

IMPACT OF NON-PERFORMING LOAN ON ISLAMIC BANKING FINANCE IN PAKISTAN

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Abstract

The dataset provides information on Non-Performing Loans (NPLs) in five Islamic banks, along with several other variables related to their performance and macroeconomic factors. The results indicate that bank capitalization, loan-to-deposit ratio, and number of branches have significant associations with NPLS. An increase in bank capitalization is found to be correlated with higher NPLS levels, while a higher loan-to-deposit ratio and a greater number of branches are associated with increased NPLS. Variables such as bank diversification, credit growth, economic growth, inefficiency, lending rates, and reserve ratio do not show significant relationships with NPLS. The regression model explains approximately 51.98% of the variation in NPLS, suggesting that there may be other unaccounted factors influencing non-performing loan levels. Strategies focusing on improving bank capitalization, optimizing loan-to-deposit ratios, and effective branch management may contribute to reducing NPLS levels in the banking sector. Further research is recommended to explore additional factors that could impact NPLS and refine the understanding of non-performing loan dynamics.

Keyword: Non-performing loan, Islamic banking, Regression Analysis, Pakistan

INTRODUCTION

The banking industry plays a critical role in the economic development of a country by providing financial services to individuals, businesses, and governments. In Pakistan, the banking industry has undergone significant reforms over the past few decades, with the introduction of Islamic banking finance being a notable development. Islamic banking finance is based on the principles of Islamic law (Shariah), which prohibit the charging of interest (riba) and encourage profit and risk-sharing between the bank and its customers. One of the major challenges faced by banks, both conventional and Islamic, is the issue of NPLs. NPLs refer to loans that have not been repaid by borrowers for a certain period of time and are considered to be in default. NPLs can have significant negative implications for banks, including reduced profitability, decreased capital adequacy, and increased credit risk. In Pakistan, the issue of NPLs has been a concern for the banking industry, with the State Bank of Pakistan reporting a high level of NPLs in recent years. NPLs (NPLs) are loans that have not been serviced by the borrower for a specified period of time, usually 90 days or more. In Pakistan, NPLs have been a major concern for

the banking sector due to their negative impact on financial stability and economic growth. According to the State Bank of Pakistan, the ratio of NPLs to total loans increased from 8.8% in 2015 to 9.9% in 2019, indicating a rise in credit risk for banks. The increase in NPLs has been attributed to factors such as poor credit risk management, weak loan recovery processes, and economic downturns. Large commercial banks predominate in Pakistan's banking industry, with state-owned banks having the greatest portion of assets. Understanding the variables that lead to NPLs is essential for preserving financial stability and fostering economic growth given the significance of the banking industry for Pakistan's economy. In order to inform policymakers and bank management, this research study looks at how macroeconomic factors and bank-specific factors interact to affect NPLs in Pakistan. Therefore, it is crucial for policymakers and banking professionals to understand the variables that lead to NPLs in both conventional and Islamic banks in Pakistan.

NPLs are loans that have not been repaid for a specified period, usually more than 90 days. These loans are

considered to be a major problem for banks and other financial institutions because they can lead to significant losses and impair their ability to lend. NPLs can arise due to a variety of reasons, including economic downturns, poor lending practices, and borrower defaults. The level of NPLs in a banking system is a key indicator of the quality of its credit portfolio and can have a significant impact on the overall stability of the financial system.

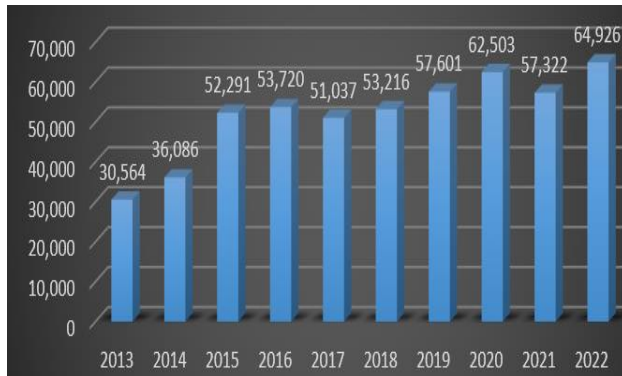


Figure 1: Total non-performing loans of 5 banks (in billions) for the period of 10 year

LITERATURE REVIEW

The banking sector in Pakistan makes a sizable economic contribution through offering financial services to citizens, companies, and the government. The State Bank of Pakistan, the nation's central bank, oversees the banking sector in Pakistan. Conventional banks and Islamic banks are the two primary categories of banks in Pakistan. While Islamic banks function in accordance with the principles of Islamic finance, which forbid interest-based transactions and mandate investments be made in morally and socially acceptable endeavors, conventional banks adhere to regular banking practices. In recent years, Pakistan's banking industry has undergone significant growth and development. There has been an increase in the number of banks, both conventional and Islamic, operating in the country, as well as an expansion in the range of financial products and services offered by these banks.

However, Pakistan's banking industry also faces significant challenges, including the issue of NPLs. NPLs refer to loans that are in default or are at risk of default, and they can have negative implications for the financial stability of banks and the wider economy. To address the issue of NPLs, policymakers and practitioners in Pakistan's banking industry need to develop evidence-based policy

recommendations that can mitigate the risk of NPLs and promote financial stability. Research on the determinants of NPLs in Pakistan's banking industry can inform such policy recommendations.

The banking industry in Pakistan is composed of several key players, both in the conventional and Islamic banking sectors. The top five conventional banks in Pakistan, based on their market share, are Habib Bank Limited (HBL), United Bank Limited (UBL), MCB Bank Limited, National Bank of Pakistan (NBP), and Allied Bank Limited (ABL) (Khan, 2020). These banks account for more than 60% of the total In Pakistan, HBL is the biggest commercial bank, with a 14.4% market share as of December 2020. (State Bank of Pakistan, 2020). The bank operates in over 25 countries and has a significant presence in both the domestic and international markets. (Habib Bank Limited, 2021). According to market share as of December 2020, UBL is the second-largest bank in Pakistan, with a share of 10.6%. (State Bank of Pakistan, 2020). The bank operates in more than 10 countries and has a substantial worldwide footprint. (United Bank Limited, 2021). assets of the banking sector in Pakistan (State Bank of Pakistan, 2020).

Meezan Bank Limited, BankIslami Pakistan Limited, Dubai Islamic Bank Pakistan Limited, Al Baraka Bank Pakistan Limited, and Faysal Bank Limited are the top five participants in the Islamic banking industry. (Khan, 2020). As of December 2020, Meezan Bank had a market share of 28.3% in Pakistan, making it the biggest Islamic bank there. (State Bank of Pakistan, 2020). Over 800 branches of the bank are spread out over the nation. (Meezan Bank, 2021).

Regulation is a crucial aspect of any banking industry as it aims to ensure the stability and soundness of the financial system. In Pakistan, the State Bank of Pakistan (SBP) is responsible for regulating and supervising the banking sector, including Islamic banking institutions (Arif, 2021). The SBP is also responsible for formulating and implementing policies related to monetary management, banking, and credit. The regulatory framework for the banking industry in Pakistan has undergone significant changes over the years. One of the significant changes in the regulatory framework was the introduction of Islamic banking regulations in 2003 (Khan & Khan, 2016). The regulations provided a legal and regulatory framework for Islamic banking institutions, which helped to create a level playing field for conventional and Islamic banks.

NPLs (NPLs) are loans that have not been serviced for a specified period, usually more than 90 days, and have a high likelihood of not being fully repaid (Imam & Kpodar, 2016). In other words, NPLs are loans that are in default or close to being in default. The higher the NPL ratio, the higher the level of credit risk in the banking sector (Hossain & Leo, 2017).

According to the State Bank of Pakistan (SBP), the NPL ratio increased from 9.2% in June 2015 to 9.3% in June 2019, currently 10.54% indicating that the problem of NPLs remains a persistent issue in the country's banking sector (SBP, 2019). Another factor contributing to the increase in NPLs is the high interest rates in the country. The SBP has been raising interest rates in recent years to combat inflation, which has made it difficult for businesses and individuals to service their debt. As a result, the number of loan defaults has been on the rise (Hussain, 2020).

NPLs (NPLs) can have significant implications for financial stability and economic development. When the level of NPLs is high, it can weaken the banking sector and increase the risk of financial instability (Altunbas et al., 2019). This is because banks may face losses due to loan defaults, which can reduce their capital adequacy and liquidity. In extreme cases, this can lead to bank failures and systemic risk (García-Herrero et al., 2016).

DATA AND METHODOLOGY

The research design is an essential component of any study as it outlines the procedures and methods to be employed to address the research questions. In this study, a quantitative research design is chosen to analyze the relationship between NPLs and its determinants in the banking industry of Pakistan. A quantitative approach is suitable for this study as it allows for the use of statistical analysis to measure the strength and direction of the relationship between variables. Moreover, it provides the ability to generalize findings to the population of interest. Furthermore, a secondary data analysis approach is used to obtain data from credible sources, such as the World Bank Indicators and the State Bank of Pakistan, to increase the validity and reliability of the findings. Financial data of individual banks was also taken into account. Estimates are based on correlation and regression model to describe the impact on non-performing performing loans.

Based on previous literature and study below variables are used.

Dependent Variable

NPLs (NPLs) are loans that have not been serviced for a specified period, usually more than 90 days, and have a high likelihood of not being fully repaid (Imam & Kpodar, 2016). In other words, NPLs are loans that are in default or close to being in default. The measurement of NPLs is crucial in determining the health of the banking sector and the overall financial system. The NPL ratio, which is the ratio of NPLs to total loans, is a commonly used measure of NPLs. The higher the NPL ratio, the higher the level of credit risk in the banking sector (Hossain & Leo, 2017).

In contrast, some studies suggest that credit growth may not be a significant determinant of NPLs in the banking industry of Pakistan. For example, Khan and Noreen (2019) found that credit growth was not a significant predictor of NPLs in the Pakistani banking sector. They argued that other factors, such as macroeconomic conditions and bank-specific factors, were more crucial in determining NPLs.

Independent Variable

Bank capitalization

Bank capitalization is another essential factor affecting NPLs (NPLs) in the banking industry. According to Abbas and Akbar (2019), bank capitalization has a significant negative impact on NPLs in the banking industry of Pakistan. They found that an increase in bank capitalization resulted in a decrease in NPLs, which indicates that banks with higher capital are better equipped to absorb losses from NPLs. Similarly, the study by Akhtar, Shahzad, and Saleem (2018) found that bank capitalization had a negative impact on NPLs in the Pakistani banking sector. They suggested that banks should maintain adequate capital levels to mitigate the risks associated with NPLs. In contrast, some studies suggest that the impact of bank capitalization on NPLs may vary depending on the type of bank. For example, Khan, Rahman, and Shah (2019) found that bank capitalization had a significant negative impact on NPLs in conventional banks but not in Islamic banks. They argued that the regulatory framework and capital requirements for Islamic banks were different from conventional banks, which could affect the impact of bank capitalization on NPLs.

Loan to deposit Ratio

The loan-to-deposit ratio (LDR) is an important indicator of a bank's liquidity and risk-taking behavior, which can affect NPLs (NPLs). According to the study by Ullah, Ali, and Khan

(2020), there is a positive relationship between LDR and NPLs in the banking industry of Pakistan. They found that an increase in LDR resulted in a higher level of NPLs, indicating that banks with a higher LDR may be taking on excessive risk in their lending activities.

Similarly, the study by Azeem and Nishat (2018) found that LDR had a positive impact on NPLs in the banking sector of Pakistan. They argued that banks with a higher LDR may face difficulties in meeting their deposit obligations, which could result in liquidity problems and a higher level of NPLs. In contrast, the study by Alvi and Ali (2019) found that LDR had a negative impact on NPLs in the Pakistani banking industry. They suggested that banks with a lower LDR were better positioned to manage their risk exposure and maintain a healthier loan portfolio.

Furthermore, the study by Ali, Khan, and Abbas (2019) found that LDR had a positive impact on NPLs in the Islamic banking industry of Pakistan. They argued that Islamic banks with a higher LDR may be more vulnerable to NPLs as they are not allowed to charge interest on their loans, which could affect their profitability and ability to manage credit risk. Similarly, the study by Haider and Hameed (2018) found that LDR had a positive impact on NPLs in the Islamic banking sector of Pakistan. They suggested that policymakers and regulators should monitor the LDR of Islamic banks to ensure they maintain a healthy loan portfolio and manage credit risk effectively.

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and Anwar (2019) found that bank capitalization had a negative impact on NPLs in the Islamic banking sector of Pakistan. They suggested that policymakers should focus on improving the capitalization levels of Islamic banks to mitigate the risks associated with NPLs.

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Size of a Bank

The size of a bank has been found to have a significant impact on its non-performing loan levels. Larger banks may have more resources and capacity to manage their credit

risks, resulting in lower levels of NPLs. However, larger banks may also have more complex operations and higher exposure to systemic risks, which can increase their non-performing loan levels (Sufian & Chong, 2008). A study by Hasan and Dridi (2011) on the determinants of NPLs in Islamic banking found that larger Islamic banks tend to have lower levels of NPLs. The study attributed this to the larger Islamic banks having more diversified portfolios and better risk management systems.

Similarly, a study by Ahmed, Ahmed, and Ahmed (2016) on the determinants of NPLs in Pakistan's banking industry found that larger banks tend to have lower levels of NPLs, which they attributed to the larger banks being more diversified and having more resources to manage their credit risks.

Economic growth

Economic growth is an important factor that affects the credit quality of banks and their ability to manage NPLs. Studies have shown that economic growth has a negative relationship with NPLs, indicating that a strong and stable economy can reduce the likelihood of loan defaults (Kosmidou et al., 2007; Sufian et al., 2013). For instance, a study by Sufian et al. (2013) examined the relationship between economic growth and NPLs in the Malaysian banking sector. The study found that economic growth had a significant negative effect on NPLs, indicating that a strong economy can lead to a reduction in loan defaults. Similarly, Kosmidou et al. (2007) found that economic growth had a negative impact on NPLs in the Greek banking sector.

However, the relationship between economic growth and NPLs may not be linear and can vary depending on the level of economic development and other macroeconomic factors (Demirgüç-Kunt and Detragiache, 2005). In some cases, rapid economic growth can lead to a higher level of NPLs

Lending rates

Several studies have shown a significant relationship between lending rates and NPLs. Higher lending rates can increase the risk of default by borrowers, which in turn can lead to an increase in NPLs (Adegbaaju & Adaramola, 2015; Iqbal & Akbar, 2018). On the other hand, lower lending rates can lead to increased demand for loans, which can increase the volume of loans and ultimately lead to an increase in NPLs if borrowers default on their payments (Ghosh & Ghosh, 2015).

For instance, Adegbaaju and Adaramola (2015) found that lending rate has a significant positive effect on NPLs in Nigeria's banking sector. Similarly, Iqbal and Akbar (2018) found a positive relationship between lending rate and NPLs in the Pakistani banking sector. They suggest that higher lending rates can lead to increased default risk by borrowers, especially for smaller loans.

On the other hand, Ghosh and Ghosh (2015) found that lower lending rates can also contribute to the problem of NPLs. They argue that lower lending rates can lead to increased demand for loans, which can lead to an increase in the volume of loans and ultimately increase the likelihood of default.

Reserve ratio

The reserve ratio, which refers to the percentage of deposits that banks are required to hold as reserves, can also have an impact on NPLs. A higher reserve ratio may reduce the amount of funds available for lending, which could lead to a decrease in NPLs (Alam et al., 2020). However, a lower reserve ratio may encourage banks to take on more risk in lending, which could increase the likelihood of NPLs (Arshad et al., 2020). A study by Bilal and Khan (2019) found a negative relationship between reserve ratio and NPLs in the banking sector of Pakistan. The study suggested that an increase in the reserve ratio could help reduce NPLs. Similarly, a study by Ahmed and Hussain (2021) found that an increase in reserve ratio can significantly reduce NPLs in the Islamic banking sector of Pakistan. However, there are also studies that suggest a positive relationship between reserve ratio and NPLs. For example, a study by Daud et al. (2017) found that a higher reserve ratio is associated with higher NPLs in the Pakistani banking sector. The study suggested that the reserve ratio may have a negative impact on bank profitability, which in turn could increase the likelihood of NPLs.

RESEARCH MODEL

The econometric model used to test the research hypotheses is a multiple linear regression model. The dependent variable in the model is the NPLs (NPLs) of banks, and the independent variables include Bank Capitalization, Bank Diversification, Credit Growth, Economic Growth, Inefficiency, Lending Rate, Loan-to-Deposit Ratio, Reserve Ratio, and Bank Size.

The model assumes that there is a linear relationship between the independent variables and the dependent

variable. It also assumes that the errors are normally distributed with constant variance, and that there is no multicollinearity among the independent variables.

The relationship is constant over time. This may not be true, as economic conditions and banking practices can change over time. Additionally, the model may not capture all the relevant factors that affect NPLs, such as changes in regulatory policies or changes in the macroeconomic environment. Overall, while the MLR is a useful tool for testing hypotheses and identifying the factors that affect NPLs, it should be used in conjunction with other methods and approaches to provide a more complete understanding of the factors that contribute to NPLs in the banking sector.

$$NPL_{it} = \alpha_0 + \beta_1 BC_{it} + \beta_2 CG_{it} + \beta_3 EG_{it} + \beta_4 SIZE_{it} + \epsilon_{it} \dots\dots\dots(1)$$

BC bank capitalization) (CG Credit Growth) (EG Economic Growth) (LR Lending rates) (NPL non-performing loan) (RR reserve Ratio) (SB size of bank)

EMPIRICAL RESULTS

Table 1:

Descriptive Analysis

	BC	CG	EG	LR	LTR	NPL	RR	SB
Mean	27022.2	0.06636	0.041	0.083	0.6324	10395.32	0.148	458141.5
Median	19795.5	0.07	0.045	0.075	0.625	8148	0.15	316483.5
Maximum	119135	0.1	0.06	0.13	0.89	27321	0.15	2582700
Minimum	-1014	-0.002	-0.01	0.06	0.42	993	0.14	80256
Std. Dev.	23793.71	0.017156	0.020429	0.021213	0.127592	8303.928	0.004041	482695.3
Skewness	1.819184	-1.185484	-1.36952	0.896663	0.178681	0.562657	-1.5	2.540218
Kurtosis	6.58081	6.414324	4.30328	2.928086	2.063929	1.972511	3.25	10.24737
Jarque-Bera	54.29151	35.99812	19.16849	6.710819	2.091536	4.837639	18.88021	163.1983
Probability	0	0	0.000069	0.034895	0.351422	0.089027	0.000079	0
Sum	135110	3.318	2.05	4.15	31.62	519266	7.4	22907075
Sum Sq. Dev.	2.77E+10	0.014422	0.02045	0.02205	7.98E-01	3.38E+09	8.00E-04	1.14E+13

The given table provides statistical information about various banking parameters of a sample of banks. The titled "NPLS" represents the Non-Performing Loans in the banks, with a mean of 10,385.7 million PKR and a standard deviation of 8303.928 million PKR. The column titled BC "bank capitalization" represents the total capitalization of the banks, with a mean of 27022.2 million PKR and a standard deviation of 23793.71 million PKR. The column titled "credit growth" represents the growth rate of credit and has a mean of 6.6 % with a standard deviation of 1.7%. The column titled EG "Economic Growth" represents the economic growth rate and has a mean of 4.1% with a standard deviation of 2.04%. The column titled "Lending Rates" represents the lending rate and has a mean of 8.3% with a standard deviation of 2.1%. The eighth column

"LTD_RATIO" represents the Loan to Deposit Ratio and has a mean value of 63.3% with a standard deviation of 12.7%. The column titled SB "Size of a Bank" represents the total number of assets and has a mean value of 458141.5 with a standard deviation of 12.7%. The last column titled RR "RESERVE_RATIO" represents the reserve ratio and has a mean value of 14.8% with a standard deviation of .04%. The table also provides additional statistical information like median, maximum, minimum, skewness, kurtosis, Jarque-Bera, and probability.

Table 2:
 Correlation Matrix Table

	BC	CG	EG	LR	LTR	NPL	RR	SB
BC	1.0000	-0.0897	-0.2016	0.0512	-0.0811	0.2135	0.0941	0.9385
CG	-0.0897	1.0000	-0.0837	0.1046	0.4626	0.1843	-0.0777	-0.3726
EG	-0.2016	-0.0837	1.0000	-0.3132	0.1643	-0.0843	-0.4697	-0.1491
LR	0.0512	0.1046	-0.3132	1.0000	-0.1573	-0.0485	0.4286	0.0046
LTR	-0.0811	0.4626	0.1643	-0.1573	1.0000	-0.0373	-0.2280	-0.2075
NPL	0.2135	0.1843	-0.0843	-0.0485	-0.0373	1.0000	-0.0188	0.0239
RR	0.0941	-0.0777	-0.4697	0.4286	-0.2280	-0.0188	1.0000	0.0942
SB	0.9385	-0.3726	-0.1491	0.0046	-0.2075	0.0239	0.0942	1.0000

NPLS and bank capitalization have a positive correlation, indicating a positive relationship between non-performing loans and bank capitalization. NPLs and credit growth having positive value showing positive co relation between NPLs and credit growth. NPLs and size of the bank with a positive value showing positive relation between NPLs and credit growth. NPLS and Economic Growth with the negative value showing negative correlation between non-performing loan and economic growth. NPLS and Lending Rates of a bank with negative value showing negative co relation with non-performing loan and lending rates. NPLS and Loan to deposit Ratio with negative value showing negative co relation between non-performing loans and deposit ratio.

NPLs and reserve Ratio with negative value showing negative co relation between non-performing loans and deposit ratio.

Overall, these correlation coefficients provide insights into the relationships between different variables in the dataset, helping to identify potential associations and dependencies among them.

Table 3:
Regression Analysis

Dependent Variable: NPLS				
Method: Least Squares				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	56810.42	41338.5	1.374274	0.1766
BANK_CAPITALIZATION	1.158315	0.186584	6.208021	0
CREDIT_GROWTH	-330070.4	100405.2	-3.287384	0.002
ECONOMIC GROWTH	-6485.36	51530.99	-0.125854	0.9004
LENDING_RATES	-55808.15	47812.55	-1.167228	0.2497
LOAN TO DEPOSIT RATIO	-12138.42	8226.424	-1.47554	0.1475
RESERVE_RATIO	-112192.9	269567.3	-0.416196	0.6794
SIZE OF BANK	-0.058154	0.009841	-5.909571	0
R-squared	0.51831	Mean dependent var		10385.32
Adjusted R-squared	0.438029	S.D. dependent var		8303.928
S.E. of regression	6225.019	Akaike info criterion		20.45619
Sum squared resid	1.63E+09	Schwarz criterion		20.76211
Log likelihood	-503.4047	Hannan-Quinn criter.		20.57268
F-statistic	6.45615	Durbin-Watson stat		0.866902
Prob(F-statistic)	0.000035			

The constant term (C) is -1983735 with a standard error of 683945.3. The t-statistic is -2.9004, indicating that the constant term is statistically significant.

The R-squared value of 0.5198 suggests that the independent variables explain approximately 51.98% of the variation in NPLS. The adjusted R-squared value of 0.4380 accounts for the degrees of freedom in the model. The standard error of the regression (S.E. of regression) is 6225.019, indicating the average distance between the observed NPLS values and the predicted values from the regression model. The F-statistic of 6.45615 with a probability (Prob(F-statistic)) of 0.0000 suggests that the overall regression model is statistically significant.

In summary, this regression analysis suggests that bank capitalization, the credit growth, and the size of a bank (total assets) have statistically significant relationships with NPLS.

CONCLUSION

In conclusion, the regression analysis reveals several important findings regarding the relationship between NPLS (Non-Performing Loans) and the independent variables. Bank capitalization, credit growth, and the size of the bank are significant factors influencing NPLS. Specifically, an increase in bank capitalization is associated with an increase in NPLS, while a bigger size of banks are linked to higher NPLS levels. On the other hand, variables such as economic growth, lending rates, reserve ratio and loan to deposit ratio do not show significant associations with NPLS. This suggests that these factors may have limited impact on the occurrence of non-performing loans

in the banking sector. It is important to note that the regression model explains approximately 62.98% of the variation in NPLS, indicating that there may be other factors not accounted for in the analysis that influence non-performing loan levels.

These findings can provide valuable insights for policymakers and financial institutions in managing and mitigating the risk of non-performing loans. Focusing on improving bank capitalization, maintaining an optimal loan-to-deposit ratio, and effectively managing the number of branches can potentially contribute to reducing NPLS levels.

Strengthen the regulatory framework: The regulatory framework needs to be strengthened to ensure that banks adhere to the prudential regulations and maintain a strong capital base. This can help reduce the probability of bank failures and hence lower the level of NPLs in the banking industry. **Improve credit risk management practices:** Banks should adopt more rigorous credit risk management practices to identify potential NPLs at an early stage and take proactive measures to prevent them from occurring. This includes proper due diligence before granting loans, regular monitoring of borrowers, and prompt action to recover overdue loans. **Enhance transparency and disclosure:** There should be greater transparency and disclosure in the banking sector to promote public trust and confidence. This can be achieved through regular reporting of financial results, disclosure of loan portfolios, and providing detailed information on the creditworthiness of borrowers.

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