ITJ | The International Tax Journal

The impact of financial market development on economic growth in Saudi Arabia during the period 1990-2023

Dr. Debbi Mounira [1], Dr. Abderrezzak Bouaita [2], Dr. Abderrezzak Kalkoul [3]

[1] University Biskra (Algeria). Email: mounira.debbi@univ-biskra.dz
[2] University Mohamed El Bachir El Ibrahimi of Bordj Bou Arreridj (Algeria). Email: abderrezzak.bouaita@univ-bba.dz
[3] University El Bayedh (Algeria). Email: a.kalkoul@cu-elbayedh.dz

Abstract---This study aims to measure the impact of stock market development on economic growth in Saudi Arabia during the period 1990-2023. Stock market development is represented by three indicators: market capitalization rate, trading volume rate, and market performance index, while economic growth is expressed through GDP per capita. Using the Autoregressive Distributed Lag (ARDL) model, the study found a significant positive impact of market capitalization rate and market liquidity (measured by trading volume rate) on economic growth in both the short and long run. Conversely, the market performance index showed a negative impact on economic growth in both the short and long run. The results indicate that market size and liquidity have contributed to financing real economic activity and economic growth in Saudi Arabia. Therefore, policymakers and stakeholders in the Saudi financial market should improve capital market operations and implement favorable regulations to enhance market efficiency and effectiveness.

Keywords---Stock market, Economic growth, ARDL model, Saudi Arabia.

1- Introduction:

Financial development plays a crucial role in the evolution and prosperity of any country's economy. A robust financial system, where institutions effectively perform their functions, fosters capital

How to Cite:
Mounira, D., Bouaita, A., & Kalkoul, A. (2025). The impact of financial market development on economic growth in Saudi Arabia during the period 1990-2023. *The International Tax Journal*, *52*(3), 854–869. Retrieved from https://internationaltaxjournal.online/index.php/itj/article/view/107

The International tax journal ISSN: 0097-7314 E-ISSN: 3066-2370 © 2025

Submitted: 30 November 2024| Revised: 12 February 2025| Accepted: 23 April 2025

accumulation and technological innovation. The stock market, as a fundamental and modern aspect of financial activity, has become a driving force for economies worldwide.

Numerous studies have affirmed the relationship between real economic variables and financial variables. Early work by Schumpeter (1912) made a foundational contribution to understanding the interaction between finance and economic growth. He argued that financial development is a prerequisite for economic growth, proposing that financial systems play a pivotal role in economic progress by funding entrepreneurs and directing capital towards the most productive projects. Goldsmith (1969) offered another perspective on this relationship, emphasizing the impact of expanding the financial structure—represented by the quality and quantity of financial instruments, institutions, and markets—on economic growth. He asserted that the development of a country's financial infrastructure enhances economic growth. Furthermore, economists McKinnon and Shaw (1973) advocated for financial liberalization policies, particularly the liberalization of stock markets, to achieve financial development that would boost economic growth rates.

The early 1990s saw the emergence of endogenous growth models, which considered the functions of the financial system as determinants of long-term economic growth. These models posited that improving the performance of these functions contributes to capital accumulation and technological innovation, thereby acknowledging the importance of financial development in enhancing the quality rather than just the quantity of investments. Initial contributions focused on the role of financial intermediaries in the process of capital accumulation and allocation.

More recently, stock markets have garnered significant attention from economists and governments alike. The importance of stock market development lies in its ability to improve and activate how the stock market fulfills its essential functions to meet the needs of economic units. Stock markets contribute to providing financing for existing and new projects through financial instruments like stocks and bonds, leading to new economic additions through higher investment rates. Additionally, providing liquidity and achieving efficiency will facilitate and increase economic growth due to reduced transaction and information costs. The majority of developed and developing countries have moved towards developing and expanding their markets, convinced of the importance of stock market development in increasing business for real sectors.

Recent data indicates that the Saudi financial market is undergoing rapid development through the implementation of numerous measures and reforms aimed at improving the stock market. These efforts include introducing innovative technologies to the market, increasing openness to global markets, and removing restrictions on foreign investors' entry. The goal is to expand and enhance the **liquidity and efficiency** of the stock market and improve its services.

Therefore, this study aims to assess the long- and short-term impact of stock market development on economic growth in Saudi Arabia during the period from 1990 to 2023. Stock market development is considered a crucial factor for economic growth, with its role highlighted by the services it provides to both financial surplus and deficit units. These services notably include providing liquidity, facilitating easy access to information, and enabling risk diversification. Furthermore, stock markets work to mobilize savings and direct them towards the most efficient sectors.

2- Theoretical Literature

In reality, and according to experts, extensive literature has demonstrated that stock market development, as part of the financial system, positively impacts economic growth. A well-functioning stock market contributes to economic growth by performing specific financial functions. By improving the quality of these functions, the stock market can influence economic growth through changes in the savings rate and technological progress related to the creation of new production processes (Levine R.

, 1997)emphasized (Pradhan, Arvin, & Bahmani, 2015) the importance of developed stock markets in fostering long-term economic growth, as they facilitate capital accumulation, efficient resource allocation, and technological innovation. found (Jecheche, 2012) that economies benefit from stock markets and experience economic advancement by providing services that encourage the introduction and development of new goods and services. The stock market is crucial for economic growth and is often referred to as a "barometer" of a country's economic activity (Bhowmik & Wang, 2020).

The importance of the stock market is evident in its ability to provide liquidity for financial assets. It also offers a platform for companies to access capital continuously, which positively affects economic growth.) Naik ،Poornima و ،Reddy(2020 ، highlighted the importance of a liquid market that allows for the continuous trading of securities quickly, in any quantity, and at prices closely aligned with their current market value. This, in turn, contributes to increased investor confidence and attracts both domestic and foreign financial flows.

Studies by Levine (Levine R. , 1991) and (Bencivenga & al, 1996) concluded that high liquidity in stock markets positively influences economic growth by reducing the risks and costs of investing in long-term projects. This allows initial investors to access their savings throughout the investment project's duration by easily, quickly, and cost-effectively selling their stake in the company. Thus, more liquid stock markets can facilitate high-profit, long-term investments, thereby improving capital allocation and increasing long-term growth potential.

(Samarasinghe, 2023) asserted that liquid stock markets have become an optimal choice for companies to obtain financing at a lower cost. Additionally, they attract a wide range of investors who improve liquidity by injecting more funds into the economy. A study by (Ramos, 2024) indicated that a more liquid stock market provides a channel to facilitate the buying and selling of financial instruments. Improved market liquidity shows a positive impact on economic growth by enabling companies to access the necessary capital for expansion and innovation. This aligns with the study by (Levine & Zervos, 1998), which considers stock market development and liquidity as strong indicators of economic growth.

The importance of stock markets is further highlighted by their role as a crucial source of information for investors regarding companies (María A & Beatriz, 2020). According to (Greenwood & Jovanovic, 1990), well-functioning stock markets encourage better allocation of financial resources through the acquisition and dissemination of information. Studies by (Holmström & Tirole, 1993) and (Kyle, 1984) indicated that stock markets enable investors to easily obtain company-specific information for their investments. They also enhance incentives for investors to research and monitor companies, leading to improved capital allocation and driving economic growth.

In light of rapid advancements and the spread of financial technology, most stock markets have experienced significant evolution in their structure and performance. According to)Zhongqin(2024 ، and)Zhongqin(2024 ،, reliance on technological innovation in stock markets has boosted their operational efficiency and effectiveness. Technological innovations facilitate quicker access to information, enable more accurate and transparent information, reduce information asymmetry, and optimize the allocation of financial resources. Consequently, efficient stock markets ensure that funds are allocated to more productive investments, thereby fostering economic growth.

Furthermore, large-sized stock markets are recognized as a channel for mobilizing financial savings and increasing the investment rate. (Greenwood & al, 1997) demonstrated that large stock markets, by reducing liquidity risks and the cost of mobilizing savings, can increase and facilitate the collection of financial resources towards more productive projects. (Pagano, 1993) noted that the stock market contributes to mobilizing domestic savings by enhancing the range of financial instruments available to savers for diversifying their investment portfolios, thus providing a significant source of investment

capital at a relatively low cost. (Pradhan & al, 2018) through their study on the dynamics of bond market and stock market development and economic growth in G20 countries, affirmed that the development of both bond and stock markets leads to long-term economic growth. In the same vein, (Qasoul, 2021) found that the expansion of the Malaysian stock market, through the inclusion of Islamic *sukuk* as tradable financial instruments, contributed to capital accumulation and enhanced economic growth.

Integrated stock markets with global markets also allow for risk diversification and provide a channel that facilitates the flow of foreign capital and international investment. (Obstfeld, 1994) explained that well-performing stock markets integrated with global markets can increase the savings and investment rates by expanding the range of potential investments and diversifying risks. Markets that facilitate risk diversification reduce investment risks and the cost of capital, encouraging the channeling of societal savings into higher-yield projects, thereby increasing capital productivity, the savings rate, and achieving economic growth. (Hargis, 2000) concluded that the integration of emerging stock markets with international financial markets has been highly beneficial for the development of local markets. This is because international financial market integration increases local stock prices by enhancing risk diversification and liquidity in the local financial market. He also noted that international cross-listing allows local financial markets to transform from fragmented markets with low liquidity and capital to integrated financial markets with high market value and liquidity, through increased shareholder revenues and market participation. Thus, integration with international markets leads to higher stock prices, increased stock issuance, enhanced liquidity, and market development. Similarly, (Bernal-Ponce r & al, 2020) found that by involving international investors, stock markets contribute to fostering transparency and strengthening regulations in emerging economies. This is because maintaining investments requires appropriate business ethics, accountability, and clear shareholder rights. (Oprea & Stoica, 2018) found that stock market integration has a strong impact on economic growth through increased market capitalization, enhanced market liquidity and efficiency, and the channeling of savings into higher-return investments.

Despite the majority of studies finding a positive impact of stock market development on economic growth, other researchers view the stock market as a casino, having no positive and potentially a negative impact on economic growth. Proponents of this view argue that stock market development may hinder economic growth through its negative effect on savings. They contend that the stock market causes economic fluctuations. This perspective has been supported by a few empirical studies, such as (Demirgüç-Kunt & Levine, 1996), (Devereux & Smith, 1994), and (Alshammary, 2014) among others. Furthermore, other researchers believe that the stock market has no impact on economic growth, reflecting Mayer's (1987) viewpoint that even in developed stock markets, equities do not represent a significant source of corporate financing. This direction has also been supported by a limited number of empirical studies.

The role of economic growth and stock market development in Saudi Arabia has not been sufficiently explored, especially given the recent measures taken by the Kingdom to develop its stock market and adopt it as a pillar for achieving economic development goals. This research aims to bridge this gap. ncreasing capital accumulation and influencing its allocation.

3- Data and Methodology

Saudi Arabia has implemented numerous measures and reforms to develop its stock market. Key initiatives include the issuance of the Capital Market Law in 2003, a pivotal turning point for market administration and regulation, and the Financial Sector Development Program in 2016, part of the Kingdom's Vision 2030. This program aimed to develop the Saudi financial market into one that contributes to stimulating saving, investment, and financing, and fostering national economic growth.

This paper investigates the short- and long-term impact of stock market development on economic growth in Saudi Arabia from 1990 to 2023. Economic growth is measured as the dependent variable using GDP per capita at constant prices (PERCAP). This ratio is considered one of the most significant indicators reflecting economic activity. The primary data for this variable is sourced from the World Bank (WB). To measure stock market development as the main independent variable, three indicators are used:

- Market Capitalization Rate (MARKVA): This refers to the market value of issued shares in the stock market as a percentage of GDP. The indicator reflects the market's ability to mobilize savings and direct them towards investments. This indicator has been used in previous studies by (Rehman, 2018).
- Market Performance Index (INDEX): This is an index that reflects price movements in the stock market, based on a sample of traded company shares. The sample is often chosen in a way that allows the index to reflect the overall state of the stock market it aims to measure. This index was used in studies on Saudi Arabia by (Alshammary, 2014).
- Trading Volume Rate (TRADRATE): This refers to the value of total shares traded in the stock market as a percentage of GDP. It reflects market liquidity within the economy. This indicator was used by (Alshammary, 2014). Data for these indicators are sourced from the World Bank website and the Saudi Exchange website.

Additionally, a control variable (another independent variable) is used: Oil Prices (OIL), calculated using the price of Arab Light crude oil. The Saudi economy is reliant on oil, and oil revenues play a vital role in all major economic activities in Saudi Arabia. This variable has been used in studies related to oil-producing countries such as Saudi Arabia (Alshammary, 2014) and the Middle East and North Africa (MENA) region (Naceur, Ghazouani, & Omran). Its data is also sourced from the World Bank website.

In this study, the Autoregressive Distributed Lag (ARDL) model was employed to estimate the impact of stock market development on economic growth. The model is structured to illustrate the relationship between three types of variables: independent variables representing stock market development, control variables representing oil prices, and the dependent variable, economic growth.
The general formula for the model is as follows:

$$PERCAP = f(SMD; CV)$$

This indicates that economic growth (PERCAP) is a function of stock market development (SMD) and the control variables (CV), which are believed to influence economic growth.
The mathematical representation of the model can be expressed as follows:

$$PERCAP_t = \beta_0 + \beta_1 MARKVA_t + \beta_2 INDEX_t + \beta_3 TRADRAT_t + \beta_4 OIL_t + \epsilon_t$$

Where:

- PERCAP: GDP per capita.
- MARKVA: Market Capitalization Rate.
- INDEX: Market Performance Index.
- TRADRAT: Trading Volume Rate.
- OIL: Oil Prices.
- $t=1,2,3,\ldots,39$: Represents time in the time series (1990-2023).
- $\beta_0, \beta_1, \beta_2, \beta_3, \beta_4$: Coefficients of the independent variables.
- ϵ_t: The error term.

4- Econometric Analysis

The study attempts to apply the ARDL methodology to the statistics of the targeted study variables, as follows:

- **Testing the Stationarity of the Study Variables' Time Series**

This test aims to avoid the problem of spurious correlation between independent and dependent variables resulting from non-stationary time series in econometric model estimation. To examine the stationarity of these series and determine their order of integration, the **Augmented Phillips-Perron (PP) test** is used. It is conducted in three models: the first with only a constant term, the second with a constant term and a trend, and the third without a constant term and trend. Using the EViews 13 software, the results were as follows:

Table (01): Stationarity of Study Variables according to PP Test

UNIT ROOT TEST RESULTS TABLE (PP)

Null Hypothesis: the variable has a unit root

At Level

		PERCAP	INDEX	MARKVAL	TRADRATE	OIL
With Constant	t-Statistic	0.7574	-1.8483	-1.2380	-2.2305	-1.3834
	Prob.	***0.9917***	***0.3516***	***0.6459***	***0.1998***	***0.5783***
		n0	n0	n0	n0	n0
With Constant & Trend	t-Statistic	-0.3894	-3.3156	-2.2406	-2.1607	-2.3037
	Prob.	***0.9838***	***0.0813***	***0.4528***	***0.4947***	***0.4205***
		n0	*	n0	n0	n0
Without Constant & Trend	t-Statistic	1.5050	0.1225	0.0642	-1.7497	-0.0159
	Prob.	***0.9645***	***0.7146***	***0.6963***	***0.0761***	***0.6702***
		n0	n0	n0	*	n0

At First Difference

		d(PERCAP)	d(INDEX)	d(MARKVAL)	d(TRAD RATE)	d(OIL)
With Constant	t-Statistic	-5.0425	-9.6294	-7.1072	-3.3259	-5.2878
	Prob.	***0.0003***	***0.0000***	***0.0000***	***0.0219***	***0.0001***
		***	***	***	**	***
With Constant & Trend	t-Statistic	-5.6292	-9.4383	-10.8834	-3.2715	-5.1430
	Prob.	***0.0003***	***0.0000***	***0.0000***	***0.0392***	***0.0012***
		***	***	***	**	***
Without Constant & Trend	t-Statistic	-4.9012	-8.5186	-6.0271	-3.4256	-5.2352
	Prob.	***0.0000***	***0.0000***	***0.0000***	***0.0012***	***0.0000***
		***	***	***	***	***

Notes:

a: (*) Significant at the 10%; (**) Significant at the 5%; (***) Significant at the 1% and (no) Not Significant

b: Lag Length based on AIC

c: Probability based on MacKinnon (1996) one-sided p-values.

Source: Prepared by the researchers based on: (EViews 13 outputs)

From the table above, we observe that all series are **unstable at the level (I(0))**. However, in the **first difference**, all series are stable across all specifications because they include differences and their p-values are less than 0.05. This indicates that they are all **integrated of order one (I(1))**. Therefore, the

Autoregressive Distributed Lag (ARDL) model is suitable for estimating the relationship between the study variables.

-Determining Optimal Lag Lengths for the Model

Before estimating the long-term relationship using the **ARDL model** between economic growth and its independent and control variables, it's necessary to determine the lag length for these variables. This was achieved using the **Akaike Information Criterion (AIC)**, as shown in the following figure:

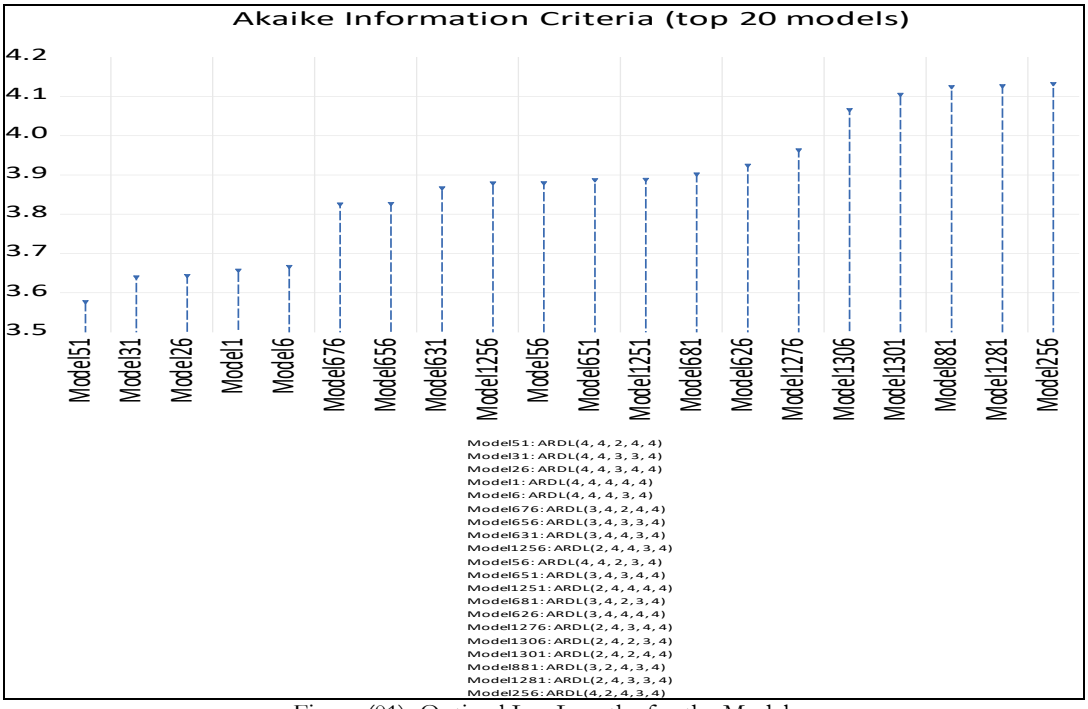

Figure (01): Optimal Lag Lengths for the Model

Source: Prepared by the researchers based on: **(EViews 13 outputs)**

From the figure above, the optimal model for estimating the relationship between the study variables is **ARDL(4, 4, 2, 4, 4)**. Therefore, according to the model by **Pesaran & Al (2001)**, the model formulation is as follows:

$$\Delta \text{PERCAP} = c + \sum_{i=1}^{4} \beta_{1i}\, \Delta \text{PERCAP}_{t-1} + \sum_{i=1}^{4} \beta_{2i}\, \Delta \text{INDEX}_{t-1} + \sum_{i=1}^{2} \beta_{3i}\, \Delta \text{MARKVAL}_{t-1} + \sum_{i=1}^{4} \beta_{4i}\, \Delta \text{TRADRATE}_{t-1} + \sum_{i=1}^{4} \beta_{5i}\, \Delta \text{OIL}_{t-1} + \propto_1 \text{PERCAP}_{t-1} + \propto_2 \text{MARKVA}_{t-1} + \propto_3 \text{INDEX}_{t-1} + \propto_4 \text{TRADRATE3}_{t-1} + \propto_5 \text{OIL}_{t-1} + \varepsilon_t \qquad (1)$$

Where:

- Δ indicates **first-order differences**.
- c is the **constant term**.
- t represents the **time trend**.
- ϵt: is the **random error term**.

- (β1,β2,β3,β4): are the **short-run coefficients** (error correction).
- (α1,α2,α3,α4): are the **long-run coefficients**.

-Cointegration Testing (Bounds Test)

After defining the appropriate model, the next step is to test for cointegration among the variables using the **Bounds Test**. This model is based on formulating the following hypothesis:

H_0: $\propto_1 = \propto_2 = \propto_3 = \propto_4 = 0$
H_1: $\propto_1 \neq \propto_2 \neq \propto_3 \neq \propto_4 \neq 0$

H0: The null hypothesis, which indicates no cointegration among the variables.
H1: The alternative hypothesis, which indicates cointegration among the variables.

The F-statistic is compared with the critical values (upper and lower bounds) provided by Pesaran et al. (2001). If the F-statistic is greater than the upper critical value, the null hypothesis of no cointegration will be rejected. If the F-statistic is below the lower critical value, the null hypothesis cannot be rejected, indicating no cointegration among the variables. Furthermore, if the F-statistic falls between the lower and upper critical values, the relationship is inconclusive (Pesaran et al., 2001).

Table No. (02): Results of the Bounds Test

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
			Asymptotic: n=1000	
F-statistic	22.29567	10%	2.2	3.09
K	4	5%	2.56	3.49
		2.5%	2.88	3.87
		1%	3.29	4.37
Actual Sample Size	30		Finite Sample: n=30	
		10%	2.525	3.56
		5%	3.058	4.223
		1%	4.28	5.84

Source: Prepared by the researchers based on: **(EViews 13 outputs)**

The **Bounds Test** reveals that the calculated **Fisher F-statistic** is **22.29567**. This value is greater than the critical upper bound values from the table at all significance levels: 5%, 1%, 2.5%, and 10%. Consequently, the **null hypothesis is rejected**, and the **alternative hypothesis** — which states that there is a **cointegrating relationship** among the study variables — is accepted.

- **Long-Term Model Estimation**

The results of estimating the long-term relationship between economic growth (as the dependent variable) and the capitalization rate, market performance index, turnover rate, and oil prices (as explanatory variables) during the period (1990-2020) are as follows:

Table No. (03): Results of Long-Run Model Estimation

Levels Equation Case 2: Restricted Constant and No Trend				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
INDEX	-0.008230	0.002348	-3.504933	0.0099
MARKVAL	0.250092	0.057902	4.319225	0.0035
TRADRATE	0.169465	0.054071	3.134123	0.0165
OIL	0.591844	0.142003	4.167840	0.0042
C	63.52779	1.776408	35.76194	0.0000
EC = PERCAP - (-0.0082*INDEX + 0.2501*MARKVAL + 0.1695*TRADRATE + 0.5918*OIL + 63.5278)				

Source: Prepared by the researchers based on: (EViews 13 outputs)

From the table above, we observe that all variables are statistically significant. There is a positive long-term significant effect of capitalization rate, turnover rate, and oil prices on GDP per capita, with significance levels of 0.0035, 0.0165, and 0.0042, respectively, all of which are less than the 5% significance level.

Conversely, there is a negative significant effect of the market performance index on GDP per capita, with a significance level of 0.0099, which is also less than the 5% significance level. The constant (C) value is also statistically significant, with a significance level of 0.0000. This represents the value of economic growth when the variables included in the model have no effect.

Based on these results presented in the table, the long-term equation for economic growth, expressed in terms of stock market capitalization rate, market performance index, turnover rate, and oil prices, can be written in the following mathematical form:

EC = PERCAP - (2.4587*OIL + 1.0606*MARKVA -2.7327*M3 + 0.3438*INDEX+ 0.2649)

- **Short-Run Model Estimation:**

The error correction model, from which short-run relationship results can be extracted, is presented in Table (04) as follows:

Table (04): Results of the Error Correction Model using the ARDL Approach

ARDL Error Correction Regression
Dependent Variable: D(PERCAP)
Selected Model: ARDL(4, 4, 2, 4, 4)
Case 2: Restricted Constant and No Trend
Date: 05/10/25 Time: 09:41
Sample: 1990 2023
Included observations: 30

ECM Regression
Case 2: Restricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(PERCAP(-1))	-0.508363	0.083953	-6.055304	0.0005
D(PERCAP(-2))	0.604705	0.094715	6.384442	0.0004
D(PERCAP(-3))	0.318744	0.108693	2.932530	0.0219
D(INDEX)	-0.002395	0.000316	-7.577585	0.0001
D(INDEX(-1))	0.002222	0.000380	5.844924	0.0006
D(INDEX(-2))	-0.004101	0.000597	-6.870012	0.0002
D(INDEX(-3))	-0.004152	0.000473	-8.782990	0.0000
D(MARKVAL)	0.106198	0.009813	10.82192	0.0000
D(MARKVAL(-1))	-0.157478	0.010285	-15.31080	0.0000
D(TRADRATE)	0.066378	0.013168	5.040805	0.0015
D(TRADRATE(-1))	-0.008213	0.013356	-0.614957	0.5580
D(TRADRATE(-2))	0.210529	0.022102	9.525164	0.0000
D(TRADRATE(-3))	0.025601	0.007673	3.336269	0.0125
D(OIL)	-0.126826	0.027334	-4.639914	0.0024
D(OIL(-1))	-0.359219	0.033265	-10.79864	0.0000
D(OIL(-2))	-0.232204	0.026563	-8.741512	0.0001
D(OIL(-3))	-0.496931	0.040113	-12.38842	0.0000
CointEq(-1)*	-0.944367	0.062361	-15.14354	0.0000

R-squared	0.974750	Mean dependent var	1.031133
Adjusted R-squared	0.938980	S.D. dependent var	4.302138
S.E. of regression	1.062724	Akaike info criterion	3.243257
Sum squared resid	13.55258	Schwarz criterion	4.083975
Log likelihood	-30.64885	Hannan-Quinn criter.	3.512210
Durbin-Watson stat	1.925477		

* p-value incompatible with t-Bounds distribution.

Source: Prepared by the researchers based on: (EViews 13 outputs)

From the table above, we find that all parameters are statistically acceptable at the 5% significance level. There is a significant positive impact of the capitalization rate and the trading rate on GDP per capita in the short run. In contrast, there is a negative impact of the market performance index and oil prices on GDP per capita in the short run.

Additionally, the error correction coefficient CointEq(-1) is negative (-0.94) and significant at the 5% level. This indicates an equilibrium relationship between the study variables. Its value measures the

speed of return to equilibrium in the long run. This result can be interpreted as the error that appears in the short run returning to its equilibrium level in the long run with an adjustment speed of 0.94 per period. This means that if economic growth deviates from its long-run value in the short run, 94% of the disequilibrium in period (t) is corrected until it returns to equilibrium in the long run.

5. Statistical Evaluation and Diagnostic Tests

Before analyzing the economic implications of the results, they should first be evaluated statistically and econometrically. This involves examining diagnostic tests to ensure that the estimated model is statistically acceptable and that there are no econometric problems.

5.1. Statistical Evaluation

Table (5): Results of the Statistical Evaluation of the Estimated Model

R-squared	0.993279	Mean dependent var	75.18290
Adjusted R-squared	0.972156	S.D. dependent var	8.338591
S.E. of regression	1.391432	Akaike info criterion	3.576590
Sum squared resid	13.55258	Schwarz criterion	4.650842
Log likelihood	-30.64885	Hannan-Quinn criter.	3.920253
F-statistic	47.02273	Durbin-Watson stat	1.925477
Prob(F-statistic)	0.000013		

*Note: p-values and any subsequent tests do not account for model selection

.

Source: Prepared by the researchers based on: (EViews 13 outputs)

Within the framework of the statistical evaluation of the model estimation results shown in the table above, it can be said that it is statistically acceptable. It is observed that the coefficient of determination, R2, is 0.993279. This indicates that the model has acceptable explanatory power, reaching 99.32%, meaning that the most significant changes in economic growth are explained by 99.32% in terms of the explanatory variables (stock market capitalization rate, market performance index, trading rate, oil prices). Meanwhile, the remaining 0.68% is attributed to other factors and variables not included in the model, in addition to the low standard error (S.E) value of 1.391432.

5.2. Diagnostic Tests After conducting diagnostics for the estimated study model, the following was reached:

5.2.1 Heteroskedasticity Test: This was done by conducting an ARCH test, as shown in the following table:

Table No. (06): Heteroskedasticity (ARCH TEST)

Heteroskedasticity Test: ARCH			
F-statistic	0.151019	Prob. F (1,27)	0.7006
Obs*R-squared	0.161303	Prob. Chi-Square (1)	0.6880

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares

Date: 05/10/25 Time: 09:43 Sample (adjusted): 1995 2023 Included observations: 29 after adjustments

Source: Prepared by the researchers based on: (EViews 13 outputs)

The results in the table above indicate that the model does not suffer from heteroscedasticity, as the **F-statistic** was 0.151019 at a probability level of 0.7006, which is greater than the 5% significance level. This means that the **null hypothesis** is accepted, indicating no heteroscedasticity problem.

5.2.2. Normality Test of Random Errors:

Using the **Jarque-Bera test**, the results are as follows:

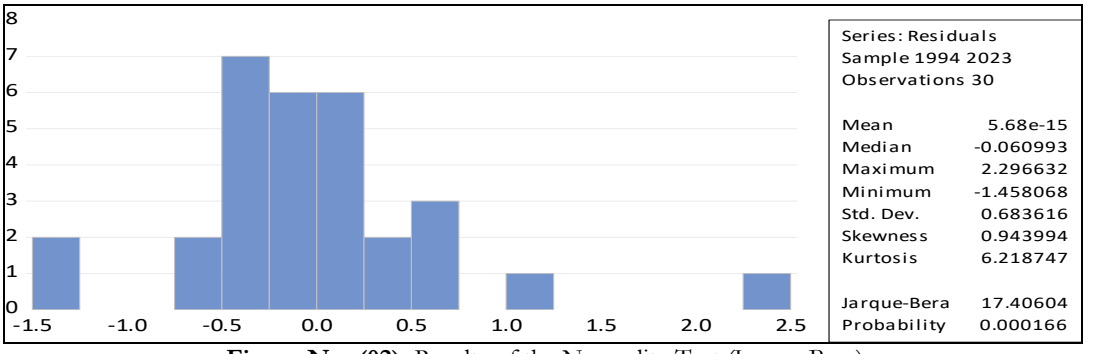

Figure No. (02): Results of the Normality Test (Jarque-Bera)
Source: Prepared by the researchers based on: (EViews 13 outputs)

Jaque-Berra value is 17.40604 at a probability level of 0.000166, which is less than the 5% significance level. Therefore, the null hypothesis stating that the residuals do not follow a normal distribution is accepted.

5.2.3. Autocorrelation Test for Errors

This is performed using the **Correlation LM Test**, as shown in the following table:

Table No. (07): Results of the Autocorrelation Test for Errors

Breusch-Godfrey Serial Correlation LM Test: Null hypothesis: No serial correlation at up to 1 lag			
F-statistic	0.010199	Prob. F (1,6)	0.9228
Obs*R-squared	0.050907	Prob. Chi-Square (1)	0.8215
Test Equation: Dependent Variable: RESID Method: ARDL Sample: 1994 2023 Included observations: 30 Presample missing value lagged residuals set to zero.			

Source: Prepared by the researchers based on: (EViews 13 outputs)

From the table results, it is clear that the F-statistic value is equal to 0.010199 with a probability of 0.9228, which is greater than the 5% significance level. This means accepting the null hypothesis, i.e., there is no autocorrelation problem for the random error term of the estimated model function.

5.2.4. Structural Stability Test for the Estimated Model Parameters (ARDL)

Structural stability of the estimated model's parameters is achieved when the plot line falls within the critical upper and lower bounds at the significance level. If the plot line falls outside these critical bounds, then the estimated model is considered to lack structural stability. The results of this test on the model under study were obtained using the Cumulative Sum of Recursive Residuals (CUSUM) test and the Cumulative Sum of Squares of Recursive Residuals (CUSUM SQ) test, as follows:

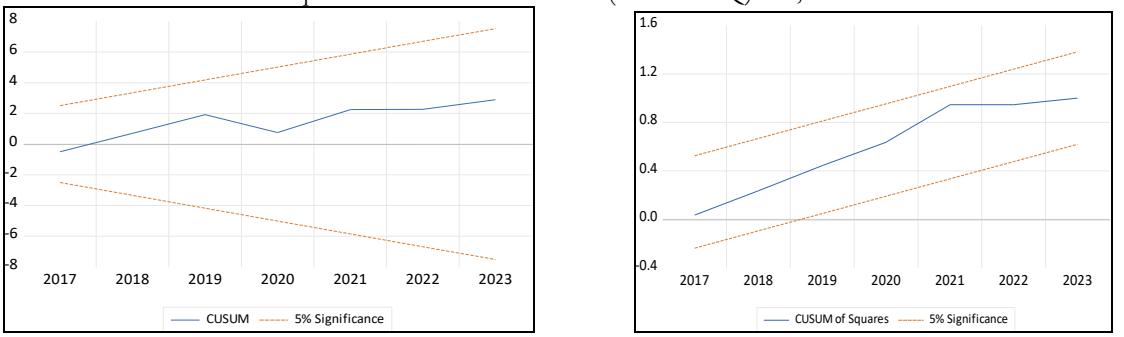

Figure (03): Results of the Structural Stability Test for the Estimated Model
Source: Prepared by the researchers based on: (EViews 13 outputs)

As is evident from the figure above, the estimated model parameters are structurally stable throughout the study period, as the graph of both test statistics (CUSUM) and (CUSUM SQ) fell within the critical bounds at a 5% significance level.

6. Analysis of Results

6.1. Long-Term Results:

The cointegration test indicates that all variables significantly impact economic growth in the long run at a 5% significance level. The economic analysis of the obtained results is detailed below:

6.1.1 Stock Market Capitalization Rate and PERCAP

The study found a positive effect of the stock market capitalization rate on economic growth, which aligns with economic theory suggesting that stock market capitalization positively influences economic growth. This result can be interpreted as an increase in stock market capitalization contributing to economic growth in Saudi Arabia. An increase in stock market capitalization can result either from an increase in the prices of securities traded in the market or from companies listing new securities, whether for expansion or to undertake new projects.

Regarding the possibility of price increases, their impact on economic growth is channeled through the information channel, which facilitates the optimal allocation of available financial resources. This is true if the price increase is due to the good performance of projects listed in the market, leading to an increased share of funds raised from the market and an expansion of their production volume, thereby increasing GDP and per capita income. However, given that most stock exchanges worldwide exhibit weak efficiency, this possibility is unlikely.

Therefore, the second possibility is more probable, where the effect is transmitted through the savings mobilization channel. This occurs due to an increase in the number of securities traded in the market, resulting from the listing of new securities. The funds generated from these new listings are directed

towards expanding existing projects or financing new ones, which leads to an increase in their production volume, contributing to higher GDP and per capita income. The study's findings are consistent with the study by (Rehman, 2018) which also found a positive effect of the stock market capitalization rate on GDP.

6.1.2 Trading Volume and PERCAP

Trading volume positively impacts Saudi Arabia's long-term GDP per capita, indicating that the liquidity of the Saudi stock market is a strong indicator of economic development. This aligns with economic theory, which explains this result by the increased market liquidity, making financial assets more acceptable and encouraging investors to invest. This, in turn, translates into increased economic activity and institutional output, leading to higher GDP and per capita income. This is attributed to the regulatory and legislative measures adopted by the Kingdom to regulate the market, the increasing transactions of institutional investors in the market, and the easing of restrictions on foreign capital flows. The rise in the number of traded shares is also linked to the strong trading in shares of privatized companies offered for public subscription, which also contributed to attracting local and foreign investors, leading to an increase in capital productivity, and consequently higher GDP and per capita income. These study results are consistent with the study by (Chipaumire & Ngirande, 2014)

6.1.3 Market Performance Index and PERCAP

There is a significant negative impact of the market performance index on long-term economic growth. This suggests a lack of efficiency in the market and indicates that Saudi investors do not rely on stock price indices when making long-term investment decisions. This is because making investment decisions in the financial market requires daily study of price movements and returns in the market. Given the nature of the Saudi economy, as the world's largest oil producer and exporter, it is more susceptible to oil shocks. Therefore, its stock prices are expected to be affected by oil price fluctuations, which negatively impacts the expected return on investments. This aligns with the findings of (Alshammary, 2014).

6.1.4 Oil Prices and PERCAP

Saudi Arabia is one of the largest oil-exporting countries globally. The results indicate that rising oil prices positively impact economic growth. This is because any increase in oil prices leads to higher oil revenues, which in turn leads to economic prosperity and a higher per capita income.

6.2. Short-Term Results

Based on the error correction table, the short-term relationship between economic growth and its explanatory variables can be interpreted. It is observed that the capitalization rate index and trading volume positively affect GDP per capita in the short term at a 5% significance level. However, the results showed that the market performance index and oil prices negatively affect GDP per capita in the short term at a 5% significance level. This is explained as follows:

6.2.1 Capitalization Rate and PERCAP

The stock market capitalization rate positively affects economic growth in the short term in Saudi Arabia, meaning that the impact of the stock market is transmitted to economic growth through the savings channel. This is due to the increase in funds directed from financial surplus holders to investment projects, which translates into increased capital movement and thus economic growth in the Kingdom.

6.2.2 Trading Volume and PERCAP

Trading volume positively affects the short term. This is explained by the increased role of the stock market in providing liquidity to the Kingdom's economy by enhancing capital accumulation and allocating it towards more profitable investments, thereby increasing the economic growth rate.

6.2.3 Market Performance Index and PERCAP

The development of stock market performance negatively affects economic growth in the short term. An increase in the general performance index leads to a decrease in economic growth in Saudi Arabia. This is due to the volatile nature of the Saudi stock market, where stock prices are expected to be negatively affected by oil shocks, which negatively impacts investment returns and the wide international sharing of risks.

6.2.4 Oil Prices and PERCAP

Oil prices negatively affect economic growth in the short term. This is because rising oil prices can indirectly harm the economy through their impact on the prices of imported finished products. The Kingdom is considered a primary importer of manufactured goods, and therefore, rising oil prices lead to higher prices for these imports, creating inflationary pressures that negatively affect the country's economy.

Based on the study results, which proved the existence of a cointegration relationship between the study variables, we can conclude that the Saudi financial market is one of the determinants of economic growth, and the development of this market positively affects growth in Saudi Arabia in both the short and long terms.

7. Conclusion

This study investigates the impact of the development of the Saudi financial market on economic growth. This aligns with the Kingdom's drive to develop its stock market as a key pillar for achieving the objectives of Saudi Vision 2030 strategy, focusing on the evolution of market liquidity, size, and efficiency, due to the conviction of its important role in achieving economic growth.

The study assessed the impact of stock market development on economic growth in Saudi Arabia using time-series data from 1990 to 2023, for both the long and short terms, using the ARDL model. To ensure the robustness of the study, three measures of stock market development were used: capitalization rate, trading rate, and market performance index. The results show a positive impact of capitalization rate and trading rate on economic growth in both the long and short terms. Conversely, the market performance index negatively affects economic growth in both the long and short terms. This indicates that the Saudi stock market contributes to sustained growth in Saudi Arabia.

Saudi economic policymakers should further develop the stock market by considering improvements in market operational efficiency, enhancing market integration with global markets to diversify risks, raising transparency rules, and protecting shareholder rights. It is also essential to introduce financial technology into exchange transactions through innovation and digitization to improve market functions. This will attract both local and foreign investors and companies to the market, making the Saudi stock market a leading market in the Middle East and globally.

8. References

1. Pradhan, R. P., Arvin, M. B., & Bahmani, S. (2015). Causal nexus between economic growth, inflation, and stock market development: The case of OECD countries. Global Finance Journal, 27, 98-111.
2. Jecheche, Petros. 2012. The effect of the stock exchange on economic growth: A case of the Zimbabwe stock exchange. Research in Business and Economics Journal 6: 1
3. Naik, P., Poornima, B. G., & Reddy, Y. V. (2020). Measuring liquidity in Indian stock market: A dimensional perspective. PloS one, 15(9), e0238718.
4. Ramos, N. (2024). Capital Market Efficiency and Its Contribution to Liquidity and Economic Growth in Nigeria.

5. Levine, R., & Zervos, S. (1998). Stock markets, banks, and economic growth. American economic review, 537-558.
6. Reshma, M., Jahnavi, B., Cherishma, A., & Hope, T. (2024). The impact of fintech innovations on stock market efficiency. Deleted Journal, 4(6), 168-171
7. Zhongqin Zhao, (2024). The Impact of Financial Technology on Stock Market Volatility, Universiti Teknologi MARA, Selangor, Malaysia DOI: 10.32629/memf.v5i2.1952.
8. Pradhan, R. P., Arvin, M. B., Norman, N. R., & Bahmani, S. (2020). The dynamics of bond market development, stock market development and economic growth. Evidence from the G-20 countries. Journal of Economics, Finance and Administrative Science, 25(49), 119-148.
9. Bernal-Ponce, L. A., Castillo-Ramírez, C. E., & Venegas-Martinez, F. (2020). Impact of exchange rate derivatives on stocks in emerging markets. Journal of Business Economics and Management, 21(2), 610-626.
10. Oprea, O. R., & Stoica, O. (2018). Capital markets integration and economic growth. Montenegrin Journal of Economics, 14(3), 23-35.
11. PESARAN, M. .., SHIN, Y., & SMITH, R. (2001). Bounds testing approaches to the analysis of level relationships. Journal of applied econometrics, 16 (03), pp. 289-326.
12. Levine, R. (1997). Financial development and economic growth: views and agenda. Journal of economic literature, 35(2), 688-726.
13. Levine, R. (1991). Stock markets, growth, and tax policy. The journal of Finance, 46(4), 1445-1465.
14. Bencivenga, V.R., Smith, B.D., et Starr, R.M.,, 1997, «Equity markets, Transaction costs, and capital accumulation: an illustration», World Bank Economic Review, 35, 535-
15. Greenwood, J., & Jovanovic, B. (1990). Financial development, growth, and the distribution of income. Journal of political Economy, 98(5, Part 1), 1076-1107.
16. Greenwood, J., & Smith, B. D. (1997). Financial markets in development, and the development of financial markets. Journal of Economic dynamics and control, 21(1), 145-181.
17. Holmström, B., & Tirole, J. (1993). Market liquidity and performance monitoring. Journal of Political economy, 101(4), 678-709.
18. Kyle, A. S. (1984). Market Structure, Information, Futures Markets and Price Formation in G. Storey, A. Schmitz, and AH Sarris (eds.) International Agricultural Trade: Advanced Readings in Price Formation, Market Structure, and Price Instability Boulder.
19. Obstfeld, Maurice, 1994, « Risk-Taking, Global Diversification, and Growth», American Economic Review, 84,5, 1310-1329.
20. Kamal Qasoul. (2021). The Impact of Stock Market Performance on Economic Growth in Malaysia, PhD Thesis, Faculty of Economics, Mila, Abdelhafidh Boussouf University Center, Algeria.
21. Demirgüç-Kunt, A., & Levine, R. (1996). Stock markets, corporate finance, and economic growth: an overview. The World Bank Economic Review, 10(2), 223-239.
22. Devereux, M. B., & Smith, G. W. (1994). International risk sharing and economic growth. International economic review, 535-550.
23. Alshammary, M. J. (2014). Stock market development and economic growth in developing countries: Evidence from Saudi Arabia. Corporate Ownership and Control, 11(3), 193-216.
24. Mayer, C. (1987). The assessment: financial systems and corporate investment. Oxford Review of Economic Policy, 3(4), i-xvi.
25. Rehman, M. Z. (2018). Banking sector development, stock market development and economic growth evidence from Saudi Arabia. 22 (04), pp. 1-15.
26. Chipaumire, G., & Ngirande, H. (2014). How stock market liquidity impact economic growth in South Africa. Journal of Economics, 5(2), 185-192.