



Explaining Non-Performing Loans of Commercial Banks in Malaysia

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ABSTRACT

This study examines the influence of bank size, capital adequacy, profitability and liquidity on non-performing loans (NPLs). The growing risk of non-performing loans leading to banks' potential losses motivates this study to be conducted. This study includes commercial banks in the Main Market of Bursa Malaysia from 2010 to 2021. To test the hypotheses, this study employs a Fixed Effect model. The results show that bank size and capital adequacy have a significant and negative relationship with non-performing loans, indicating that larger banks and higher capital adequacy have lower NPLs. Generally, this study found a limited number of commercial banks listed in the Malaysian market, providing a smaller sample. Nonetheless, the results of this study may benefit commercial banks in the significant factors to prevent the occurrence of non-performing loans.

Keywords: Non- performing loan, Capital adequacy, Liquidity, Fixed effect model.

INTRODUCTION

The primary asset of commercial banks is disbursing loans and advances [19]. Generally, a drop in the value or the worth of banks' loan books (non-performing loans) is the primary reason for the banking industry's financial instability, eventually affecting the overall nation's financial system [22]. Non-performing loans occur everywhere worldwide and play a major part in banks collapsing. In order to gauge a bank's level of credit risk and the viability of its outstanding loans, the law requires banks to disclose or declare their ratio of non-performing

loans to total loans. A high ratio indicates that the bank is at a higher risk of loss. In another way, if the bank cannot recoup the unsettled or unpaid loan balances, a low ratio specifies that the bank faces risks from outstanding loans, commonly referred to as non-performing loans.

Non-performing loan occurs once the debtor owes a payment that is further than 90 days past due, when the interest has been renegotiated to a different value, postponed, or endorsed for more than 90 days, or when instalments are less than 90 days past due but are not ever again anticipated [3]. Examples of non-performing loans include those where the principal has been reimbursed, but a portion of the loan balance is still owed [16]. The negative implication of enduring a high ratio of NPLs for commercial banks is a contraction of credit supply, distorted credit allocation, and worsened market confidence, negatively affecting the banks' performance. Worsening of non-performing loan levels might also imperil the bank stability, negatively affecting the country's economy. For instance, many financial crises that affected the ASEAN countries have resulted from nonstandard credit growth that preceded an expansion in financial institutions' failures [6]. Understanding that banks are pertinent to economic development, this study finds investigating the influences affecting banks' non-performing loans crucial.

Although past studies highlight the importance of macroeconomic factors [5, 23], this study argues that past studies have yet thoroughly identified the potential of banks' internal factors and their relative role in overcoming the issue of non-performing loans. Specifically, this study examines the potential roles of liquidity, profitability, size and capital adequacy of banks as factors of banks' non-performing loans in Malaysia.

Research Framework

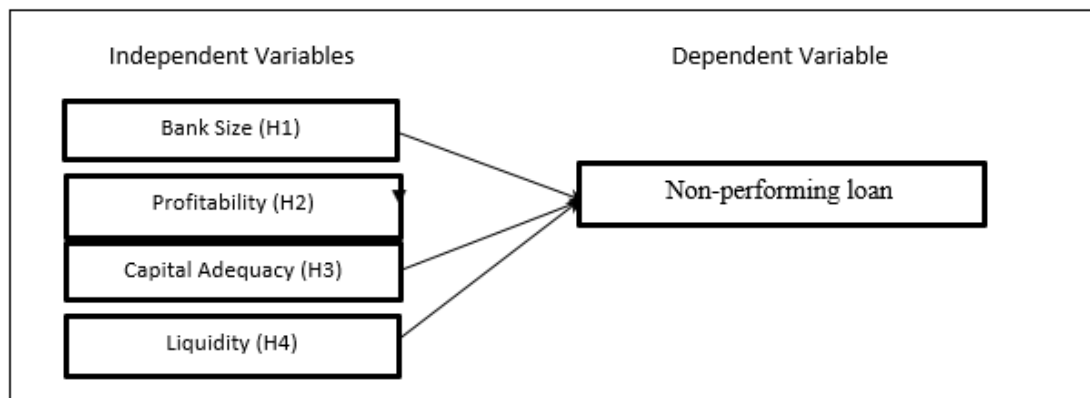


Figure 1: Theoretical Framework of the Determinants of Non-performing Loans

This study is expected to be significant to several parties, such as financial regulators and commercial banks. This study can offer insights to Bank Negara Malaysia and commercial banks in implementing initiatives to deepen and strengthen the commercial banks by reducing the amount of non-performing loans. The significant variables (bank size and capital adequacy) found in this study indicate that smaller commercial banks and lower capital funds should be more cautious of the number of loans issued to reduce the possibilities of non-performing loans. While loans may be one of the major assets of commercial banks, they may also be a liability if poorly managed, especially low-quality loans. Thus, this study provides additional empirical evidence that internal factors of commercial banks, specifically the bank size and capital

adequacy, are worth examining in determining non-performing loans. The rest of this study is sequenced accordingly: literature review, methodology, discussion and analysis, and conclusion.

LITERATURE REVIEW

Non-Performing Loans

When the debtor has more or further than a certain number of days overdue on the loan's organized payments date, it is the most typical definition of a non-performing loan [15]. High non-performing loan levels may compromise the stability of the banking system and its capacity to lend to the actual economy [12]. Therefore, it is clear that dealing with large non-performing loan rates is necessary, especially for economies that rely heavily on banks, like the Euro area [12]. To assess whether the banking institutions are handled effectively and to fortify the Malaysian financial system, financial institutions must study bank efficiency [21], which in this case is the performance of loans.

Numerous researches on the causes of non-performing loans have been conducted over the years due to the negative impact non-performing loans have on the financial performance and viability of commercial banks. Banks can control the rise of non-performing loans by being aware of the main factors influencing them, limiting their negative effects on banks' performance. Additionally, being aware of the effects of non-performing loans contributes to maintaining a strong financial system that can foster economic expansion [23].

In a study by Zainol et al. [26], the macroeconomic variables determining the non-performing loans of Malaysia's banks and financial institutions were examined. GDP is substantial and has a negative impact on non-performing loans. In contrast, base lending rate and household income distribution are significant and have a favourable relationship with non-performing loans. Another study by Zain et al. [25] found capitalization, net interest margin and real exchange interest rate to significantly influence banks' non-performing loans.

According to Wood and Skinner [23], gross domestic product growth negatively influences non-performing loans. Their result suggests an increase in the real economy strengthens the borrower's capability to pay off their debt, which in turn helps to reduce the amount of non-performing loans. On the other hand, unemployment has detrimental effects on households' and businesses' cash flow, increases their debt load, and makes it impossible for them to fulfil their financial responsibilities [23]. Thus, the unemployment rate also is found to influence non-performing loans positively.

While macroeconomic factors have been vastly explained, the internal factors of commercial banks have yet been thoroughly examined. This study intends to fill the gap by suggesting the possible influence of commercial banks' internal factors on higher or lower non-performing loans. Specifically, this study proposes that banks' size, profitability, capital adequacy and liquidity can influence banks' non-performing loans.

Bank Size

Enormous assets provide banks access to large amounts of credit, which allows them to lower interest rates [2]. Due to the ease of credit payments made possible by such low-interest rates, banks will have less troublesome loans to deal with. The sum of a bank's assets can be used to

determine its size. For instance, large asset banks can make more money if their operations are monitored and would not be highly impacted by borrowers' inability to repay their loans. According to the findings of studies by Barus and Erick [2], larger banks should have lower non-performing loans. Another study by Jabbouri and Naili [13] also found a negative relationship between bank size and non-performing loans, asserting that larger banks are more equipped with risk management tools and resources, which can reduce information asymmetry and moral hazard issues. Hence, non-performing loans will also decrease. Similarly, we hypothesize that bank size has a negative relationship with NPLs.

- H1: There is a negative relationship between bank size and non-performing loans.

Profitability

Profitability-related factors examine whether more profitable banks are more likely to take risks and have higher non-performing loan rates. A bank's profitability suffers from non-performing loans because of provisions for such loans that might not be of the best quality [8]. According to Ghosh [7], there is an inverse relationship between profitability and NPLs. Banks with higher income and revenues have lower chances of experiencing NPLs. This is because they try to be more careful to reduce the risk of operation by investing lesser in high-risk investments. Similarly, Louzis et al. [9] also found a negative relationship between banks' earnings and NPLs. Thus, this study hypothesizes that banks with higher profitability face lower non-performing loans.

- H2: There is a negative relationship between profitability and non-performing loans.

Capital Adequacy

The capital adequacy ratio assesses a bank's solvency and risk-aversion capacity. It is used to safeguard customers and encourage financial system stability and efficiency. In theory, the impact of CAR on non-performing loans is unknown. On the one hand, banks with high CAR may pursue opportunities more aggressively, resulting in increased risk-taking and more hazardous credit portfolios [4]. Consider raising the capital requirement. This increases capital costs, causing banks to choose lower deposit and loan volumes. The decrease in aggregate loan volume leads to increased loan rates and increased risk-taking by entrepreneurs. As a result, tighter capital regulation raises the risk of individual loans by reducing competition for loans and exacerbating the entrepreneurs' moral hazard problem [11]. Therefore, this study proposes that a higher capital adequacy ratio should increase banks' non-performing loans.

- H3: There is a positive relationship between capital adequacy and non-performing loans.

Liquidity

This study proposes the potential relationship between banks' liquidity and non-performing loan. Excess liquidity among banks is the concept in an economy where financial institutions have excess cash but insufficient investment opportunities. According to Mahyoub and Said [17], the importance of liquidity in ensuring commercial banks can face difficulties, such as potentially increasing non-performing loans, is substantial. The revamp of Basel III, aiming to enhance the ability of banking sectors to overcome economic or financial crises, proves that banks' liquidity plays a vital role in a sound financial institution's operation. However, it is difficult for banks to transfer money from surplus to deficit units while keeping enough liquidity to pay the depositors. Banks face opportunity costs and the burden of paying interest on funds collected from depositors [14]. Due to the excess cash, the banks are willing to supply a higher

number of loans regardless of borrowers' borrowing capacity to utilize the excess liquidity. Thus, this study hypothesizes that higher liquidity will increase banks' non-performing loans.

- H4: There is a positive relationship between liquidity and non-performing loans.

METHODOLOGY

Research Design and Data Collection

This study examines the impact of bank size, capital adequacy, profitability and liquidity on non-performing loans that are in Malaysia. The sample period ranges from January 2010 until December 2021. Since 2010 was the year following the financial crisis, this time frame was chosen to prevent data biases. 10 commercial banks are listed in Bursa Malaysia. However, this study excludes 2 commercial banks due to data availability issues. The final sample of this study is 8 commercial banks listed in the Main Market of Bursa Malaysia. The multiple regression analysis of this study employs the ordinary least square (OLS) method to examine the relationship between non-performing loans and the key determinants, which are the bank size, capital adequacy, profitability and liquidity. All of the data are acquired from Thomson Reuters Datastream. Table 1 explains the measurement of each variable. Prior to the multiple regression analysis, several diagnostic tests have been conducted. The tests include a normality test, multicollinearity test, heteroscedasticity test, stationary test to fulfil the panel regression analysis assumption. Referring to Table 2, this study employs the Hausman test to identify the suitable model [10]. Considering the p-value is lesser than 0.05, this study concludes that the null hypothesis is rejected and that the Fixed Effect model is preferred. Equation 1 indicates the regression model of this study.

$$NPL_{it} = \beta_0 + \beta_1 Size_{it} + \beta_2 CAP_{it} + \beta_3 PROF_{it} + \beta_4 Liquidity_{it} + \epsilon_{it} \quad (1)$$

Table 1. Measurement of Variables.

Variable	Proxy	Measurements
Non-performing loans	NPL	$= \frac{\text{Non - performing Loans}}{\text{Total Loans}}$
Bank Size	SIZE	$= \text{Natural Logarithm of Total Assets}$
Profitability	PROF	$= \frac{\text{Net Income}}{\text{Total Assets}}$
Capital Adequacy	CAP	$= \frac{\text{Total Equity}}{\text{Total Assets}}$
Liquidity	LIQ	$= \frac{\text{Total Assets}}{\text{Total Liabilities}}$

Table 2. Hausman Test.

Test Summary	Chi-Square Stats.	P-value
Period Random	86.274	0.000***

FINDINGS AND DISCUSSIONS

Descriptive Statistics Analysis

Table 3. Descriptive Statistics.

Variable	NPL	SIZE	CAP	PROF	LIQ
Mean	2.044	25.920	9.405	1.100	183.607
Median	1.855	25.942	9.115	1.115	1.816
Maximum	6.140	27.617	13.860	2.000	3346.138
Minimum	0.610	24.522	5.130	0.190	0.630
Jarque-Bera	23.417	6.118	1.736	17.480	1105.808
P-value	0.000	0.047	0.420	0.000	0.000

Concerning Table 3, the mean for non-performing loans is 2.04. Comparing the NPL ratio mean with Zain et al. [25], a recent study in Malaysia reported an NPL ratio of less than 1 from 2009 to 2018. The increasing value of NPL ratio indicates that a higher number of borrowers cannot repay their loans in recent years. The mean for other variables, such as bank size is reported at 25.92 (log), capital adequacy at 9.41 %, profitability at 1.1 % and liquidity at 183.61 times. The median for non-performing loan is 1.855. The highest median for independent variable is bank size, capital adequacy, liquidity and profitability. The maximum value for non-performing loan is 6.140, capital adequacy is 13.860, liquidity is 3346.138, bank size is 27.617, and profitability is 2.000. Moreover, the minimum value for non-performing loan is 0.610, capital adequacy is 5.130, liquidity is 0.630, bank size is 24.522 and profitability is 0.190. The p-value of Jarque Bera test also shows that this study is not normally distributed. However, according to Asteriou and Hall [1], financial variables are non-normally distributed. Thus, following the study, the existence of non-normally distributed data should be permissible to be employed for the regression analysis.

Correlation Analysis

Table 4. Pearson Correlation Coefficient.

Variables	NPL	SIZE	CAP	PROF	LIQ
NPL	1.000				
SIZE	0.140	1.000			
CAP	-0.046	0.145	1.000		
PROF	-0.267	0.144	-0.279	1.000	
LIQ	0.374	0.287	0.019	-0.281	1.000

A high correlation between independent variables makes it easy to estimate the regression coefficients, but doing so comes with huge standard errors, making it impossible to estimate the population values of the coefficients correctly. Thus, before estimating the regression model, the study performed a correlation analysis and the result is presented as in Table 4. This study found that the highest correlation between independent variables in the model is between liquidity and non-performing loans, at 37.4%. However, there is no value surpassing 0.8, which according to Asteriou and Hall [1], any value below 0.9 is considered low correlation. Thus, this study concludes that the model is free from multicollinearity issues.

Multiple Regression Analysis**Table 5. Determinants of Non-Performing Loans.**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SIZE	-1.490	0.754	-1.976	0.0888*
CAP	-0.983	0.358	-2.745	0.0287**
PROF	0.080	0.429	0.186	0.858
LIQ	0.000	0.000	1.451	0.190
C	47.718	17.339	2.752	0.028
Adjusted R-squared	62%			
F-statistic	13.834			
Prob(F-statistic)	0.000***			

Table 5 shows the result of the multiple regression analysis. The p-value of F-statistics indicates that the regression model of this study is highly significant and fit. Moreover, the adjusted R-Squared portrays that 62% of independent variables in this study can explain Malaysian commercial banks' non-performing loans. According to the p-values of the independent variables, this study found two variables to be significant indicators of banks' non-performing loans. This indicates that the variables of bank size and capital adequacy have a significant impact on the non-performing loans of Malaysian commercial banks.

- Firstly, bank size has a significant and negative relationship with non-performing loans at 10% significance. The T-statistic have a value of -1.976, and the standard deviation is 75.4%. Larger banks equipped with more assets indicate higher accessibility to cash, effective credit risk management, and an effective evaluation system, which will reduce the possibility of non-performing loans. Yulianti et al. [24] found a negative relationship between bank size and non-performing loans. The negative direction of the bank size might be because of the less focused portfolio since the bigger size of the banks allows for diversification opportunities [25]. Therefore, this study is able to support H1 that there is a significant direct influence of bank size on non-performing loans.
- Secondly, profitability had a positive and insignificant influence on non-performing loans. This insignificant influence illustrates that there is no partially significant direct influence between the variables of profitability and liquidity on NPL. Provided that the significant positive relationship between profitability and non-performing loans implies that the less profit a bank earns, the more likely it is to have non-performing loans in that year. This makes sense because when banks are highly profitable, they can engage in proper management practices such as day-to-day operations and loan portfolio management [20]. However, without significance, this study is unable to support its H2.
- Thirdly, capital adequacy has a significant and negative relationship with non-performing loans at 5% significance. The T-statistic have a value of - 2.745. The standard deviation for capital adequacy shows a value of 35.8%. According to the study by Oni [20], capital adequacy act as a tool to reduce the risk of losses that banks may face. Higher capital adequacy indicates a reduction in the financial risk level of banks in relying on external financing or investing more than shareholder salaries. Thus, the banks are more aware of their spending and financial health, ensuring to issue only high-quality loans for fewer possibilities of non-performing loans. Although this study cannot support its H3 due to the different signs, it found a significant relationship between capital adequacy and non-performing loans.

- Fourthly, liquidity is found to have a positive but insignificant relationship with non-performing loans. According to Martiningtiyas and Nitinegeri [18], with ample liquidity, banks may be tempted to engage in high-risk lending. This can lead to overfunding existing customers or funding new customers with poor credit. The bank's overall credit quality will suffer because of this. However, once again, without significance, the relationship between liquidity and non-performing loans is inconclusive, and this study is unable to support its H4.

CONCLUSION

This study investigated the determinants of non-performing loans in Malaysia's commercial banks. This study was also a direct result of realizing that internal factors can be an issue for non-performing loans to occur. The data from the result of descriptive statistics shows this study is not normally distributed. After correlation analysis is completed, thus it is concluded that this research has no multicollinearity issue as no values have surpassed 0.9. To answer the research questions, the data was examined using a Fixed Effect Regression Model to determine the relationship between the dependent variable (non-performing loan) and all of the independent variables (bank size, capital adequacy, profitability and liquidity). The Multiple Regression Model discovered that only bank size and capital adequacy significantly affect the level of NPLs in Malaysian commercial banks.

The limitation of this research is the number of banks. There were 10 listed companies in Bursa Malaysia, but this research manages to investigate only 8 commercial banks. Due to data constraints, the study was unable to include a large number of publicly listed banks in Malaysia. Thus, this study suggests that other potential researchers extend the examination to non-public listed banks and the time frame of studies to ensure the findings is robust and improve the outcome.

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