

The Effect of Macroeconomic Factors on the Performance of the Egyptian Stock Market

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ABSTRACT: The study addressed the impact of independent variables represented by macroeconomic factors, including inflation; interest rates, government expenditure, gold prices, foreign direct investment, imports, exports and political risks on the dependent variable, which is the Egyptian stock market performance which was accomplished using the EGX100 index from July 2006 to December 2022. The research problem focused on answering the main question: Is there an impact of macroeconomic variables on stock returns in the Egyptian stock market performance? The researcher found a positive significant relationship between the Egyptian stock market performance and inflation, interest rate, government expenditure, gold prices, foreign direct investment FDI and Exports. However, there is a positive insignificant relationship between the Egyptian stock market performance and imports while there is a negative insignificant relationship between the Egyptian stock market performance and political risk.

KEYWORDS: Macroeconomic factors - Inflation - interest rates - foreign direct investment - EGX100 - EViews.

INTRODUCTION

The Egyptian Exchange (EGX) is the main stock market in Egypt, and its performance is an important part of the country's economy. The market has changed and grown in many ways throughout the years, giving it a great place to study how macroeconomic issues affect it. The market has been sensitive to outside economic pressures during both times of development and times of instability.

Egyptian stock market performance is becoming a crucial economic indicator and a major place to invest and move money around. As a vital part of the country's financial system, its performance is closely linked to many things that affect the economy as a whole. This research aims to analyze the impact of key macroeconomic variables—namely inflation, interest rates, government spending, gold prices, foreign direct investment, imports, exports, and political risk—on the performance of the Egyptian stock market. This investigation seeks to clarify the connection between these variables and stock market performance, offering critical information for investors, policymakers, and financial experts to make educated decisions and refine their tactics accordingly. (Ayoub, E 2023).

Furthermore, the macroeconomic variables chosen for this study possess considerable ramifications for the Egyptian economy in its entirety. The policy on interest rates affects the cost of borrowing, decisions about investments, and the growth of the economy. When a country's currency loses value, it changes the way imports and exports work and affects enterprises' profits and competitiveness. Changes in the price of gold may show how much risk investors are willing to take and may be a safe place to put money during times of uncertainty. Inflation, on the other hand, changes how much money people can spend and how stable the economy is as a whole. Government spending affects businesses and industries that get government contracts, subsidies, or initiatives. This could have an effect on their stock prices. A lot of imports can mean that people really want foreign goods and services. But relying too much on imports might cause trade imbalances and currency problems. Foreign direct investment is money that comes from other countries and goes into domestic industries. This creates jobs, transfers technology, and increases production. Political risk includes things that can happen because of government actions, changes in policy, events in the world, and social stability. A lot of political risk can make investors less confident, cause capital flight, and make the market as a whole more volatile. All of these factors are linked to one another, and together they have an effect on how well the Egyptian stock market does. Their interactions affect the choices investors make, the profits of businesses, and the economy as a whole. As a result, stakeholders who want to understand Egypt's complicated financial markets need to know how they work (Epalanga, A 2021).

The Effect of Macroeconomic Factors on the Performance of the Egyptian Stock Market

RESEARCH PROBLEM

The study investigates the effects of inflation, interest rates, government spending, gold prices, foreign direct investment, imports, exports, and political risk on the performance of the Egyptian stock market. It aims to understand how the dynamics and performance of the Egyptian stock market are impacted by various macroeconomic factors. By examining The relationship among these factors and the stock market, the study seeks to provide insight into the factors that affect stock market volatility and fluctuations in the Egyptian environment. The Egyptian stock market, which accounts for just \$40 billion of the \$370 billion national GDP, has notably underperformed. This notable underperformance prompted the researcher to examine these factors to ascertain probable causes and remedies. The market capitalization of a single entity, such as Apple, is \$3.6 trillion, over 90 times the magnitude of the Egyptian stock market. This highlights the imperative to comprehend the factors inhibiting the market's expansion. Ayyad, M. M. R. M. (2023).

RESEARCH QUESTIONS

1. What is the impact of inflation on the Egyptian stock market performance?
2. What is the impact of interest rates on the Egyptian stock market performance?
3. What is the impact of government expenditure on the Egyptian stock market performance?
4. What is the impact of gold price on the Egyptian stock market performance?
5. What is the impact of FDI on the Egyptian stock market performance?
6. What is the impact of imports on the Egyptian stock market performance?
7. What is the impact of exports on the Egyptian stock market performance?
8. What is the impact of political risk on the Egyptian stock market performance?

RESEARCH OBJECTIVES

The following are this research study's main goals:

1. To examine the relationships and correlations between the selected macroeconomic parameters and the Egyptian stock market's performance from July 2006 to December 2022.
2. To determine the immediate and long-term impacts on the performance of the Egyptian stock market of inflation, interest rate changes, government spending, changes in the price of gold, foreign direct investment, imports, exports, and political risk.

STUDY METHODOLOGY

This investigation will use a quantitative methodology. The Egyptian Central Bank, the Egyptian Exchange, global financial databases, CAPMAS, and other pertinent publications are among the trustworthy sources from which data will be gathered. A thorough examination of trends and patterns will be possible due to the chosen time frame, which will span from July 2006 to December 2022.

The Granger Causality test, regression models, and the unit root test will all be used to analyze the data statistically. Furthermore, the research will include visual aids like charts and graphs to illustrate the connections between the variables and the stock market.

STUDY POPULATION AND SAMPLE:

The study's population consists of the institutions that are listed on the performance of the Egyptian stock market, while the sample consists of the enterprises that are listed on the EGX 100.

The index is subject to a semi-annual review, which could result in changes to the stocks that make up the index. Based on monthly reports released by the stock exchange and the Central Bank of Egypt during the study period, which ran from July 2006 to December 2022, the data for the study includes the monthly series for the returns of the EGX 100 index.

240 companies are listed on the performance of the Egyptian stock market.

First: Descriptive analysis results

This was done by extracting the descriptive statistics for the study variables (Independent variables), (Dependent variables). The descriptive statistics deal with mean, Median, standard deviation, skewness and kurtosis. The following table (1) illustrates the descriptive statistics of the study's variables:

Table (4-1): Descriptive Statistics of Study variables:

Variables	Mean	Median	SD	Min	Max	Skewness	Kurtosis
Inflation	0.012621	0.012445	0.077917	-0.249121	0.325464	0.523457	7.306210
Interest Rate	0.086440	0.0900	0.079089	-0.230211	0.321450	-0.97933	5.840043

The Effect of Macroeconomic Factors on the Performance of the Egyptian Stock Market

Government Expenditure	0.017109	0.022187	0.155737	-0.965880	0.663214	-2.84687	20.79995
Gold Contracts	0.056791	0.010462	0.232156	-0.696793	0.974128	2.415817	10.66834
FDI	0.026256	0.012057	0.148285	-0.332454	0.970500	3.550108	22.40773
Imports	-0.12267	0.013012	1.693628	-3.99467	3.598787	-0.35338	2.672508
Exports	0.057235	0.026441	0.234942	-0.987542	0.984517	0.875184	9.973164
Political Risk	0.263164	0.187453	0.332778	-0.965454	0.987478	-0.12125	4.459417
Egyptian stock market performance	0.011510	0.008645	0.097998	-0.313920	0.673954	1.451694	13.71964

Source: The Researcher

Unit Root Test:

The unit root test is a basic tool for analyzing time series data. It tells you if a series is stationary or not. Stationarity is essential in econometric modeling, as non-stationary time series can result in incorrect and erroneous regression outcomes. A unit root means that shocks to the time series can have permanent consequences, which makes the series non-stationary. To make it stationary, you need to change it or do other changes.

The Augmented Dickey-Fuller (ADF) test, which is an extension of the Dickey and Fuller (1979) test, is used in this work to do the unit root test. The ADF test improves the basic Dickey-Fuller test by letting higher-order autoregressive processes work with it. This makes it better at finding unit roots in complex time series. This test is very important since it makes sure that the time series data is stationary, which is necessary for the next econometric models to be valid. This way, you don't get into trouble with spurious regression.

- Inflation:**

Table (4-2): Model Summary Unit Root Test (inflation rates)

Augmented Dickey-Fuller Unit Root Test on INF		
Null Hypothesis: INF has a unit root		
Exogenous: Constant		
Lag Length: 0 (Automatic - based on SIC, maxlag=14)		
	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-15.68823	0.0000
Test critical values: 1% level	-3.463576	
5% level	-2.876047	
10% level	-2.574581	

*MacKinnon (1996) one-sided p-values.

- Interest Rate:**

Table (4-3): Model Summary Unit Root Test (Interest Rate)

Augmented Dickey-Fuller Unit Root Test on INT		
Null Hypothesis: INT has a unit root		
Exogenous: Constant		
Lag Length: 2 (Automatic - based on SIC, maxlag=14)		
	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-4.905049	0.0001
Test critical values: 1% level	-3.463924	
5% level	-2.876200	
10% level	-2.574663	

*MacKinnon (1996) one-sided p-values.

The Effect of Macroeconomic Factors on the Performance of the Egyptian Stock Market

- **Government expenditure:**

Table (4-4): Model Summary Unit Root Test (Government expenditure)

Augmented Dickey-Fuller Unit Root Test on GOV_EX		
Null Hypothesis: GOV_EX has a unit root		
Exogenous: Constant		
Lag Length: 0 (Automatic - based on SIC, maxlag=14)		
	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-9.108481	0.0000
Test critical values: 1% level	-3.463576	
5% level	-2.876047	
10% level	-2.574581	

*MacKinnon (1996) one-sided p-values.

- **Gold price:**

Table (4-5): Model Summary Unit Root Test (Gold price)

Augmented Dickey-Fuller Unit Root Test on GOLD		
Null Hypothesis: GOLD has a unit root		
Exogenous: Constant		
Lag Length: 1 (Automatic - based on SIC, maxlag=14)		
	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-4.603152	0.0002
Test critical values: 1% level	-3.463749	
5% level	-2.876123	
10% level	-2.574622	

*MacKinnon (1996) one-sided p-values.

- **Foreign direct investment:**

Table (4-6): Model Summary Unit Root Test (FDI)

Augmented Dickey-Fuller Unit Root Test on FDI		
Null Hypothesis: FDI has a unit root		
Exogenous: Constant		
Lag Length: 0 (Automatic - based on SIC, maxlag=14)		
	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-12.57976	0.0000
Test critical values: 1% level	-3.463576	
5% level	-2.876047	
10% level	-2.574581	

*MacKinnon (1996) one-sided p-values.

The Effect of Macroeconomic Factors on the Performance of the Egyptian Stock Market

- Imports:

Table (4-7): Model Summary Unit Root Test (Imports)

Augmented Dickey-Fuller Unit Root Test on IMP		
Null Hypothesis: IMP has a unit root		
Exogenous: Constant		
Lag Length: 0 (Automatic - based on SIC, maxlag=14)		
	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-9.334317	0.0000
Test critical values: 1% level	-3.463576	
5% level	-2.876047	
10% level	-2.574581	

*MacKinnon (1996) one-sided p-values.

- Exports:

Table (4-8): Model Summary Unit Root Test (Exports)

Augmented Dickey-Fuller Unit Root Test on EXP01		
Null Hypothesis: EXP01 has a unit root		
Exogenous: Constant		
Lag Length: 2 (Automatic - based on SIC, maxlag=14)		
	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-1.822300	0.3689
Test critical values: 1% level	-3.463924	
5% level	-2.876200	
10% level	-2.574663	

*MacKinnon (1996) one-sided p-values.

Table (4-9): Model Summary Unit Root Test (Exports)

Augmented Dickey-Fuller Unit Root Test on D(EXP01)		
Null Hypothesis: D(EXP01) has a unit root		
Exogenous: Constant		
Lag Length: 1 (Automatic - based on SIC, maxlag=14)		
	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-23.38975	0.0000
Test critical values: 1% level	-3.463924	
5% level	-2.876200	
10% level	-2.574663	

*MacKinnon (1996) one-sided p-values.

The Effect of Macroeconomic Factors on the Performance of the Egyptian Stock Market

- Political risk:

Table (4-10): Model Summary Unit Root Test (Political risk)

Augmented Dickey-Fuller Unit Root Test on POL_RX		
Null Hypothesis: POL_RX has a unit root		
Exogenous: Constant		
Lag Length: 0 (Automatic - based on SIC, maxlag=14)		
	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-12.55451	0.0000
Test critical values: 1% level	-3.463576	
5% level	-2.876047	
10% level	-2.574581	

*MacKinnon (1996) one-sided p-values.

- Egyptian stock market performance:

Table (4-11): Model Summary Unit Root Test (Egyptian stock market)

Augmented Dickey-Fuller Unit Root Test on EGYPTIAN_STOCK_MARKET		
Null Hypothesis: EGYPTIAN_STOCK_MARKET has a unit root		
Exogenous: Constant		
Lag Length: 0 (Automatic - based on SIC, maxlag=14)		
	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-14.92729	0.0000
Test critical values: 1% level	-3.463576	
5% level	-2.876047	
10% level	-2.574581	

*MacKinnon (1996) one-sided p-values.

The unit root test results confirm that the inflation, interest rate, government expenditure, gold price, FDI, Imports, political risk, and the Egyptian stock market variable's data series are stationary, indicating consistent statistical properties and temporary effects of any shocks over time except the export variable's data series is non-stationary, indicating varying statistical properties over time and the potential for shocks to have lasting effects but it was stabilized by applying the first difference (1st difference).

Second: The Hypothesis test

H₁: There is a negative relationship between inflation rates and the stock market index in Egypt.

This model is used to examine the impact of the independent variables (inflation rates) on the dependent variable (Egyptian stock market performance index). These models are illustrated according following table:

Table (4-12): Model Summary to impact of the independent variable (inflation rates) on the dependent variable (Egyptian stock market performance index)

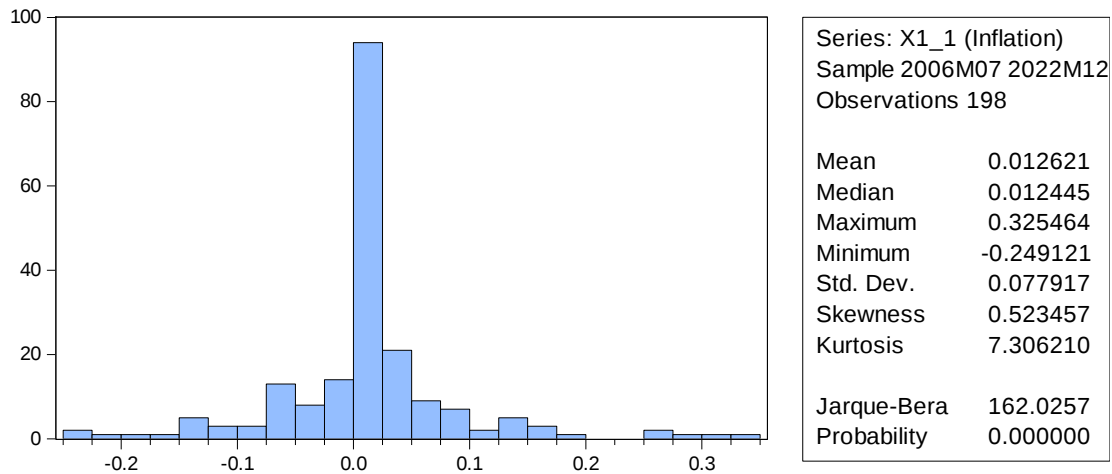
Dependent Variable: Y				
Method: Least Squares				
Date: 08/29/24 Time: 10:16				
Sample: 1 198				
Included observations: 198				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.001267	0.005404	0.234496	0.8148
X1_1	0.811582	0.068631	11.82531	0.0000
R-squared	0.416385	Mean dependent var		0.011510
Adjusted R-squared	0.413407	S.D. dependent var		0.097998
S.E. of regression	0.075056	Akaike info criterion		-2.331124
Sum squared resid	1.104137	Schwarz criterion		-2.297909
Log likelihood	232.7812	Hannan-Quinn criter.		-2.317679
F-statistic	139.8379	Durbin-Watson stat		1.945448
Prob(F-statistic)	0.000000			

** Significant level 0.01

Source: The Researcher

The Effect of Macroeconomic Factors on the Performance of the Egyptian Stock Market

Figure (4-1) The impact of the independent variable (inflation rates) on the dependent variable (Egyptian stock market performance index)



Source: The Researcher

According to the above table (4-12), it is clear that:

The adjusted R Square is equal to (0.416). This implies that 41.6% of inflation rates was measured impact on Egyptian stock market performance index and the remaining percentage is due to other factors outside the model.

As $F = 139.837$, $\text{sig} = 0.000$, it indicates that inflation rates variable has a significant impact on Egyptian stock market performance index.

The model can be written as follow:

$$\text{ESM} = \alpha + \beta \text{ INF}$$

$$\text{ESM} = 0.003 + 0.812 \cdot \text{INF}$$

H₁: Rejected: The Egyptian stock market index and inflation rates have a positive correlation.

H₂: Interest rates and the Egyptian stock market index have a negative correlation.

The effect of the independent variables (interest rates) on the dependent variable (the performance index of the Egyptian stock market) is investigated using this model. The following table provides examples of these models:

Table (4-13): Model Summary to impact of the independent variable (interest rates) on the dependent variable (Egyptian stock market performance index)

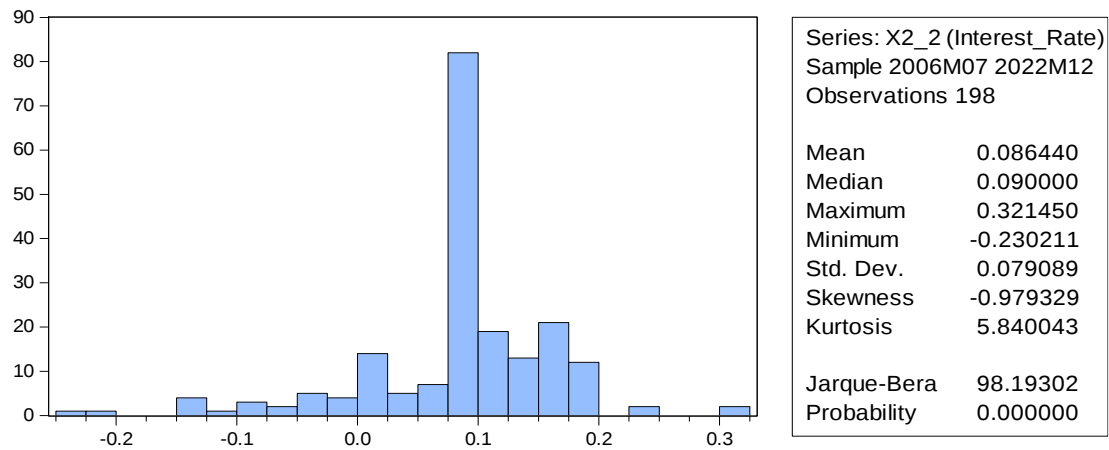
Dependent Variable: Y				
Method: Least Squares				
Date: 08/29/24 Time: 10:33				
Sample: 1 198				
Included observations: 198				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.032753	0.009432	-3.472684	0.0006
X2_2	0.512074	0.080594	6.353726	0.0000
R-squared	0.170791	Mean dependent var		0.011510
Adjusted R-squared	0.166560	S.D. dependent var		0.097998
S.E. of regression	0.089465	Akaike info criterion		-1.979893
Sum squared resid	1.568775	Schwarz criterion		-1.946678
Log likelihood	198.0094	Hannan-Quinn criter.		-1.966448
F-statistic	40.36984	Durbin-Watson stat		1.970899
Prob(F-statistic)	0.000000			

**Significant level 0.01

Source: The Researcher

The Effect of Macroeconomic Factors on the Performance of the Egyptian Stock Market

Figure (4-2) The impact of the independent variables (Interest Rate) on the dependent variable (Egyptian stock market performance index)



Source: The Researcher

According to the above table (4-13), it is clear that:

The adjusted R Square is equal to (0.170). This implies that 17% of interest rates was measured impact on Egyptian stock market performance index and the remaining percentage is due to other factors outside the model.

As $F = 40.369$, $\text{sig} = 0.000$, it indicates that interest rates variable has a significant impact on Egyptian stock market performance index.

The model can be written as follow:

$$\text{ESM} = \alpha + \beta \text{INT}$$

$$\text{ESM} = -0.033 + 0.512 \cdot \text{INT}$$

H₂: Rejected: A favorable correlation exists between interest rates and the stock market index in Egypt.

H₃: A favorable correlation exists between Government expenditure and the stock market index in Egypt.

This model is used to assess the influence of the independent variable (Government expenditure) on the dependent variable (Egyptian stock market performance index). These models are illustrated according following table:

Table (4-14): Model Summary to impact of the independent variable (Government expenditure) on the dependent variable (Egyptian stock market performance)

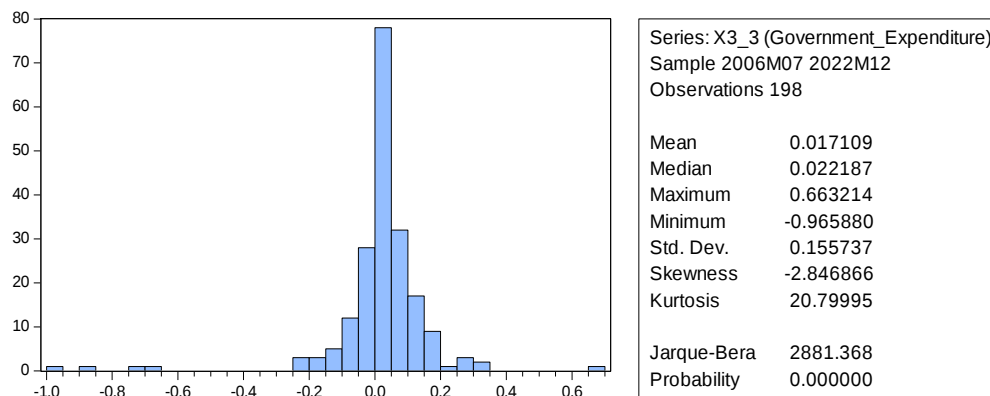
Dependent Variable: Y				
Method: Least Squares				
Date: 08/29/24 Time: 10:38				
Sample: 1 198				
Included observations: 198				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.005757	0.005937	0.969621	0.3334
X3_3	0.336316	0.037988	8.853221	0.0000
R-squared	0.285661	Mean dependent var		0.011510
Adjusted R-squared	0.282016	S.D. dependent var		0.097998
S.E. of regression	0.083037	Akaike info criterion		-2.129007
Sum squared resid	1.351454	Schwarz criterion		-2.095792
Log likelihood	212.7717	Hannan-Quinn criter.		-2.115563
F-statistic	78.37952	Durbin-Watson stat		2.006518
Prob(F-statistic)	0.000000			

** Significant level 0.01

Source: The Researcher

The Effect of Macroeconomic Factors on the Performance of the Egyptian Stock Market

Figure (4-3): The impact of the independent variable (Government expenditure) on the dependent variable (Egyptian stock market performance index)



Source: The Researcher

According to the above table (4-14), it is clear that:

The adjusted R Square is equal to (0.285). This implies that 28.5% of Government expenditure was measured impact on Egyptian stock market performance index and the remaining percentage is due to other factors outside the model.

As F= 78.379, sig= 0.000, it indicates that Government expenditure variable has a significant Egyptian stock market performance index.

The model can be written as follow:

$$ESM = \alpha + \beta \text{ GOV-EX}$$

$$ESM = 0.006 + 0.336 * \text{GOV-EX}$$

H₃: Accepted.

H₄: There is a negative relationship between gold price volatility and the stock market index in Egypt.

This model used to examine the impact of the independent variable (gold price volatility) on the dependent variable (Egyptian stock market performance index). These models are illustrated according following table:

Table (4-15): Model Summary to impact of the independent variable (gold price volatility) on the dependent variable (Egyptian stock market performance index)

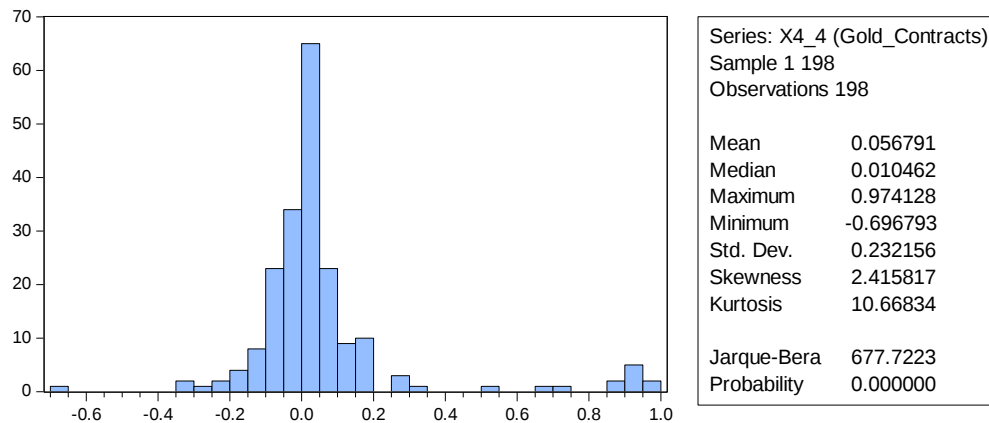
Dependent Variable: Y				
Method: Least Squares				
Date: 08/29/24 Time: 10:47				
Sample: 1 198				
Included observations: 198				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.000516	0.006388	0.080747	0.9357
X4_4	0.193597	0.026793	7.225534	0.0000
R-squared	0.210341	Mean dependent var		0.011510
Adjusted R-squared	0.206312	S.D. dependent var		0.097998
S.E. of regression	0.087305	Akaike info criterion		-2.028763
Sum squared resid	1.493951	Schwarz criterion		-1.995549
Log likelihood	202.8476	Hannan-Quinn criter.		-2.015319
F-statistic	52.20834	Durbin-Watson stat		1.867333
Prob(F-statistic)	0.000000			

** Significant level 0.01

Source: The Researcher

The Effect of Macroeconomic Factors on the Performance of the Egyptian Stock Market

Figure (4-4): The impact of the independent variable (gold price volatility) on the dependent variable (Egyptian stock market performance index)



Source: The Researcher

According to the above table (4-15), it is clear that:

The adjusted R Square is equal to (0.210). This implies that 21% of gold price volatility was measured impact on Egyptian stock market performance index and the remaining percentage is due to other factors outside the model.

As $F = 52.208$, $\text{sig} = 0.000$, it indicates that gold price volatility variable has a significant impact on Egyptian stock market performance index.

The model can be written as follow:

$$\text{ESM} = \alpha + \beta \text{ Gold}$$

$$\text{ESM} = 0.001 + 0.194 * \text{Gold}$$

H4: Rejected: There is a positive relationship between gold price volatility and the stock market index in Egypt.

H5: There is a positive relationship between Foreign Direct Investment (FDI) and the stock market index in Egypt.

This model is used to examine the impact of the independent variable (Foreign Direct Investment (FDI)) on the dependent variable (Egyptian stock market performance index). These models are illustrated according following table:

Table (4-16): Model Summary to impact of the independent variable (Foreign Direct Investment (FDI)) on the dependent variable (Egyptian stock market performance index)

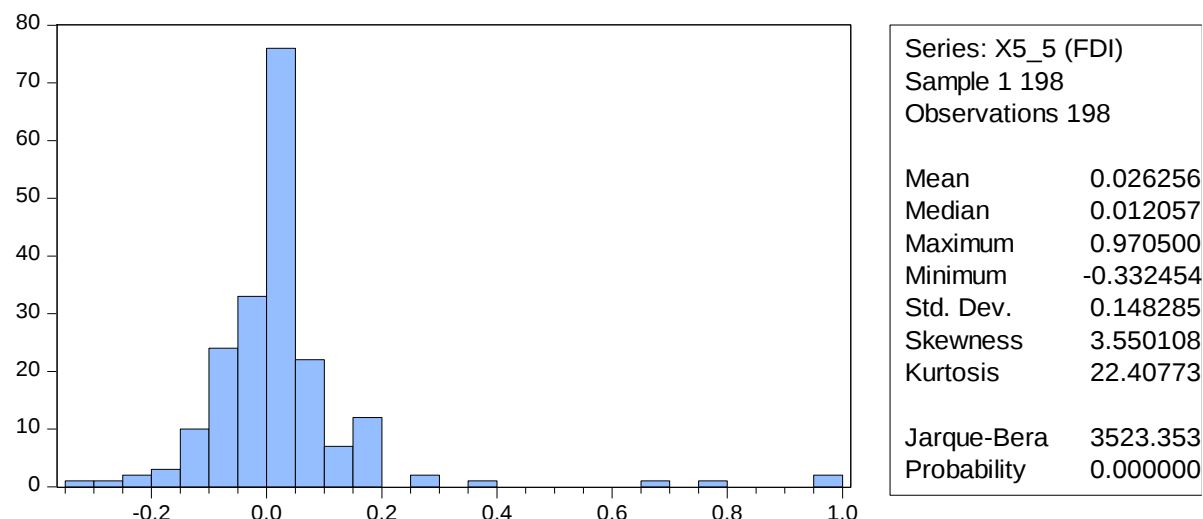
Dependent Variable: Y				
Method: Least Squares				
Date: 08/29/24 Time: 10:52				
Sample: 1 198				
Included observations: 198				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.001858	0.005893	0.315340	0.7528
X5_5	0.367617	0.039228	9.371294	0.0000
R-squared	0.309424	Mean dependent var		0.011510
Adjusted R-squared	0.305901	S.D. dependent var		0.097998
S.E. of regression	0.081644	Akaike info criterion		-2.162839
Sum squared resid	1.306496	Schwarz criterion		-2.129624
Log likelihood	216.1211	Hannan-Quinn criter.		-2.149395
F-statistic	87.82116	Durbin-Watson stat		1.630335
Prob(F-statistic)	0.000000			

** Significant level 0.01

Source: The Researcher

The Effect of Macroeconomic Factors on the Performance of the Egyptian Stock Market

Figure (4-5): The impact of the independent variable (Foreign Direct Investment (FDI)) on the dependent variable (Egyptian stock market performance index)



Source: The Researcher

According to the above table (4-16), it is clear that:

The adjusted R Square is equal to (0.309). This implies that 30.9% of Foreign Direct Investment (FDI) was measured impact on Egyptian stock market performance index and the remaining percentage is due to other factors outside the model.

As $F = 87.821$, $\text{sig} = 0.000$, it indicates that Foreign Direct Investment (FDI) variable has a significant impact on Egyptian stock market performance index.

The model can be written as follow:

$$\text{ESM} = \alpha + \beta \text{ FDI}$$

$$\text{ESM} = 0.002 + 0.368 \cdot \text{FDI}$$

H_5 : Accepted.

H_6 : There is a negative relationship between Imports and the stock market index in Egypt.

This model is used to examine the impact of the independent variable (Imports) on the dependent variable (Egyptian stock market performance index). These models are illustrated according following table:

Table (4-17): Model Summary to impact of the independent variable (Imports) on the dependent variable (Egyptian stock market performance index)

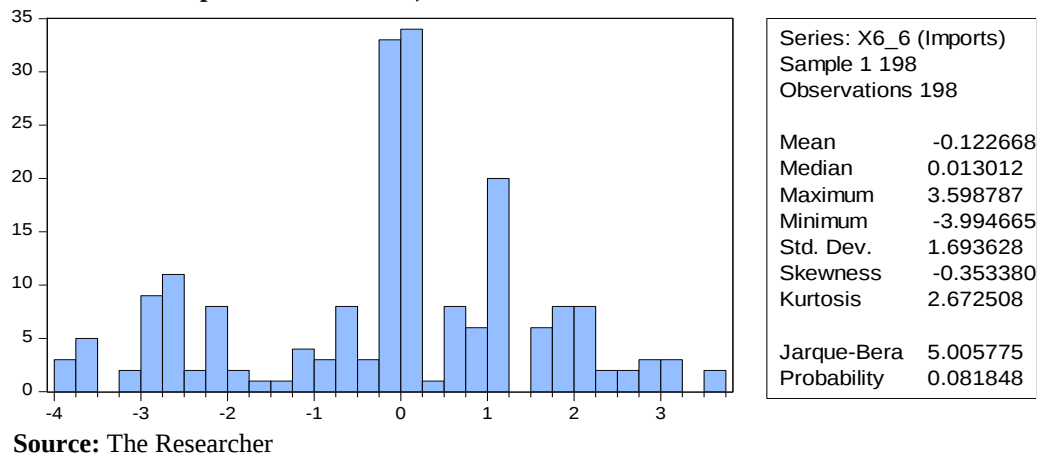
Dependent Variable: Y				
Method: Least Squares				
Date: 08/29/24 Time: 11:00				
Sample: 1 198				
Included observations: 198				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.012335	0.006953	1.774002	0.0776
X6_6	0.006721	0.004105	1.637132	0.1032
R-squared	0.013490	Mean dependent var		0.011510
Adjusted R-squared	0.008457	S.D. dependent var		0.097998
S.E. of regression	0.097582	Akaike info criterion		-1.806191
Sum squared resid	1.866372	Schwarz criterion		-1.772977
Log likelihood	180.8130	Hannan-Quinn criter.		-1.792747
F-statistic	2.680201	Durbin-Watson stat		2.152773
Prob(F-statistic)	0.103207			

** Significant level 0.01

Source: The Researcher

The Effect of Macroeconomic Factors on the Performance of the Egyptian Stock Market

Figure (4-6): The impact of the independent variable (Imports) on the dependent variable (Egyptian stock market performance index)



According to the above table (4-17), it is clear that:

The adjusted R Square is equal to (0.013). This implies that 1.3% of Imports was measured impact on Egyptian stock market performance index and the remaining percentage is due to other factors outside the model.

As $F = 2.680$, $sig = 0.1032$, it indicates that Imports variable has non-significant impact on Egyptian stock market performance index.

The model can be written as follow:

$$ESM = \alpha + \beta IMP$$

$$ESM = 0.012 + 0.007 * IMP$$

H₆: Rejected: There is insignificant relationship between Imports and the stock market index in Egypt.

H₇: There is a positive relationship between Exports and the stock market index in Egypt.

This model is used to examine the impact of the independent variable (Exports) on the dependent variable (Egyptian stock market performance index). These models are illustrated according following table:

Table (4-18): Model Summary to impact of the independent variable (Exports) on the dependent variable (Egyptian stock market performance index)

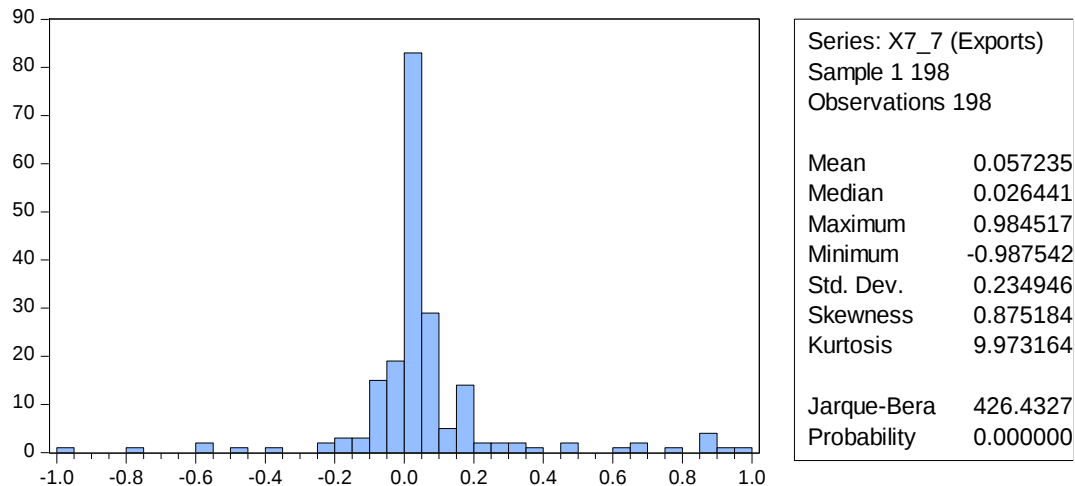
Dependent Variable: Y				
Method: Least Squares				
Date: 08/29/24 Time: 11:05				
Sample: 1 198				
Included observations: 198				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.002051	0.006599	0.310873	0.7562
X7_7	0.165265	0.027355	6.041481	0.0000
R-squared	0.156987	Mean dependent var		0.011510
Adjusted R-squared	0.152686	S.D. dependent var		0.097998
S.E. of regression	0.090206	Akaike info criterion		-1.963383
Sum squared resid	1.594890	Schwarz criterion		-1.930168
Log likelihood	196.3749	Hannan-Quinn criter.		-1.949939
F-statistic	36.49950	Durbin-Watson stat		2.207521
Prob(F-statistic)	0.000000			

** Significant level 0.01

Source: The Researcher

The Effect of Macroeconomic Factors on the Performance of the Egyptian Stock Market

Figure (4-7): The impact of the independent variable (Exports) on the dependent variable (Egyptian stock market performance index)



Source: The Researcher

According to the above table (4-18), it is clear that:

The adjusted R Square is equal to (0.157). This implies that 157% of Exports was measured impact on Egyptian stock market performance index and the remaining percentage is due to other factors outside the model.

As $F = 36.499$, $\text{sig} = 0.000$, it indicates that Exports variable has a significant impact on Egyptian stock market performance index.

The model can be written as follow:

$$\text{ESM} = \alpha + \beta \text{EXP}$$

$$\text{ESM} = 0.002 + 0.165 \cdot \text{EXP}$$

H₇: Accepted.

H₈: There is a positive relationship between Political Risk on the stock market index in Egypt.

This model is used to examine the impact of the independent variable (Political Risk) on the dependent variable (Egyptian stock market performance index). These models are illustrated according following table:

Table (4-19): Model Summary to impact of the independent variable (Political Risk) on the dependent variable (Egyptian stock market performance index)

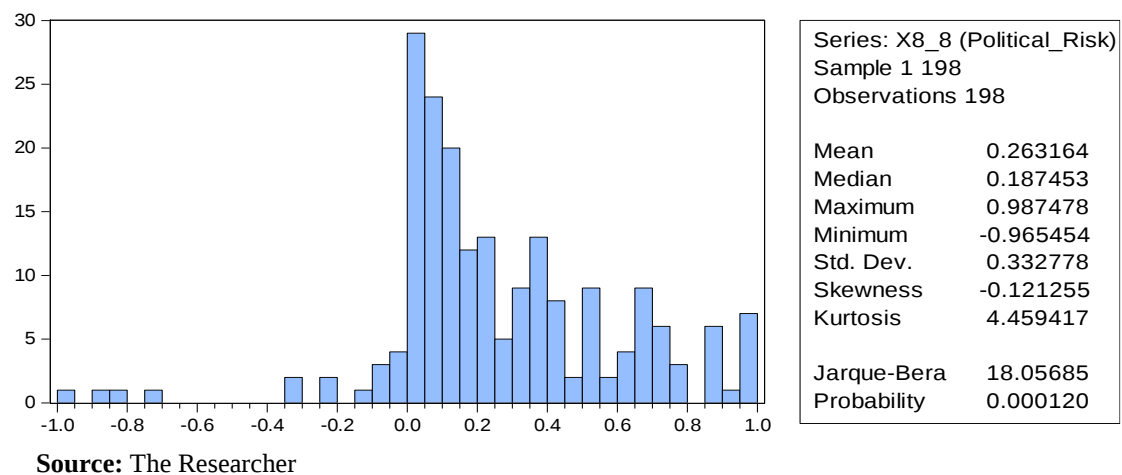
Dependent Variable: Y				
Method: Least Squares				
Date: 08/29/24 Time: 11:08				
Sample: 1 198				
Included observations: 198				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.002172	0.008845	0.245538	0.8063
X8_8	0.035486	0.020881	1.699417	0.0908
R-squared	0.014521	Mean dependent var		0.011510
Adjusted R-squared	0.009493	S.D. dependent var		0.097998
S.E. of regression	0.097531	Akaike info criterion		-1.807237
Sum squared resid	1.864422	Schwarz criterion		-1.774022
Log likelihood	180.9165	Hannan-Quinn criter.		-1.793793
F-statistic	2.888019	Durbin-Watson stat		2.081957
Prob(F-statistic)	0.090827			

** Significant level 0.01

Source: The Researcher

The Effect of Macroeconomic Factors on the Performance of the Egyptian Stock Market

Figure (4-8): The impact of the independent variable (Political Risk) on the dependent variable (Egyptian stock market performance index)



According to the above table (4-19), it is clear that:

The adjusted R Square is equal to (0.014). This implies that 1.4% of Political Risk was measured impact on stock market index and the remaining percentage is due to other factors outside the model.

As $F = 2.888$, $\text{sig} = 0.0908$, it indicates that Political Risk variable has non-significant impact on stock market index.

The model can be written as follow:

$$\text{ESM} = \alpha + \beta \text{ Pol-Rx}$$

$$\text{ESM} = 0.002 + 0.035 * \text{Pol-Rx}$$

H₈: Rejected: There is a negative relationship between Political Risk on the stock market index in Egypt.

Multiple regression

This model is used to examine the impact of the independent variables macroeconomic variables (interest rates, gold price, inflation, government expenditure, imports, Exports, foreign direct investment, and political risk) on the dependent variable (Egyptian stock market performance index) as the following table (4-20):

Table (4-20): Model Summary to impact of the independent variables (macroeconomic variables) on the dependent variable (Egyptian stock market performance index)

Dependent Variable: EGYPTIAN_STOCK_MARKET				
Method: Least Squares				
Date: 08/31/24 Time: 18:01				
Sample: 2006M07 2022M12				
Included observations: 198				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.017334	0.007222	-2.400133	0.0174
INF	0.470215	0.061277	7.673612	0.0000
INT	0.111330	0.056638	1.965623	0.0508
GOV_EX	0.161455	0.028839	5.598552	0.0000
GOLD	0.061847	0.019128	3.233247	0.0014
FDI	0.175104	0.031085	5.633077	0.0000
IMP	0.000432	0.002435	0.177309	0.8595
EXP01	0.056855	0.018461	3.079702	0.0024
POL_RX	-0.002990	0.012775	-0.234034	0.8152
R-squared	0.683745	Mean dependent var	0.011510	
Adjusted R-squared	0.670359	S.D. dependent var	0.097998	
S.E. of regression	0.056265	Akaike info criterion	-2.873111	
Sum squared resid	0.598320	Schwarz criterion	-2.723644	
Log likelihood	293.4379	Hannan-Quinn criter.	-2.812611	
F-statistic	51.07749	Durbin-Watson stat	1.624907	
Prob(F-statistic)	0.000000			

Source: The Researcher

The Effect of Macroeconomic Factors on the Performance of the Egyptian Stock Market

The previous test revealed that inflation is the most significant factor influencing the Egyptian stock market performance index, while imports have the least impact.

Estimation Equation:

$$\text{Egyptian stock market performance} = \alpha (1) + \beta (2) * \text{INF} + \beta (3) * \text{INT} + \beta (4) * \text{GOV_EX} + \beta (5) * \text{GOLD} + \beta (6) * \text{FDI} + \beta (7) * \text{IMP} + \beta (8) * \text{EXP01} - \beta (9) * \text{POL_RX}$$

The Model:

$$\text{Egyptian stock market performance} = -0.02 + 0.47 * \text{INF} + 0.11 * \text{INT} + 0.16 * \text{GOV-EX} + 0.06 * \text{Gold} + 0.18 * \text{FDI} + 0.0004 * \text{IMP} + 0.06 * \text{EXP} - 0.003 * \text{Pol-RX}$$

Granger Causality Test

The Granger causality test is an essential statistical method used to ascertain if one time series may forecast another. This test operates on the assumption that if a time series X Granger-causes another series Y, the historical values of X should give considerable predictive information for Y, above that offered by the previous values of Y alone. Traditionally, this test used linear models; however, recent advancements have included nonparametric approaches to address inherent constraints, such as the excessive rejection of the null hypothesis, a known issue in the widely used Hiemstra-Jones test. (Diks, C., & Panchenko, V. 2006). The recently proposed nonparametric Granger causality test in the cited research alleviates the issue of excessive rejection by utilizing local conditional dependence measures rather than global ones. These local measures exhibit reduced sensitivity to fluctuations in conditional distributions under the null hypothesis. This method improves test accuracy by enabling bandwidth adjustment according to sample size, thus enhancing the reliability of assessing whether one time series genuinely Granger-causes another, especially in nonlinear data contexts (Chao, J., Corradi, V., & Swanson, N. R. 2001).

Table (4-21) Granger Causality Test

Pairwise Granger Causality Tests Date: 08/31/24 Time: 13:55 Sample: 2006M07 2022M12 Lags: 2			
Null Hypothesis:	Obs	F-Statistic	Prob.
INT does not Granger Cause POL_RX POL_RX does not Granger Cause INT	196	1.21811 0.01423	0.2981 0.9859
INF does not Granger Cause POL_RX POL_RX does not Granger Cause INF	196	0.26513 0.08723	0.7674 0.9165
IMP does not Granger Cause POL_RX POL_RX does not Granger Cause IMP	196	2.46070 1.50002	0.0881 0.2257
GOV_EX does not Granger Cause POL_RX POL_RX does not Granger Cause GOV_EX	196	1.16508 1.41196	0.3141 0.2462
GOLD does not Granger Cause POL_RX POL_RX does not Granger Cause GOLD	196	0.15216 1.79619	0.8590 0.1687
FDI does not Granger Cause POL_RX POL_RX does not Granger Cause FDI	196	4.03035 0.88124	0.0193 0.4159
EXP01 does not Granger Cause POL_RX POL_RX does not Granger Cause EXP01	196	1.80354 1.10584	0.1675 0.3330
EGYPTIAN_STOCK_MARKET does not Granger Cause POL_RX POL_RX does not Granger Cause EGYPTIAN_STOCK_MARKET	196	0.25532 2.34759	0.7749 0.0984

The Effect of Macroeconomic Factors on the Performance of the Egyptian Stock Market

INF does not Granger Cause INT INT does not Granger Cause INF	196	3.94884 2.51168	0.0209 0.0838
IMP does not Granger Cause INT INT does not Granger Cause IMP	196	0.23184 0.04731	0.7933 0.9538
GOV_EX does not Granger Cause INT INT does not Granger Cause GOV_EX	196	0.83756 0.75529	0.4343 0.4713
GOLD does not Granger Cause INT INT does not Granger Cause GOLD	196	0.15126 1.76861	0.8597 0.1734
FDI does not Granger Cause INT INT does not Granger Cause FDI	196	1.44748 1.93699	0.2377 0.1470
EXP01 does not Granger Cause INT INT does not Granger Cause EXP01	196	0.14763 0.09192	0.8629 0.9122
EGYPTIAN_STOCK_MARKET does not Granger Cause INT INT does not Granger Cause EGYPTIAN_STOCK_MARKET	196	3.07042 0.44570	0.0487 0.6410
IMP does not Granger Cause INF INF does not Granger Cause IMP	196	0.32860 0.08609	0.7203 0.9175
GOV_EX does not Granger Cause INF INF does not Granger Cause GOV_EX	196	0.45497 5.72008	0.6352 0.0039
GOLD does not Granger Cause INF INF does not Granger Cause GOLD	196	1.83431 4.80173	0.1625 0.0092
FDI does not Granger Cause INF INF does not Granger Cause FDI	196	1.96410 2.42007	0.1431 0.0916
EXP01 does not Granger Cause INF INF does not Granger Cause EXP01	196	0.03873 2.49652	0.9620 0.0851
EGYPTIAN_STOCK_MARKET does not Granger Cause INF INF does not Granger Cause EGYPTIAN_STOCK_MARKET	196	0.61551 0.22518	0.5414 0.7986
GOV_EX does not Granger Cause IMP IMP does not Granger Cause GOV_EX	196	0.32146 1.03997	0.7255 0.3555
GOLD does not Granger Cause IMP IMP does not Granger Cause GOLD	196	0.66209 0.12004	0.5170 0.8870
FDI does not Granger Cause IMP IMP does not Granger Cause FDI	196	1.19136 1.04881	0.3061 0.3524
EXP01 does not Granger Cause IMP IMP does not Granger Cause EXP01	196	2.22974 2.40478	0.1103 0.0930

The Effect of Macroeconomic Factors on the Performance of the Egyptian Stock Market

EGYPTIAN_STOCK_MARKET does not Granger Cause IMP IMP does not Granger Cause EGYPTIAN_STOCK_MARKET	196	0.03438 0.61872	0.9662 0.5397
GOLD does not Granger Cause GOV_EX GOV_EX does not Granger Cause GOLD	196	0.72178 5.63402	0.4872 0.0042
FDI does not Granger Cause GOV_EX GOV_EX does not Granger Cause FDI	196	5.74568 3.27056	0.0038 0.0401
EXP01 does not Granger Cause GOV_EX GOV_EX does not Granger Cause EXP01	196	0.02851 7.20715	0.9719 0.0010
EGYPTIAN_STOCK_MARKET does not Granger Cause GOV_EX GOV_EX does not Granger Cause EGYPTIAN_STOCK_MARKET	196	10.6015 5.61155	4.E-05 0.0043
FDI does not Granger Cause GOLD GOLD does not Granger Cause FDI	196	7.13852 0.44523	0.0010 0.6413
EXP01 does not Granger Cause GOLD GOLD does not Granger Cause EXP01	196	0.63671 0.61731	0.5301 0.5405
EGYPTIAN_STOCK_MARKET does not Granger Cause GOLD GOLD does not Granger Cause EGYPTIAN_STOCK_MARKET	196	15.3528 0.30663	7.E-07 0.7363
EXP01 does not Granger Cause FDI FDI does not Granger Cause EXP01	196	1.30211 1.54542	0.2744 0.2159
EGYPTIAN_STOCK_MARKET does not Granger Cause FDI FDI does not Granger Cause EGYPTIAN_STOCK_MARKET	196	2.88380 10.8064	0.0584 4.E-05
EGYPTIAN_STOCK_MARKET does not Granger Cause EXP01 EXP01 does not Granger Cause EGYPTIAN_STOCK_MARKET	196	2.93892 3.88013	0.0553 0.0223

The Granger causality test findings show the following cause-and-effect relationships:

1. Inflation: The study finds that inflation Granger-causes shifts in interest rates, government expenditures, and gold prices. This means that historical inflation rates can help us guess how these factors will evolve in the future. For instance, if inflation goes up, interest rates are likely to go up, the government will have to change how much it spends, and gold prices will go up and down.
2. Foreign Direct Investment (FDI): The results indicate that FDI Granger-causes political risks, government spending, and changes in gold prices. This means that past levels of foreign direct investment can predict future levels of political risks, adjustments in government spending, and variations in gold prices. Thus, an increase in FDI is associated with higher political risks and may influence how much the government spends and the fluctuations in gold prices.

The Effect of Macroeconomic Factors on the Performance of the Egyptian Stock Market

3. Government Spending: According to the data, government spending fluctuates the price of gold, exports, and stocks on the Egyptian stock exchange. This implies that historical trends in government expenditure can forecast future modifications in the price of gold, export volumes, and the performance of the Egyptian stock market. For example, increased government expenditure may influence export volume, stock market indexes, and gold prices.
4. Exports: According to the analysis, exports exert a Granger impact on stock prices on the Egyptian stock market. This suggests that historical export activity can be used to forecast future stock market success. As a result, rising exports typically have an impact on Egyptian stock values.
5. The results indicate that the performance of the Egyptian stock market is influenced by stock prices, which are a direct consequence of government expenditure, gold price, FDI and inflation. This means that fluctuations in stock market prices can predict future changes in inflation rates, government expenditure, gold price and FDI.

CONCLUSION

1. H1: The findings demonstrated a robust and statistically significant positive correlation between inflation and the performance of the Egyptian stock market, evidenced by a coefficient of 0.470215 and a highly significant p-value of less than 0.01. This finding is consistent with Reddy (2012), who identified a substantial correlation between inflation and stock prices, but contrasts with Mawanda & Setiyono (2023), who indicated an insignificant effect of inflation on stock market performance in Egypt and Indonesia, respectively.
2. H2: The findings indicated a positive correlation between interest rates and stock market returns, evidenced by a coefficient of 0.111330 and a marginally significant p-value of 0.0508. This suggests that increasing interest rates may exert a marginally beneficial impact on the performance of the Egyptian stock market. The results correspond with the study undertaken by Mawanda & Setiyono (2023) in Indonesia, which similarly identified a substantial favorable link between interest rates and equity prices. Nevertheless, they contrast with the research conducted by Andersson & Fogelberg (2023) in Sweden and AL-Naif (2017) in Egypt, which established an inverse relationship between rates of interest and the performance of stock markets.
3. H3: The findings indicate that government expenditure significantly enhances The Egyptian stock market's performance, demonstrated by a coefficient of 0.161455 and a p-value below 0.01. The findings corroborate the conclusions of Osifo and Abusomwan (2023), which indicate that governmental expenditure in critical industries substantially impacts the performance of the stock market in Nigeria, especially over the long term. Nonetheless, the findings contrast with those of Scott and Ovufeyen (2014), who reported that government expenditure exerted an inconsequential influence on stock market transactions and identified a negative effect of capital expenditure on market activity.
4. H4: The findings demonstrate a favorable and statistically significant association between the price of gold and the overall performance of the Egyptian stock market, evidenced by a coefficient of 0.061847 and a p-value of 0.0014. This indicates that increasing gold prices enhance stock market returns, potentially signifying gold's function as a safeguard against economic instability. The findings align with Tripathy's (2016) study, which demonstrated a sustained equilibrium link between gold prices and the stock market values, indicating their simultaneous movement over time. Nonetheless, the findings contrast with those of Umer (2016) and Ali et al. (2020), who identified an inverse link between gold prices and stock market performance, suggesting that gold frequently serves as a safeguard against stock market downturns.
5. H5: The findings demonstrate that Foreign Direct Investment (FDI) exerts a substantial and beneficial influence on the performance of the Egyptian stock market, as indicated by a coefficient of 0.175104 and a p-value below 0.01. This discovery corresponds with the findings of Raza, Iqbal, and Ahmed (2012) and Shahbaz, Lean, and Kalim (2013) in Pakistan, both of which highlighted the beneficial impact of FDI on stock market expansion. Nonetheless, the findings contrast with those of Malcus and Persson (2018), who identified a detrimental effect of prior quarter FDI on stock market development in Sweden, suggesting possible regional variations in the influence of FDI on stock markets.
6. H6: The findings reveal that imports exert a positive albeit statistically negligible effect on the Egyptian stock market performance as evidenced by a coefficient of 0.000432 and a p-value of 0.8595. This discovery indicates that import activities do not substantially impact stock market performance in this context. The results contradict the findings of You, Chinthapathi, Mishra, and Patra (2023), who emphasized the significant impact of an economy's importer status on stock return spillovers. The findings corroborate the research of Chakraborty et al. (2015), which indicated that import-oriented firms typically encounter diminished expected returns, signifying a negligible effect of imports on stock performance.
7. H7: The findings suggested that exports exert a significant and beneficial influence on the performance of the Egyptian stock market, evidenced by a coefficient of 0.056855 and a p-value of 0.0024. This indicates that elevated export levels correlate with enhanced stock market performance. The findings are consistent with Hasanujjaman (2016), who noted a favorable effect of export growth on the stock market index in Bangladesh, yet they contrast with the conclusions of You et al. (2024), who determined that an economy's function as an importer exerted a more significant influence on stock return spillovers than its function as an exporter.

The Effect of Macroeconomic Factors on the Performance of the Egyptian Stock Market

8. H8: The findings suggest that political risk exerts a minimal influence on the performance of the Egyptian stock market. The research reveals a negative coefficient of -0.002990 and a p-value of 0.8152, indicating that political risk does not significantly affect stock market performance in this setting. This discovery In contrast, it deviates from Abdelbaki (2013), who determined that political instability substantially influenced Egypt's stock markets in the post-Arab Spring era, and Lehkonen, Heikki, et al. (2015), who emphasized the effect of political risk on stock market performance in emerging markets, observing that diminished political risk correlated with enhanced returns owing to heightened investor confidence.

RECOMMENDATIONS

1. A possible hedging strategy against inflationary pressures, high inflation may indicate future rise in stock market profits. However, the central bank must control inflation within a steady range to prevent undue volatility.
2. To improve economic development and, in turn, stock market performance, the Egyptian government should think about keeping or increasing its spending on infrastructure, healthcare, education, and other important areas. To optimize government spending's beneficial effects on the economy, fiscal rules should be created to guarantee that money is distributed effectively.
3. By supporting sectors that have a competitive edge in global markets and implementing trade agreements and export incentives, the Egyptian government should keep encouraging exports. Businesses with significant export potential should also be taken into account by investors when formulating their investment plans.
4. Pay attention to keeping interest rates and inflation under control while promoting foreign direct investment and government spending on profitable industries.

SCOPE FOR FUTURE RESEARCH

A crucial aspect of this study is the point of future research, which enables scholars to further explore the connection between Macroeconomic considerations and the efficacy of the Egyptian stock market. These possible future examples might include:

1. Enhanced Understanding: Researchers have the opportunity to further explore the intricacies of how specific macroeconomic factors, including inflation rates, interest rates, and imports, uniquely influence the performance of the stock market in Egypt.
2. Researching Additional Factors: The investigation may be expanded to include additional factors that may influence the performance of the Egyptian stock market, including military expenditure, energy contracts, and exchange rates.
3. International Comparisons: Researchers may analyze the efficacy of the Egyptian stock exchange in relation to other emerging or established nations to identify inconsistencies and investigate the underlying factors contributing to these variations.
4. Behavioral Finance Perspective: Future research may investigate the interplay between psychological factors and investor sentiment with macroeconomic variables to have an impact on how the Egyptian stock market performs.
5. The Effect of Technology and Innovation: Future research may examine the influence of technology advancements, digitalization, and innovations in financial services discusses the connection between Egypt's stock market performance and macroeconomic issues.

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