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COMPARATIVE ANALYSIS OF BANK-BASED AND MARKET-BASED FINANCIAL SYSTEMS ON GDP GROWTH: EVIDENCE FROM IRAQ

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Abstract
This study examines the effects of bank-centered and market-centeredfiscal systems on Iraq's GDP growth through 1990 to 2023. The objective is to comparatively analyze the short- and long-lasting effects of these systems on economic growth using ARDL model. Data are sourced from financial indicators of Iraqi banks and the Iraq Stock Exchange (ISX). Findings reveal that the banking sector is of a positive but short-term effect on economic growth, whereas the capital market shows a more consistent contribution in both the short and long term. These results highlight institutional and regulatory challenges in the banking sector and the growing role of capital markets in Iraq's economy. To support sustainable economic growth, policymakers should enhance banking sector performance and promote capital market improvement. This paperhelps in understanding the role of financial systems in enhancing economies and offers directions for future research.

Keywords: Financial Structure, Bank-Based, Market-Based, GDP Growth, ARDL.
JEL Classification:O16, G10, G22, C32

1. Introduction

The correlation ship among fiscal development and economic growth was controversial for years. Some, including Schumpeter (1911), argue that fiscalgrowth drives economic growth by facilitating resource allocation and fostering innovation (Schumpeter, 1911). However, other studies report conflicting results, finding either a reverse relationship or no significant link (Nyasha & Odhiambo, 2015; Levine, 2005). These inconsistencies raise critical questions: What factors shape the relationship among financial systems and economic growth? Under what conditions does financial development promote sustainable growth? And how does the structure of financial systems, bank-centered or market-centered—influence this relationship?

A primary reason for these mixed findings is the variation in measuring financial development. Some studies focus on indicators like the magnitude and goings-on of the banking (King & Levine, 1993), while others examine capital market growth (Demirgüç-Kunt & Levine, 2001). A state'sfiscal system structure, bank-centered, where banks dominate savings mobilization and credit allocation, or market-centered, where fiscal markets like stock and bond markets channel resources—significantly affects economic performance (Levine & Zervos, 1998). Bank-based systems typically support tiny and mid-sized enterprises via close relationships and accessible credit

(Beck & Levine, 2004). In contrast, market-based systems cater to larger firms by offering diverse investment opportunities and broader access to capital (Demirgüç-Kunt & Maksimovic, 1998). These structural differences have implications for resource allocation, risk management, and the distribution of economic benefits.

Theoretical perspectives also diverge. The finance-growth nexus, rooted in Schumpeter's work, stresses on the contribution of fiscal systems in funding innovation and entrepreneurship (King & Levine, 1993). Bank-based theories claim that banks probably are more operational in less developed economies with weak institutions due to their ability to monitor borrowers and mitigate information asymmetries (Gerschenkron, 1962). Conversely, proponents of market-based systems contend that they optimize resource allocation by enhancing transparency, reducing transaction costs, and fostering competition (Boot & Banerjee, 1993). Yet, choosing between these models remains challenging for policymakers in developing states, in which local evidence is often rare.

In Iraq, the economy is heavily reliant on oil revenues, and the financial sector faces challenges such as political instability, weak regulations, and fragile institutions (World Bank, 2019). Iraq's banking sector underwent reforms post-2003, including establishing of an independent central bank and the growth of private banks to 27 by 2021 (Central Bank of Iraq, 2021). However, the sector's efficiency is hampered by state-dominated banks, corruption, and limited financial innovation (Al-Tamimi, 2019). Meanwhile, the Iraq Stock Exchange (ISX), evolving from the Baghdad Stock Exchange since 2004, has seen significant growth. Traded shares increased over tenfold between 2004 and 2023, reflecting rising activity across industrial, financial, and service sectors (Iraq Stock Exchange, 2023). Yet, the capital market remains small and underdeveloped, playing a limited role in financing economic growth.

Despite these developments, few studies have explored how financial system structure impacts Iraq's economic growth. The majority ofstudies examines the general finance-growth correlation but overlooks the discrepancyamong bank-centeredand market-centeredsystems (Haidar, 2018). The study addresses this gap by answering: Which fiscalconstruction—bank-centeredor market-centered,has a stronger role in supporting Iraq's GDP growth from 1990 to 2023? Thepaper is significant because it seeminglyprovides empirical evidence for policymaking in oil-dependent, developing economies and aids policymakers in designing effective financial strategies.

The study's contribution is threefold: first, it offers experiential evidence regarding the effects of fiscal structure on growth in Iraq's unique context; second, it provides insights for policymakers to strengthen the financial sector; and third, it fills a research gap by focusing on fiscal system comparisons in a developing economy. The objectives include analyzing the non-lasting- and lasting-term effects of bank-based and market-based systems on GDP growth using the ARDL model and identifying institutional and regulatory challenges constraining financial sector performance.

The current study is undoubtedly structured as follows: Section 2 literature review, Section 3 methodology and data, Section 4 analyzes the results, and Section 5 provides conclusions and policy recommendations.

2. Literature Review

2.1 Theoretical foundations

Financial systems are critical in modern economies, channeling savings into productive investments, supporting corporate finance, facilitating risk-sharing, and smoothing

consumption (Levine, 1997). However, financial system structures vary globally: the U.S. and U.K. exemplify market-centeredsystems, while Germany, France, and Japan follow bank-based models (Demirgüç-Kunt & Levine, 2001). This diversity sparks debates about the efficiency and suitability of each system for different economic contexts. This study examines four key aspects of financial systems' impact on economic growth: (A) information production, (B) corporate governance, (C) risk diversification, and (D) capital allocation.

Three main theories guide this discussion. The bank-based theory emphasizes banks' role in reducing information asymmetries bylasting-term links and monitoring, active in economies with weak institutions (Gerschenkron, 1962; Diamond, 1984). Banks mitigate agency problems by assessing credit and managing risks (Ramakrishnan & Thakor, 1984; Boot & Thakor, 1997). Conversely, the market-based theory highlights competitive markets' benefits in enhancing transparency, fostering innovation, and providing superior risk management tools (Holmström & Tirole, 1993; Levine, 1991). The financial services theory transcends this dichotomy, arguing that the quality of financial services—such as investment evaluation and savings mobilization—matters more than system type (Merton & Bodie, 1995). The law and money perspective underscores the prominence of legal infrastructure in enhancing financial system efficiency (LaPorta et al., 1998).

A. Information Production

Banks reduce adverse selection and moral hazard through private information collection and long-term client relationships, particularly for small firms (Petersen & Rajan, 1994; Gambacorta et al., 2014). However, lack of transparency and potential misuse of information pose challenges (Aghion & Bolton, 1997). Market-based systems enhance transparency through public disclosure and pricing signals but may suffer from short-termism and information noise (Fama, 1970; Shiller, 2003). Allen and Gale (2000) argue that markets excel at aggregating diverse views, though competitive pressures may reduce information accuracy.

Table 1. Comparative Strong and Weak Points of Bank-centeredvs. Market-centeredSystems in Information Production

System Type	Strengths	Weaknesses
Bank-Based System	- Centralized private information (Berger & Udell, 1998) - Relationship banking and monitoring (Petersen & Rajan, 1994; Diamond, 1984)	- Lack of transparency (Aghion & Bolton, 1997) - Risk of misuse of private information (Hellwig, 1991; Rajan, 1992)
Market-Based System	- Public disclosure and transparency (Healy & Palepu, 2001) - Market efficiency in reflecting information (Fama, 1970) - Speed and accessibility for investors	- Short-term orientation (Lakonishok et al., 1994) - Information noise due to decentralization (Shiller, 2003)

B. Corporate Governance

Banks mitigate agency problems through monitoring and loan conditionality (Caprio & Levine, 2002). However, excessive control may limit managerial flexibility (Berger & Udell, 1995). Market-based systems promote governance through voting rights and

takeovers but may encourage short-termism (Shleifer & Vishny, 1997). Table 2 compares these systems' governance aspects.

Table 2. Comparison of Bank-centeredand Market-centeredSystems in Corporate Governance

System Type	Strengths	Weaknesses
Bank-centeredSystem	Strong monitoring, reduced agency problems (Caprio & Levine, 2002)	Limited managerial flexibility (Berger & Udell, 1995)
Market-Based System	Voting rights, takeovers (Shleifer & Vishny, 1997)	Short-term orientation (Lakonishok et al., 1994)

C. Risk Diversification

Banks provide long-term risk-sharing by pooling funds but may avoid innovative projects (Allen & Gale, 2000). Markets offer flexible risk-sharing through securitization but struggle with non-diversifiable risks (European Commission, 2015). Table 3 summarizes this aspect.

Table 3. Comparison of Bank-centeredand Market-centeredSystems in Risk Diversification

System Type	Strengths	Weaknesses
Bank-centeredSystem	Long-term risk-sharing (Allen & Gale, 2000)	Avoidance of innovative projects (Allen & Gale, 2000)
Market-Based System	Flexible risk selection (European Commission, 2015)	Weakness in non-diversifiable risks (Allen & Gale, 2000)

D. Capital Allocation Efficiency

Banks allocate capital to long-term projects through stable funding (Levine, 2005). Markets provide quick access to diverse resources, supporting innovation (Higgins, 2005). Table 4 summarizes this aspect.

Table 4. Comparison of Bank-centeredand Market-centeredSystems in Capital Allocation Efficiency

System Type	Strengths	Weaknesses
Bank-Based System	Stable funding for long-term projects (Levine, 2005)	Slow response to market changes (Berger & Udell, 1995)
Market-Based System	Quick access to diverse resources, supports innovation (Higgins, 2005)	Price volatility (Shiller, 2003)

2.2 Empirical Studies

Table 5 summarizes key empirical studies. Rajan and Zingales (1998) used cross-sectional analysis to show stronger growth in businesses reliant upon outer finance in states with developed fiscal systems. Demiirgüç-Kunt and Levin (1999) found a positive correlation among market-centeredsystems and growth using cross-country regression.

Back et al. (2000) confirmed both systems' positive impact via panel data analysis, with market-based systems being more efficient. Mazur and Alexander (2001) used OLS and Engle-Granger methods to show banking's positive effect on production in New Zealand. Levine (2002) and Naceur and Omran (2011) highlighted market-based systems' superiority in growth and innovation financing. Gambacorta et al. (2014) used VAR analysis to show both systems' contributions. Nyasha and Odhiambo (2015) and Al-Salamat and Al-Ziadat (2023) applied the ARDL model, finding bank-based systems effective in South Africa and market-based systems in Saudi Arabia. Dorjdagva et al. (2024) found no direct stock market impact using VAR and Granger causality.

Table 5. Summary of empirical studies

Study	**Period**	**Sample**	**Methodology**	**Key Findings**
Rajan & Zingales (1998)	1980-1991	41 industries across countries	Cross-sectional analysis	Stronger growth in businessesreliant upon outer finance in countries with developed fiscal institutions.
Demirgüç-Kunt & Levine (1999)	1980-1995	145 countries	Cross-country regression	Positive correlation among market-centeredsystems and higher economic growth rates.
Beck et al. (2000a)	1960-1995	72 countries	Panel data analysis	Both bank-based and market-based systems positively influence economic growth, but market systems are more efficient.
Mazur & Alexander (2001)	1970-1996	New Zealand	Time series analysis (OLS & Engle-Granger)	Banking sector development positively affects production levels but not growth or savings.
Demirgüç-Kunt & Maksimovic (2002)	1989-1996	40 countries (company-level)	Cross-country regression	Stock markets support long-term financing and economic growth, while banks are more linked to short-term finance.
Levine (2002)	1980-1995	50 countries	Regression analysis	Market-based financial systems typically result in higher economic growth.
Naceur & Omran (2011)	1990-2005	9 MENA countries	Panel data analysis	Market-based systems contribute to faster growth, especially in innovation financing and savings mobilization.
Demirgüç-Kunt et al. (2011)	1990-2009	100 countries	Cross-country regression	Market-based systems lead to stronger economic growth in comparison to bank- centeredsystems in developed and in-progress

				economies.
Gambacorta et al. (2014)	2001-2011	41 countries (high/low income)	Comparative analysis (VAR)	Both systems help growth, but beyond a certain point, neither banking nor market financing boosts real growth.
Nyasha & Odhiambo (2015)	1980-2012	South Africa	ARDL method	Positive correlationamong bank- centeredfinance improvement and economic growth; no clear relationship with market-based finance.
Mosuri et al. (2021)	1999-2019	EU countries	Panel data analysis	Market- centeredfinance is furtheractive than bank-centeredfinance in aiding non-financial companies' growth.
Xu et al. (2021)	2005-2018	Provinces of China	Threshold autoregression	U-shaped correlationship among financial system structure and capital allocation efficiency.
Liu et al. (2022)	2006-2020	China	Correlation and cross-correlation analysis	Market-based financial structures increase financial risk, while bank-based systems reduce it.
Al-Salamat & Al-Ziadat (2023)	1990-2021	Saudi Arabia	ARDL approach	Market- centeredfinance development is of a positive effectupon economic growth; bank-centeredfinance's impact is unclear.
Tan (2023)	1990-2020	Asia-5 & OECD-18 countries	Panel data analysis (PCSE)	Banking activities are significant drivers of growth; stock market activities further enhance economic growth in certain states.
Dorjdagva et al. (2024)	1995-2020	Post-socialist & China	VAR & Granger causality analysis	No direct effect of stock market development on economic growth.
Knio & Hoomani (2024)	1990-2024	Saudi Arabia	Johansen cointegration test	Both banking and stock market development positively influence long-term economic growth in Saudi Arabia.

Most studies focus on international or developed economies, with limited evidence on oil-dependent economies like Iraq (Haidar, 2018). This study uses ARDL to analyze statistics from 1990 to 2023, addressing this gap by examining financial structure's impact on Iraq's growth.The proposed framework includes independent variables (banking and capital market indicators) and the dependent variable (GDP growth), analyzed via ARDL. It illustrates non-lasting- and lasting-term effects and the role of institutional factors.

3. Methodology

3.1 Research model

This study examines the impact of bank-centered and market-centeredfiscal structures on Iraq's GDP growth through 1990 to 2023. (ARDL) model is employed because of to its ability to model both non-lasting- and lasting-term relationships among variables, particularly in small samples and with non-stationary data (Pesaran & Shin, 1999).

Drawing on Arestis et al. (2010), who used a Cobb-Duoglas production function to assess fiscal structure's effect on output growth, the following model is specified:

$$Ln\left(\frac{Q}{L}\right)_t = \beta_0 + \beta_1 Ln\left(\frac{K}{L}\right)_t + \beta_2 LnStr_t + \varepsilon_t \quad (1)$$

In which:

- Q represents the total output level,
- L represents labor,
- K represents the capital stock, and
- Str represents the financial structure (the ratio of the value of shares traded on the stock market to the loans provided by banks).

Ln represents the variables'natural logarithm, and based on this model, if $\beta_2 < 0$, it can be concluded that a change in the financial structure from bank-centered to market-centered has negative impacts on production growth. The limitation of this model is that it does not consider the case where both types of fiscal systems (bank- centered and market- centered) are of positive effects on production growth. Therefore, in this study, based on this model, the following equation has been used to investiagte the impacts of fiscal structure on production growth and to compare the effects of bank-based and market-based financial structures.

$$Ln(GDP)_t = \beta_0 + \beta_1 Ln(FC)_t + \beta_2 Ln(L)_t + \beta_3 LnFB_t + \beta_4 LnFM_t + \varepsilon_t \quad (2)$$

In which:

- GDP:at constant 2015 prices, representing economic growth (World Bank, 2023).
- L:Labor force, under measurement by the total of employed individuals (International Labour Organization, 2022).
- FC:Gross fixed capital formation at constant 2015 prices, indicating investment (Levine, 2002).
- FB:Ratio of commercial bank assets to GDP, capturing the banking sector's size (Beck et al., 2000).
- FM: Ratio of the total value of listed companies' shares on the Iraq Stock Exchange to GDP, reflecting capital market size (Demirgüç-Kunt & Levine, 1999).
- ε_t: Error term

The natural logarithm (Ln) is applied to reduce heteroskedasticity and improve coefficient interpretability (Gujarati, 2013). The variables (FB) and (FM) are chosen to

directly make comparisons to bank-centered and market-centered systems, addressing the limitation of Arestis et al. (2010), whose model (using the ratio of stock market traded value to bank loans) did not account for both systems' simultaneous positive effects. These proxies align with prior studies like Levine (2002) and Naceur and Omran (2011).

(FC) represents physical investment, a key part of economic growth (King & Levine, 1993). Labor (L) is included due to its role in production (Romer, 1999). (FB) reflects the banking sector's dominance, critical in developing economies like Iraq (Beck et al., 2000). (FM) captures the growing contribution of the capital market, relevant given the Iraq Stock Exchange's recent development (Iraq Stock Exchange, 2023). These choices are supported by studies like Demirgüç-Kunt and Maksimovic (2002), which used similar proxies.

Data are sourced from the Central Bank of Iraq's annual reports and the World Bank database for 1990–2023, covering structural changes in Iraq's financial sector post-2003. All data are adjusted to constant 2015 prices for consistency.

3.2 Analytical Method

ARDL is selected for being flexible with mixed-order integration (stationary or non-stationary) data (Pesaran et al., 2001). The analysis follows these steps:

A. Stationarity Tests

- (ADF) and Phillips-Perron (PP) tests ensure variables are not integrated of order two (I(2)), a prerequisite for ARDL (Engle & Granger, 1987).
- Lag Selection: The (AIC) determines optimal lag length, balancing model fit and complexity (Shumway, 1999).
- Model Estimation: The ARDL model, estimated using EViews, captures non-lasting-term (differenced) and lasting-term (level) associations.

B. Diagnostic Tests

- Model Stability: CUSUM and CUSUMSQ tests verify coefficient stability (Brown et al., 1975).
- Serial Correlation: The Breusch-Godfrey test checks for no serial correlation in residuals (Godfrey, 1978).
- Heteroskedasticity: The Breusch-Pagan-Godfrey test confirms homoskedasticity (Pagan, 1980).
- Residual Normality: The Jarque-Bera test assesses residual normality (Jarque & Bera, 1987).

C. Cointegration Test

- The Pesaran et al. (2001) bounds test maintains a lasting-term relationship among variables.

These tests ensure the model's statistical validity. Findings are stated in the results section.

4. Findings

4.1. Descriptive Statistical Analysis and Relationships Between Variables

Descriptive statistical analysis was conducted for the variables: logarithm of Gross Domestic Product (LnGDP), logarithm of Gross Fixed Capital Formation (LnFC), logarithm of Labor Force (LnL), logarithm of the ratio of commercial banks' assets to GDP (LnFB), and logarithm of the ratio of stock market value to GDP (LnFM). This analysis is crucial for understanding the distribution, volatility, and initial relationships

of variables in Iraq's oil-dependent economy, marked by political instability and post-2003 reconstruction (Central Bank of Iraq, 2023).

Table 6 presents descriptive statistics for 1990–2023 (34 observations). The mean of LnGDP is 10.989 with a standard deviation of 0.263, indicating stable economic growth with low volatility, likely due to oil revenue dependence (Haidar, 2018). Conversely, LnFChas a mean of 9.909 and a higher standard deviation of 0.625, reflecting greater volatility linked to post-war reconstruction and intermittent infrastructure investments. The labor force (LnL) is stable, with a mean of 6.845 and a standard deviation of 0.137. In the financial sector, the mean of LnFB (1.385) exceeds that of LnFM (0.512), highlighting the banking sector's dominance over the stock market in Iraq's financial system. Standard deviations of 0.259 (LnFB) and 0.272 (LnFM) indicate moderate volatility, consistent with the Iraq Stock Exchange's gradual development and banking liquidity challenges (Iraq Stock Exchange, 2023).

Table 6: Descriptive Statistics of Variables

Index	LnGDP	LnFC	LnL	LnFB	LnFM
Mean	10.98929	9.908871	6.844750	1.385150	0.512117
Median	11.01205	10.09108	6.837305	1.385149	0.570850
Maximum	11.30485	11.27466	7.069826	1.954243	1.012737
Minimum	10.34814	8.522476	6.618048	0.691566	-0.084624
Std. Dev.	0.262700	0.624667	0.136962	0.259314	0.271999
Skewness	-0.714456	-0.322046	-0.035001	-0.177325	-0.442827
Kurtosis	2.582176	2.510021	1.826949	3.973525	2.646089
Jarque-Bera	3.139849	0.927824	1.956343	1.520830	1.288651
Probability	0.208061	0.628819	0.375998	0.467472	0.525016
Sum	373.6359	336.9016	232.7215	47.09511	17.41198
Sum Sq. Dev.	2.277371	12.87690	0.619035	2.219040	2.441462
Observations	34	34	34	34	34

Negative skewness indicates left-tailed distributions, possibly due to economic downturns (e.g., sanctions or conflicts). Kurtosis values (1.827–3.974) suggest near-normal to slightly heavy-tailed distributions. The Jarque-Bera test (probability > 0.20) confirms normality, a prerequisite for econometric analysis (Gujarati, 2013).

Covariance analysis for 1997–2023 (27 observations) in Table 7.

Table 7: Covariance Analysis of Variables

Covariance Probability	LnGDP	LnFC	LnL	LnFB	LnFM
LnGDP	0.025522				

LnFC	0.064318	0.240373			
	0.0000	-----			
LnL	0.015734	0.044496	0.011075		
	0.0000	0.0000	-----		

LnFB	0.022199	0.061910	0.016551	0.044478	
	0.0002	0.0010	0.0000	-----	
LnFM	0.012491	0.017799	0.009356	0.027206	0.050825
	0.0763	0.4223	0.0418	0.0018	-----

Positive covariances indicate direct relationships. Strong correlations ($p < 0.01$) between (LnGDP) and (LnFC), (LnL), and (LnFB) highlight the impacts of investment, labor, and banking on economic growth. The correlation between (LnGDP) and (LnFM) is weakly significant ($p = 0.076$), suggesting a limited stock market impact, likely due to the Iraq Stock Exchange's underdevelopment (Al-Salamat & Al-Ziadat, 2023). The significant covariance between (LnFB) and (LnFM) reflects interaction between banking and stock markets, consistent with their concurrent growth post-2003.

Scatter plots (Figures 1 and 2) confirm positive relationships between (LnGDP) and (LnFB) and (LnFM), with a stronger relationship for (LnFB). Time-series plots for (LnFB) and (LnFM) are recommended to explore financial sector trends against economic shocks (e.g., sanctions or conflicts).

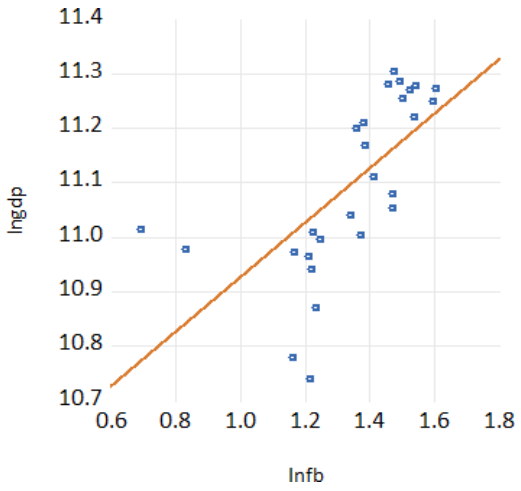

Figure 1: AssociationamongLn(GDP) and Ln(FB)

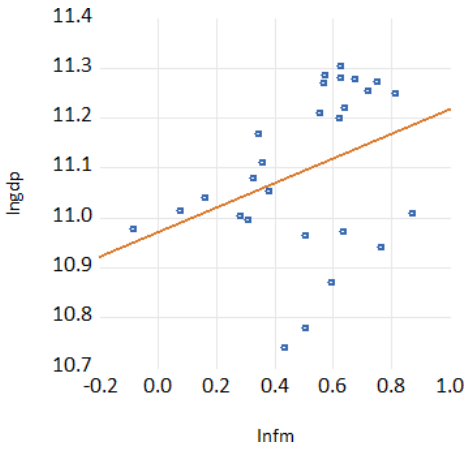

Figure 2: AssociationamongLn(GDP) and Ln(FM)

4.2. ARDL Model Estimation

The Augmented Dickey-Fuller (ADF) test confirmed that entire variables are somewhatstationary at first difference (I(1)), satisfying ARDL requirements (Pesaran et al., 2001), as shown in Table 8.

Table 8: Augmented Dickey-Fuller Unit Root Test Results

Variable	Level t-Statistic	Prob.	First Difference t-Statistic	Prob.
Ln(GDP)	-0.928	0.76	-6.032	0.00
Ln(FC)	-1.560	0.48	-5.535	0.00
Ln(L)	1.053	0.99	-4.932	0.00
Ln(FB)	-0.889	0.77	-5.033	0.00
Ln(FM)	-2.884	0.06	-5.303	0.00

Diagnostic tests (Table 9) confirm normal error distribution and no heteroskedasticity. However, autocorrelation (p = 0.00) was detected, likely due to time-series data, economic shocks (e.g., sanctions, instability), or limited sample size (34 observations). The (HAC) estimator was applied to correct the variance-covariance matrix (Newey, 1987), suitable for Iraq's shock-prone economy.

Table 9: Diagnostic Test Results

Test	Statistic	Probability
Jarque-Bera Normality Test	0.16	0.91
Breusch-Godffrey Autocorrelation Test	7.80	0.00
Breusch-Pagan-Godfrey Heteroscedasticity Test	0.85	0.60

4.3 Short-Run Estimation

The ARDL(4,1,0,3,0) model, chosen via Hannan-Quinn criterion, is presented in Table 10.

Table 10: Short Run ARDL Estimation Results

Variable	Coefficient	Standard Error	t-Statistic	Probability
LnGDP(−1)	-0.114	0.159	-0.720	0.48
LnGDP(−2)	0.452	0.112	4.009	0.00
LnGDP(−3)	0.008	0.124	0.068	0.94
LnGDP(−4)	-0.262	0.059	-4.434	0.00
LnFC	0.035	0.020	1.748	0.10
LnFC(−1)	0.070	0.039	1.803	0.09
LnL	0.621	0.328	1.890	0.07
LnFB	-0.171	0.044	-3.838	0.00
LnFB(−1)	0.097	0.061	1.589	0.13
LnFB(−2)	0.350	0.100	3.493	0.00
LnFB(−3)	-0.160	0.057	-2.799	0.01
LnFM	0.126	0.039	3.232	0.00
C	4.606	1.399	3.291	0.00
F-statistic (prob) =80.11 (0.00)				
Adjusted R^2= 0.97				
Durbin-Watson=2.90				

The significant coefficients of LnGDP(-2) and LnGDP(-4) indicate strong temporal dynamics. LnFC and LnFC(-1) show positive, weakly significant coefficients (p <

0.10), suggesting limited short-term investment impact, possibly due to delays in infrastructure projects (Demirgüç-Kunt & Maksimovic, 2002). LnL is significant at 10%, confirming labor's role. LnFB is of a significant negative effect ($p < 0.01$) in the current period, likely due to banking inefficiencies or non-performing loans, but a positive effect at lag two, reflecting delayed credit allocation to productive sectors. The negative effect at lag three may stem from rising defaults or regulatory weaknesses (Haidar, 2018). LnFM is of a significant positive effect ($p < 0.01$), though weaker than banking, confirming the stock market's role in short-term growth.

4.4 Long-Run Estimation and Cointegration

The ARDL bounds test (Table 11) confirms a long-run relationship (F-statistic = 9.58, exceeding the 1% critical bound of 4.37).

Table 11: Long-Run ARDL Estimation Results

Variable	Coefficient	Standard Error	t-Statistic	p-Value
Ln(FC)	0.115	0.035	3.24	0.00
Ln(L)	0.677	0.29	2.27	0.03
Ln(FB)	0.127	0.08	1.46	0.16
Ln(FM)	0.137	0.04	3.42	0.00
C	5.02	1.64	3.045	0.00

Long-run estimation results are presented in Table 12.

Table 12: Long-Run ARDL Estimation Results

Test Statistic	Value	Signif.	I(0)	I(1)
F-Statistic	9.579317	10%	2.20	3.09
		5%	2.56	3.49
K	4	2.5%	2.88	3.87
		1%	3.29	4.37

Ln(FC) and Ln(L) have positive, significant effects ($p < 0.05$), confirming their role in long-run growth. Ln(FM) is significant ($p < 0.01$), aligning with Levine's (2002) hypothesis on financial markets' role. However, Ln(FB) is insignificant ($p = 0.16$), possibly due to structural inefficiencies, non-performing loans, or weak banking regulations in Iraq (Al-Salamat & Al-Ziadat, 2023). The contrast between short-run (mixed effects for Ln(FB) and long-run (insignificance) suggests delayed banking impacts, exacerbated by institutional constraints and oil dependency.

The Error Correction Model (ECM) in Table 13 shows a significant error correction term (-0.91,$p < 0.01$), indicating rapid adjustment of short-run deviations.

Table 13: Error Correction Model Estimation

Variable	Coefficient	Standard Error	t-statistic	p-value
D(LnGDP(-1))	-0.19	0.077	-2.53	0.02
D(LnGDP(-2))	0.25	0.070	3.58	0.00
D(LnGDP(-3))	0.26	0.071	3.69	0.00
D(LnFC)	0.035	0.017	2.042	0.06
D(LnFB)	-0.17	0.043	-3.94	0.00
D(LnFB(-1))	-0.18	0.051	-3.71	0.00
D(LnFB(-2))	0.16	0.047	3.40	0.00
CointEq(-1)	-0.91	0.103	-8.83	0.00

CUSUM and CUSUMSQ tests(figure 3) confirm model stability, as test statistics remain within 5% critical bounds, indicating resilience to Iraq's economic shocks.

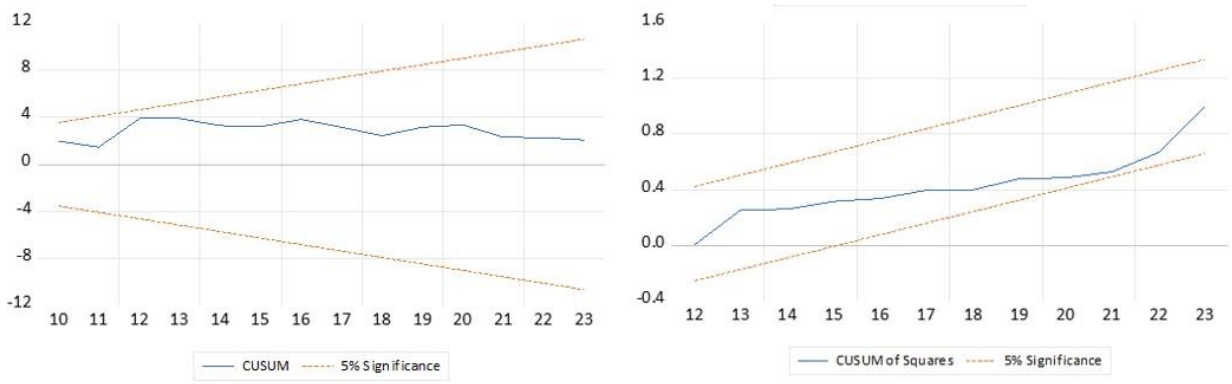

Figure 3: The findings of the CUSUM and CUSUM of Squares tests

5. Conclusion

Thepaper aimed to investigate the impact of bank-centered and market-centered financial structures on Iraq's economic growth. The findings reveal a prominent role for the stock market in comaprison to the banking in driving (GDP) growth from 1990 to 2023, diverging from prior studies like Diamond (1984) and Levine (2002), which emphasize banks' dominance in developing economies. This result addresses a research gap identified in the literature review, where limited studies exist on oil-dependent economies like Iraq, particularly post-2003 reconstruction (Al-Salamat & Al-Ziadat, 2023).

The banking sector's limited impact can be attributed to structural challenges. Inefficiencies in financial intermediation, high rates of non-performing loans, and lack of competition in the predominantly state-controlled bank system hinder effective credit allocation to productive sectors (Beck et al., 2000). Weak institutional oversight, inadequate regulations, and widespread reliance on informal credit mechanisms further exacerbate these issues (Haidar, 2018). These findings align with the study's objective to identify institutional barriers in Iraq's financial system.

Conversely, Iraq's stock market, though small, exhibits a positive and significant effect on economic growth. This is likely due to firms bypassing banking inefficiencies by raising capital through equity markets, consistent with Demirgüç-Kunt and Levine (1999), who highlight capital markets' role in supporting innovation and resource allocation in institutionally weak economies. These results underscore the prominence of developing financial markets for economic growth in contexts like Iraq.

To enhance the fiscal sector's effectsupon economic growth, targeted policy reforms are essential. For the banking sector, the following are recommended:

- **Strengthening regulatory frameworks:** Establishing independent regulatory bodies to oversee bank performance and reduce non-performing loans through stricter lending standards (Beck & Levine, 2004).
- **Increasing competition:** Encouraging private and foreign bank entry to reduce state-owned banks' dominance and improve credit allocation efficiency.

- **Expanding financial access:** Developing credit programs for small and mid-sized enterprises (SMEs) with subsidized interest rates and government guarantees to mitigate lending risks.

For the capital market, the following policies are proposed:

- **Encouraging public listings:** Offering tax incentives for firms listing on the Iraq Stock Exchange (ISX) to maximaize listed companies.
- **Enhancing transparency and governance:** Implementing international accounting standards and protective laws for investor to boost market confidence (Levine, 2002).
- **Attracting foreign investment:** Reducing foreign ownership restrictions and strengthening legal infrastructure for securities trading.

A hybrid approach integrating banks and capital markets could be effective for Iraq. For instance, developing investment banking and financial instruments like corporate bonds could combine the strengths of both systems. This goes with Beck et al. (2000), who advocate for complementary financial systems.

Study limitations include the limited sample size (34 observations), focus on specific financial indicators Ln(FB) and Ln(FM), and lack of detailed data on loan quality or stock market liquidity. Nextstudies could to some extentsprobe onto the impact of fiscal policies, debt markets, or external shocks (e.g., oil price fluctuations) on financial structure.

In conclusion, this study confirms that fiscal system development is a key partfor economic growth, but realizing its full potential in Iraq requires addressing structural and institutional barriers. These findings not only fill a research gap in oil-dependent economies but also provide actionable policy guidance to strengthen Iraq's financial sector.

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