THE IMPACT OF BANKS' PERFORMANCE ON ECONOMIC GROWTH: A DYNAMIC GENERALIZED METHOD OF MOMENTS APPROACH

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OPEN ACCESS

How to cite this paper: Jadah, H. M., Al-Husainy, N. H. M., & Ashour, H. K. (2025). The impact of banks' performance on economic growth: A dynamic generalized method of moments approach. *Business Performance Review, 3*(2), 134–143. https://doi.org/10.22495/bprv3i2p11

ISSN Online: 3005-6829
ISSN Print: 3005-6810

Received: 10.08.2025
Revised: 15.10.2025; 10.11.2025
Accepted: 02.12.2025

JEL Classification: C23, G21, O16, O47
DOI: 10.22495/bprv3i2p11

Abstract

The research examines banking sector performance effects on economic expansion across long periods in emerging markets through an analysis of Iraq as a case study. The research uses the dynamic generalized method of moments (GMM) to analyze 18 Iraqi private commercial banks across 2010–2023. The research examines how return on equity (ROE) and return on assets (ROA), and net interest margin (NIM) influence gross domestic product (GDP) expansion. The research shows that economic expansion depends directly on banking performance through ROA and NIM metrics. The research shows that economic development has a weak relationship with investment activities and lending capacity which demands policy changes. The research shows that economic performance depends on outside factors which include technological advancements and political stability. The research establishes new knowledge about banking sector contributions to Iraqi economic development through its integration of bank-specific performance indicators. The research shows that financial institutions need targeted policy interventions while researchers must study all environmental factors for achieving sustainable development. The research results offer operational guidance which assists policymakers and researchers who focus on developing nations.

Keywords: Bank Performance, Dynamic GMM, Economic Growth, Iraq

Authors' individual contribution: Conceptualization — H.M.J. and N.H.M.A.-H.; Methodology — H.M.J. and N.H.M.A.-H.; Software — N.H.M.A.-H. and H.K.A.; Validation — H.M.J., N.H.M.A.-H., and H.K.A.; Formal Analysis — H.M.J. and N.H.M.A.-H.; Investigation — H.M.J.; Data Curation — H.M.J. and N.H.M.A.-H.; Writing — Original Draft — H.M.J. and N.H.M.A.-H.; Writing — Review & Editing — N.H.M.A.-H. and H.K.A.; Supervision — H.M.J.

Declaration of conflicting interests: The Authors declare that there is no conflict of interest.

1. INTRODUCTION

The main objective of macroeconomic policy exists to create an enduring economic expansion because experts agree that this growth pattern leads to better living conditions and national development targets. The definition of economic growth exists in multiple forms which economists use to describe rising household earnings and rising production levels of goods and services throughout time. The standard economic growth measurement uses gross domestic product (GDP) growth rates which

function as the main economic development indicator. Financial experts, together with policymakers and economic analysts, have maintained continuous interest in understanding how economic expansion affects financial system performance. Research indicates that banks, together with other financial institutions, determine how a nation will develop its economy (Dagher & Jadah, 2025). The economic connection between financial institutions and their performance becomes most evident when countries have underdeveloped legal frameworks such as Iraq. The Iraqi economy faces exceptional challenges because of its weak legal framework and its single-dependent oil industry and poor post-conflict conditions and weak governance structure (Huby et al., 2025). The Iraqi accounting system faces a major challenge because of inconsistent International Financial Reporting Standards (IFRS) implementation (Al-Naghi & Asghar, 2021). The banking sector maintains a substantial information advantage over non-banking sectors because of this severe information imbalance. Banks enable business expansion through their ability to decrease information gaps and support loan repayment which leads to increased economic expansion (Rajan & Luigi, 2001).

The research investigates how well the Iraqi banking sector performs in effecting national economic expansion. The research investigates a main question:

RQ: Does bank performance function as an economic growth driver under specific circumstances?

The research investigates how bank performance affects economic indicators at a national level.

The Iraqi economy operates under distinct conditions which set it apart from other developing countries. The economy depends on oil as its main source of revenue because oil production accounts for 88.5% of the total GDP in 2022. The GDP growth rate in Iraq reached 10.5% during 2022 but the annual real GDP growth rates experienced major fluctuations because of ongoing political instability. The real GDP growth rate achieved its peak at 53.2% during 2003 when Iraq experienced a short period of stability yet 2020 proved to be its worst year with a -15.7% decline. The GDP growth rate in Iraq maintained an average annual rate of 4.74% between 2005 and 2022 which fails to support sustainable economic development. The real GDP per capita growth rate experienced a consistent 2.7% annual increase throughout this time period. The Middle East and North Africa (MENA) region identifies Iraq as its most unstable economic market with inefficient operational systems. The economy faces elevated price instability because it relies on oil for 88.5% of its GDP which exceeds the typical volatility found in the region (Miho, 2024). The GDP growth rate in this country shows abnormal fluctuations that surpass the typical volatility found in the region. The country shows deceptive economic growth because its typical yearly expansion rate conceals recurring economic fluctuations that result from political instability and violence instead of sustainable development. The unstable political situation in Iraq stands as its primary distinguishing characteristic because it blocks the transformation of oil resources into sustainable economic development. The Iraqi economy depends on banks to distribute funding to productive sectors while they handle risks and decrease information gaps and enhance trade activities (Hasan et al., 2020). The Iraqi banking sector faces multiple challenges because of political instability and global financial challenges and technological changes and market competition and public distrust. The banking system faces extensive financial exclusion because many citizens lack access to formal banking services. Research about economic growth and financial development in Iraq exists but there is no study that examines how commercial banks affect the national economy.

The banking sector plays a crucial role in economic growth according to theoretical models yet researchers need to study this relationship in more detail when applying it to the Iraqi economy. The existing research on this relationship has produced important findings through its analysis of different aspects. Research has investigated two separate aspects of banking sector development through its impact on economic growth (Slow & Ali, 2023; Salih & Haji, 2024) and through bank financing as the main transmission mechanism (Khalf, 2011). The present research fails to establish a definitive connection between these elements. The studies evaluate development and financing through private sector credit volume but they ignore the fundamental qualitative aspect of bank financial performance. The relationship between banking performance metrics (return on assets [ROA], return on equity [ROE], and net interest margin [NIM]) and the macroeconomy has not been studied in Iraq. The main research goal of this study aims to determine how Iraqi commercial banks' financial performance impacts national economic development. The research examines whether Iraqi banks' internal financial quality exceeding credit volume measurements impacts national economic expansion rates. The research examines economic growth effects of Iraqi bank financial performance by analyzing banking data to improve monetary and fiscal policy decisions.

The analysis of bank performance effects on economic expansion serves two essential purposes. Banks maintain profitability as their primary goal while using ROA, ROE and NIM to evaluate their financial condition. The Iraqi economy functions as a special case among developing nations because it depends on relationships within a weak political system that faces substantial corruption problems. The special environment allows researchers to study how better bank performance affects economic growth while going past traditional bank profitability measures.

This article is built as follows. Section 2 describes theories and relevant literature. Section 3 shows methodology in terms of data, dependent and independent variables, and model description. Section 4 presents the results. Section 5 reports pragmatic outcomes, and Section 6 explains the research conclusion.

2. LITERATURE REVIEW

The following are two primary theories existing in the literature that describe the function of banking performance in economic development.

2.1. Theories of economic growth

In 1911, Schumpeter highlighted the significance of finance in economic flows. Furthermore, research underlined how crucial financial services are to

fostering economic development and addressed circumstances under which the financial sector may smartly encourage growth and innovation by assessing and supporting productive investments. Reserve Bank's goal is to provide convenient, appropriate financial facilities in locations where there are currently no banks, ensuring that everyone has disposal to fiscal services. More fiscal inclusion increases money flow in the economy which benefits the economy (Schumpeter, 1984). In particular, Robinson (1952) highlighted how rising output coincides with rising demand for fiscal services, favouring the path of financial growth. In the financial industry, development is pursued by growth in revenue from properties and interest, other things being the same (Srivastava, 2012).

2.1.1. Theory of anticipated revenue

The initial proposal of this hypothesis dates back to 1949, attributed to Prochnow, and is delineated in a book titled *Term Loan and Theories of Bank Liquidity*. The theorem requires banks to distribute their lending activities between remunerated factual estate hypothecation loans and enduring credit and payment lending and customer loans. Banks enhance their liquidity through projected income streams while evaluating payment reliability and cash production capabilities. Banks can use their excess reserves to make investments which results in better profitability for all banking institutions. The research of Saeed et al. (2018) used the lending capability variable to analyze its impact on national economic growth.

2.1.2. Theory of endogenous growth

The theory demonstrates that economic growth rates depend on internal factors rather than external elements. Internal institutional elements like investment decisions and degrees of technological progress have an impact on the economic development process. Moreover, theory suggests that in every country, long-run economic growth is often dependent on financial organisations' policy initiatives (Romer, 1994). According to the intrinsic development model, interior factors influence fiscal growth alongside exogenous productivity. This theory provides a framework for understanding relationships between variables applied in the current study. The association between the fiscal sector and fiscal advancement has long been a source of discussion in the literature. Concept of intrinsic development implies a contributory link between the fiscal sector and fiscal progress, though determining the direction of causality remains a practical challenge (Saeed et al., 2018).

2.2. Theoretical background

2.2.1. Previous empirical studies

Various empirical studies will be investigated to aid in the extraction of vital information for this research. Numerous experts have done studies to survey the connection that exists between bank performance and the rate of fiscal advance in numerous countries. Nevertheless, contradictory outcomes have been found because of factors like research jurisdiction, data availability resources, econometrics approach used, and more.

The banking sector acts as an initial gateway through which the impacts of the economy are introduced, and any shortcomings within this system can propagate distortions throughout other sectors, fundamentally affecting the inclusive solidity of the economic scheme. Impact of bank performance on economic growth is a contentious subject on both empirical and theoretical levels; theoretical foundations of this relationship may be discovered in the study of Schumpeter (1984), who held that financial intermediary services are critical to economic innovation, productive investment, and economic progress. This topic has been the focus of theoretical discussions and empirical studies during the previous century, particularly in the aftermath of the famed King and Levine (1993) study.

Furthermore, Khattab et al. (2015) sparked a new discussion in the literature; their research aimed to scrutinise the link between the expansion of the fiscal sector, fiscal instability, and fiscal evolution in five Maghreb economies employing data from 1995 to 2013. Research utilized panel vector autoregressive methodology to establish that fiscal expansion had an adverse impact on fiscal instability, while simultaneously exerting a positive impact on both itself and overall fiscal evolution. This study underscored that fostering financial growth necessitates fiscal deregulation within fewer unethical environment. Moreover, Hou and Cheng (2017) employed panel generalized method of moments (GMM) to survey long-term and short-term influences of bank performance measures on economic advancement. As per their study, the impact of pointers is dependent on the expansion of banks and national income throughout time. Their research suggests that economies participate in numerous financial works to affirm a viable growth procedure.

By utilising the panel vector error correction model (VECM) (Saeed et al., 2018), studied the impact of loaning competence, innovation, bank-funded assets, and interest margin on fiscal growth, and discovered that bank investment and innovations are significant determinants of economic development. Guanchun and Chengsi (2020) investigated the internal growth process in relation to the financial expansion of the economy and its structure. The research used a panel of 29 Chinese provinces. Theoretical findings of research showed that a perfect financial structure was available and could be used to satisfy diverse needs in the economic development procedure. Bank profitability boosts the economy's financial stability which aids in the country's growth (Arena, 2008). Pisedtasalasai and Edirisuriya (2020) surveyed performance and diversity of Sri Lankan commercial banks. Their research found a two-way relationship between bank performance and diversity. It showed that diversity enhanced bank performance.

Meanwhile, Alam et al. (2021) observed that bank-related factors are linked to economic growth. Furthermore, their learning validates that there is a substantial negative relation between NIM and fiscal evolution. Nonetheless, their study discovered a significantly positive link between ROA and fiscal evolution. Nevertheless, lending capacity and investment works insignificantly influenced economic development by applying a sample of 20 Indian government-owned banks for the period from 2009 to 2019. Furthermore, in a similar vein, between 1984 and 2018, Mahalik et al. (2023) studied the impact of financial development on economic globalization in China and India. Their results showed that financial

development, institutional quality, and government investment are drivers of globalization in both countries. Nevertheless, the research showed different results when studying economic growth and inflation and interest rate performance. The Indian economy has used economic growth to advance globalization but Chinese economic growth has actually worked against globalization while inflation and interest rates have produced distinct results in each nation. The researchers establish that macroeconomic policies need to account for national financial structures and institutional frameworks to achieve maximum financial development benefits for global economic integration.

The research by Mashamba et al. (2023) analyzed bank profitability effects on economic growth across 26 sub-Saharan African nations from 2000 to 2020. The researchers used structural equation modelling and system eigenvectors to analyze their data. The research findings showed that bank profitability did not lead to economic growth in the studied region. The main reason for this outcome stems from weak financial intermediation which stops earnings from supporting profitable business activities while showing high NIMs and limited lending activities. The study established that banks serve as vital growth promoters for low-income countries across the region because these nations do not have well-developed non-bank financial systems. The research established financial system stability as a key factor that connects profitability to growth through its mediating effects.

The research by Salwa and Ali (2023) analyzed Iraqi banking sector expansion effects on economic growth through an autoregressive distributed lag model analysis of Iraqi data from 1991 to 2009 and then extended their analysis to 2004–2021. The research established that banking sector expansion created minimal to no positive impact on economic development. The research discovered an unexpected result which shows that banking sector expansion through conventional assessment methods does not generate economic benefits. The banking sector faces three main structural barriers which prevent it from achieving positive economic results: insufficient funding for small and medium enterprises and insufficient financial services reach and outdated banking systems.

Saleh and Haji (2024) conducted a time series analysis using EViews 12 to evaluate how banking development affects Iraqi economic growth from 2004 to 2022. The research investigated how two independent variables affect the GDP growth rate as the dependent variable through their analysis of the total deposits to GDP ratio and private sector credit to GDP ratio. Despite its success based on the indicators utilized, the results demonstrated that banking development was limited and fell short of the intended level which had a weak and detrimental effect on economic growth. The study suggested that in order to help the banking industry create competitive banking units that are capable of efficiently financing economic initiatives, it is necessary to improve the sector's operational efficiency and infrastructure.

Moreover, BniLam (2025) carried out a study spanning the years 2008–2020 in order to elucidate the nature of the relationship between the number of banks in operation and economic growth in Iraq. His study produced key results, most notably that the per capita share of GDP is determined depending on numerous criteria, with the absence of a large impact of the development of the banking sector as a primary determinant. The lack of alignment between the goals of the banking system's operations and the state's macroeconomic policy explains why there is no relationship between the number of banks and growth. In order to accomplish integration, the study highlights the pressing necessity to harmonize the higher economic goals and distribute them throughout all agencies. The system requires monitoring and assessment to determine how each agency contributes to these complete objectives which enhances policy effectiveness and supports economic stability achievement.

The theoretical agreement about the banking sector's importance for economic growth and development needs additional research to understand its practical implementation in the Iraqi market. The existing research on this relationship has produced important findings that help researchers understand its different components. Research has investigated two separate aspects of banking sector development and its effects on economic growth (Slow & Ali, 2023; Salih & Haji, 2024) and bank financing as the main economic growth driver (Khalf, 2011). The current research lacks a clear method to study this relationship. The studies use quantitative indicators to measure development and financing but they fail to assess the essential qualitative aspect which involves bank financial performance. The relationship between banking performance metrics (ROA, ROE and NIM) and macroeconomic indicators has not received proper investigation in the Iraqi context.

The research investigates how Iraqi commercial banks' financial performance, through specific profitability metrics, affects national economic expansion. The research investigates whether Iraqi banks' internal financial quality beyond credit volume affects national economic growth performance. The research uses precise banking financial information to answer this question which adds value to existing literature and generates new policy recommendations for monetary and fiscal authorities.

2.2.2. Hypotheses development

Return on assets

Return on assets evaluates how well banks are managing their assets and health status, and the ratio of return after taxes to banks' gross assets. Although bank net income is relatively straightforward in assessing overall performance, it has a chief downside — it makes comparison among different financial institutions or even historical periods pretty difficult. ROA is usually utilized amount of bank competency that depicts the ability of a bank to earn money on its assets, depicting how lucrative or optimal it can generate more profit from those assets. Innumerable studies (Alam et al., 2021; Ledhem & Mekidiche, 2020; Alkhazaleh, 2017) have claimed that there is an optimistic link between ROA and economic growth. Hence, we proposed the following hypothesis:

H1: Return on assets will positively affect economic growth.

Return on equity

Although it is acknowledged that the ROA ratio provides an obvious indicator of bank competency, most scholars would rather utilize ROE or the ratio of income after taxes to bank equity to assess the productivity of specific banks and the banking sector as a whole. Bank shareholders pay attention to how bank income compares to their equity investment, which may be calculated using the ROE ratio. Besides, previous surveys employed ROE as an evaluation of bank performance (Gwatidzo, 2025; Lalon et al., 2025; Ledhem & Mekidiche, 2020). Moreover, the majority of past surveys reported a positive influence of ROE on economic growth (Ledhem & Mekidiche, 2020). Hence, we proposed the following hypothesis:

H2: Return on equity positively and significantly affected economic growth.

Net interest margin

There are several theories regarding how to regulate interest rates. A few of these are conventional theory, Keynesian theory, and loanable fund theory; however, the bulk of earlier research found that interest rates hurt economic development (Alam et al., 2021; Saeed et al., 2018). Besides that, in this study, NIM has been identified as a bank performance measure following previous literature (Gwatidzo, 2025; Mashamba et al., 2023; Taşkin, 2012). The Central Bank of Iraq (CBI) is the only entity in Iraq with the power to regulate interest rates, and all banks follow CBI's rules for calculating interest rates on their products. Therefore, the NIM ratio is selected as a substitute for the respective bank's interest rate, as it illustrates the grossing capacity of banks through their core banking activities, optimizing all available funds. Therefore, NIM will be utilized as one of the bank performance measurements in this study. NIM measures the spread between interest revenues and interest costs. Therefore, we proposed the following hypothesis:

H3: Net interest margin is significantly negatively associated with economic growth.

3. RESEARCH METHODOLOGY

3.1. Dependent and independent variables

We utilized annual GDP growth (*GDPG*, %) as a metric of economic growth to ascertain the association between economic expansion and bank performance. One of the most frequently optimized measures of economic growth in earlier research is GDP growth. Thiel (2001) established a link between the expansion of economic growth and the fiscal sector, utilizing GDP growth. An upsurge in net national product over a specific period is thought to be the definition of the economic growth model (Dewett, 2005). According to this study, economic development is understood to be a quantitative transition in economic variables that typically persists through time. Qin et al. (2024) define economic development as a systematic process that enhances economic productivity potential, leading to heightened national production levels and income over time. Similarly, Jhingan (2011) views economic development as output expansion, elucidating further that it entails a continual quantifiable upsurge in a nation's per capita production or income, followed by capital, consumption, workforce, and trade volume growth. Vital attributes of economic growth, as highlighted by Ochejele (2007), encompass elevated rates of output, substantial rates of structural transformation, and facilitation of international resource flows, including capital, labor, and goods.

Moreover, the independent variables are bank profitability (*ROA, ROE*, and *NIM*) and the lagged value of *GDPG*. Factors were chosen from a larger pool of factors that were accessible in the literature (Gwatidzo, 2025; Kassem, 2024; Taşkin, 2012). Whereas macroeconomic factors and political instability-related variables make up the control variables. Factors were chosen from a larger pool of factors that were accessible in the literature. Justification for selecting these variables and the theory underlying their estimated influence is given in the following section.

This research also involves more control variables to take into account any additional potential factors that might affect economic growth. Bank's size (*BSZ*) is related to economies of scale and has a chance of enhancing the organization's financial success (Al-Harbi, 2021). Moreover, the second control variable is inflation (*INFL*). According to Barro (2013), inflation is crucial for economic growth. Furthermore, the third control variable is political instability (*PIS*). Economists observe that economic performance is typically negatively impacted by political volatility. Shorter time horizons among policymakers will lead to less optimal macroeconomic policies as a result of political turmoil. Moreover, it may conduce to more frequent policy adjustments, which would worsen volatility and macroeconomic performance (Huby et al., 2024).

The dependent, independent, and control variables and measurements are illustrated in Table 1.

Table 1. The dependent, independent, and control variables and measurement

Variables	*Meaning*	*Measurement*	*Expected sign*
Independent variables			
ROA	Return on assets	The ratio of net profit before taxes to total assets is known as ROA	Positive
ROE	Return on equity	The ratio of net profit before taxes to total equity is known as ROE	Positive
NIM	Net interest margin	NIM = (Interest income – Interest expenses) / Interest income	Negative
Dependent variables			
GDPG	GDP growth	An indicator of economic development	
Control variables			
BSZ	Bank size	The natural log of total assets is the size of the bank	
INFL	Inflation	Consumer price index	
*PIS**	Political instability	The possibility of political unrest and/or violence with political motivations, such as terrorism	

*Note: * Means that the overall index scores range from -2.5 to 2.5 for countries.*
Source: Authors' elaboration.

3.2. Data

Data from 18 conventional banks sorted in the Iraq Stock Exchange (ISX) for the period 2010–2023 have been considered in this study. The sample of this study consists of 18 commercial banks only due to complete data availability in ISX during the study period. Furthermore, the Islamic banks were excluded from the sample due to the nature of the Islamic banks, which do not deal with interest, whether received or paid, which led to disability to calculate *NIM,* as this study utilized it as an independent variable. For the sample banks' yearly reports were used to gather data on banks' performance and size, while statistics on GDP evolution rate and inflation were gathered for macroeconomic indicators from the World Data Atlas database. Furthermore, political volatility data was collected from Worldwide Governance Indicators (WGI). We outline variables selected to reflect banks' performance (*ROA, ROE*, and *NIM*) and economic growth throughout the pages that follow (*GDPG*). Along with the following control variables (*BSZ, INFL*, and *PIS*).

3.3. Model requirement

Both static and dynamic models have been utilized in this study. The static model is broadly renowned and has been employed in several surveys. Chowdhury (2016) believes that the dynamic model employs more information and, consequently, estimation will be more competent. Furthermore, to fully grasp the implication of lagged effect variance GMM model (Arellano & Bond, 1991) is used in the second model. Fundamental tenet of GMM is that initial variances between instrumental variables are unrelated to static impacts, allowing the model to add more instruments and increase its efficacy. In research using "small T, big N" panels, where independent variables are hardly exogenous, and when autocorrelation and heteroscedasticity occur within individual samples, in this research area, Roodman (2009) believes that both system GMM estimators' variances are appropriate. An empirical study employs the GMM formula:

$$GDPG_t = \alpha + \beta_1 GDPG_{(t-1)} + \beta_2 ROA_{it} + \beta_3 ROE_{it} + \beta_4 NIM_{it} + \beta_5 BSZ_{it} + \beta_6 INFL_t + \beta_7 PIS_t + \varepsilon_{it} \quad (1)$$

where, i refers to the bank at the moment t, and ε refers to the erroneous term.

4. RESEARCH RESULTS

4.1. Descriptive statistics

For each variable included in the study, mean, standard deviation (SD), minimum, maximum values, skewness, and kurtosis are shown in Table 2.

Table 2, through its descriptive statistics, provides an overview of the characteristics of the studied variables, focusing on measures of central tendency, variance, and data distribution. The preliminary analysis delivers vital information about data organization, which enables researchers to understand data structure and select appropriate statistical methods for future analysis.

Table 2. Descriptive statistics

Variables	*Unit*	*Mean*	*SD*	*Maximum*	*Minimum*	*Skewness*	*Kurtosis*
Dependent variables: Bank performance							
GDPG	Ratio	4.133	6.822	13.93	-15.67	-0.35807	1.8366
Independent variables: Bank performance							
ROA	Ratio	0.188	0.074	0.281	-0.024	0.041218	1.0657
ROE	Ratio	0.056	0.039	0.088	-0.125	-0.01242	1.0005
NIM	Ratio	0.029	0.090	0.858	-0.140	-0.02234	1.0136
Control variables							
BSZ	Log of total assets	0.286	0.284	1.831	0.003	-0.19342	1.2682
PIS	Percentile rank	-2.348	0.328	-1.843	-2.826	-0.01443	1.0169
INFL	Ratio	8.056	16.091	53.23	-10.067	-0.1785	1.1604

Source: Authors' elaboration.

The banking industry achieved average profitability through *ROE* at 5.6% and *ROA* at 1.88% during a difficult economic period with 8.056% inflation (*INFL*) and 4.133% GDP growth (*GDPG*). The banking industry encountered two major obstacles because its narrow *NIM*s (2.9%) and poor political stability (index: -2.348) created additional challenges. The banking industry faces major obstacles to achieve profitability through its core lending operations because its established revenue streams face major deterioration. Standard deviation measurements in the analysis show essential patterns of dispersion. The standard deviation of *ROA* (0.074) and *NIM* (0.090) shows typical profitability fluctuations but *ROE* (0.039) demonstrates exceptional stability. The political instability index (*PIS*, 0.328) and bank size (*BSZ*, 0.284) show typical volatility levels. The study period showed that Iraq faced extreme banking operational difficulties because its macroeconomic indicators showed high volatility through inflation (16.091) and GDP growth (6.822) standard deviations.

The normal distribution assessment of variables produced results which verified their statistical compliance with established standards because all skewness and kurtosis values remained between ±2. The standard deviation measurements for profitability indicators showed small differences between *ROA* at 0.041 and *ROE* at -0.012 and *NIM* at -0.022. The *PIS* demonstrated absolute symmetry because its skew value reached -0.014. The kurtosis measurements ranged from 1.0005 for *ROE* to 1.8366 for *GDPG* while the *PIS* reached 1.017. The research data shows a normal distribution pattern which allows researchers to use advanced parametric statistical methods for banking sector analysis. The results demonstrate high reliability because the data maintains excellent statistical quality.

4.2. Correlation analysis

The study used Pearson correlation analysis to investigate relationships between different variables. The correlation analysis enables researchers to identify both the magnitude and orientation of linear relationships between two variables. The Pearson correlation results appear in Table 3.

Table 3. Pearson correlation

Variables	*GDPG*	*ROA*	*ROE*	*NIM*	*BSZ*	*PUS*	*INFL*	*VIF*
GDPG	1							
ROA	0.4319***	1						1.0504
ROE	0.3542**	0.1349**	1					1.1111
NIM	-0.4381**	0.0706**	-0.3193	1				1.0366
BSZ	-0.4959**	-0.0657*	-0.0981	0.018	1			1.1890
PIS	-0.3585***	0.2679	0.1376*	0.0963**	-0.0616*	1		1.0347
INFL	-0.4564***	0.182*	-0.1925*	0.1149	0.0237	-0.1053	1	1.0266

*Note: ***, **, and * mean significance at levels 1%, 5%, and 10%, respectively. VIF — variance inflation factor.*
Source: Authors' elaboration.

The correlation analysis results demonstrate that economic growth (*GDPG*) maintains strong relationships with all investigated variables. The banking sector creates positive effects on economic growth because GDP maintains strong positive relationships with bank profitability through *ROA* (0.4319) and *ROE* (0.3542). The relationship between *GDPG* and *NIM* shows negative correlation at -0.4381 and bank size and inflation rates demonstrate negative relationships of -0.4959 and -0.4564, respectively. The essential relationship between political stability and economic growth emerges from their negative correlation of -0.3585 which demonstrates how political instability hinders long-term economic development. The VIF values in Table 3 range from 1.033 to 1.412 which indicates that all tolerance values exceed 0.1 and all VIF values stay below the 10 threshold established by Hair et al. (2010). The VIF values of all variables fall within the suggested boundaries. The research findings indicate that multicollinearity does not exist as a problem in this study.

4.3. Two-step system GMM estimation result

The analysis requires multiple tests to verify model fit adequacy before starting regression analysis. Newey (1985) recommends performing this essential test. Outcomes of diagnostic tests, comprising tests for normality, serial correlation, heteroscedasticity, and multicollinearity for the research model, indicate that the data are suitable for analysis. Furthermore, the Hausman requirement test was employed to investigate whether the arbitrary effects model or the static effects model would be further suitable for the research model. The test recommends that the arbitrary effects model is further suitable, given the null hypothesis (H_0) of the Hausman specification test. Moreover, in this study, both the over-identification Sargan test and Arellano-Bond test for first- and second-order autocorrelation in residuals were conducted, following the approach outlined by Roodman (2009).

In addition, in applying the GMM model, the following variables are treated as endogenous variables to address the problems of dynamic continuity and cross-causality:

- First, the lagged dependent variable ($GDPG_{(t-1)}$): This variable is included to capture the dynamic nature of economic growth, as GDPG tends to exhibit time continuity. However, its correlation with the fixed-effect components in the random term introduces bias into the estimations of standard longitudinal data models, making the use of a GMM estimator necessary to correct for this bias.
- Second, banking sector performance indicators (e.g., *ROA, ROE, NIM*): These indicators are treated as endogenous variables due to a potential reverse causality with economic growth (*GDPG*). While bank performance contributes to growth by providing efficient financing, strong economic growth, in turn, improves bank profitability and stability by improving asset quality and increasing demand for credit services. This reciprocal relationship makes it necessary to use statistical tools (such as lagged values of variables) to isolate the unidirectional causal effect.

Table 4. Regression results utilizing the system GMM estimator

Panel A: Model estimation results				
Variables	***Coefficient***	***Standard error***	***t-statistic***	***Prob.***
GDPG(-1)	0.415	0.044	9.366**	0.000
ROA	0.071	0.027	2.594*	0.010
ROE	7.930	3.224	2.459*	0.015
NIM	-1.658	0.558	-2.972**	0.003
BANKZ	-0.808	0.392	-2.060*	0.041
INFL	-1.952	0.638	-3.060**	0.002
PIS	-1.684	0.293	-5.738**	0.000
Panel B: Diagnostic statistics				
	Chi-squared statistic		***Prob.***	
Hausman test	31.87		0.000	
	Order	***m-statistic***	***Prob.***	
Arellano-Bond	(1)	-0.926	0.036	
	(2)	1.004	0.3015	
Sargan test	0.962			
Number of groups (N)	18			
Number of instruments (L)	14			

*Note: ** and * mean significance at levels 1% and 5%, respectively.*
Source: Authors' elaboration.

4.4. Additional robustness checks

To enhance the effectiveness of study outcomes, we conducted a deep analysis of the association between variables of bank competency and the advancement of the economy. It should be emphasized that tables are not displayed due to their space consumption. Initially, we also studied whether the association between the competency of banks (*ROA, ROE*, and *NIM*) and control variables (*INFL, BSZ, PIS*) and the advancement of the economy is nonlinear. Thus, square terms of all variables were included in Eq. (1). Analysis of static effects of modified Eq. (1) showed that there were insignificant coefficients on any of the variables of the bank's competency or quadruple control of outcomes not presented in tables, which shows that the influence of the bank's competency on the economy is linear. In addition, we utilized alternative valuation measures for the scope of the bank by dividing it into intermediary groups of overall assets. In the end, we re-estimated the main test. Despite this, the main results continued to be similar to those presented in Table 4.

5. DISCUSSION OF FINDINGS

As shown in Table 4, outcomes of self-reliant tests, specifically, AR (1), AR (2), and Arellano-Bond tests. AR (1) test examines first-order self-relay in varied differentials and indicates that the existence of this transmission does not affect the consistency of the GMM approach. AR (2) test, on the other hand, examines second-order self-succession and fails to reject H_0, demonstrating the nonappearance of substantial secondary self-succession. These findings from Table 3 support an appropriate GMM approach to analyzing the influence of banks' competency on economic development in this research.

In this study, we scrutinized the link between ROA, ROE, NIM, and Iraqi fiscal advance for the period from 2010 to 2023. The study's analysis of the link between bank competency indicators and fiscal advance included variation of panel GMM tests. Empirical outcomes are blended in nature, although there is a negative effect for inflation, bank scope, and political instability on economic growth, as the coefficients of bank scope, inflation, and political instability were -1.952, -0.808, and -1.684, respectively, which are significant and negative.

Findings of the analysis defend the first hypothesis (*H1*), that ROA positively influences economic growth; the coefficient attained is 0.415, which is substantial and positive. Moreover, our findings support outputs acquired are consistent with outcomes concluded by those defending how good fiscal activities support and foster fiscal advance findings (Ledhem & Mekidiche, 2020; Alkhazaleh, 2017). Plausible reason behind this finding when a bank obtains a high percentage of ROA, it will participate in economic growth.

Moreover, the regression findings of Table 4 demonstrate that ROE is significantly correlated with economic growth in Iraq. Findings of the analysis affirm the second hypothesis (*H2*). Positive impact of ROE on fiscal advance is consistent with the past background that determines a positive relation (Ledhem & Mekidiche, 2020). Furthermore, concerning other explanatory variables, NIM has a substantial adverse correlation with inflation and fiscal advances in Iraq. The findings of the analysis again confirm the third hypothesis (*H3*). The adverse influence of NIM on economic growth is in line with prior studies that found a negative impact (Alam et al., 2021; Saeed et al., 2018). Therefore, *H3* about the adverse influence of NIM on economic growth is accepted.

6. CONCLUSION

The analysis of bank performance effects on economic expansion serves two essential purposes. Banks maintain profitability as their main goal while using ROA, ROE and NIM to evaluate their financial stability. The emerging economy of Iraq stands as a special case because it operates through relationship-based systems within a weak political system that faces substantial corruption levels. The research investigates whether better bank performance leads to economic expansion in this particular environment which differs from standard bank profitability assessment. The research proves that Iraqi economic growth directly depends on bank profitability through ROE and ROA measurements. The NIM shows a statistically significant negative relationship which proves that financial intermediation becomes less effective while becoming more expensive. The research shows that economic growth depends on bank profitability expansion but banks need to make major organizational changes to their financial systems to solve existing issues. The research requires immediate implementation of unified policies which will boost banking performance and establish sustainable economic growth. The research evaluates bank performance through accounting metrics (ROA, ROE and NIM) but excludes economic and market-based indicators because it only studies conventional banks due to missing data. Research should conduct international comparisons to understand how national environments influence bank performance effects on economic growth. Future studies should assess bank performance by using economic value added (EVA) and price-to-earnings ratio metrics.

The research should focus on three critical domains to develop from these important research results. The research should perform detailed comparative analyses between economies with comparable characteristics to determine how banking health impacts economic growth across different geographic regions. Future studies should adopt EVA and price-to-earnings ratios as performance metrics because conventional accounting metrics present particular constraints. The evaluation method will produce more accurate results for bank efficiency assessment and intrinsic value determination. The research should investigate additional financial institutions as part of its expanded investigation. The research will gain a full comprehension of financial sector contributions to sustainable economic development in Iraq through investigations of Islamic banks and microfinance organizations and alternative financial institutions.

Research findings show that bank profitability stands as the essential factor for achieving complete success while banking sector performance directly impacts Iraq's economic development. The establishment of a complete policy framework which supports market development and financial innovation and smart regulation will create a major transformation in the industry. The post-conflict rebuilding period needs this framework to build a banking sector that functions as a dynamic economic growth driver for inclusive development with enduring expansion.

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