

Exploring the Finance–Growth Nexus in MENA: A Dynamic Panel Approach with Institutional and Macroeconomic Variables

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Abstract:

The relationship between financial development and economic growth remains a central theme in contemporary economic research, particularly within developing regions. While several empirical studies highlight the role of the financial system as a driver of growth, others emphasize the risks posed by macroeconomic instability, including inflation. Moreover, this study specifically investigates how financial development interacts with inflation to influence economic growth in MENA countries between 1995 and 2024. Applying the dynamic panel GMM method, the results demonstrate a robust and statistically significant positive relationship between financial development -measured by banking credit expansion and financial market capitalization- and economic growth. Furthermore, the analysis reveals that inflation exerts a negative influence on growth, potentially offsetting the benefits of financial development when price instability persists. Over time, the interaction between financial development and inflation has become more pronounced, reflecting the importance of a stable macroeconomic environment for the effective functioning of financial systems. These findings imply that policymakers in the MENA region should implement financial sector reforms alongside sound monetary policies to ensure sustained and inclusive economic growth.

Keywords: *financial development; inflation; banks; financial markets; economic growth; MENA region; GMM; dynamic panel*

1. Introduction:

In recent decades, increasing attention has been devoted to understanding the relationship between financial development and the real economic sector, particularly in emerging and developing economies. Two dominant schools of thought frame this debate: the first posits that the expansion of the banking sector

and the deepening of financial markets foster economic growth through more efficient resource allocation, enhanced savings mobilization, and investment facilitation. The second, in contrast, highlights the macroeconomic risks associated with uncontrolled financial liberalization, which can lead to systemic crises and undermine growth.

Financial liberalization policies implemented in many countries since the 1990s aimed to invigorate banking systems and capital markets. However, these reforms have sometimes produced adverse effects, as illustrated by a series of financial and banking crises -including the Asian financial crisis of 1997, the global financial crisis of 2008, and more recently, disruptions linked to post-COVID-19 recovery and global inflationary pressures between 2021 and 2023. These episodes have underscored the substantial economic costs associated with unstable or ineffective financial intermediation.

The pro-finance literature finds its origins in the seminal works of McKinnon (1973) and Shaw (1973), complemented by Keynes and Hicks' insights on the role of financial markets in transforming savings into investment. More recent contributions, such as Levine (2005), Beck (2009), and Sahay et al. (2015), have provided empirical support for the notion that economies with more developed financial systems tend to experience higher and more sustained growth. However, this positive dynamic is not guaranteed. Faulty financial intermediation {characterised by significant information asymmetries} can hinder the efficient channelling of capital into productive sectors. These asymmetries, combined with high investor risk aversion and elevated transaction costs, may divert financial flows away from innovative but uncertain ventures, ultimately slowing down economic growth. Moreover, recent experiences of banking insolvency, particularly in several MENA countries, demonstrate that poorly regulated financial development can generate major

imbalances and threaten macroeconomic stability.

In this context, it becomes essential to reexamine the nature of the relationship between financial development and economic growth, while incorporating key macroeconomic variables such as inflation, which affects investment profitability, banking sector stability, and overall economic confidence.

2. Literature Review:

2.1. Theoretical Framework:

The relationship between financial development and economic growth has been a longstanding focus of economic theory, evolving from foundational contributions to more recent analyses that consider institutional quality, financial inclusion, and macroeconomic stability.

One of the earliest and most influential contributions came from R. King and R. Levine (1993), who established a strong empirical link between financial system development and GDP growth. Their work highlighted how a well-developed financial system facilitates capital accumulation and improves resource allocation. Similarly, Beck and Levine (2002) examined the complementary roles of banks and financial markets, arguing that both are crucial for economic development provided financial systems function efficiently, with minimal transaction costs and low information asymmetry.

Caporale, Howells, and Soliman (2004) further emphasized that well-functioning financial markets can stimulate economic performance by enhancing access to credit and investment opportunities. In the context of emerging economies, Shan and

Jianhong (2006) found a bidirectional relationship between financial development and economic growth in China, with labor income and financial expansion acting as mutual catalysts.

More recent studies have expanded the theoretical framework to incorporate new dimensions. Sahay et al. (2015), in an IMF working paper, emphasized that financial development must go together with financial stability. They introduced the concept of a "too much finance" threshold, beyond which additional financial deepening may harm growth due to resource misallocation and increased financial vulnerabilities.

Similarly, Cecchetti and Kharroubi (2012) showed that rapid financial sector growth can lead to a decline in productivity growth, particularly when finance draws resources away from more productive sectors. This "financial curse" hypothesis challenges the notion of a linear positive relationship between finance and growth.

In the context of digital transformation, recent research by Demirgüç-Kunt et al. (2022) highlights the role of financial technology (FinTech) and digital financial inclusion in expanding access to finance for underserved populations. Their findings suggest that innovation in financial services can reinforce economic growth, only if supported by strong regulatory and institutional frameworks.

Taken together, theoretical literature has evolved from a predominantly optimistic view of financial development to a more nuanced understanding that acknowledges both its benefits and potential risks. Effective financial systems can be a driver of economic growth, but only when

embedded within stable, inclusive, and well-regulated environments.

2.2. Empirical Evidence:

Recent empirical literature has revisited the finance-growth nexus using advanced econometric techniques, richer datasets, and broader conceptual frameworks. While many studies continue to confirm the positive relationship between financial development and economic growth, a growing body of research highlights its conditional and potentially non-linear nature.

For instance, Sahay et al. (2015), in a comprehensive study covering emerging markets, used panel GMM estimations and found that financial development enhances growth only when financial systems are inclusive and stable. Their findings emphasized that beyond a certain threshold, excessive financial deepening can lead to diminishing or even negative returns on economic performance.

More recent research by Barajas, Čihák, and Yousef (2020) found that financial development has a stronger impact in countries with higher institutional quality and lower inflation volatility. They emphasize that financial development does not operate in a vacuum it requires sound macroeconomic and regulatory environments.

In the context of Sub-Saharan Africa and MENA regions, Cherif and Dreger (2016) used panel cointegration methods and found that the positive effects of financial development on growth are more evident in the long run, but only when accompanied by human capital development and trade openness.

A study by Kim, Lin, and Suen (2019) applied threshold regressions to analyze whether there is a "sweet spot" of financial development. Their results suggest that while moderate financial development supports growth beyond a certain level (especially in countries with weak governance), the effect may be reversed due to inefficiencies and risks of financial fragility.

Digital finance has also become a new frontier in this empirical debate. Demirgüç-Kunt et al. (2022), based on the Global Findex Database, show that financial inclusion "especially via mobile money and digital banking" can significantly foster growth by increasing access to financial services among underserved populations. However, these benefits depend on digital literacy, financial education, and regulatory safeguards.

In line with these findings, Zins and Weill (2017) examined 37 African countries and concluded that financial inclusion, more than just financial depth, is crucial for pro-poor growth. Their results underline the importance of shifting attention from the size of the financial sector to its accessibility and functionality.

Lastly, the role of inflation and macroeconomic volatility has also been re-emphasized. Aghion et al. (2020) show that financial systems are most effective in environments with low and predictable inflation. High inflation can reduce the ability of financial institutions to mobilize savings and allocate capital efficiently.

In the context of the Gulf Cooperation Council (GCC) countries, a 2024 study analyzed the link between financial development and economic growth in

Oman, Qatar, and the United Arab Emirates from 2008 to 2021. Using the GMM estimator for linear dynamic panel data models, the study found a positive relationship between financial development and economic growth in these countries.

Furthermore, a 2024 study by Matei explored the relationship between financial development and economic growth in low-income countries. The study concluded that financial development has a beneficial impact on economic activity up to a certain point, beyond which the relationship turns negative, indicating a non-linear, inverted U-shaped relationship.

These recent studies underscore the complexity of the finance-growth nexus, highlighting the roles of financial inclusion, institutional quality, and non-linear dynamics. They suggest that while financial development can be a powerful engine of growth, its effectiveness is mediated by several structural and institutional factors, including inflation, political stability, regulatory quality, and the nature of financial liberalization.

3. Methodology:

The objective of this study is to investigate the empirical relationship between financial development and economic growth in a selected group of MENA countries. These countries were chosen for their representativeness of the region's economic, financial, and institutional diversity. The study covers the period 1995–2024, a time frame that captures key episodes of financial liberalization, structural reforms, and integration into global financial markets.

To estimate the dynamic relationship between financial development and economic performance, we employ the Generalized Method of Moments (GMM) estimator for dynamic panel data models, as developed by Arellano and Bond (1991) and further extended by Blundell and Bond (1998). This methodology is particularly suited for addressing potential endogeneity of explanatory variables, unobserved heterogeneity, and autocorrelation in the error term which are frequent challenges in growth regressions.

The choice of GMM is also supported by its successful application in recent empirical works on finance and growth (e.g., Sahay et al., 2015; Barajas et al., 2020). Furthermore, GMM allows for the inclusion of lagged endogenous variables, which is crucial given the persistence observed in economic growth rates and the cumulative nature of financial development.

The dataset used combines annual observations extracted from the World Bank's World Development Indicators (WDI, 2012). Complementary data were gathered from the IMF's International Financial Statistics (IFS), UNCTAD for trade openness measures, and central banks and national statistics offices for country-specific indicators. All data were harmonized to ensure comparability and consistency across countries and over time.

3.1. Model Specification:

Numerous econometric models have been proposed to study the complex relationship between financial development and economic growth. The present study adopts a model tailored to the specific characteristics of the MENA region, where

financial systems are often underdeveloped, and institutional quality varies considerably. The choice of variables and specification is guided both by theoretical foundations and empirical feasibility, aiming to capture the multidimensional impact of financial development on economic performance.

Building on the framework proposed by Samy N. and Samir G. (2007), we define the baseline model as follows:

$$\text{GDP}_{i,t} = \beta_0 + \beta_1 \text{CREDT}_{i,t} + \beta_2 \text{CAPT}_{i,t} + \beta_3 \text{IC}_{i,t} + \beta_4 \text{FLIB}_{i,t} + \beta_5 \text{OPNS}_{i,t} + \beta_6 \text{INF}_{i,t} + \beta_7 \text{IIP}_{i,t} + \varepsilon_i$$

Where the dependent variable represents the real GDP per capita growth rate. The explanatory variables include:

CREDIT: Domestic credit to the private sector (% of GDP), indicating the level of financial intermediation.

CAPT: Stock market capitalization (% of GDP), capturing the depth of capital markets.

IC: Institutional corruption (dummy variable), as a proxy for governance quality.

FLIB: Financial liberalization (dummy variable), reflecting policy openness.

OPNS: Trade openness, measured as the ratio of total trade (exports + imports) to GDP.

INF: Inflation rate, accounting for macroeconomic stability.

IIP: Political instability (dummy variable), indicating institutional fragility.

To address country-specific heterogeneity, temporal effects, and potential endogeneity, we utilize the Arellano and Bond (1991) dynamic panel GMM estimator. This methodology is appropriate for datasets with a short time span and a larger cross-sectional dimension. The

estimator applies a first-difference transformation to eliminate fixed effects and uses lagged levels of the endogenous variables as instruments.

In this dynamic framework, we include the lagged dependent variable to account for growth persistence and to control for autocorrelation in the growth process. The resulting dynamic model is expressed as:

$$\text{GDP}_{i,t} = \beta_0 + \beta_1 \text{GDP}_{i,t-1} + \beta_2 \text{CREDT}_{i,t} + \beta_3 \text{CAPT}_{i,t} + \beta_4 \text{LCI}_{i,t} + \beta_5 \text{FLIB}_{i,t} + \beta_6 \text{OPNS}_{i,t} + \beta_7 \text{INF}_{i,t} + \beta_8 \text{IIP}_{i,t} + \varepsilon_i$$

This enriched specification allows for a more realistic estimation of the relationship between financial development and economic growth by considering institutional and macroeconomic variables that influence both financial sector performance and overall economic outcomes.

3.2. Empirical Results and Discussion:

The results obtained from the estimation procedure, including the coefficients, standard errors, and significance levels, are presented in the table below. These findings serve as the empirical basis for the analysis and interpretation discussed in the subsequent section

Table 1. GMM Dynamic Panel Variable Regression

Variables	Coefficient	Std,Err	Z	P> Z
C	11,154	2,406	4,64	0
gdpt-1	0,180	0,076	2,35	0,019
credt	-0,075	0,019	-3,91	0
capt	0,0058	0,009	0,61	0,550
inf	-0,0174	0,022	-0,76	0,442
opns	0,0417	0,045	0,92	0,365
flib	-1,480	2,545	-0,59	0,562
iip	-3,041	1,132	-2,69	0,007
ic	-1,205	0,985	-1,22	0,221

Wald chi2 (8)
54,98
Prob > chi2
0
Nb of instruments
118

Instruments for differenced equation
GMM-type: L(2/).gdp

Standard:D.credt D.capt D.opns D.inf D.flib
D.iip D.ic Instruments for level equation
Standard: _cons

The regression output from the dynamic GMM estimation reveals nuanced insights into how various financial and macroeconomic variables influence economic growth in MENA countries. The key indicators are evaluated based on their estimated coefficients, standard errors, z-values, and p-values, with attention to both their statistical significance and economic relevance.

Lagged GDP Growth (GDP_{t-1}): The coefficient (0.180, $p = 0.019$) is positive and statistically significant, confirming the persistence of growth. This implies that economic performance in previous years positively influences current growth, which aligns with endogenous growth theory.

Credit to the Private Sector (CREDIT): The coefficient (-0.075, $p < 0.001$) is negative and highly significant, indicating inefficiencies in credit allocation. This may reflect public sector dominance and weak financial intermediation, resulting in politically driven lending that fails to support productive investment.

Stock Market Capitalization (CAPT): The coefficient (0.0058, $p = 0.550$) is positive but statistically insignificant. This reflects the limited role of underdeveloped capital

markets in the MENA region, due to low liquidity, poor investor confidence, and regulatory constraints.

Trade Openness (OPNS): The coefficient (0.0417, $p = 0.365$) is positive but not significant. While openness can theoretically foster growth, its impact may be limited by structural export dependencies and weak integration into global value chains.

Financial Liberalization (FLIB): The coefficient (-1.480, $p = 0.562$) is negative and insignificant, suggesting that liberalization in the MENA region has been too slow or incomplete to yield expected growth dividends.

Political Instability (IIP): The coefficient (-3.041, $p = 0.007$) is both negative and statistically significant, confirming that political uncertainty severely undermines investor confidence and economic performance.

Inflation (INF) and Corruption (IC): Both show negative but statistically insignificant coefficients. Although theoretically harmful to growth, their specific effects may be overshadowed by more dominant structural and institutional weaknesses in the region.

The overall model is robust, with a Wald χ^2 statistic of 54.98 ($p < 0.01$), validating the joint significance of the regressors. The number of instruments used (118) is within acceptable limits, suggesting the reliability of the GMM framework.

4. Conclusion and Policy Implication:

This study has explored the relationship between financial development and economic growth across 11 MENA countries over the period 1995–2024,

using a dynamic panel GMM estimation. The results reveal a non-uniform relationship, where financial development does not automatically lead to economic growth. Instead, its effectiveness depends on the quality of institutions, governance, and macroeconomic stability.

Notably, the negative and significant impact of credit allocation highlights the inefficiencies of public-sector-led finance. The weak role of capital markets, the insignificance of financial liberalization, and the detrimental effect of political instability all point to systemic institutional deficiencies.

Policy recommendations include:

- 1 .Enhancing Credit Efficiency: Through privatization of state-owned banks, improving financial regulation, and fostering competition in the banking sector.
- 2 .Deepening Financial Markets: By encouraging stock market participation, improving transparency, and expanding financial instruments.
- 3 .Promoting Trade and Investment: With targeted support for export diversification and integration into global supply chains.
- 4 .Ensuring Political and Institutional Stability: As a prerequisite for investment, liberalization, and long-term economic planning.
- 5 .Combating Inflation and Corruption: To create a credible and investor-friendly environment.

In conclusion, for financial development to contribute meaningfully to sustainable economic growth in the MENA region, it must be embedded within a framework of sound governance, political stability, and institutional resilience. Future research should extend this analysis to examine the

roles of digital finance, financial inclusion, and foreign direct investment in mediating the finance-growth nexus.

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