INTERNATIONAL JOURNAL OF BUSINESS AND MANAGEMENT (IJBM)
ISSN: 2815-9330 (Online)

VOL. 5, NO. 1 2026 https://iessociety.org/

The problem of non-performing loans in Iraqi banks: An econometric study of the impact of economic and institutional factors on asset quality

Hiba Yousif Taha[1] and Husam Abbas Ali[2*]

[1]Al-Furat Al-Awsat Technical University, Iraq

Email: hiba.taha@atu.edu.iq, https://orcid.org/0000-0002-9295-3188

[2]General Directorate of Education of Muthanna, Iraq

https://orcid.org/0000-0001-7717-7988

*Correspondence: husam.a@s.uokerbala.edu.iq

Abstract

The problem of non-performing loans in Iraq is worsening day-by-day and remains a continuous threat to the stability of the banking sector. The global economy site reports that Iraq was the frontrunner in Asia in terms of non-performing loans size in 2022. In light of this situation, the intent of the study was to examine both macroeconomic factors captured by gross domestic product, interest rates, inflation and oil revenues as well as institution factors captured by capital adequacy, liquidity, and profitability as key determinants causing the problem of the non-performing loans utilizing the multiple linear regression method applied to quarterly data. The results showed that inflation, interest rates and gross domestic product decreases asset quality, as well as increases credit risk, which is something quite unique to the Iraqi economy especially the positive relationship specifically between GDP and non-performing loans. In terms of oil revenues, their growth during periods of economic growth reduces non-performing loans, showing once again the importance of the oil sector. The study further concluded that capital adequacy resulted in a higher level of non-performing loans and did not find any statistically significant effect as it relates to the other institutional variables tested. This paper provides an important perspective for policymakers, especially the rector of the Central Bank of Iraq, on the need to create a sustainable plan and solutions to improve the banking system's capacity to cope with credit risks and fulfil its role to the economic development agenda.

***Keywords*:** Credit Risk, Macroeconomic Factors, Financial Performance Indicators, Iraqi Banks

JEL Classification: G21, G33, O16

DOI: https://doi.org/10.56879/ijbm.v5i1.02

1. Introduction

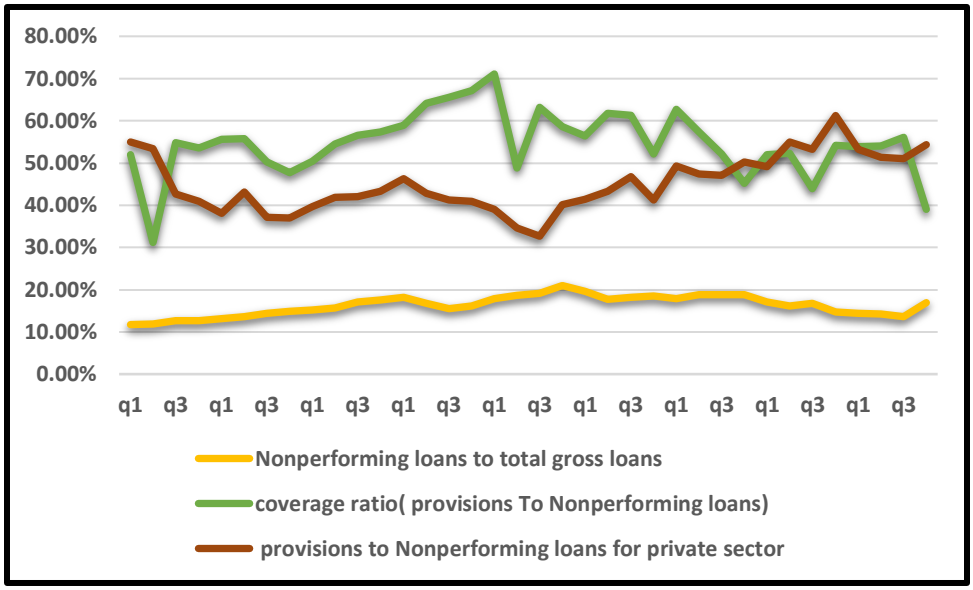
Iraqi banks are struggling with massive losses from non-performing loans, which is a serious issue that always poses a risk to the banking system. In the Financial Stability Report from the Central Bank of Iraq, Iraqi private banks have still been unwilling to lend money for fear of continuing to increase their non-performing loans. Global Economy ranked Iraqi banks first in Asia as banks with the greatest exposure to credit risk, with non-performing loans reaching 18.85%, which reduces the burden on the financial system as a whole and increases the likelihood of incurring significant losses. Non-performing loans (NPLs) are loans that are subject to repayment. The International Monetary Fund (IMF) has stated that loans are considered non-performing if they do not generate interest or the due installment has not been paid within a period of at least 90 days after the date of granting (Khan et al., 2020). A non-performing loan (NPL) is a type of credit that has been past due for some time, potentially lasting months, and the borrower has become unable to repay it. The borrower's loan default may be the result of an economic crisis and is not indicative of the borrower's inability or unwillingness to repay what he has borrowed. Non-performing loans can serve as a burden on both the lender and the borrower. The borrower's repayment default can lead to the seizure of the Borrower's asset that was secured against the granted loan, while the borrower is attempting to renegotiate a defaulted loan and tries to seek future financing that would make them miss an investment opportunity. The bank may incur additional costs, including those related to liquidating the asset that was used to secure the loan, as it attempts to resolution a non-performing loan. The capital requirements of a bank may also impose new restrictions on granting credits (Balgova et al., 2016). The increase in non-performing loans in the banking system causes a serious failure and is another reason for the economic recession. Each non-performing loan multiplies the odds of bank losses and shrinking profits. As a result, lowering the level of credit risk is the first condition to stimulate economic growth and enhance the banking system's effectiveness (Messai & Jouini, 2013). The liberalization of the banking sector was the primary cause of rising competition, resulting in credit risks which created significant risks in banks' credit risk portfolio. Another problem is competition, where banks lowered requirements for credit granting standards and procedures. This scenario led to an increase in loan risks which jeopardized banks' liquidity and profitability, therefore attending to destabilization of the banking system and economic system as a whole (Radivojevic & Jovovic, 2017). Non-performing loans are also a vital factor in the banking system's capacity, as their movements significantly affect all banking operations. An increase in bank defaults raises credit risks, which weakens the banking system's ability to grant credit and hinders economic growth. In emerging markets, non-performing loans hinder the banking system's ability to achieve stability and efficiency. Banking, there is an important link between non-performing loans and financial stability because they are considered one of the decisive factors in assessing banking crises, and are one of the cornerstones of efficient risk management because they can detect loans that are in default early and work to mitigate them to protect financial stability. (Urbonaviciute, 2025), and financial institutions may expand in

DOI: https://doi.org/10.56879/ijbm.v5i1.02

granting credit to different sectors and individuals, and the acceleration of granting credit raises many questions, the most important of which is about the ability of these institutions to bear expansion in the future (Takahashi & Vasconcelos, 2024)

In light of this, the problem of non-performing loans in Iraq is exacerbated, as it is noted from the graph that the non-performing loans according to the three measures (the ratio of non-performing loans to total loans, the ratio of loan provisions to total non-performing loans, and the ratio of loan provisions to non-performing loans in the private sector) from 2016 to 2024 are very high and in a state of continuous fluctuation. Non-performing loans tended to rise in 2020 as a result of the Corona epidemic, which directly affected oil prices, which negatively affected the individual income. After that, the ratios tended to decline slightly, as shown in Figure 1, which requires reducing the ratios of these indicators according to the acceptable ratios.

Figure 1. Indicators of non-performing loans in Iraq 2016-2024



2. Literature Review

Previous academic literature on non-performing loans (NPLs) demonstrates a remarkable diversity, both in terms of the variables it includes, which range from macroeconomic factors to specific determinants of bank performance, and in terms of the findings it reaches. Regarding the relationship between economic factors and NPLs, Hernando et al. (2020) and Prasetio (2020) found in their research that economic growth has a negative and significant effect on the non-performing loan ratio. This is consistent with the findings of Foglia (2022), who found that GDP growth reduces non-performing loans and bank profits in Italy, Spain, and Greece for 85 banks during the period 2004-2008. The study by Szarowska (2018) analyzed a range of macroeconomic factors in 11 Central and Eastern European countries in the time period from 1999 to 2015, and found that inflation, GDP and exchange rates all have an inverse effect on non-performing loans.

DOI: https://doi.org/10.56879/ijbm.v5i1.02

The findings regarding the effect of interest rates diverged as interest rates were found to have a direct effect, and this finding was very strong in the context of the financial crisis. In a country with a strong oil sector like Nigeria, Adeola & Ikpesu (2017) also opined that economic growth, exchange rate and inflation had a positive effect on loans. Furthermore, while interest rate, money supply and unemployment rate are important variables in determining NPL ratio, these two outcomes and results show that NPLs respond to macroeconomic factors and can have a consequential effect. Kjosevski & Petkovski (2017) provided support for the notion that NPLs respond to macroeconomic variables with a significant amount of evidence, including GDP, unemployment rate, exchange rate and inflation as having a strong effect on NPLs.

Previous research has shown that in oil-producing countries, oil prices have a major influence on credit risk, particularly when most loans are non-performing. Rising or falling oil prices usually impose a distinct influence on non-performing loans, particularly falling oil prices or, in other words, downside shocks; downside shocks tend to be stronger for non-performing loans than upside shocks, such as when oil prices rise, particularly at banks with larger financial footprints (Al-Khazali & Mirzaei, 2017). Regarding inflation, the evidence around the effects on non-performing loans has been mixed. One paper by Tham et al. (2021) found that higher inflation was beneficial to borrowers in that the real-value of the loan was reduced, thereby enhancing repayment ability. Other studies, such as Mazreku et al. (2018) and Kurumi & Bushpepa (2017) found that the relationship between inflation and non-performing loans was direct and studies since then have confirmed this (Foglia, 2022). Using the ARDL approach, inflation had a negative impact on non-performing loans.

Ahmed et al. (2021) examined the institutional factors related to banks and found that loan growth, net interest margin, loan provisions, and bank diversification are contributors to a rise in credit risk, particularly NPLs in the case of Pakistan. Operational efficiency, bank size, and profitability reduce NPLs as part of their findings. This study provides insights for banking management and policymakers on the underlying determinants of NPLs. Phung et al. (2022) also showed an inverse relationship between banking efficiency and NPLs in US banks over the period 1994–2018. In a more comprehensive study, Gjeçi et al. (2023) In 42 countries around the world, it was found that credit growth increases non-performing loans and is not geographically restricted. Regarding bank liquidity, there is a contradiction between the results reached by studies. The study (Louzis et al., 2012) found that liquidity has a negative impact on non-performing loans. Banks with high liquidity levels are less likely to engage in credit-risk lending activities for the purpose of achieving profits. In a different direction, other previous studies indicate a negative relationship. The higher the non-performing loans, the more banks are forced to maintain large amounts of liquidity as a precautionary measure to confront potential credit risks, which indicates that there is a reciprocal relationship between the two variables (Ozili, 2015). Also, high liquidity levels may be an indicator that the bank is hesitant to grant credit due to the low quality of its assets or because of economic crises. In the study of Mdaghri (2023), an inverse relationship was found between liquidity and

DOI: https://doi.org/10.56879/ijbm.v5i1.02

non-performing loans, in the short and long term, on 111 banks in the Middle East region. The Middle East and North Africa region, using GMM models, and the results of this study support the view that economic stimulus through liquidity creation processes leads to improving the creditworthiness of borrowers and increasing their ability to repay their debts. This applies to all banks, both Islamic and conventional banks. Finally, Belghalem & Ilifi (2023) concluded that the increase in shocks in non-performing loans implies a reduction in the volume of credit intermediation in the banking sector and calls for the activation of banking supervision.

According to Al-Khafaji and Abbas (2020), Rafidain Bank, which is one of the largest government banks in Iraq, has suffered immense losses as a result of growing banking defaults, in addition to organization failures to follow the instructions of the Central Bank of Iraq. This also shows that the management of the bank did not carry out its responsibility efficiently. Farih (2023) stated that there is a direct relationship between banking risks and capital adequacy, and classified non-performing loans as a hindrance to banking expansion and improving the standard of living of the population. Maher's study (2020), showed that there is a statistically significant relationship between one element of financial performance indicators (profitability) and non-performing loans. This study employs a multiple linear regression model for the time period 2010-2020, which included many of the Iraqi private banks including the National Bank, RFC Commercial Bank, Investment Bank, Middle East Bank, Sumer Bank, and commercial bank.

While prior studies have looked at non-performing loans (NPLs) within Iraq, several factors were not addressed. First, macroeconomic factors are, to an extent, affecting the banking sector, since oil revenues provide clear opportunities for economic analysis. This presents another knowledge gap enshrined in the existence of a study, or studies, that sought to analyze macroeconomic variables at the level of the banking sector, especially in light of the unique factors impacting the Iraqi economy relating to oil dependence and unpredictable political conditions. This study contributes to systematically identifying the root causes behind this phenomenon, using an econometric model that combines macro and bank-specific factors. It also identifies the most influential external and internal factors on NPLs, providing new insights for Iraqi policymakers to address this problem, which is considered a stumbling block to financial stability.

3. Methodology

Data on economic and internal factors were collected from statistics and the annual statistical report issued by the Central Bank of Iraq, for the period 2016-2024, in the form of quarterly data. We conduct the study on a set of variables that represent external and internal economic factors, as defined by previous studies, as shown in Table 1.

DOI: https://doi.org/10.56879/ijbm.v5i1.02

Table 1. Symbols and nature of the relationship between the independent variables and the dependent variable

Indicator	symbol	Nature of the relationship	type	Reference
gross domestic product	GDP	Negative (-)	External	Hernando et al. (2020), Prasetio (2020), Messai & Jouini (2013b), Ahmed et al. (2021), Foglia (2022)
Interest Rate	IR	Positive (+)	External	Messai & Jouini (2013), Adeola & Ikpesu (2017), Ahmed et al. (2021)
Inflation	INF	Mostly positive (+)	External	Mazreku et al. (2018), Kurumi & Bushpepa (2017), Adeola & Ikpesu (2017)
Oil revenues	OR	Negative (-)	External	Al-Khazali & Mirzaei (2017)
capital adequacy	CAR	Negative (-)	Internal	Al-Khafaji & Abbas (2020), Belghalem & Ilifi (2023)
Liquidity	Liquidity	Mixed	Internal	Madghar (2023), Azili (2015), Laziz et al. (2012)
Profitability	ROA, ROE	Negative (-)	Internal	Ahmed et al. (2021), Messai & Jouini (2013b)

We use the multiple linear regression method according to the ordinary least squares (OLS) method. The equation below shows the dependent variable represented by non-performing loans to total loans, as well as the external (economic) and internal factors.

$$NPLs = \beta_0 + \beta_1 GDP_{it} + \beta_2 INF_{it} + \beta_3 IR_{it} + \beta_4 OR_{it} + \beta_5 LQD_{it} + \beta_6 CAR_{it} + \beta_7 ROA_{it} + \beta_8 ROE_{it} + \epsilon_{it}$$

$Where\ NPLs$**:** (Dependent variable, representing non-performing loans to total loans, in time period t.);

β_0**:**(Constant term)

$\beta_8 ... \beta_1$**:** (Representing the magnitude and impact of each independent variable on the NPLs)

*GDP***:** Gross Domestic Product (Exogenous economic variable)

DOI: https://doi.org/10.56879/ijbm.v5i1.02

INF: (Inflation rate) (Exogenous economic variable)

IR **:**(Interest rate) (Exogenous economic variable)

OR :(Oil revenues) (Exogenous economic variable)

LQD :(Liquidity) (Bank-specific variable)

CAR :(Capital Adequacy Ratio): Bank-specific variable

ROA: (Return on Assets): Bank-specific variable

ROE: (Return on Equity): Bank-specific variable

ϵ : (Error Term): Represents other factors affecting non-performing loans that were not included in the model

4. Results and Discussion

Before conducting the multiple linear regression, Table 2 presents some descriptive measures for the variables from 2016 to 2024. It is noted that the average inflation rate was (2.235), which is considered an acceptable rate, while the average interest rate on credit was (11.66%), reflecting the reality of high interest rates on loans, which poses a major challenge to borrowers and increases their defaults. As for oil revenues, the average revenue to GDP ratio was (40.63%). Thus, the oil sector has a direct impact on all economic sectors, including the banking sector, as a result of Iraq's increased dependence on oil revenues, which has made it a unilateral rentier country. Regarding the internal variables specific to the banking sector, the average liquidity reached (45.9%), a high percentage that positively reflects banking stability in Iraq. Meanwhile, the average capital adequacy ratio reached (47.1%), which is also a high percentage that reflects the sector's ability to bear risks through its owned capital. Profitability ratios reflected the sector's poor performance, with the average return on assets reaching (0.9%) and the return To capital (6%), which indicates a decrease in realized profits, one of the most important factors of which may be the problem of non-performing loans, which averaged (16.8%).

Table 2. Descriptive statistics measures for variables

	logGDP	INF	IR	OR	LQD	CAR	ROA	ROE	NPLs
Mean	19.467	2.235	11.358	41.102	0.432	0.471	0.010	0.074	0.164
Median	19.423	0.600	11.660	40.632	0.459	0.488	0.009	0.064	0.168
Maximum	19.848	6.000	13.180	58.000	0.549	0.658	0.020	0.155	0.210
Minimum	19.098	-0.200	8.450	27.035	0.314	0.216	0.006	0.036	0.117
Std. Dev.	0.225	2.223	1.135	7.066	0.065	0.112	0.004	0.029	0.024

DOI: https://doi.org/10.56879/ijbm.v5i1.02

Table 3 shows the results of the multiple linear regression of the economic and internal determinants of non-performing loans. The gross domestic product has a positive effect on non-performing loans, and its effect reached (0.144), and this effect is significant at a significant percentage (10%). As for inflation, its increase leads to an increase in non-performing loans by (0.0063), and this effect is significant at a significant percentage (1%). Also, the interest rate increases non-performing loans by (0.0201), and this effect is significant. On the contrary, the increase in oil revenues leads to a decrease in non-performing loans by (-0.003), and this effect is significant at a significant percentage (1%). As for the determinants specific to the banking sector, they are not significant, except for the capital adequacy ratio, the increase of which leads to an increase in non-performing loans by (0.046), and this effect is significant.

Table 3. Multiple Linear Regression Results

Dependent Variable: NONPERFORMING_LOANS_TO_TOTAL_GROSS _LOANS
Method: Least Squares
Date: 08/30/25 Time: 14:26
Sample (adjusted): 1 33
Included observations: 33

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GDP	0.144727338	0.075575	1.915024	0.067481
INF	0.006391892	0.001495	4.274388	0.000263
INT	0.020106045	0.007675	2.619671	0.015020
OR	-0.003256632	0.001439	-2.262346	0.033008
LQD	0.117204055	0.069343	1.690212	0.103937
CAR	0.046480990	0.023358	1.989951	0.058106
ROA	-1.942570168	3.318081	-0.585450	0.563710
ROE	0.096614586	0.421117	0.229424	0.820483
C	-2.821964040	1.46355	-1.928163	0.065747
R-squared	0.873329500	Mean dependent var		0.164027
Adjusted R-squared	0.831106000	S.D. dependent var		0.024047
S.E. of regression	0.009882384	Akaike info criterion		-6.16913
Sum squared resid	0.002343876	Schwarz criterion		-5.76099
Log likelihood	110.790565821	Hannan-Quinn criter.		-6.0318
F-statistic	20.683493811	Durbin-Watson stat		1.591958
Prob(F-statistic)	0.000000005			

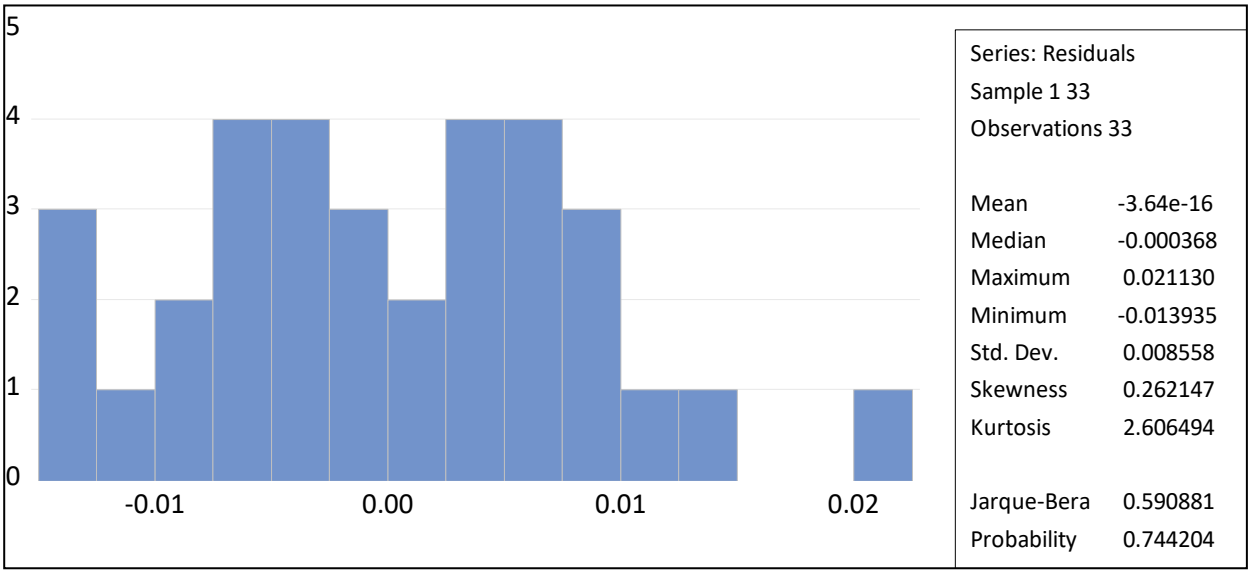
Table 3 also shows some diagnostic tests, where R-squared reached (0.873), which is high and explains the amount of influencing factors included in the estimated model. The value of the F-statistic test reached (20.6), which is a high percentage compared to the corresponding tabular value. The percentage of the (Prob(F-statistic)) test reached (0.00000), which is the lowest percentage of significance (5%), and thus the estimated model is significant and can be relied upon. As for the (Durbin-Watson statistic), which shows the problem of autocorrelation of the data, it

DOI: https://doi.org/10.56879/ijbm.v5i1.02

reached (1.591958), and it can be said that it fell within the indecisive decision zone, and this will be confirmed according to the (LM) test.

The Jarque-Bera test is a basic statistical tool for examining whether the residuals of a regression model follow a normal distribution or not. If the residuals of the model are normally distributed, this means that the estimates of the coefficients obtained using the ordinary least squares (OLS) method are estimates. The test reached (0.59) and its significance rate is greater than (5%), and thus the residuals of the model are normally distributed.

Figure 2. Test for normal distribution of residuals of the estimated model



At this stage, the problem of autocorrelation and error heterogeneity are checked using the Breusch-Godfrey LM Test for the problem of autocorrelation and the ARCH Test for the problem of heterogeneity. Table 4 shows that there is no problem of autocorrelation in the data, as the value of Prob reached (0.316777), which is greater than (5%). As for the ARCH Test, the percentage of Prob reached (0.5529109), which confirms that the model is free from the problem of heterogeneity.

DOI: https://doi.org/10.56879/ijbm.v5i1.02

Table 4. Testing the problem of autocorrelation and heteroscedasticity

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	1.211773863	Prob. F(2,22)	0.316777
Obs*R-squared	3.274588763	Prob. Chi-Square(2)	0.194506
Heteroskedasticity Test: ARCH			
F-statistic	0.360185	Prob. F(1,30)	0.5529109
Obs*R-squared	0.37964	Prob. Chi-Square(1)	0.5377962

4. 1 Discussion

The study presents sustainable solutions to the problem of non-performing loans (NPLs) in Iraq. The results obtained are consistent with some previous studies, while others are unique, which reflects its scientific value and contribution. Perhaps its uniqueness stems from the unique nature of the Iraqi economy, as it is an oil-exporting country, and all economic activities depend on it. The present findings align with what has been discovered in past literature. For instance, the study found that higher interest rates on loans promote NPLs (non-performing loans) because of increased borrowing financial obligations on borrowers. The current findings are reasonable and objective in finance and banking, which was aligned with the finding of Szarowska (2018) and Berrada (2021). The present study is further aligned when comparing with the finding of Al-Hazali & Mirzaei (2017) and Khan et al. (2021) in regards to positive shocks in oil revenues and decreasing NPLs. Indicating the level of indebtedness within the banking sector related to the oil sector, while indicating the sensitivity of the Iraqi economy with respect to the global oil market. An upturn in oil revenues can increase liquidity in the economy, the credit capacity of borrowers, and borrower's ability to service their obligations. The study also found that an increase in inflation in the economy led to an increase in NPLs because the purchasing power of borrowers declined, leading to the inability to pay their debts, which aligned with the studies of Acar (2023) and Mazreku et al. (2018).

In a different context, the study reached different and unique results from previous studies, which represents a unique knowledge contribution. While most studies found a negative relationship between GDP growth and non-performing loans, such as the study (Hernando et al., 2020; Foglia, 2022; Gjeçi et al., 2023), the results of our study showed that GDP has a positive relationship with non-performing loans. This can be explained by the large variations that characterize the Iraqi economy as a result of unbalanced growth and the great volatility witnessed in economic growth, which may not be reflected positively on economic sectors, and may push Iraqi banks to grant

DOI: https://doi.org/10.56879/ijbm.v5i1.02

more loans during periods of growth without assessing the potential risks that economic growth may witness in future periods. This result is consistent with the study by Radivojevic & Jovovic (2017), who indicated that increased competition may push banks to increase credit granting and lower credit standards. This definition contributes to the study's provision of a distinctive level of scientific integrity, as it not only runs counter to the general direction of the research, but also offers an objective account that fits the empirical foundations of the Iraqi economy.

The research also reported a contrast in its findings with regard to previous literature. In prior research, it was assumed that an increase in capital adequacy boosts a bank's ability to absorb losses (Ahmed et al., 2021; Ramos et al., 2023). However, this research shows that capital adequacy has a positive relationship with the increase in non-performing loans. One explanation for this difference is that banks are sometimes required to increase their capital reserves due to supervision instructions from regulatory authorities when there is an increase in non-performing loans. Accordingly, the relationship may be more of an interaction between precautionary activity and the risk of credit. The scientific significance of this research is appraised in terms of both developing a correct standard model and providing substantial solutions that are well-informed for the policy makers in Iraq, which consist of addressing the problem of non-performing loans as an issue of risk towards maintaining financial and bank stability in Iraq from the leaders of the Central Bank of Iraq and Ministry of Treasury. Balgova et al. (2016) examined that credit risk led to restrictions in lending to emit uncertainty which caused banks to be reluctant to lend credit which is demonstrated by the decrease in financial stability as issued by the CBI. By systematically identifying the root causes, i.e., the overall and institutional causes of this issue, we will contribute to producing informed and sustainable efficient solutions that will help alleviate most of the efficiency of the banking system, and improve the ability of the banking sector to support economic growth but also endure credit shock.

5. Conclusion, Limitations, and Future Research Directions

The present study has arrived at objective and definite conclusions that present a sophisticated understanding of the determinants of non-performing loans in Iraqi banks, many which may have contradicting findings in the prior literature. The study concluded that economic growth has a positive effect on non-performing loans. This conclusion indicates that economic growth in Iraq is uneven and unstable, and small movements in economic growth do not lead to better borrowers' creditworthiness or increased creditworthiness. In addition, the study concludes that both interest rates and inflation rates are among the most important macroeconomic variables that increase credit risk and specifically, non-performing loans. This confirms that additional financial burdens weaken borrowers' financial capacity. Finally, oil revenues had a negative impact on non-performing loans, which reinforces the close linkage of the Iraqi banking sector with the oil sector with implication of oil revenue leading to decreased non-performing loans. Ultimately, the capital adequacy ratio represented a positive relation with non-performing loans. This result merits

DOI: https://doi.org/10.56879/ijbm.v5i1.02

reflection and can be interpreted as Iraqi banks having increased capital adequacy ratios due to the precautions and supervisory actions that have been taken by the Central Bank of Iraq to minimize credit risks, allowing for the dual, complex cause relationship to exist. Despite this dual, complex cause relationship stated above, it can also be explained in the context of banks being encouraged to bolster their capital as a precaution against expected losses associated with non-performing loans. The study makes recommendations to reduce the volatility and disparities of economic growth to increase borrower's financial capacity and improve a bank's ability to monitor the credit risk of non-performing loans within a loan portfolio. It recommends conducting periodic assessments around inflation and interest rates, establishing a prudent monetary plan and policies to monitor interest rates and inflation, and developing efforts to diversify the economy so that the irrational and excessive reliance on oil is reduced, while simultaneously increasing the banking sectors contributions toward the development of all economic sectors in service of stable and sustainable economic growth. It also indicates examining the capital adequacy ratio, especially since it had high ratio, and is directly related to non-performing loans, and establish reasoning for the difference in the logical relationship.

5.1 Limitations

Although the study's findings are significant, there are several weaknesses. For example, the time period, b/w 2016-2024, was fairly short. Even if the findings are novel, which is often the case with short time series, the results may not be similar to a longer study period, especially (>10 years), since Iraq has been subject to different financial and economic crises for very long periods of time. There was also limitations with the study's scope of the data. While the study examined the Iraqi banking sector as a whole, there was no reporting of the individual performance of banks, especially since there are government and private banks, which the results support the banking sector more as a whole versus individually. There is also a limitation in the selected variables. Although the study covers most economic and institutional variables, it did not include some qualitative variables, such as institutional quality and banking efficiency. These variables may have a significant impact, but they are difficult to measure. Finally, the Iraqi economic and political environment is characterized by significant volatility. This variability, volatility, and the crises facing the economy affect the nature of the relationships between the studied variables. The results obtained may not be generalizable compared to other economies with political and economic stability.

5.2 Suggestions for Future Research

According to the results obtained, there are many research paths that can be studied and explored in the future, namely individual analysis of a single bank. Future studies go beyond the overall analysis and analysis of individual data, such as analyzing government and private banks, especially since government banks have financial positions exceeding 80%, and working on causality analysis, especially between capital adequacy and non-performing loans, using advanced

DOI: https://doi.org/10.56879/ijbm.v5i1.02

statistical models such as (VAR) models, which will show whether credit risks are what drive banks to increase capital adequacy or vice versa. Also, addressing the inclusion of qualitative factors that are difficult to measure, such as institutional quality, credit granting criteria, legislative developments, etc., and finally, explaining the impact of financial technology after the recent transformations that Iraq has witnessed in the field of electronic payment. Future research can study the evaluation of the effectiveness of financial technology means on credit risks and how they can contribute to improving creditworthiness.

References:

Adeola, O., & Ikpesu, F. (2017). Macroeconomic Determinants Of Non-Performing Loans In Nigeria: An Empirical Analysis. The Journal of Developing Areas 51(2), 31-43. https://dx.doi.org/10.1353/jda.2017.0029.

Agiropoulos, C., Galanos, G., Poufinas, T. (2021). Debt Versus Non-Performing Loans: An Investigation on the Causality Direction Within the Countries of Eurozone. In: Poufinas, T. (eds) Debt in Times of Crisis. Palgrave Macmillan, Cham. https://doi.org/10.1007/978-3-030-74162-4_7

Ahmed, S., Majeed, M. E., Thalassinos, E., & Thalassinos, Y. (2021). The impact of bank specific and macro-economic factors on non-performing loans in the banking sector: Evidence from an emerging economy. Journal of Risk and Financial Management, 14(5), 217 https://doi.org/10.3390/jrfm14050217

Al-Khazali, O. M., & Mirzaei, A. (2017). The impact of oil price movements on bank non-performing loans: Global evidence from oil-exporting countries. Emerging Markets Review, 31, 193-208. https://doi.org/10.1016/j.ememar.2017.05.006

Asaad Hamdi Muhammad Maher. (2023). The Impact of Financial Giving Indicators on Non-Performing Loans for a Sample of Commercial Banks in Iraq for the Period 2010-2020. Journal of University of Human Development, 9(2).

Balgova, Maria and Nies, Michel and Plekhanov, Alexander, The Economic Impact of Reducing Non-Performing Loans (October 10, 2016). EBRD Working Paper No. 193, Available at SSRN: https://ssrn.com/abstract=3119677 or http://dx.doi.org/10.2139/ssrn.3119677 .

Belghalem, H., & Ilifi, M. (2023). The impact of non-performing loans on banking intermediation activity for a sample of Arab countries during the period 2014-2021. Economic Studies, 17(1), 147-171

foglia, M. (2022). Non-performing loans and macroeconomics factors: The Italian case. Risks, 10(1), 21 https://doi.org/10.3390/risks10010021

DOI: https://doi.org/10.56879/ijbm.v5i1.02

Gjeçi, A., Marinč, M. & Rant, V. Non-performing loans and bank lending behaviour. Risk Manag 25, 7 (2023). https://doi.org/10.1057/s41283-022-00111-z

Hernando, A., Miranda, E., Theodora, L. L. A., Kadarusman, Y. B., & Ariyan, G. A. (2020). Dampak Faktor Makroekonomi terhadap Non Performing Loan pada Kredit Produktif Bank Umum di Indonesia. Studi Akuntansi dan Keuangan Indonesia, 3(1), 1-28.

Jawad Fareeh Ahmed Hussein Batal. (2023). The Impact of Total Banking Risks on Some Economic Stability Indicators in Iraq Using Bounds Testing for the Period 2004-2021. Enterprenuership Journal for Finance and Business, 101-123. .https://doi.org/10.56967/ejfb2023338

Khan, M. A., Siddique, A., & Sarwar, Z. (2020). Determinants of non-performing loans in the banking sector in developing state. Asian Journal of Accounting Research, 5(1), 135–145. https://doi.org/10.1108/AJAR-10-2019-0080

Kjosevski, J., & Petkovski, M. (2017). Non-performing loans in Baltic States: determinants and macroeconomic effects. Baltic Journal of Economics, 17(1), 25-44. https://doi.org/10.1080/1406099X.2016.1246234

Kurumi, L., & Bushpepa, O. (2017). Do macroeconomic variables affect the level of nonperforming loans. In Sixth Conference of Students of the Agricultural University of Tirana.

Louzis, D. P., Vouldis, A. T., & Metaxas, E. L. (2012). Macroeconomic and bank-specific determinants of non-performing loans in Greece: a comparative study of the crisis and pre-crisis periods. Journal of Financial Stability, 8(4), 481-490.

Mazreku, I., Morina, F., Misiri, V., Spiteri, J. V., & Grima, S. (2018). Determinants of the level of non-performing loans in commercial banks of transition countries.

Mdaghri, A. A. (2023). How does bank liquidity creation affect non-performing loans? A study from the Middle East and North Africa. International Journal of Emerging Markets, 17(7), 1635-1650.

Messai, A. S., & Jouini, F. (2013). Micro and macro determinants of non-performing loans. International journal of economics and financial issues, 3(4), 852-860

Messai, A. S., & Jouini, F. (2013). Micro and macro determinants of non-performing loans. International journal of economics and financial issues, 3(4), 852-860.

Ozili, P. K. (2015). Bank liquidity and non-performing loans: a causal relationship analysis. Journal of Financial and Banking Review, 1(2), 52-61.

DOI: https://doi.org/10.56879/ijbm.v5i1.02

Phung, Q. T., Van Vu, H., & Tran, H. P. (2022). Do non-performing loans impact bank efficiency?. Finance Research Letters, 46, 102393. https://doi.org/10.1016/j.frl.2021.102393

Radivojevic, N., & Jovovic, J. (2017). Examining of determinants of non-performing loans. Prague Economic Papers, 26(3), 300-316 https://doi.org/10.18267/j.pep.615 .

Samir Siham Al-Khafaji, & Ruqayya Karim Abbas. (2020). A Reality Analysis of the Problem of Banking Failure at Rafidain Bank. Journal of Economics and Administrative Sciences, 26(117), 361-375.https://doi.org/10.33095/jeas.v26i117.1819

Szarowska, I. (2018). Effect of macroeconomic determinants on non-performing loans in Central and Eastern European countries. International Journal of Monetary Economics and Finance, 11(1), 20-35. https://doi.org/10.1504/IJMEF.2018.090564

Takahashi, F. L., & Vasconcelos, M. R. (2024). Bank efficiency and undesirable output: An analysis of non-performing loans in the Brazilian banking sector. Finance Research Letters, 59, 104651. https://doi.org/10.1016/j.frl.2023.104651

Tham, K. W., Said, R., & Adnan, Y. (2021). The dynamic relationship between inflation and non-performing property loans in Malaysia. Journal of Surveying, Construction and Property, 12(1), 36-44.

Urbonaviciute, I. (2025). Unpacking the impact of the capital requirement regulation on non-performing loan dynamics in EU banks. Finance Research Letters, 75, 106810. https://doi.org/10.1016/j.frl.2025.106810

DOI: https://doi.org/10.56879/ijbm.v5i1.02