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RESEARCH ARTICLE

Macroeconomic Forces Shaping Kuwait's Stock Market: A Time Series Analysis of an Oil-Dependent Economy

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ABSTRACT

This paper investigates the dynamic relationship between stock prices and key macroeconomic variables in Kuwait, an economy highly dependent on oil exports. The analysis considers six major macroeconomic indicators: Gross Domestic Product (GDP), interest rates, oil prices, exchange rates, the Consumer Price Index (CPI), and foreign direct investment (FDI). The study employs cointegration analysis to explore long-term equilibrium relationships and the Granger causality test to identify short-term causal linkages between these variables and stock market performance. The results reveal a stable long-term relationship between stock prices and the selected macroeconomic variables, indicating that changes in these factors are crucial in determining the trajectory of the Kuwaiti stock market over time. Specifically, bidirectional causality is observed between stock prices, GDP, and interest rates, suggesting that stock market fluctuations not only respond to economic growth and monetary policy shifts but also, in turn, influence these variables, reflecting a complex feedback mechanism. Unidirectional causality is found from oil prices, CPI, and FDI to stock prices, underscoring the predominant role of oil prices in shaping Kuwait's financial markets and highlighting the impact of inflationary pressures and foreign investment on stock market trends. These findings contribute to a deeper understanding of the intricate interplay between macroeconomic forces and stock prices in an oil-reliant economy like Kuwait. The study provides valuable insights for investors seeking to optimize portfolio strategies by incorporating macroeconomic trends, as well as for policymakers aiming to develop effective strategies that stabilize the financial markets.

INTRODUCTION

The Kuwaiti stock market, known as the Boursa Kuwait, plays a vital role in the country's economy, serving as a platform for capital mobilization and investment. Understanding the macroeconomic determinants that influence stock prices in Kuwait is essential for investors, policymakers, and analysts. Identifying these determinants can provide valuable insights into the dynamics of the Kuwaiti stock market and its relationship with the broader economy.

Previous studies have established that stock prices are influenced by a wide range of economic factors, but the specific nature of these relationships can vary significantly depending on the structure and composition of a given economy (Basher and Sadorsky, 2006). The present study aims to fill this gap by examining a broader range of determinants, including GDP, interest rate, inflation, FDI, oil prices, and exchange rate. By investigating these variables and their relationship with stock

prices in Kuwait, we aim to provide a more comprehensive understanding of the factors influencing the Kuwaiti stock market. The Kuwaiti economy provides an interesting case for study due to its dependence on oil exports and its managed exchange rate system, which creates unique conditions for the interaction between stock prices and macroeconomic variables.

The significance of this study lies in its ability to provide a comprehensive understanding of how macroeconomic forces shape stock market trends in Kuwait. The findings will offer valuable insights for investors about the factors they should consider when making investment decisions in the Kuwaiti stock market. Additionally, policymakers can benefit from understanding the relationship between macroeconomic variables and stock prices to devise effective strategies that promote economic stability and growth.

LITERATURE REVIEW

The dynamic relationship between macroeconomic variables and stock prices has been a focal point of financial economics for decades. This literature review synthesizes the theoretical underpinnings and empirical findings concerning the impact of Gross Domestic Product (GDP), oil prices, inflation, Foreign Direct Investment (FDI), and exchange rate on stock prices. While general global insights are explored, particular emphasis is placed on the Kuwaiti economy due to its unique economic structure and dependence on oil revenues.

Gross Domestic Product (GDP) is a primary indicator of economic health and has been extensively studied in relation to stock market performance. The theoretical basis lies in the fact that higher GDP growth rates signal increased economic activity and corporate profitability, which should, in turn, boost stock prices. Empirical evidence supports this positive correlation. For instance, Fama (1990) found that economic growth, as reflected by GDP, significantly predicts stock returns. In the context of Kuwait, Al-Sharkas (2004) demonstrated that GDP growth positively influences stock market performance, albeit with a lag, suggesting that investors may react to anticipated future economic conditions rather than current statistics.

Oil prices exert a profound influence on stock markets, especially in oil-dependent economies like Kuwait. The theoretical relationship is twofold: rising oil prices increase revenues for oil-exporting countries, thereby boosting the stock prices of oil companies and related sectors. Conversely, higher oil prices can lead to increased production costs for non-oil sectors, potentially dampening their stock performance. Empirical studies have confirmed these dual effects. For example, Hamilton (1983) established that oil price shocks have significant predictive power over stock market downturns. In Kuwait, studies by Hammoudeh and Choi (2006) indicate that oil price fluctuations are a primary driver of stock market volatility, reflecting the country's heavy reliance on oil exports.

The relationship between inflation and stock prices is complex and often nonlinear. Traditional finance theory, such as the Fisher effect, posits that nominal interest rates should move in tandem with expected inflation, thus protecting real returns on stocks. However, empirical findings often show a negative relationship between inflation and stock prices. Kaul (1987) argues that this negative relationship arises because inflationary periods are often associated with economic uncertainty and declining corporate profits. In the Kuwaiti context, Al-Tamimi et al. (2011) found a negative correlation between inflation and stock market returns, attributing this to the erosion of purchasing power and investor confidence during high inflation periods.

Foreign Direct Investment (FDI) is a crucial source of capital for emerging markets, often leading to improved infrastructure, technology transfer, and increased market confidence. Theoretically, higher FDI inflows should bolster stock markets by enhancing corporate profitability and economic stability. Empirical studies generally support this view. For instance, Bekaert and Harvey (2000) found that FDI inflows positively impact stock market development. In the context of the Middle East, Naceur and Ghazouani (2007) observed that FDI inflows significantly contribute to the development of

financial markets in MENA (Middle East and North Africa) countries. Kuwait, given its oil-driven economy and efforts to diversify its economic base, benefits from FDI as a means of fostering non-oil sectors, though these efforts remain in their infancy. According to Al Samman and Jamil (2018) FDI has had a significant long-term influence on the development of stock markets in GCC countries. However, in the short term, while FDI has a positive effect on stock market growth, this impact is not statistically significant. From a policy standpoint, the research supports the ongoing efforts by GCC governments to encourage FDI inflows, particularly in non-oil sectors, as part of their broader strategies to diversify their economies and enhance stock market development.

Exchange rates impact stock prices through several channels, including competitiveness, foreign investment flows, and economic stability. A depreciation of the local currency can make exports cheaper and boost profitability for export-oriented companies, thereby positively affecting their stock prices. However, it can also increase the cost of imported goods and services, negatively impacting firms reliant on imports. Empirical evidence presents mixed results. For instance, Aggarwal (1981) found a positive relationship between exchange rate depreciation and stock prices in the short term. In contrast, studies specific to Kuwait, such as those by Hammoudeh and Li (2008) in their analysis of GCC stock markets, including Kuwait, found that exchange rate volatility contributes to stock market instability. They emphasize that the Kuwaiti economy, being heavily dependent on external factors such as oil prices and foreign exchange rates, remains vulnerable to global shocks.

METHODOLOGY

This study investigates the relationship between stock prices and key macroeconomic variables in Kuwait, including GDP, interest rate, oil prices, exchange rate, the Consumer Price Index (CPI), and foreign direct investment (FDI) over the period 2003 - 2023. The study involves descriptive statistics, unit root tests (ADF), cointegration analysis using the Engle-Granger method, and Granger causality testing to examine relationships among the variables. Quarterly observations were collected from reports published by the Central Bank of Kuwait, the Kuwait Stock Exchange (KSE) website, and the World Bank database. The data spans a 20-year period to capture the long-term relationship between the macroeconomic determinants and stock prices.

The variables collected for this study include stock prices, proxied by the All-Share Index, and several macroeconomic indicators, namely Gross Domestic Product (GDP), interest rates, inflation, Foreign Direct Investment (FDI), oil prices, and exchange rates. These variables have been selected based on an extensive review of the literature and their recognized significance in explaining stock price movements in Kuwait. Each of these macroeconomic factors has been shown in previous studies to influence stock market performance, making them crucial for understanding the dynamics between Kuwait's stock market and its broader economic environment.

Gross Domestic Product (GDP) serves as a measure of economic activity and is expected to positively affect stock prices, as a growing economy typically boosts corporate earnings. Interest rates are also critical, as changes in interest rates influence the attractiveness of stocks; lower interest rates often result in higher stock prices due to the reduced cost of borrowing and higher corporate profitability. Inflation, represented by the Consumer Price Index (CPI), can affect stock prices by impacting corporate profitability and shaping investor expectations. Foreign Direct Investment (FDI) inflows reflect investor confidence in the economy and contribute to stock market liquidity and performance. Given Kuwait's reliance on oil exports, oil prices, proxied by the OPEC basket price, are a major determinant of stock prices, as fluctuations in oil prices directly affect the nation's economic performance. Lastly, exchange rates, proxied by the USD/KWD exchange rate, play a role in influencing international trade and, consequently, stock market movements, particularly in an open economy like Kuwait.

The initial step in the analysis involves computing descriptive statistics for the variables under study. Descriptive statistics such as the mean, median, standard deviation, skewness, and kurtosis are used to summarize the distribution and variability of the data. This provides insights into the general characteristics of the dataset, allowing for a preliminary understanding of the relationships between stock prices and the macroeconomic variables under consideration, including GDP, interest rate, oil prices, exchange rate, the Consumer Price Index (CPI), and foreign direct investment (FDI). Descriptive statistics are a crucial preliminary step in empirical research, helping to identify patterns, potential outliers, and the overall structure of the data (Gujarati et al., 2017).

To avoid spurious regression results, the stationarity of each time series variable is tested using the Augmented Dickey-Fuller (ADF) test. The presence of a unit root indicates that the series is non-stationary, meaning its statistical properties change over time. The ADF test is applied to each variable to determine whether the time series is integrated of order zero, I(0), or whether it must be differenced to become stationary, indicating that the series is integrated of order one, I(1). The ADF test employs the following equation:

$$\Delta X_t = \alpha_0 + \alpha_1 X_{t-1} + \sum_{i=1}^{m} \Delta X_{t-i} + \varepsilon_t \qquad (1)$$

where X_t is the variable under investigation, t is a time subscript, m is the number of lags, and ε_t is the error term. A significant test statistic (less than -2.89) implies that the variables are stationary, which is a prerequisite for accurate cointegration and causality testing.

Once stationarity is confirmed, the Engle-Granger two-step method is applied to test for cointegration between stock prices and the macroeconomic variables. Cointegration analysis is used to determine whether a stable, long-term equilibrium relationship exists among the variables. According to Engle and Granger (1987), if two or more non-stationary variables are found to be co-integrated, they share a common stochastic trend and thus move together in the long run.

The first step in the Engle-Granger method involves estimating a long-run equilibrium the following equation:

$$Y_t = \beta_0 + \beta_1 X_t + \varepsilon_t \qquad (2)$$

where Y_t is the dependent variable, X_t is the explanatory variable, and ε_t denotes the error term.

The residuals from this equation, ε_t, are then tested for stationarity using the ADF test. If the residuals are found to be stationary, the null hypothesis of no cointegration is rejected, indicating the presence of a long-term equilibrium relationship among the variables. The Engle-Granger method is widely used in empirical finance to assess long-term relations between economic variables (Johansen, 1991).

After determining whether the variables are cointegrated, Granger causality tests are conducted to explore the direction of causality between the variables. Granger causality testing helps determine whether one time series can predict another, based on the temporal precedence of changes in one variable relative to another (Granger, 1969). Granger causality testing is a widely used method in time series econometrics and has been applied extensively in finance to understand the interrelations between macroeconomic variables and stock market performance (Kollias et al., 2012).

The Granger causality test is operationalized through these equations, enabling the identification of directional influences between the variables under investigation. Specifically, causality from y to x and from x to y is tested using the following equations, respectively.

$$\Delta x_t = \alpha + \sum_{i=1}^{m} \beta_i \Delta x_{t-i} + \sum_{i=1}^{k} \gamma_i \Delta y_{t-i} + \varepsilon_t \quad (3)$$

$$\Delta y_t = \alpha + \sum_{i=1}^{m} \beta_i \Delta y_{t-i} + \sum_{i=1}^{k} \gamma_i \Delta x_{t-i} + \varepsilon_t \quad (4)$$

where x and y denote the variables under investigation, m and k are the lag lengths, and ε_t is the error term. The null hypothesis $H_0: \gamma_i = 0 \; \forall_i$ is rejected if the value of the p-value is less than 5%.

The presence of Granger causality indicates a predictive relationship between the variables, although it does not necessarily imply a causal effect in the strictest sense (Granger, 1988).

EMPIRICAL RESULTS

The descriptive statistics in Table 1 offer key insights into the distributional characteristics and variability of the variables. Stock prices, with a mean of 7,167.123 and a standard deviation of 2,301.89, indicate substantial volatility, which is typical for markets sensitive to factors such as oil prices and FDI. The positive skewness (1.54) suggests a right-skewed distribution, a pattern often associated with periods of market expansion, as noted by Bekaert and Wu (2000). Similarly, GDP, with a mean of 127.66 billion and low variability, reflects relative stability, but its slightly negative skewness points to occasional downturns triggered by external shocks (Hamilton, 2003). Interest rates also exhibit notable fluctuations, with positive skewness highlighting periodic spikes that can influence borrowing costs and market behavior, consistent with the findings of Bernanke and Kuttner (2005).

Oil prices, averaging $69.86 per barrel, show moderate volatility, which aligns with their significant impact on Kuwait's oil-dependent economy, supporting the conclusions of Basher and Sadorsky (2006). In contrast, exchange rates remain relatively stable, reflecting Kuwait's managed exchange rate system, as indicated by Phylaktis and Ravazzolo (2005). Conversely, FDI shows high variability, suggesting uneven capital flows that may disrupt market liquidity, reinforcing the observations of Alfaro et al. (2004). Meanwhile, CPI's moderate skewness points to inflationary stability, which can have a stabilizing effect on stock valuations, consistent with the conclusions of Bekaert and Engstrom (2010).

Table 1: Descriptive Statistics

	Stock Prices	GDP	Interest Rate	Oil Prices	Exchange Rate	CPI	FDI
Mean	7167.123	1.27663E+11	2.016	69.861	3.418	150.509	15982087500
S D	2301.890	3375598868	1.384	26.061	0.134	29.395	1265452959
Variance	5298698.719	1.13947E+21	1.918	679.186	0.018	864.083	1.60137E+20
Kurtosis	2.630	-0.343	0.782	-1.026	-0.356	-1.106	-0.259
Skewness	1.537	-0.451	1.283	0.224	0.700	-0.327	0.061
Range	12582.7	1.27489E+11	5.304	91.613	0.534	97.072	5003900000

Minimum	2873.5	4787458223	0.547	25.8784375	3.24522466	100	-6098800000
Maximum	15456.2	1.75363E+1	5.851	117.491	3.779	197.072	43940200000

The results of the Augmented Dickey-Fuller (ADF) test presented in Table 2 indicate that all the macroeconomic variables under study are nonstationary at their levels but become stationary after first differencing. This suggests that these variables follow a stochastic trend over time and only exhibit stationarity when analyzed in terms of their first differences. Specifically, the test statistics for the variables, as shown in Table 3, are all greater than the critical value of -2.89 at the 5% significance level, confirming the presence of unit roots in the data. Once differenced, the variables exhibit stationarity, meaning they are integrated of order one, I(1). This finding is crucial for ensuring the validity of the subsequent cointegration and causality analyses, as nonstationary series can lead to spurious regression results unless cointegration is accounted for (Engle and Granger, 1987).

Table 2: Augmented Dickey-Fuller Test Results in Level and First Difference

Variable	Level	First Difference
Stock Prices	-2.793361	-6.75829*
GDP	-2.613057	-4.482756*
FDI	-2.512516	-4.476224*
Interest Rate	-2.19339	-6.585352*
Oil Prices	-2.01212	-7.027425*
Exchange Rate	-1.884806	-6.391149*
CPI	-1.51783	-3.35854*
FDI	-1.51252	-4.47622*

* Statistically significant at 5% significance level

After determining the time series properties of the variables and noting their non-stationarity at the level but stationarity at the first difference, the subsequent step involves examining the existence of a stable long-term relationship (cointegration) among the variables. The findings of the Engle-Granger cointegration test are shown in Table 3.

Table 3: Engle-Granger Cointegration Test Results

Variables	ADF (ε_t)
GDP, SP	-3.526696*
IR, SP	-3.941297*
OP, SP	-3.612792*
ER, SP	-3.591137*
CPI, SP	-3.905311*
FDI, SP	-3.484018*

* Statistically significant at 5% significance level

The Engle-Granger test results, with the critical value at the 5% significance level set at -3.37, show that the null hypothesis of no cointegration is rejected for GDP, interest rates, oil prices, exchange rates, and the Consumer Price Index (CPI), indicating robust long-term equilibrium relationship between these variables and stock prices. This finding implies that, despite short-term fluctuations, the macroeconomic indicators and stock prices move together over time, maintaining a stable long-term trajectory, which aligns with the seminal work of Johansen and Juselius (1990) and Engle and Granger (1987), who emphasized the pivotal role of macroeconomic fundamentals in influencing financial markets.

The observed cointegration between GDP and stock prices is indicative of the positive impact of economic growth on market performance, reinforcing the conclusions drawn by Fama (1990). Similarly, the stable relationship between interest rates and stock prices aligns with Bernanke and Kuttner (2005) findings, which suggest that interest rate fluctuations directly affect borrowing costs and the discounting of future cash flows, thereby shaping stock prices. Also, the influence of oil prices on stock prices further supports Basher and Sadorsky (2006) who emphasized the profound effect of oil price volatility on financial markets, especially in oil-dependent economies like Kuwait. This is complemented by the cointegration of exchange rates with stock prices, highlighting the impact of currency fluctuations on international trade and corporate competitiveness, in line with the observations of Aggarwal (1981).

Additionally, the relation between CPI and stock prices corroborates the findings of Bekaert and Engstrom (2010), underscoring the erosive effect of inflation on real corporate earnings and, consequently, on stock valuations. Lastly, the long-term association between FDI and stock prices is consistent with Alfaro et al. (2004), who argued that sustained inflows of foreign capital enhance market liquidity and stimulate investment, thereby supporting overall stock market performance. Overall, these results emphasize the necessity for investors and policymakers to carefully monitor these macroeconomic indicators to anticipate and navigate stock market trends in a structured and informed manner.

Overall, the results of the Engle-Granger test provide robust evidence for a stable long-term relationship between these macroeconomic variables and stock prices. This finding underscores the importance of macroeconomic conditions in shaping stock market performance and highlights the need for investors and policymakers to monitor these variables closely to better understand stock market trends.

The Granger causality test results, presented in Table 4, provide valuable insights into the dynamic interactions between stock prices and key macroeconomic indicators. The analysis identifies bidirectional causality between stock prices and both GDP and interest rates, indicating that while fluctuations in these variables influence stock market movements, stock prices in turn have a reciprocal effect on economic activity and monetary policy, thereby reinforcing the findings of Geske and Roll (1983), who emphasized the predictive role of stock prices as a leading indicator of economic trends. Similarly, the bidirectional link with interest rates is consistent with Bernanke and Kuttner (2005), who argued that interest rate changes shape stock prices through adjustments in the cost of capital and shifts in investor expectations.

Table 4: Granger Causality Test Results

Variables	Stock Prices → Variables	Variable → Stock Prices
GDP, SP	0.0339*	0.0352*
IR, SP	0.0104*	0.0002*
OP, SP	0.6283	0.0257*

ER, SP	0.0567	0.2503
CPI, SP	0.8548	0.0004*
FDI, SP	0.4127	0.0207*

* Null hypothesis of no Granger causality is rejected

Conversely, the results reveal a unidirectional causality running from oil prices to stock prices, emphasizing the critical role of oil price fluctuations in shaping Kuwait's stock market due to its heavy reliance on oil revenues, in line with the findings of Hamilton (2003). In contrast, the absence of a causal link between stock prices and the exchange rate could be attributed to Kuwait's fixed exchange rate regime or its limited integration with global capital markets, supporting the conclusions of Phylaktis and Ravazzolo (2005). Similarly, unidirectional causality from the Consumer Price Index (CPI) and Foreign Direct Investment (FDI) to stock prices further illustrates the impact of inflationary dynamics and foreign capital inflows on stock market performance, corroborating the observations of Bekaert and Engstrom (2010). Figure 1 provides a flowchart that visually summarizes these causality patterns.

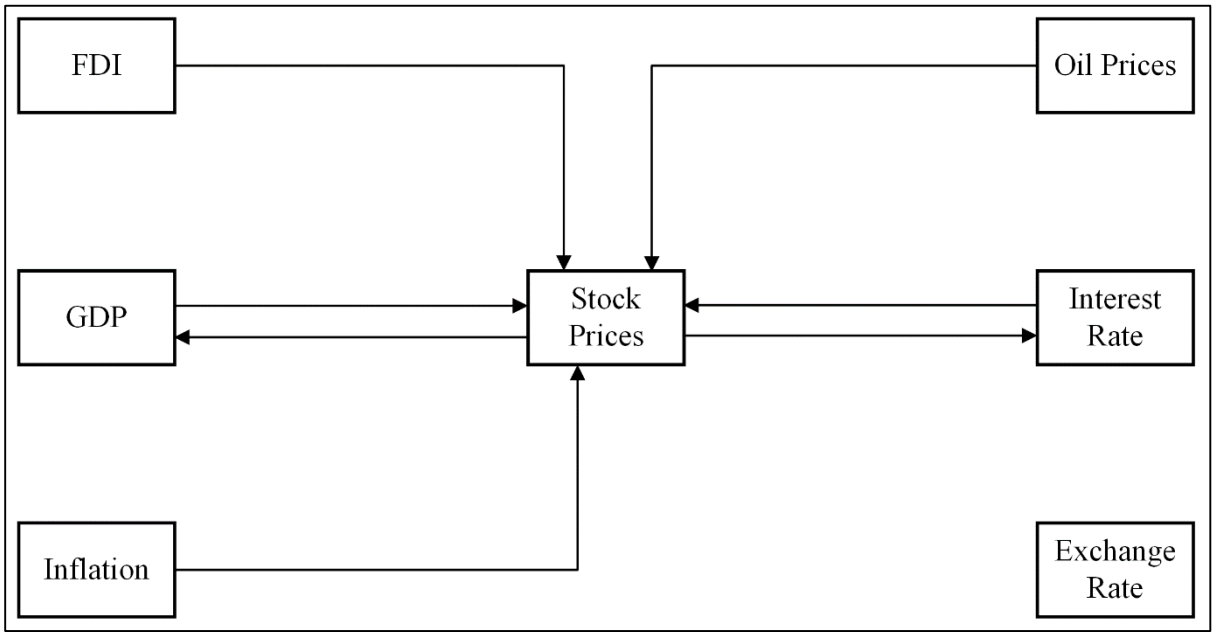

Figure 1: Granger Causality Relations Between Stock Prices and Macroeconomic Variables

Overall, these findings illustrate the complex interplay between stock prices and macroeconomic variables in Kuwait. They reinforce the significance of GDP and interest rates in shaping market dynamics while emphasizing the external impact of oil prices, CPI, and FDI on stock performance. Such insights are particularly relevant for investors and policymakers in oil-dependent economies like Kuwait, where external economic factors play a pivotal role in financial market stability.

IMPLICATIONS FOR INVESTORS AND POLICYMAKERS

The findings carry significant implications for both investors and policymakers, particularly within the context of Kuwait's oil-dependent economy. For investors, the established long-term cointegration between stock prices and key macroeconomic variables, such as GDP, interest rates, oil prices, CPI, and FDI, signifies that these indicators can be leveraged as reliable signals for making informed investment decisions. The presence of bidirectional causality between stock prices and both GDP and interest rates underscores their crucial role in shaping market behavior, reflecting the

ability of these variables to act as both predictors and influencers of stock performance. This aligns with Bernanke and Kuttner (2005), who emphasized that shifts in GDP and interest rates often serve as leading indicators for stock market movements, suggesting that investors should adjust their portfolios in response to anticipated economic cycles and changes in monetary policy.

Similarly, the unidirectional causality from oil prices to stock prices emphasizes the importance of tracking global oil market trends for investors, especially given Kuwait's reliance on oil exports. This finding is consistent with Basher and Sadorsky (2006), who emphasized that oil price fluctuations can substantially influence stock valuations, particularly in sectors directly linked to oil production and the overall economy. As such, integrating oil price movements into risk management strategies and portfolio diversification becomes essential for investors seeking to mitigate the potential impacts of oil price volatility on their holdings.

For policymakers, the long-term equilibrium relationship between stock prices and macroeconomic variables underscores the importance of stable economic and financial conditions for sustaining stock market performance. The bidirectional causality between stock prices and GDP suggests that the stock market can serve as both a reflection of economic health and a driver of economic activity. Policymakers should consider the impact of fiscal and monetary policies on stock market behavior and recognize the potential for stock market downturns to influence broader economic trends. Maintaining a conducive environment for economic growth, such as through investment in infrastructure and creating favorable conditions for foreign direct investment (FDI), can have a stabilizing effect on stock market performance.

Moreover, the unidirectional influence of inflation (CPI) and FDI on stock prices suggests that managing inflationary pressures and fostering foreign investment are vital for ensuring long-term stock market stability. This finding aligns with Phylaktis and Ravazzolo (2005), who emphasized that policies aimed at controlling inflation through sound monetary measures, alongside efforts to cultivate an attractive environment for foreign investors, can bolster investor confidence and improve market liquidity. Additionally, given the limited short-term interaction between exchange rates and stock prices, policymakers should prioritize maintaining exchange rate stability, particularly under Kuwait's managed exchange rate system, to avoid disruptions to investor expectations and market equilibrium.

CONCLUSION

Macroeconomic variables play a critical role in influencing stock prices in Kuwait. This study investigated the relationship between stock prices and key indicators such as GDP, interest rates, oil prices, exchange rates, CPI, and FDI. The results provide insights into both long-term equilibrium and short-term dynamics. The Cointegration analysis reveals a stable long-term relationship between stock prices and these variables, suggesting they move together over time despite short-term variations. Granger causality tests indicate bidirectional causality between stock prices and both GDP and interest rates, while unidirectional causality is found from oil prices, CPI, and FDI to stock prices. No short-term causality was observed between stock prices and exchange rates, though a long-term connection exists, emphasizing the need for exchange rate stability.

These findings highlight the complex interactions between macroeconomic variables and stock prices in Kuwait and have significant implications for both policymakers and investors. Policymakers should consider these interdependencies when formulating economic strategies, while investors can leverage the insights to better navigate market trends. Future research could further refine these results by exploring additional regional markets or more detailed data.

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Not applicable.

TRANSPARENCY

The authors confirm that the manuscript is an honest, accurate, and transparent account of the study that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

DATA AVAILABILITY STATEMENT

The authors may provide data upon special request.

COMPETING INTERESTS

The authors declare that they have no competing interests.

AUTHORS CONTRIBUTION

All the work has been distributed equally among the authors. All of the authors provided their best expertise in reading, writing, modeling and reviewing the paper. All of the authors agreed on the final version of the paper.

REFERENCES

Aggarwal, R. (1981) Exchange Rates and Stock Prices: A Study of the US Capital Markets under Floating Exchange Rates, *Akron Business and Economic Review*.

Al-Sharkas, A.A. (2004) Dynamic Relations between Macroeconomic Factors and the Jordanian Stock Market, *International Journal of Applied Econometrics and Quantitative Studies*, 1, 97-114.

Al-Tamimi, H.A.H., Alwan, A.A. and Abdel Rahman, A. (2011) Factors Affecting Stock Prices in the Uae Financial Markets, *Journal of Transnational Management*, 16, 3-19. https://doi.org/10.1080/15475778.2011.549441

Al Samman, H., and Jamil, S.A. (2018) The Impact of Foreign Direct Investment (FDI) on Stock Market Development in GCC Countries, *Pertanika Journal of Social Sciences & Humanities*, 26.

Alfaro, L., Chanda, A., Kalemli-Ozcan, S. and Sayek, S. (2004) Fdi and Economic Growth: The Role of Local Financial Markets, *Journal of International Economics*, 64, 89-112. https://doi.org/10.1016/S0022-1996(03)00081-3

Basher, S.A. and Sadorsky, P. (2006) Oil Price Risk and Emerging Stock Markets, *Global Finance Journal*, 17, 224-251. https://doi.org/10.1016/j.gfj.2006.04.001

Bekaert, G. and Engstrom, E. (2010) Inflation and the Stock Market: Understanding the "Fed Model", *Journal of Monetary Economics*, 57, 278-294. https://doi.org/10.1016/j.jmoneco.2010.02.004

Bekaert, G. and Harvey, C.R. (2000) Foreign Speculators and Emerging Equity Markets, *The Journal of Finance*, 55, 565-613. https://www.jstor.org/stable/222516

Bekaert, G. and Wu, G. (2000) Asymmetric Volatility and Risk in Equity Markets, *The Review of Financial Studies*, 13, 1-42. https://doi.org/10.1093/rfs/13.1.1

Bernanke, B.S. and Kuttner, K.N. (2005) What Explains the Stock Market's Reaction to Federal Reserve Policy?, *The Journal of Finance*, 60, 1221-1257. https://doi.org/10.1111/j.1540-6261.2005.00760.x

Engle, R.F. and Granger, C.W. (1987) Co-Integration and Error Correction: Representation, Estimation, and Testing, *Econometrica: Journal of the Econometric Society*, 55, 251-276. https://doi.org/10.2307/1913236

Fama, E.F. (1990) Stock Returns, Expected Returns, and Real Activity, *The Journal of Finance*, 45, 1089-1108. https://doi.org/10.2307/2328716

Geske, R. and Roll, R. (1983) The Fiscal and Monetary Linkage between Stock Returns and Inflation, *The Journal of Finance*, 38, 1-33. https://doi.org/10.2307/2327635

Granger, C.W. (1969) Investigating Causal Relations by Econometric Models and Cross-Spectral Methods, *Econometrica: Journal of the Econometric Society*, 37, 424-438. https://doi.org/10.2307/1912791

Granger, C.W. (1988) Some Recent Development in a Concept of Causality, *Journal of Econometrics*, 39, 199-211. https://doi.org/10.1016/0304-4076(88)90045-0

Gujarati, D.N., Porter, D.C. and Gunasekar, S. (2017) *Basic Econometrics*, The McGraw-Hill Series Economics, McGraw-Hill.

Hamilton, J.D. (1983) Oil and the Macroeconomy since World War Ii, *Journal of Political Economy*, 91, 228-248. https://www.jstor.org/stable/1832055

Hamilton, J.D. (2003) What Is an Oil Shock?, *Journal of Econometrics*, 113, 363-398. https://doi.org/10.1016/S0304-4076(02)00207-5

Hammoudeh, S. and Choi, K. (2006) Behavior of Gcc Stock Markets and Impacts of US Oil and Financial Markets, *Research in International Business and Finance*, 20, 22-44. https://doi.org/10.1016/j.ribaf.2005.05.008

Hammoudeh, S. and Li, H. (2008) Sudden Changes in Volatility in Emerging Markets: The Case of Gulf Arab Stock Markets, *International Review of Financial Analysis*, 17, 47-63. https://doi.org/10.1016/j.irfa.2005.01.002

Johansen, S. (1991) Estimation and Hypothesis Testing of Cointegration Vectors in Gaussian Vector Autoregressive Models, *Econometrica: Journal of the Econometric Society*, 59, 1551-1580.

Johansen, S. and Juselius, K. (1990) Maximum Likelihood Estimation and Inference on Cointegration—with Applications to the Demand for Money, *Oxford Bulletin of Economics and Statistics*, 52, 169-210. https://doi.org/10.1111/j.1468-0084.1990.mp52002003.x

Kaul, G. (1987) Stock Returns and Inflation: The Role of the Monetary Sector, *Journal of Financial Economics*, 18, 253-276. https://doi.org/10.1016/0304-405X(87)90041-9

Kollias, C., Mylonidis, N. and Paleologou, S.-M. (2012) The Nexus between Exchange Rates and Stock Markets: Evidence from the Euro-Dollar Rate and Composite European Stock Indices Using Rolling Analysis, *Journal of Economics and Finance*, 36, 136-147. https://doi.org/10.1007/s12197-010-9129-8

Naceur, S.B. and Ghazouani, S. (2007) Stock Markets, Banks, and Economic Growth: Empirical Evidence from the Mena Region, *Research in International Business and Finance*, 21, 297-315. https://doi.org/10.1016/j.ribaf.2006.05.002

Phylaktis, K. and Ravazzolo, F. (2005) Stock Prices and Exchange Rate Dynamics, *Journal of International Money and Finance*, 24, 1031-1053. https://doi.org/10.1016/j.jimonfin.2005.08.001