

Measuring the Impact of Banking Performance Indicators on Economic Growth in Iraq (2005-2025)

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Abstract

This research aims to measure the impact of banking performance indicators on economic growth in Iraq during the period 2005–2025. This is achieved by measuring the effect of a set of banking performance indicators—namely, the ratio of bank deposits to money supply (DM), the ratio of cash credit to total deposits (CR), return on assets (ROA), and the non-performing loan ratio (NPL)—in Iraq during this period. These indicators are considered independent variables, while economic growth, measured by the real GDP growth rate, is considered the dependent variable. The research is significant due to the pivotal role the banking sector plays in mobilizing savings, directing financial resources toward investment, and boosting economic activity, particularly in the Iraqi economy, which is heavily reliant on oil revenues. The research adopted a descriptive and analytical approach, along with an econometric approach using time series models, such as the Autoregressive Distributed Lag (ARDL) model and cointegration tests, to analyze the short-term and long-term relationships between the study variables. Data from the Central Bank of Iraq, the Central Statistical Organization, the Ministry of Planning, and international sources were used when necessary. The expected results indicate a positive and significant impact of some banking performance indicators, particularly bank credit and deposits, on promoting economic growth. However, the impact of other indicators remains limited due to weak financial inclusion, the dominance of the oil sector, and limited financing directed towards productive sectors.

Introduction

The banking sector is one of the most important pillars of the financial system, playing a fundamental role in mobilizing savings and directing them towards investment, and providing the necessary financing for various economic activities, which positively impacts economic growth rates. Since 2003, the Iraqi banking sector has witnessed numerous structural and legislative reforms aimed at developing the banking environment and enhancing its efficiency. However, its contribution to supporting economic growth still faces several challenges, most notably the limited credit extended to the private sector, weak financial inclusion, and the dominance of oil revenues in the Iraqi economy. The importance of studying the relationship between banking performance indicators and economic growth is highlighted by the economic transformations that Iraq experienced during the period

(2005–2025), and the accompanying financial, security, and health crises that affected the performance of the banking sector and economic activity. From this perspective, this research seeks to measure the impact of banking performance indicators on economic growth and determine the nature of the relationship between them using modern econometric methods, thereby contributing to providing scientific results that can be used in formulating economic and banking policies aimed at promoting sustainable economic development.

First: Research Significance

The significance of this research lies in highlighting the role of banking performance indicators in supporting economic growth in Iraq. It also contributes to evaluating the efficiency of the Iraqi banking sector during the research period, provides a scientific framework to assist decision-makers in developing banking and economic policies, and offers findings that can be utilized to enhance the role of banks in financing investment and development.

Second: Research Problem

The research problem lies in the lack of clarity regarding the nature and extent of the impact of banking performance indicators on economic growth in Iraq during the period (2005–2025). This necessitates conducting an econometric study to measure this impact and determine the extent to which banking performance indicators contribute to achieving economic growth.

Third: Research Objectives

This research aims to identify the reality of the Iraqi banking sector during the period (2005–2025), analyze the development of the most important banking performance indicators in Iraq, measure the impact of banking performance indicators on economic growth using econometric methods, and determine the strength and direction of the relationship between the variables in both the short and long term.

Fourth: Research Hypothesis

The research is based on the hypothesis that there is a statistically significant relationship between banking performance indicators and economic growth in Iraq during the period (2005–2025).

Fifth: Research Methodology

The research adopted a descriptive-analytical approach to present the theoretical framework and the econometric approach to analyze the relationship between banking performance indicators and economic growth during the period (2005–2025). Annual data from the Central Bank of Iraq and the Central Statistical Organization were used. Time series models, stability and cointegration tests, and the Autoregressive Distributed Lag (ARDL) model were also used to measure the impact of the independent variables, represented by banking performance indicators, on the dependent variable, represented by the economic growth rate, and to draw conclusions and recommendations.

Theoretical Aspect

First: The Concept of Banking Performance

Banking performance is a key concept in financial and banking literature, given its significant importance in evaluating the efficiency of banking institutions and their ability to achieve their economic and financial objectives. The importance of this concept has increased with the developments witnessed in the banking sector and the rise in competition among banks, making banking performance and its evaluation essential for ensuring continuity, growth, and financial stability. The concept of banking performance generally refers to the level of achievement attained by a bank as a result of its various activities over a specific period, and the extent of its ability to utilize its financial, human, and technological resources efficiently and effectively to achieve its goals. Banking performance also reflects the ability of bank management to achieve a balance between profitability, liquidity, and security, thereby maximizing the bank's value and strengthening its competitive position. Many researchers have addressed the concept of banking performance from different perspectives. Rose and Hudgins, for example, view banking performance as the bank's ability to achieve its financial and operational objectives through the efficient management of available resources. (1) Saunders & Cornett indicate that banking performance reflects the extent to which a bank succeeds in managing its assets, liabilities, and risks in a way that achieves appropriate returns for shareholders and maintains the stability of the banking institution. (2) Banking performance is also defined as the sum of the financial and non-financial results achieved by the bank as a result of carrying out its various activities, which can be measured through a set of indicators, such as return on assets, return on equity, liquidity ratios, capital adequacy, asset quality, and operational efficiency. (3)

Second: The Importance of Banking Performance

Banking performance holds significant importance in contemporary financial and banking thought, given the pivotal role banks play in mobilizing savings and directing them towards investment and productive activities, as well as their contribution to achieving financial stability and supporting economic growth. Therefore, evaluating bank performance has become a fundamental topic of interest to researchers, banking administrations, and regulatory bodies alike, due to the crucial information it provides for measuring the extent to which banks succeed in achieving their financial, operational, and strategic objectives. The importance of bank performance stems from its role as a tool for measuring the efficiency of bank management in utilizing available resources and transforming them into tangible results that reflect the bank's ability to generate profits, maintain liquidity, and manage risks effectively. A bank with high performance is better equipped to face economic and financial challenges and achieve sustainability and growth in a competitive and constantly changing banking environment. (4) Furthermore, the importance of bank performance is highlighted by its role as a key indicator for assessing a bank's financial position and its soundness and stability. Regulatory bodies and central banks rely on bank performance indicators to evaluate the extent to which banks comply with regulatory standards related to liquidity, capital adequacy, and risk management. This helps reduce the likelihood of financial distress and strengthens the overall resilience of the banking system. (5)

On the other hand, some believe that the importance of performance lies in its direct role in achieving multiple objectives within the bank, whether these objectives are pursued individually or collectively. This can be summarized in the following points: (6)

- 1- It is essential for banks to maintain their sustainability and growth.

2- The external environment, with its diverse factors and variables, has a significant impact on various aspects of performance due to its multiple uses and conditions.

3- Performance is closely linked to the bank's operations and business policies

4- The role of performance is not limited to dividing the administrative structure into departments to implement the objectives set by the bank's management.

5- It is important to understand the motivations, orientations, and vision of the individuals working in the bank's operations.

6- The scope of the bank's strategic measures and its available resources.

Third: Banking Performance Indicators

Measuring banking performance is a central issue in modern financial and banking thought. It is used to evaluate banks' efficiency in utilizing their resources, their ability to achieve profitability, their risk management, and their contribution to financial stability. The importance of performance indicators stems from their role as a diagnostic tool that helps bank management, regulatory bodies, and investors make informed decisions. The concept of banking performance has evolved from a simple focus on profitability to a comprehensive concept that includes efficiency, liquidity, asset quality, capital adequacy, and compliance with international regulatory standards such as the Basel Accords. Among the most important banking performance indicators are:

1- Profitability Indicators.

Profitability indicators are among the most important banking performance tools because they reflect a bank's ability to generate returns from its various resources (assets, deposits, and equity). These indicators are used by investors, management, and regulatory bodies to assess the efficiency of financial management and the sustainability of profits. The importance of profitability lies in its being the ultimate goal of commercial banking activity, as well as a primary source for strengthening internal capital and supporting bank growth and expansion. It measures a bank's ability to generate profits from its available resources, most notably return on assets (ROA) and return on equity (ROE). (7)

2- Liquidity Indicators.

Liquidity indicators are among the most important indicators of banking performance, as they reflect a bank's ability to meet its short-term financial obligations when due without being exposed to the risk of default or having to sell assets on unfavorable terms. Liquidity is of particular importance because it represents an element of security and stability in the banking system, as weak liquidity can lead to banking crises even if the bank is generating good profits. Banks usually balance profitability and liquidity, as maintaining excessively high liquidity may reduce investment opportunities and profit generation, while low liquidity increases financial risks. (8)

3- Operational Efficiency Indicators.

Operational efficiency indicators are essential tools in evaluating banking performance, as they reflect the extent to which a bank is able to use its human, material, and financial resources at the lowest possible cost to achieve the highest level of productivity and profits. These indicators focus on the relationship between operating costs and revenues, i.e., the

extent to which bank management succeeds in controlling expenses and improving the quality of operations. Operational efficiency is of great importance because it directly affects profitability. Even banks with high revenues may suffer from poor performance if operating costs are high. These indicators focus on the bank's ability to control costs and increase productivity. They measure the bank's ability to use its resources at the lowest possible cost.

4- Asset Quality Indicators.

Asset quality indicators are among the most important indicators for evaluating bank performance, as they reflect the soundness of the bank's loan and investment portfolio and its ability to manage credit risks. These indicators focus on measuring the volume of non-performing loans, the efficiency of credit granting policies, and the bank's ability to absorb potential losses. Asset quality is of particular importance because it is directly linked to profitability and financial stability. High levels of non-performing loans lead to increased provisions and reduced profits, and may threaten the bank's solvency in severe cases. They are also among the most important indicators in assessing credit risk and demonstrate the soundness of the loan and investment portfolio. (9)

5- Capital Adequacy Indicators.

Capital adequacy is one of the most important indicators used to assess the strength and financial soundness of banks, as it reflects a bank's ability to withstand unexpected losses and protect the funds of depositors and shareholders. The importance of this indicator has increased following global financial crises, which highlighted the need for sufficient capital to enable banks to continue operating even in challenging economic conditions. Capital adequacy indicates the extent to which a bank possesses capital commensurate with the risks it faces, whether credit, market, or operational. Therefore, capital adequacy indicators have become essential requirements imposed by regulatory bodies and central banks, in accordance with the Basel Committee on Banking Supervision standards, which stipulate a minimum capital adequacy ratio of 8% based on market and operational risks. (10)

Fourth: The Concept of Economic Growth

Economic growth is a fundamental concept in macroeconomics and a key focus of economic policies for both developed and developing countries, given its close link to improving living standards, increasing national income, and enhancing employment opportunities. This concept has garnered significant attention from economists and international development institutions, as it is considered an indicator reflecting an economy's ability to increase its production of goods and services over time. Economic growth generally refers to the continuous increase in the productive capacity of a national economy, reflected in the rise of real GDP or per capita GDP over a specific period. Economic growth is viewed as an expansion of economic activity that leads to an increase in the volume of goods and services produced within the economy, thus contributing to an improved level of economic well-being for society. There are numerous definitions of economic growth in economic literature. It is defined as the increase in the quantity of economic goods and services produced during a specific period, taking into account changes in prices and inflation. Therefore, it is usually measured by the Real GDP Growth Rate. Simon Kuznets defined economic growth as "the long-term increase in a country's capacity to provide a variety of economic goods to its population. This increased capacity depends on technological progress and necessary

institutional and intellectual adjustments." This definition is considered one of the most comprehensive because it links economic growth not only to increased output but also to technological development and structural changes in the economy. (11)

Michael P. Todaro views economic growth as "a continuous process by which real per capita output increases over time as a result of increased productivity and expanded use of economic resources." This definition emphasizes the importance of increasing per capita real output as an indicator of economic improvement. (12)

Fifth: Sources of Economic Growth

One of the goals of economic growth theory is to identify and control the sources of economic growth. Among the most important factors leading to this growth are the following:

1- Natural Resources: Economic growth is closely linked to the quantity of natural resources available in any country. An increase in land area and raw materials promotes growth. Oil, minerals, and agricultural land are examples of essential natural resources for achieving stronger economic growth, provided they are exploited optimally and efficiently, as their availability is directly related to the effectiveness of their use.

2- Human Resources (Labor Force): The size and availability of the labor force are fundamental factors for economic growth. Naturally, population growth in any country generates employment. In fact, any country can increase its labor force simply by increasing its population. However, it is important to note that the quantity of labor alone is not sufficient to guarantee accelerated economic growth. The quality of the labor force, including its vocational training, level of education, and specialized job skills, is also a crucial factor.

3- Fixed Capital Formation: This includes all roads, railway stations, infrastructure, transportation, and advanced computing. It is worth noting that many rapidly developing countries can allocate between 10% and 20% of their GDP to fixed capital formation. (13)

4-Technological Progress: The pivotal role of technological progress in economic growth is undeniable. However, this progress is often the result of a deliberate, organized, and sustained effort aimed at achieving material gains. Technology encompasses both material elements, such as equipment and machinery, and human capabilities, represented by the skills and knowledge inseparable from individuals.

5- Population Growth: Population growth leads to an effective increase in the labor force and, consequently, in the number of productive workers. Moreover, high population growth rates increase the purchasing power of the population, which promotes market expansion and may have a positive or negative impact on economic growth. This impact depends on the economic system and its capacity to provide and absorb employment opportunities. However, the direct impact of population growth on the availability of additional labor remains a subject of debate. (14)

Sixth: Indicators and Measures of Economic Growth

Measuring economic growth is a cornerstone of economic analysis, as it allows us to assess the performance and development of the economy over time. Growth is typically measured using a set of quantitative indicators that reflect productivity gains and improved income levels. The main indicators and measures of economic growth can be summarized as follows:

1- Gross Domestic Product (GDP): GDP is an estimate of market productivity, plus the value of all final goods and services produced and exchanged for monetary gain during a specific period. It is calculated by adding household consumption expenditure, government spending, net exports, and net fixed capital formation. Some non-market products, such as defense spending or spending by non-profit organizations, are included in GDP, while some important activities, such as voluntary work and the depletion of natural resources, are excluded. It is a comprehensive measure of economic activity, calculated using three approaches that all lead to the same result: the output approach, the expenditure approach, and the income approach. A more recent indicator is called Green GDP. This indicator takes into account the environmental repercussions of economic growth, such as the depletion of natural resources and the deterioration of environmental indicators.

2- Average Per Capita Income: This is the most widely used and reliable indicator for measuring economic growth in most countries of the world. However, measuring per capita income in developing countries faces challenges due to the inaccuracy of demographic and individual statistics. There are two methods for measuring the growth rate at the individual level.

- Simple Growth Rate Method: This method measures the annual change in average real income

- Central Growth Rate Method: This method measures the average annual growth rate of income over a relatively long period. (15)

3- Productivity: Productivity is a key driver of long-term economic growth. It is usually measured as output per unit of labor or capital. In macroeconomics, labor productivity is calculated by dividing GDP by total hours worked, reflecting the output achieved by one worker per hour. The number of workers can be used as an indicator when hourly data is unavailable, but the estimate will then be less accurate. It is important to note that increased productivity depends primarily on technological advancements, improved labor efficiency, investment in human and physical capital, and innovations in management systems. A sustained increase in labor productivity leads to an increase in real GDP per capita, which is the cornerstone of long-term economic growth.

4- Monetary Growth Rates: These are growth rates calculated from monetary estimates of the size of the national economy, i.e., after converting the physical products of this economy into their equivalent in the circulating currency, and the services produced into their equivalent in the foreign currency. Although there are some reservations about this method, mostly due to calculation errors, neglect of inflation, disregard for exchange rates, or differences between international accounting systems and methods, it remains the simplest and most effective method, especially after adjusting the estimates to account for the aforementioned problems. This type of measure includes growth rates at current prices, growth rates at constant prices, and growth rates at international prices. 5- Human Development Index: This index was developed by the Human Development Offices of the United Nations Development Programme and has become an indicator of the dimensions of poverty. This indicator has witnessed remarkable development, focusing on poverty eradication. It now encompasses

three dimensions: standard of living, education, and health.

6- Unemployment: The unemployment rate is a crucial macroeconomic indicator for formulating economic policies and evaluating their effectiveness. The problem of unemployment cannot be solved without a clear understanding of its root causes. Official bodies typically measure the unemployment rate as the ratio of the number of unemployed individuals to the labor force at a specific time. (16)

The Applied Aspect

First: Describing the Econometric Model and Research Variables

The econometric model for this research was described using the economic growth rate as the dependent variable. The independent variables consisted of a set of banking performance indicators, namely the ratio of bank deposits to money supply (DM), the ratio of cash credit to total deposits (CR), return on assets (ROA), and the ratio of non-performing loans to total cash credit (NPL). This stage aims to define the mathematical structure of the model and identify its constituent variables and the expected relationships between them, in preparation for estimating it and testing the research hypotheses using appropriate econometric methods.

The steps for describing the econometric model for this research can be presented as follows.

Table (1) Econometric Model Variable Structure

Variable Name	variable symbol	Variable type
Bank deposits as a percentage of money supply	DM	independent
Cash credit as a percentage of total deposits	CR	independent
Return on assets	ROA	independent
Non-performing loans as a percentage of total cash credit	NPL	independent
Economic growth	EG	continued

Source: Prepared by the researcher based on the research variables

Second: Unit Root Tests

Unit root tests are fundamental steps in time series analysis. They aim to verify the stationarity of variables and determine their degree of integration before estimating standard models. This avoids the problem of spurious regression and ensures more accurate and reliable results. To achieve this, the Extended Dickey-Fuller (ADF) and Phillips-Perron (1988) tests were used to examine the stationarity of the research variables: economic growth (EG), the ratio of bank deposits to money supply (DM), the ratio of monetary credit to total deposits (CR), return on assets (ROA), and the ratio of non-performing loans to total monetary credit (NPL).

a. The Extended Dickey-Fuller (ADF) Test

The unit root test results presented in Table (2) show that the economic growth (EG) and return on assets (ROA) variables were stationary at the level in some test formulations, while the remaining variables did not meet the stationary condition. The probability values associated with the test statistic were higher than the established significance levels in most cases, indicating the presence of a unit root and the instability of the time series at their original level. However, until the first difference was considered, all variables showed probability values below the significance level (5%) in the various test formulations, whether with the constant, with the constant and the general trend, or without both. This confirms the stationarity of the time series after the first difference and rejects the null hypothesis of a unit root. It became clear that the research variables are complementary at the level or at the first difference, as the highest degree of complementarity for the variables is first-order complementarity (I(1)), and there are no second-order complementarity variables (I(2)). This result is consistent with the requirements of the distributed lag autoregression methodology, which stipulates that the variables must be complementary. The zero score (I(0), the first score (I(1), or a combination of both) confirms the suitability of using the ARDL model to investigate the relationship between banking performance indicators and economic growth in Iraq.

Table (2) shows the results of the ADF test for the econometric model variables

UNIT ROOT TEST RESULTS TABLE (ADF)						
Null Hypothesis: the variable has a unit root						
	At Level	EG	DM	CR	ROA	NPL
With Constant	t-Statistic	-3.908136	-1.712769	-1.432855	-6.097771	-3.593079
	Prob.	0.0081	0.4085	0.5456	0.0001	0.0157
		***	No	No	***	**
With Constant & Trend	t-Statistic	-3.852345	-3.465612	-1.189142	-5.936258	-3.406818
	Prob.	0.0348	0.0709	0.8851	0.0006	0.0787
		**	*	No	***	*
Without Constant & Trend	t-Statistic	-1.806227	-1.392967	0.237097	-2.721223	-0.733144
	Prob.	0.0681	0.1463	0.7447	0.0092	0.3861
		*	No	No	***	No
At First Difference						
		d(EG)	d(DM)	d(CR)	d(ROA)	d(NPL)
With Constant	t-Statistic	-3.956773	-5.967203	-4.552343	-4.782349	-4.944219
	Prob.	0.0082	0.0001	0.0022	0.0019	0.0011
		***	***	***	***	***
With Constant & Trend	t-Statistic	-3.886572	-4.592614	-4.678948	-4.811091	-4.078425
	Prob.	0.0353	0.0114	0.0075	0.0087	0.0296

		**	**	***	***	**
Without Constant & Trend	t-Statistic	-6.569162	-6.083103	-4.472453	-11.04570	-5.063717
	Prob.	0.0000	0.0000	0.0001	0.0001	0.0000
		***	***	***	***	***
a: (*)Significant at the 10%; (**)Significant at the 5%; (***) Significant at the 1% and (no) Not Significant						

Source: Prepared by the researcher based on the statistical software EViews 12

Third: Estimating the Autoregressive Distributed Lag (ARDL) Model

The basic estimation of the Autoregressive Distributed Lag (ARDL) model represents a pivotal stage in econometric analysis. It allows for the investigation of the relationship between economic growth and banking performance indicators within a dynamic framework that combines the immediate and delayed effects of explanatory variables. This model is also distinguished by its ability to handle integrated variables of order $I(0)$ and $I(1)$, as well as its capacity to extract short-term and long-term relationships within a unified model.

Table (3) indicates that the Accelerated Information Standard (AIC) selected the ARDL(2,2,1,0,2) model as the optimal model from among (162) estimated models. The estimate was based on (19) annual observations during the period (2007–2025). The results showed that the dependent variable lagging for one period $Y(-1)$ had a negative and statistically significant coefficient at the (5%) level, with a coefficient value of (-0.807) and a probability value of (0.0168). Similarly, the dependent variable lagging for two periods $Y(-2)$ had a negative and statistically significant coefficient at the (10%) level, reflecting a dynamic influence of previous economic growth values on determining its current level. As for banking performance indicators, the results showed that the ratio of bank deposits to money supply (DM) was not significant in the current period, while its lagging effects for one and two periods appeared with negative and statistically significant coefficients at the (5%) level, which indicates This indicates a delayed effect of this indicator on economic growth.

The results showed that the cash credit to total deposits ratio (CR) had a negative and statistically significant coefficient at the 10% level in both the current and delayed periods, indicating a tangible effect of this variable on economic growth during the research period. Regarding the return on assets (ROA), it recorded a negative and statistically significant coefficient at the 5% level, with a p-value of 0.0281, reflecting a statistically significant effect of this indicator on economic growth.

The non-performing loan to total cash credit ratio (NPL) was not significant in the current period, while its delayed effect for one period was positive and statistically significant at the 5% level. The delayed effect for two periods was not statistically significant. In terms of model quality, the coefficient of determination (R^2) was approximately 0.817, meaning that the independent variables included in the model explain approximately 81.7% of the changes in economic growth. The adjusted R^2 value was approximately 0.529, indicating acceptable explanatory power for the model considering the number of estimated variables. The Durbin-Watson statistic was 1.656, a value that initially suggests no serious autocorrelation issue with the residuals.

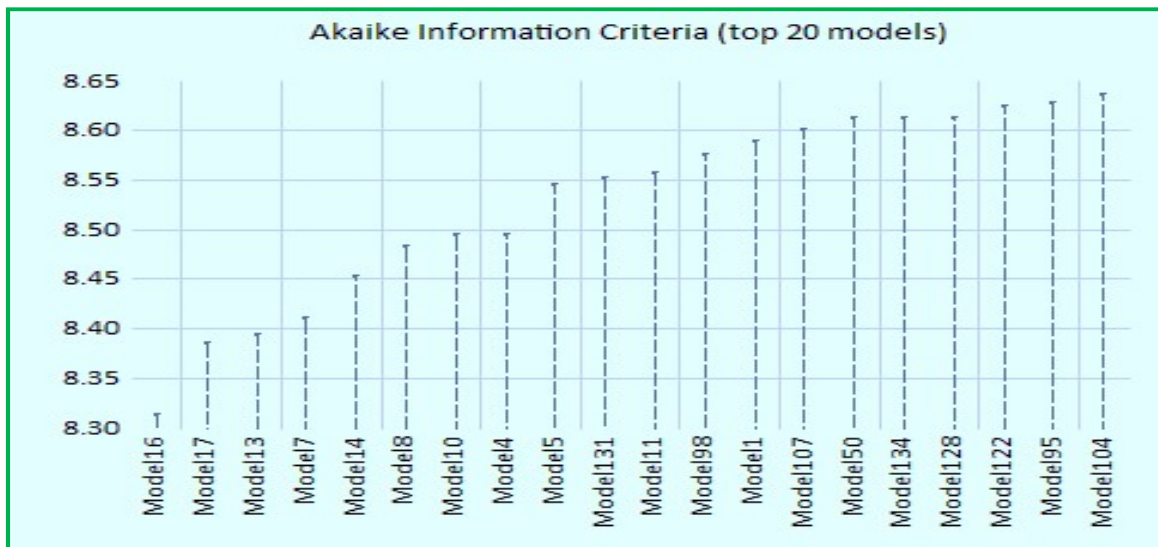
The results of the baseline estimation confirm the existence of varying dynamic effects of banking performance indicators on economic growth. This necessitates a bounds test to verify the existence of a long-term equilibrium relationship between the variables in.

Table (3) the baseline estimation

Dependent Variable: GDP				
Method: ARDL				
Date: 06/22/26 Time: 22:18				
Sample (adjusted): 2007 2025				
Included observations: 19 after adjustments				
Maximum dependent lags: 2 (Automatic selection)				
Model selection method: Akaike info criterion (AIC)				
Dynamic regressors (2 lags, automatic): DM CR ROA X5				
Fixed regressors: C				
Number of models evaluated: 162				
Selected Model: ARDL(2, 2, 1, 0, 2)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.*
EG (-1)	-0.806781	0.258421	-3.121959	0.0168
EG (-2)	-0.590465	0.291975	-2.022312	0.0828
DM	-1.338888	1.070228	-1.251031	0.2511
DM(-1)	-2.644251	1.007790	-2.623811	0.0342
DM(-2)	-2.798185	1.084879	-2.579261	0.0365
CR	-1.719991	0.749438	-2.295040	0.0554
CR(-1)	-2.434388	1.084381	-2.244956	0.0596
ROA	-26.62857	9.650416	-2.759318	0.0281
X5	-0.146206	2.179163	-0.067093	0.9484
X5(-1)	4.489771	1.653921	2.714622	0.0300
X5(-2)	1.819722	1.555737	1.169685	0.2804
C	707.4322	212.7849	3.324635	0.0127
R-squared	0.816904	Mean dependent var		8.892632
Adjusted R-squared	0.529181	S.D. dependent var		19.71774
S.E. of regression	13.52958	Akaike info criterion		8.312262
Sum squared resid	1281.346	Schwarz criterion		8.908750
Log likelihood	-66.96649	Hannan-Quinn criter.		8.413212
F-statistic	2.839202	Durbin-Watson stat		1.656401
Prob(F-statistic)	0.088143			

Source: Prepared by the researcher based on the statistical softwar EViews 12

Regarding the determination of the optimal lag periods for the model, the Akaike Information Criterion (AIC) was used, as it is one of the most common criteria for selecting an appropriate lag structure. The results showed that the best model specification consisted of lag periods of (2, 2, 1, 0, 2), as illustrated in Figure 1. This choice indicates the model's ability to capture the dynamic relationships and temporal influences between the research variables more efficiently, thus contributing to improved estimation accuracy and the reliability of the standard results.

Figure 1: Optimal Model Using the Akaike Information Criterion (AIC)

Source: Prepared by the researcher based on the statistical software EVIEWS 12

Fourth: Cointegration Test (Bounds Test)

After confirming the stationarity of the time series for the studied variables and determining their integration ranks, the ARDL Bounds Test was conducted to verify the existence of a long-term equilibrium relationship between economic growth and banking performance indicators, namely the ratio of bank deposits to money supply (DM), the ratio of cash credit to total deposits (CR), return on assets (ROA), and the ratio of non-performing loans to total cash credit (NPL). This test is one of the most important stages in the ARDL methodology, as it allows for the detection of cointegration between variables regardless of the difference in their integration ranks between the first and second levels.

The results in Table (4) show that the calculated value of the F-statistic reached (5.344197), which is higher than the upper bound critical value at a significance level of (1%), which is (4.37), and also exceeds the corresponding critical values at the significance levels of (5%) and (10%). According to the methodology of Pesaran et al. (2001), exceeding the calculated threshold value leads to the rejection of the null hypothesis (H_0), which states that there is no long-term equilibrium relationship between the variables, and the acceptance of the alternative hypothesis (H_1), which confirms the existence of a cointegrating relationship between them. This result indicates a stable and long-term equilibrium relationship linking economic growth to the banking performance indicators under investigation. This means that any short-term deviation in the relationship between these variables will be gradually corrected to return to a long-term equilibrium trajectory.

Accordingly, we can proceed to estimate the long-term parameters and the error correction model (ECM) to measure the magnitude and direction of the impact of banking performance indicators on economic growth and analyze the dynamics of adjustment towards long-term equilibrium during the research period (2005–2025).

Table (4) Cointegrating Boundary Test

F-Bounds Test		Null Hypothesis: No levels relationship		

Test Statistic	Value	Signif.	I(0)	I(1)
			Asymptotic: n=1000	
F-statistic	5.344197	10%	2.2	3.09
K	4	5%	2.56	3.49
		2.5%	2.88	3.87
		1%	3.29	4.37

Source: Prepared by the researcher based on the statistical softwar EVIEWS 12

Fifth: Results of Estimating the Long-Run Parameters of the Model

The results of the cointegration boundary test in Table (5) indicate that the ratio of bank deposits to money supply (DM) had a significant negative impact on economic growth. This can be explained by the specific characteristics of the Iraqi banking sector, which is marked by a high volume of deposits compared to their limited use in productive and investment activities. A large portion of these deposits remains held as liquid assets or is invested in low-risk financial instruments, thus limiting the banking system's contribution to financing real economic sectors and stimulating economic growth. The results also showed a significant negative impact of the ratio of cash credit to total deposits (CR), reflecting the inefficiency of bank credit allocation during the research period. A significant portion of credit facilities was not directed towards productive sectors capable of creating added value and job opportunities, but rather was sometimes concentrated in short-term commercial and consumer activities, which reduced its expected positive impact on economic growth.

As for the return on assets (ROA), it also registered a significant negative impact on economic growth. This can be explained by the fact that the increased profitability of Iraqi banks was not necessarily a result of their expansion in financing productive economic activities, but rather was often linked to generating returns from financial investments or low-risk banking operations. The improved profitability of banks did not directly translate into increased investment and real production in the Iraqi economy. Regarding the ratio of non-performing loans to total credit (NPL), its impact appeared positive and significant at the 10% level. This result may seem contrary to theoretical expectations, but it can be explained by the correlation between periods of increased economic activity and credit expansion and an increase in the volume of loans granted, which may subsequently lead to an increase in the volume of non-performing loans. Therefore, the positive relationship here does not mean that credit defaults contribute to boosting economic growth, but rather reflects the structural nature of the relationship between credit expansion and economic activity during the research period.

Long-term results reveal that the impact of banking performance indicators on Iraqi economic growth depends not only on the size of available financial resources within the banking sector, but more significantly on the efficiency with which those resources are utilized and directed towards productive and investment sectors capable of achieving sustainable economic growth. This aligns with the nature of the Iraqi economy, which remains heavily reliant on oil revenues and suffers from the limited role of the banking sector in financing real economic activity.

Table (5) Estimation of Long-Term Model Parameters

Levels Equation				
Case 2: Restricted Constant and No Trend				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
DM	-2.828798	0.953343	-2.967239	0.0209
CR	-1.732980	0.373333	-4.641909	0.0024
ROA	-11.10798	4.222191	-2.630858	0.0339
X5	2.570986	1.167503	2.202125	0.0635
C	295.1020	93.28090	3.163585	0.0158
EC = GDP - (-2.8288*DM -1.7330*CR -11.1080*ROA + 2.5710*X5 + 295.1020)				

Source: Prepared by the researcher based on the statistical software EViews 12

Sixth: Results of the Error Correction Parameter for the Model

Table No. (6) shows the results of the Error Correction Model (ECM) estimation, which aims to analyze the dynamics of the short-term relationship between economic growth and banking performance indicators, as well as measure the speed at which the model returns to its long-term equilibrium path when any deviation occurs. The results indicate that the Error Correction Coefficient (CointEq(-1)) was negative and statistically significant at a significance level of (1%), with a value of (-2.397246) and a p-value of (0.0001). This confirms the existence of a long-term equilibrium relationship between economic growth and banking performance indicators and provides further evidence for the validity of the cointegration test results. The negative and significant sign of the Error Correction Coefficient indicates the model's ability to correct short-term imbalances and deviations and return to its long-term equilibrium path. The high value of the coefficient indicates that the correction process occurs very quickly, as approximately (239.7%) of the accumulated imbalances are corrected within one year. This means that any deviation from the equilibrium state is absorbed and corrected within a certain time period. The relatively short-term effect of the coefficient exceeding the whole number value indicates a strong corrective response from the economic system to shocks and deviations in the relationship between the research variables. The results of the error correction model confirm the existence of varying short-term effects of banking performance indicators on economic growth, along with an effective mechanism for rebalancing towards a long-term relationship. This strengthens the model's reliability and its ability to explain the dynamic nature of the relationship between the research variables during the period (2005–2025).

Table (6) Estimation of Short-Term Model Parameters

ECM Regression				
Case 2: Restricted Constant and No Trend				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(EG (-1))	0.590465	0.214985	2.746541	0.0286
D(DM)	-1.338888	0.455602	-2.938725	0.0218

D(DM(-1))	2.798185	0.679801	4.116185	0.0045
D(CR)	-1.719991	0.427091	-4.027219	0.0050
D(X5)	-0.146206	1.039963	-0.140588	0.8922
D(X5(-1))	-1.819722	0.942509	-1.930721	0.0948
CointEq(-1)*	-2.397246	0.323336	-7.414100	0.0001

Source: Prepared by the researcher based on the statistical software EViews 12

Economic Evaluation of the Model

The results showed that the ratio of bank deposits to money supply (DM) had a statistically significant negative impact on economic growth. This indicates that the increase in bank deposits did not translate into investments or productive credit capable of stimulating economic activity. This reflects the weakness of the financial intermediation function of Iraqi banks, as deposits were concentrated in the form of idle assets or reserves, or invested in low-risk instruments such as government transfers, instead of being directed towards financing productive activities. The results also showed that the ratio of cash credit to total deposits (CR) exerted a significant negative impact on economic growth. This indicates that the expansion of credit was not directed efficiently towards productive sectors, but rather was largely concentrated in consumer loans or short-term commercial activities. This limited the contribution of bank credit to increasing GDP and stimulating real investment. Furthermore, the return on assets (ROA) registered a significant negative impact on economic growth. This result reflects that the increased profitability of Iraqi banks was not due to their expansion in financing economic activities, but rather was linked to the returns from traditional activities and low-risk investments, particularly transactions. With regard to government debt instruments, this indicates that the improved financial performance of banks has not directly translated into economic growth.

The ratio of non-performing loans to total credit (NPL) showed a positive signal, but its statistical significance was relatively weak. This result may seem contrary to theoretical expectations, but it can be explained by the specific characteristics of the Iraqi economy. Periods of increased NPLs coincided with expanded government spending and higher oil revenues, which maintained economic growth rates despite a decline in the quality of loan portfolios. Therefore, this indicator does not imply that NPLs contribute to boosting economic growth. Rather, it reflects the presence of macroeconomic factors, primarily oil revenues and public spending, which had a greater impact on determining the growth trajectory than the performance of the banking sector itself.

Conclusions

- 1- There is a correlation and influence between banking performance indicators and economic growth in Iraq, although the degree of this influence varies depending on the specific banking indicator.
- 2- Bank deposits have contributed to enhancing banks' ability to provide financing, but their limited deployment in productive sectors has restricted their impact on economic growth.

- 3- The efficiency of the banking sector continues to face challenges, including low levels of financial inclusion, limited diversification of banking services, and a high percentage of cash transactions outside the banking system.
- 4- There is a long-term equilibrium relationship between banking performance indicators and economic growth, which underscores the importance of developing the banking sector to achieve sustainable economic growth.

Recommendations

- 1- Encourage banks to adopt modern financial technologies and digital transformation, which will contribute to improving the quality of banking services and increasing performance efficiency.
- 2- Increase the volume of bank credit directed to the private sector, particularly to small and medium-sized enterprises (SMEs) and productive sectors.
- 3- Develop the legislative and regulatory environment for the banking sector in accordance with international standards, and enhance the independence and efficiency of banking supervision.
- 4- Encouraging banks to employ modern financial technologies and digital transformation, which contributes to improving the quality of banking services and increasing performance efficiency.

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