness to pay on the terms agreed upon is the primary goal of credit rating, the rating accomplishes more than simply categorizing borrowers into "pass" and "fail" categories. The likelihood of lenders defaulting, and their high credit risk raises banks' financial probability (Louzis et al., 2012). The primary cause of the massive banking crisis that banks encountered was credit risk. This resulted from the banks' involvement in credit operations without doing a thorough customer analysis or appropriately diversifying their credit operations. The effectiveness of these practices can determine whether loans are given to borrowers who can repay them, thus directly impacting the NPL ratio. Furthermore, a likert scale is used to measure the credit assessment practices of executives within the lending division of commercial banks in this research study. The values were standardized to remove scale differences.

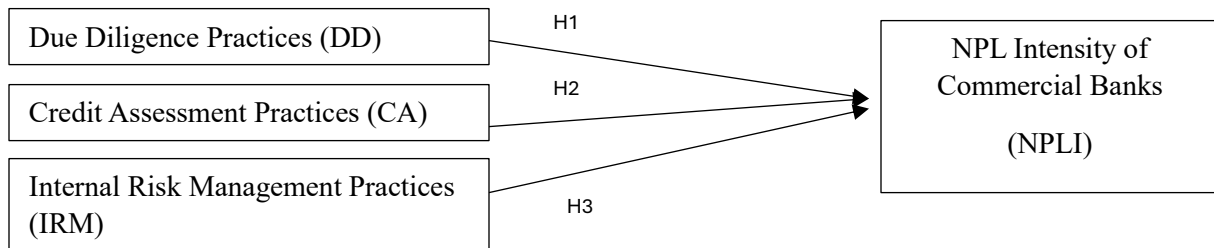
Internal Risk Management Practices (IRM)

The literature generally agrees that the goal of risk management should be to maximize an organization's value while reducing losses inside it. According to (Fadun, 2013), risk management is the process of handling risks in a way that maximizes opportunities or upper tail outcomes while minimizing dangers or lower tail outcomes. The literature has widely acknowledged that risk management methods have a substantial impact on the nonperforming loan ratio of commercial

banks. In other words, effective risk management reduces the likelihood of commercial bank default rates. Although there are various approaches for evaluating the risk management techniques that lead to the loan default rates of commercial banks in Sri Lanka, the likert scale is employed to measure the practices. The values were standardized to remove scale differences.

3.4. Conceptual Framework

Figure 2: Conceptual Framework



Source: Author's construction based on literature survey

3.5. Operationalization s

Table 1: Operationalization of Variables

Category	Variable type	Operational definition	Source	Measurement
Dependent Variable	Nonperforming loans of Commercial Banks (NPL)	Loan on which interest and principal payments are past due by more than 90 days. (International Monetary Fund, 2009). Respondents rated the level of NPL as High, Medium, or Low. Coded as High = 3, Medium = 2, Low = 1 to convert to numeric values.	Jimenez and Saurina (2005) Huh and Gim, 2025	Ordinal converted to numeric High = 3 Medium = 2 Low = 1
Independent Variables	Credit Assessment Practices (CA)	Process of determining character, capability, current market conditions, comprehensive interviewing of the application and research of the applicant's credit history (Kamau, 2011).	Muhammad Irfandi and Fitria (2023)	Ordinal Likert scale (1-5) for character, capital and capacity and (1-3) for collateral and condition

		Measured based on respondents' evaluation of credit assessment practices. The values were standardized to remove scale differences.		
	Due diligence practices	Due diligence is the practice of reviewing information about an issuer to mitigate risk and conducted to avoid being held liable for false or misleading disclosure in a registration statement (David P. Stowell, 2018). Measured based on respondents' evaluation of credit assessment practices. The values were standardized to remove scale differences.	Gavetti and Levinthal (2000)	Ordinal Likert scale (1-5)
	Internal risk Management practices	Practice of handling risks in a way that maximizes opportunities or upper tail outcomes while minimizing dangers or lower tail outcomes (Fadun, 2013). Measured based on respondents' evaluation of credit assessment practices. The values were standardized to remove scale differences.	Ikram et al., (2016)	Ordinal Likert scale (1-5)

Source: Author's construction based on literature survey

3.6. Method of Analysis

In this study, the independent variables are standardized values of due diligence practices (DD), credit assessment practices (CA) and internal risk management practices (IRM), and the dependent

variable (NPL) is the non-performing loans of licensed commercial banks in the Colombo district which is also standardized. To ascertain a measure of the strength of the association between one variable and another, correlation analysis was also performed in this study. Moreover, in this study a multiple linear regression analysis is used to ascertain the relationship between one dependent variable and two or more independent variables. Linear regression analysis requires the classic assumption test which includes residual normality, autocorrelation, heteroscedasticity, and multicollinearity tests which will also be used in the study.

$$Z(NPL) = \beta_0 + -0.301 Z(CA) + 0.001 Z(DD) - 0.074 Z(IRM) + e$$

Z(NPL)= Non-performing loans

Z(DD) = Due diligence practices

Z(CA)= Credit assessment practices

Z(IRM)= Internal risk management practices

β_0 = Constant value

$\beta_1, \beta_2, \beta_3$ = Regression coefficient

e = Error term

Data Analysis and Presentation

1.1. Descriptive statistics

Descriptive statistics for this research incorporated the mean, minimum, maximum, and standard deviation for each factor that influences the loan default rates of commercial banks, and the results of the descriptive analysis for all variables are presented in Table 2 below.

Table 2: Descriptive statistics

	Z(CA)	Z(DD)	Z(IRM)	Z(NPL)
N	245	245	245	245
Mean	0.000	0.000	0.000	0.000
Maximum	6.831	4.108	2.197	7.097
Minimum	-3.1641	-3.879	-3.571	-6.926
Std. deviation	1.000	1.000	1.000	1.000
Skewness	2.807	-0.311	-1.939	-4.013
Kurtosis	18.794	6.486	5.293	46.275

Source: Author compiled based on SPSS output

Accordingly, all independent variables with standardized transformation suggest values close to zero and standard deviations of one. Skewness and Kurtosis values indicate varying degrees of deviations from normality. Particularly, Zscore(CA) shows substantial positive skewness and high kurtosis. This indicates the presence of extreme values. Zscore (DD) exhibits mild negative skewness but elevated kurtosis. Zscore(IRM) indicates moderate negative skewness and leptokurtic features. Dependent variables also show non-normality with high negative skewness values and high kurtosis values.

Despite the variables are standardized, they indicate deviations from the normality assumption. Nevertheless given larger sample size and satisfactory regression residual diagnostics suggests the use of parametric regression technique appropriate.

4.2. Reliability Test

Table 3: SPSS output of the Reliability Test of the Study Variables

Variable	Cronbach's Alpha based on standardized items	No of items
Credit assessment practices (CA)	0.837	6
Due Diligence practices (DD)	0.535	6
Internal risk management practices	0.738	4

Source: Author compiled based on SPSS output

Cronbach's alpha for the three independent variables ranged from 0.535 to 0.837. Cronbach alpha is a measure of internal consistency and not a test of scale validity. The credit assessment (CA) and internal risk management (IRM) factors have a good reliability level, as Cronbach's alpha is greater than 0.7. Higher value can be attributed to the scale. The factors related to due diligence practices have relatively low Cronbach's alpha which are less than 0.7. The reason for lower alpha values could be due to less scale used in the questionnaire. *Alpha decreases when the number of items is small, Cortina (1993) and Gliem & Gliem (2003).* Therefore, having 0.5 Cronbach alpha values for diligence practices are theoretically acceptable. Accordingly, it is appropriate to arrive at the conclusion that the study's measurement instrument is reliable.

4.2.1. Normality Test

Normality of residuals were tested using normal P-P plot of Regression Standardized Residuals. According to figure 03, residuals follow the diagonal reference line with few minor deviations at the tails. Therefore, assumption of normality is reasonably satisfied.

4.2.2. Multicollinearity Test

The multicollinearity test is a statistical test used to assess the presence of multicollinearity among the independent variables in a regression model. The multicollinearity test uses the variance inflation factor (VIF); the results are presented in Table 4 below. The VIF measures how much the variance of an estimated regression coefficient is inflated due to collinearity. There is no multicollinearity issue in the current study's regression model since the VIF values for each of the independent variables are less than 10 (Gujarati & Porter, 2009)

Table 4: SPSS output of the Multi collinearity test of the Study Variables

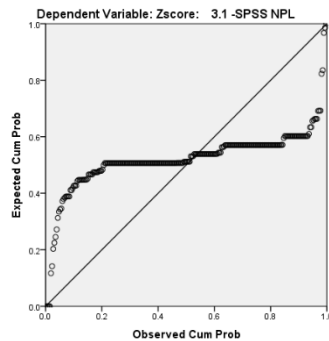
Variables	VIF
Credit assessment (CA)	1.250
Due diligence (DD)	1.183
Risk management (IRM)	1.228

Source: Author compiled based on SPSS output

4.2.3. Heteroscedasticity Test

Heteroscedasticity test determines whether the residuals' variance is constant for all values of the independent variables. A residual plot verifies the homoscedasticity assumption, which indicates that there should be no pattern and a random distribution of residuals. In the residual plot in the current study given in figure 3 shows no systematic pattern, supporting homoscedasticity. This means that there is no heteroscedasticity problem. Hence, the conclusions made from the model are reliable (Gujarati & Porter, 2009).

Figure 3- P-P plot of Regression Standardized Residuals



Source: SPSS output

4.3. Correlation Analysis

Table 5: Correlation Matrix

		CA	DD	IRM	NPL
Zscore (CA)	Pearson Correlation	1	0.185 (**)	.213(**)	-0.80
	Sig. (2-tailed)		0.004	0.001	0.212
	N		245	245	245
Zscore (DD)	Pearson Correlation		1	-.338(**)	-0.80
	Sig. (2-tailed)			0.000	0.211
	N			245	245
Zscore(IRM)	Pearson Correlation			1	-0.223(**)
	Sig. (2-tailed)				0.000
	N				245
Zscore(NPL)	Pearson Correlation				1
	Sig. (2-tailed)				
	N				

**Correlation is significant at the 0.01 level (2-tailed).

Source: Author compiled based on SPSS output

The Pearson correlation coefficients suggest that credit assessment practices, risk management practices, and due diligence practices (CAP, IRM, and DD) are negatively correlated with the loan

default rates of commercial banks in Sri Lanka. This indicates that if the banks implement strong credit assessment, risk management, and due diligence practices, the rate of defaulting on loan repayment by the borrower will decrease, and vice versa.

The results indicate that IRM only has a statistically negative correlation with NPL ($\rho = -0.223$, $p < 0.001$). This suggests that strong internal risk management practices are lowering the NPL. Both CA and DD have negative correlation with NPL but are not statistically significant. IRM is the direct mechanism that controls the NPL. Though strong DD and CA prevail, poor IRM could still lead to higher NPLs. Also, CA and DA are self-reported in the study, respondents may have overestimated their scores which make them less predictive. Moreover, CA and DD may have an indirect impact on NPL through better IRM which is not visible through simple bivariate correction.

4.4. Regression Analysis

4.4.1 Model Summary

Table 6: Model summary result

R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
.336	.0113	0.102	0.94766	1.968

Source: Author compiled based on SPSS output

The R-squared value of 0.113 indicates that only 11.3% of the variation in the dependent variable (NPL) can be explained by the independent variables (CAP, DD, and IRM) in the model. The adjusted R-squared value of 0.102 is slightly lower than the R-squared value (refer table 6). Overall, the model summary indicates that the model fits the data relatively low. Low R^2 does **not necessarily invalidate the model**. Especially in social sciences where NPL is influenced by many factors. It just means to suggest that other variables affecting NPL that are not included.

4.4.2. ANOVA Results

The regression ANOVA table (Table 7) shows F-statistics are 10.231, which is statistically significant ($p < 0.005$) and indicates that combination of CA, DD, and IRM significantly predicts NPL. (Gujarati & Porter, 2009). This further supports the conclusion that this is an appropriate model.

Table 7: ANOVA Results

	Sum of Squares	df	Mean Square	F	Sig.
Regression	27.565	3	9.188	10.231	.000
Residual	216.435	241	0.898		
Total	244.000	244			

Source: Author compiled based on SPSS output

4.4.3. Results of the Regression Model

Table 8: Results of the Regression Model

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
Constant	3.5049E-15	0.061		0.000	1.000
Zscore (CA)	-0.301	0.068	-0.301	-4.435	0.000
Zscore (DD)	0.001	0.066	0.001	-0.008	0.993
Zscore(IRM)	-0.074	0.067	-0.074	-1.102	0.272

Source: Author compiled based on SPSS output

The p-values for CA suggest that CA is a significant negative predictor of NPL with ($B = -0.301$, $\beta = -0.301$, $p < 0.001$), implying that stronger credit assessment practices are associated with lower levels of NPL. Due Diligence (DD) ($B = 0.001$, $\beta = 0.001$, $p = 0.993$) and Internal Risk Management (IRM) ($B = -0.074$, $\beta = -0.074$, $p = 0.272$) were not having a statistically significant relationship. This indicates that in this dataset, these factors did not have a meaningful direct impact on NPL.

Though the bivariate correlation suggests that IRM has a significant negative correlation with NPL, when combined with DD and CA the relationship is not significant. This is because correlation measures the bivariate relationship between two variables while ignoring the others while regression measures the unique effect of each predictor while controlling for other. Variables that are highly correlated may not be significant in regression due to overlapping its effect with other predictors. In contrast, variables which are not significantly correlated may show significant relationship in regression due to suppression effects.

4.5. Hypothesis Testing Outcomes

The significance of the relationship was determined by testing hypotheses of the study. To assess the suggested hypotheses, a P-value 0.1 or less is needed to take into consideration the impact on the model. The P-values in Table 9 show that out of the three predictors, only CA is significant at the 0.05 level.

Table 9: Summary of Hypothesis Testing

Hypothesis	Analysis Result	Outcome
H1: Due diligence practices of executives within the lending division have a significant impact on loan default rates of licensed commercial banks in Sri Lanka	The results reveal that DD has a minor positive impact on NPL ($\beta=0.001$, $t=-0.008$, $P=0.993$).	H1 is rejected

H2: Credit assessment practices of executives within the lending division have a significant impact on loan default rates of licensed commercial banks in Sri Lanka.	The results reveal that CA has a significant negative impact on NPL ($\beta=-0.301$, $t=-4.435$, $P=0.000$).	H2 is accepted
H3: Internal risk management practices within the lending division have a significant impact on higher loan default rates of licensed commercial banks in Sri Lanka.	The results reveal that IRM has a negative impact on NPL ($\beta=-0.074$, $t=-1.102$, $P=0.272$). which is not significant,	H3 is rejected

Source: Author compiled based on SPSS output

5. Discussion

Despite low model summary of R-squared value of 0.113, ANOVA table, shows F-statistics are 10.231, which is statistically significant ($p < 0.005$) and indicates that combination of CA, DD, and IRM significantly predicts NPL. Yet there may be several other factors that are affecting NPL such as macroeconomic conditions, regulatory changes, or borrower characteristics that may have caused a potential bias.

The results of research study indicate that specific institutional factors within the lending division of commercial banks in Sri Lanka play a major role in the formation of NPLs of Licensed commercial Banks in Sri Lanka. The most influential institutional factor affecting loan default rates is Credit assessment practices. The results of the research study align with those of Muhammad Irfandi and Fitria (2023), who similarly highlighted the role of institutional factors, including loan acceptance and approval processes, on higher loan default rates of commercial banks. Additional research, such as those carried out by Berger and DeYoung (1995), consistent with the findings. These studies have repeatedly shown that there is a negative correlation between certain institutional characteristics and non-performing loans. However, the study differs from that of Benthem's (2017) study, which examined the relationship between operating efficiency and non-performing loans (NPLs) in commercial banks and discovered a positive correlation between higher NPL levels and higher operating efficiency.

In contrast both DD and IRM are not identified to be statistically significant predictors of NPL. It appears that there might be some other factors that may mediate the effect of DD and IRM on NPL which are not covered in the model. Even though DD and IRM are not significant, continuous improvements will lead to preventing the potential of higher NPLs. This set needs for more robust studies in the future to be carried out in the future to capture the potential indirect effects, mediating effects and sector specific differences that may influence the effectiveness of those variables.

High default rates of non-performing loans are a threat to banks and other financial institutions since they expose many risks. Credit risk is the potential threat to banking institutions due to a borrower or a counterparty failing to meet its obligations in accordance with the agreed terms. Credit risk would be exposed to many other related risks such as liquidity risk and solvency risk. Accordingly, proper management of credit risk would ensure the long-term solvency of a bank. Even with the resources that LCBs have used to raise the quality of their assets, banks still typically hold higher-problem loans. As this study has shown, managing non-performing loans (NPLs) for commercial banks requires greater emphasis on the lending division's bank-specific variables, over which banks have greater control.

Further, robust credit assessment policies of CBSL can be implemented to limit risks and ensure stability by identifying the specific institutional factors that contribute to loan default rates. However, the resilience of the banking system cannot be measured only by using bank-specific factors because macro-economic factors too have an influence on the loan default rates of LCBs, which are not under their control.

In addition to that, identifying the control deficiencies and weaknesses in credit assessment practices and intervening promptly to ensure that executives appropriately assess the credit worthiness of the borrower is also important to ensure the stability of the financial system. Moreover, refining lending practices, promoting responsible lending, and supporting economic development help to build investor confidence by identifying that the banks have effective credit assessment policies in place.

6. Limitations

As independent variables were measured through the same survey instruments, common method bias may influence the correlation among the variables. This would lead to an overestimating effect on dependent variables. Also, personal judgements, perceptions and self-interpretation may lead to subjective biasness. This may result in greater variability in the construction. Conscious or unconscious by respondents owing to social desirability biasness to present their institutions positively may also distort the variables.

Moreover, the cross-sectional design of the study captures the relationship at a particular point in time and does not support causality over time. Other factors that may pose a more influence on NPL, such as macroeconomic conditions, regulatory changes, or borrower characteristics may affect the results. Despite the fact the IRM and DD were not directly associated, they may have an indirect association with NPL which is not a focus of the current study.

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