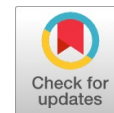


Impact of Non-Performing Loans on Saudi Bank Profitability

Mahmoud M. Al Zyood



Abstract: *Non-performing loans (NPLs) have become increasingly worrying to the Saudi banking sector. Sanctioned loans have a repayment schedule, including principal and interest amounts. Excessive defaults on loans leads to a liquidity crisis throughout the banking sector, and can even cause bank failure. As a result, banks have to cover non-performing loans and maintain reserves under the instructions of the Saudi Arabia Central Bank, which severely affects profitability. This study analyzes the comparative position of non-performing loans in the Saudi banking sector over the period 2009-2017 to determine causes and impacts on bank profitability, using data from annual reports. The study variables are profitability (ROA and ROE) as the dependent variable, and non-performing loans ratio (NPLR) as the independent variable. The data was analyzed by correlation, regression, and analysis of variance (ANOVA) using SPSS. The empirical results represent that NBLR has a negative influence on the dependent variable.*

Keywords: NBLR, non-performing loans (NPLs), ROA, ROE.

I. INTRODUCTION

A non-performing loan (NPL) is one that has gone unpaid for ninety days or more. In recent years, NPLs have become a major concern due to increasing levels, which have severely undermined banking profitability in Saudi Arabia. NPLs are mitigated by risk management, which considers the close relationships between loans, risks, and returns. Banks ultimately rely heavily on their returns from loans, and an increased credit risk from failure to pay outstanding loans and interest by borrowers represents losses for banks (i.e., NPLs). In many economies worldwide banks are subject to intense pressure on their balance sheets due to NPLs (Tanasković & Jandrić, 2015, [28]). There is two-way causality between NPL cost efficiency and increased interest rates, whereby inflation leads to increased NPLs (Berger & DeYoung, 1997, [7]).

Messai and Jouini (2013) [1] analyzed NP Ls among a sample of 85 banks in three countries (Italy, Greece, and Spain) over five years, using panel data. They found that the growth rate of GDP, unemployment rate, and the real interest rate affected NPLs.

Haneef et al. (2012) [13] suggested that if the banking sector adopted methods suggested by the central banks, they could avoid NPLs. Ultimately, bank management must be aware of the trade-off between profitability and liquidity (Munawir, 2002, [22]).

II. LITERATURE REVIEW

An increase in the rate of NPLs is frequently considered to be a failure of credit policy. According to Berger and DeYoung (1997), there is a causal relationship between profitability, efficiency, and capitalization in US commercial banks, as well as a relationship between NPLs and cost efficiency, which relates to the assumption that profitable banks are better at controlling credit risk.

In a study conducted between 1990 and 1998, Williams (2004) [29][30] examined the relationship between loan quality and cost efficiency in European savings banks.

According to Nkusu (2011) [23], higher inflation can also lead to higher rates resulting from the monetary policy action to combat inflation

Espinoza and Prasad (2010) determined that a decrease in NPLs reduces credit growth and non-GDP growth in banks of the GCC [11].

Amador et al. (2013) [2] studied the relationship between abnormal loan growth and bank risk taking behavior, and developed the conclusion that abnormal loans over a prolonged period of time lead to an increase in bank risk.

Financial development is important for bank profitability and efficiency (Demirgüç-Kunt & Huizinga, 2000, [9])

Moreover, in practice and in policy, NPLs arising from bank lending is an indicator of bank performance (Beck et al., 2015; [6] BIS, 2017, [8] [19])

High unemployment is associated with high NPL prevalence, because high unemployment undermines borrowers' capacity to repay loans (Klein, 2013; Nkusu, 2011; Ozili & Thankom, 2018, [18], [24]).

Banker et al. (2010) [3] concluded that the NPL ratio has a negative impact on bank productivity using a panel dataset for 14 Korean commercial banks from 1995 to 2005.

By accounting for non-performing loans, Fan and Shaffer (2004) examined the profit efficiency of large commercial banks in the United States. They discover that while there is a negative correlation between non-performing loans and banks' profitability efficiency, it is not statistically significant. Hou and Dickinson (2007) investigated non-performing loans in microeconomics, specifically at the bank level to empirically assess how non-performing loans (NPLs) affect commercial banks' lending behavior.

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A few effects of nonperforming loans are specifically discussed (NPLs). Mausa (2009) [20] studied the impact of non-performing loans on the performance of the banking sector in Kenya, an MBA project submitted to the University of Nairobi, and found that increasing levels of non-performing loans through provisioning made and interest in suspense have a negative impact on commercial banks [4][5].

Hess et al. (2008) [14][15] examined the determinants of loan losses in Australia using data from 32 banks from 1980 to 2005. The authors separated loan loss variables into two categories: macroeconomic and banking factors [10].

According to Khemraj and Pasha (2012) [16], large percentages of NPLs are substantially connected with bank performance, particularly in emerging economies [17].

According to Stuti and Bansal (2013) [26][27], the amount of nonperforming assets is the greatest predictor of a national banking industry's health. Hancock (1989) exclusively utilized ROE to determine profitability [12].

According to Michael et al. (2006) [21], NPAs in loan portfolios have an impact on operational efficiency, which in turn has an impact on bank profitability, liquidity, and solvency and earnings per share (EPS). The current study follows Sanni (2009) [25] in using EPS and Return on Assets (ROA) to study profitability.

According to Kumar et al. (2018), both macroeconomic and bank-specific factors influenced NPLs in the Indian banking sector.

However, as discussed in the literature, there are many factors affecting non-performing loans and thus the profitability of banks.

III. RESEARCH METHODOLOGY

A. Research Design

A quantitative approach was applied in this study to analyze data collected from the annual reports of banks by correlation, regression, and ANOVA analyses. This study explores the impact of NPLs on profitability and the effects relationship between variables.

B. Data

All data were collected from the an airports of Saudi Arabia Commercial Bank, from the period 2009 to 2017.

C. Study Model

This study focused on analyzing the impact of NPL on the commercial bank profitability. NPLratiowas been used as a dependent variable and profitability (ROA &ROE) as independent variables (Figure 1).

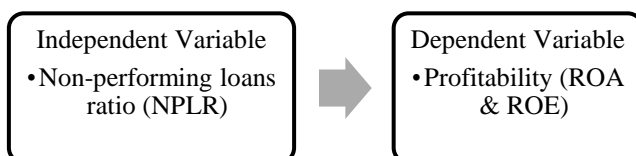


Figure 1: Study model

The general model for study is:

$$Y = a + bX + e$$

Where Y is the predicted value of the dependent variable (ROA & ROE); alpha is a constant; b is the coefficient of X; X is the value of the independent variable (NPLR), explaining the value of Y; and e is the error term, in predicting the value of Y (ROA & ROE), given the value of X.

D. Hypotheses

I. First Hypothesis

H0: There is no statistically significant effect of NPL(NPLR) on the profitability (ROA) of the commercial bank at the level of significance ($\alpha \leq 0.05$).

H1: There is a statistically significant effect of NPL(NPLR) on the profitability (ROA) of the commercial bank at the level of significance ($\alpha \leq 0.05$).

II. Second Hypothesis

H0: There is no statistically significant effect of NPL(NPLR) on the profitability (ROE) of the commercial bank at the level of significance ($\alpha \leq 0.05$).

H1: There is statistically significant effect of the NPL(NPLR) on the profitability (ROE) of the commercial bank at the level of significance ($\alpha \leq 0.05$).

E. Tools and Techniques

SPSS software was used to test the hypotheses with regression, correlation, and ANOVA analyses.

F. Interpretation of Data (Hypothesis Testing)

Profitability (ROA and ROE) was taken as the dependent variable, and NPLs ratio (NPLR) as the independent variable integrate on analysis.

A. Independent variables: NPLs ratio (NPLR).

B. Dependent variable: Profitability (ROA & ROE).

IV. RESULTS

Table I shows the correlation between variables. The R-value represents the simple correlation in this study ($R = 0.759$), which indicates a high degree between ROA and NBLR, and R-square explains the dependent variable. In this study, ROA explained 57.6% of the independent variable NBLR, which indicates that Model 1 is effective enough to determine the relationship.

Table I: R-value

Model 1 Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.759 ^a	.576	.515	.08319651

a. Predictors: (Constant), NBLR

Table II indicates that the regression model predicts the dependent variable ROA with a p-value (sig.) < 0.018 , which is less than 0.05, rejecting the (Hypotheses First) null hypothesis, and accepting the alternative hypothesis.

Table II: Regression model predicting dependent variable

ANOVA^a

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	.066	1	.066	9.500	.018 ^b
Residual	.048	7	.007		
Total	.114	8			

a. Dependent Variable: ROA

b. Predictors: (Constant), NBLR

Table III shows that NBLR has a negative influence on the dependent variable (ROA), A negative coefficient indicates that as the independent variable (NBLR) increases, the dependent variable (ROA) tends to decrease.

Table III: Variable strength relationship

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.180	.075		29.251	.000
	NBLR	-.114	.037	-.759	-3.082	.018

a. Dependent Variable: ROA

The regression equation as:

$$ROA = 2.180 + -0.114 (NBLR)$$

As shown in Table IV, the R-value = 0.029 represents the simple correlation between variables, which indicates a low degree between ROE and NBLR, and R-square explains the dependent variable. In this study, ROE explained 0.1% of the independent variable NBLR, which indicates that the model is not effective to determine the relationship.

Table IV: Correlation between variables

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
2	.029 ^a	.001	-.142	1.14203077

a. Predictors: (Constant), NBLR

Table V indicates that the regression model predicts the dependent variable ROE. The p-value (sig.) < 0.008 is less than 0.05, indicating rejection of the (Second Hypotheses) null hypothesis, and acceptance of the alternative hypothesis.

Table V: The regression model predicts the dependent variable

ANOVA^a

Model	Sum of Squares	df	Mean Square	F	Sig.
2 Regression	.008	1	.008	.006	.942 ^b
Residual	9.130	7	1.304		
Total	9.137	8			

a. Dependent Variable: ROE

b. Predictors: (Constant), NBLR

NBLR has a negative influence on the dependent variable (ROE), A negative coefficient indicates that as the independent variable (NBLR) increases, the dependent variable (ROE) tends to decrease. The regression equation is given as:

$$ROE = 14.295 + -0.039 (NBLR)$$

Table VI shows the strength of relationship between the variables.

Table VI: Relationship strength between variables

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
2	(Constant)	14.295	1.023		13.974	.000
	NBLR	-.039	.510	-.029	-.076	.942

a. Dependent Variable: ROE

V. DISCUSSION AND CONCLUSION

The results presented in Table 1 show that model 1 is effective enough to determine the relationship between variables, and the results presented in Table 2 indicate that the regression model predicts the dependent variable ROA, with a p-value (sig.) < 0.018 rejecting the first hypothesis, and accepting the alternative hypothesis.

The results presented in Table 3 show that the NBLR has a negative influence on the dependent variable (ROA); a negative coefficient indicates that as the independent variable (NBLR) increases, the dependent variable (ROA) tends to decrease.

In Table 4, the R-value of 0.029 represents the simple correlation between the variables which indicates a low degree between ROE and NBLR, and R-square explained the dependent variable. In this study ROE explained 0.1% of the independent variable NBLR, which indicates that the model is not effective to determine the relationship.

Table 5 indicates that the regression model predicts the dependent variable ROE, and the p-value (sig.) < 0.008, which is less than 0.05, indicates rejection of (Second Hypotheses) null hypothesis, and acceptance of the alternative hypothesis.

The results presented in Table 6 show that the NBLR has a negative influence on the dependent variable (ROE), A negative coefficient indicate that the independent variable (NBLR) increases, the dependent variable (ROE) tends to decrease.

This study tested and analyzed the effect of the NPL Ron profitability (ROA and ROE), and demonstrated that the NPLR has a negative influence on profitability. Based on the findings of this study, the following recommendations are made.

1. The study recommends that Saudi commercial banks must be strict to avoid granting loans to unqualified borrowers,

- in order to reduce the level of NPLs
- Appropriate tools should be developed to better detect NPLs.
- Guarantees must be improved to obtain eligible customers and collect loan repayments.

REFERENCES

- Ahlem Selma Messai & Fathi Jouini, 2013. "Micro and Macro Determinants of Non-performing Loan," *International Journal of Economics and Financial Issues*, Econjournals, vol. 3(4), pages 852-860.
- Amador, J. S., Gómez-González, J. E., & Pabón, A. M. (2013). Loan growth and bank risk: new evidence. *Financial Markets and Portfolio Management*, 27(4), 365-379. [CrossRef]
- Banker, R. D., Chang, H., & Lee, S. Y. (2010). Differential impact of Korean banking system reforms on bank productivity. *Journal of Banking & Finance*, 34(7), 1450-1460. [CrossRef]
- Banking Sector in Kenya. An MBA project submitted to the University of Nairobi.
- banks", *The British Accounting Review*, Vol. 50 No. 5, pp. 539-558, available at: <https://doi.org/10.1016/j.bar.2018.03.001> [CrossRef]
- Beck, R., Jakubik, P. and Piloju, A. (2015), "Key determinants of non-performing loans: new evidence from a global sample", *Open Economies Review*, Vol. 26 No. 3, pp. 525-550. [CrossRef]
- Berger, A. N., & DeYoung, R. (1997). Problem loans and cost efficiency in commercial banks. *Journal of Banking & Finance*, 21(6), 849-870. [CrossRef]
- BIS (2017), "Resolution of non-performing loans - policy options", FSI Insights on policy
- Demirgüç-Kunt, A., & Huizinga, H. (2000). Financial structure and bank profitability. Available at SSRN 632501.
- Dimitrios, A., Helen, L., & Mike, T. (2016). Determinants of non-performing loans: Evidence from Euro-area countries. *Finance Research Letters*, 18, 116-119. [CrossRef]
- Espinoza, R. A., & Prasad, A. (2010). *Nonperforming loans in the GCC banking system and their macroeconomic effects* (IMF Working Paper No. 10-224). International Monetary Fund. <http://dx.doi.org/10.5089/9781455208890.001> [CrossRef]
- Hancock, D. 1989. Bank Profitability, Deregulation and The Production of Financial Services, Research Working Paper, Federal Reserve Bank Of Kansas City, December.
- Haneef, S., Riaz, T., Ramzan, M., Rana, M. A., Hafiz, M. I., & Karim, Y. (2012). Impact of risk management on non-performing loans and profitability of banking sector of Pakistan. *International Journal of Business and Social Science*, 3(7), 307-315.
- Hess, K., Grimes, A., & Holmes, M. (2009). Credit losses in Australasian banking. *Economic Record*, 85(270), 331-343. [CrossRef]
- implementation, No.3, Financial Stability Institute, Bank of International Settlement, Working Paper, October, Brussels, available at: www.bis.org/fsi/publ/insights3.pdf
- Khemraj, T., & Pasha, S. (2009). The determinants of non-performing loans: an econometric case study of Guyana.
- Kirui, S. (2014). *The effect of non-performing loans on profitability of commercial banks in Kenya* [Unpublished doctoral dissertation]. University of Nairobi.
- Klein, N. (2013). *Non-performing loans in CESEE: Determinants and impact on macroeconomic performance* (IMF Working Paper No. 13-72). International Monetary Fund. <https://www.imf.org/external/pubs/ft/wp/2013/wp1372.pdf> [CrossRef]
- Kumaras Nghe, P. (2017). Determinants of Non-Performing Loans: Evidence from Sri Lanka. *International Journal of Management Excellence*, 9(2), 11-13. [CrossRef]
- Mausya, W. B. (2009). The Impact of Non-Performing Loans on The Performance of The
- Michael, J. N., Vasanthi, G., & Selvaraju, R. (2006). Effect of non-performing assets on operational efficiency of Central-Cooperative banks. *Indian Economic Panorama*, 16(3), 33-39.
- Munawir, S. (2002). Akuntansi Keuangan dan Manajemen. Edisi Revisi. Penerbit BPFE. Yogyakarta.
- Nkusu, M. (2011). *Nonperforming loans and macro financial vulnerabilities in advanced economies* (IMF Working Paper No. 11-161). <https://www.imf.org/external/pubs/ft/wp/2011/wp11161.pdf> [CrossRef]
- Ozili, P.K. and Thankom, A.G. (2018), "Income smoothing among European systemic and non-systemic
- Sanni, M. R. (2009). Short term effect of the 2006 consolidation on profitability of Nigerian banks. *Nigerian Research Journal of Accountancy*, 1(1), 177-188. [CrossRef]
- Shingjergji, A. (2013). The impact of macroeconomic variables on the non-performing loans in the Albanian banking system during 2005-2012. *Academic Journal of Interdisciplinary Studies*, 2(9), 335. <http://dx.doi.org/10.5901/ajis.2013.v2n9p335> [CrossRef]
- Stuti, M., & Bansal, (2013). S. An analysis of non-performing assets in Indian Banking sector.
- Tanasković, S., & Jandrić, M. (2015). Macroeconomic and institutional determinants of non-performing loans. *Journal of Central Banking Theory and Practice*, 4(1), 47-62. [CrossRef]
- Vignettes of Research, I (IV), 2013, 73-85. [CrossRef]
- Williams, J. (2004). Determining management behaviour in European banking. *Journal of Banking & Finance*, 28(10), 2427-2460. [CrossRef]

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