The Relationship between Financial Stock Markets of Firms and Commodities

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Stock exchanges play an important economic role in developing countries such as Saudi Arabia. As a result, this study investigates the connection between Saudi Arabian stock markets, equities, commodities, and currency. This study utilized secondary data from 2013 to 2022. This analysis utilizes thirty Saudi Arabian firms' financial stock markets, stocks, commodities, and currencies. The correlation between the study's variables was analyzed using Stata. The coefficients illustrate how Saudi Arabian firms' return on equity (ROE) increases with each unit increase in each independent variable. Given that the F-statistic is 39.82, the fitted significance level for the pooled OLS model is 1%. The FGLS Regression Model was developed to investigate the connection between Saudi Arabian financial stock markets, stocks, commodities, and currency. During the COVID-19 pandemic, the ROE of Saudi Arabian firms decreased by up to 3.5%. The size and activity of the stock market have statistically and economically significant effects on business expansion. The economy of Saudi Arabian companies is affected by the opening stock price, dividend yield, market capitalization, trading volume, and open Saudi Riyal to US Dollar exchange rate. Equity-heavy corporations grow more rapidly than others. Future research could investigate how the stock market's growth influences macroeconomic variables such as capital formation, private savings rates, and firm productivity.

Keywords: Saudi Arabia Firms, Stock Exchanges, Financial Stock Markets, Return on Equity, Economy

1. Introduction

The value of all stock markets on the world's stock exchanges climbed from $4.7 trillion to $15.2 trillion over the past decade. Meanwhile, emerging markets' share of global capitalization rose from about 4% to almost 13% (Sheth et al., 2022). The value of shares traded in emerging markets increased from less than 11 percent in 2000 to 40 percent in 2021. Firms must adhere to price constraints imposed by the market when investing; countries that wish to attract foreign investment can do so

through the stock exchange. However, investors will likely limit their spending if stock prices decline, resulting in a slower economic growth rate (Bello et al., 2022; Rehman, 2018). The stock market is of the utmost importance from the perspectives of both investors and business professionals. Investment in the stock market has been linked to a successful economy. When investing in productive technology, huge stock markets can minimize the cost of mobilizing savings. Growth depends on the stock market's liquidity. With the assistance of stock markets, publicly traded companies can safely raise capital and expand their operations, which benefits the economy. As a result, there is a correlation between the fluctuation of stock prices on the stock market and a nation's economic health (Alshammary, 2014; Kapaya, 2020; Masoud & Hardaker, 2014; Pham, 2014; Yaya et al., 2021).

Stock exchanges play an important economic role in developing countries such as Saudi Arabia. The Saudi firm stock exchange is sometimes recognized as the most significant equity exchange. Hence, Saudi has been the dominant market (Ali et al., 2016; Mensi, 2019; Rehman, 2018). Over time, the Saudi Capital Market has shifted from a regulatory and legal apparatus to a more transparent structure. Since 2003, the Capital Market Authority (CMA) has overseen the Saudi stock exchange. As a result, a new platform for trading, clearing, and settling securities. In the same spirit, the stock market changed from a cooperative to a joint stock company in 2007 (Algaeed, 2021; Touny, 2012).

Based on the evidence from the literature on the stock market, this article explores the period between 2013 and 2022 in Saudi Arabia. It examines the correlation between the financial stock markets, stocks, commodities, and currency within the economy of Saudi Arabian firms. Before the booming of oil at the turn of the century, Saudi Arabia struggled due to a lack of foreign investment. This study examines the most important indices of stock market growth: return on equity, open stock price, close stock price, dividend yield, market capitalization, trading volume, price-to-earnings ratio, open currency exchange, and close currency exchange. These market metrics correlate favor macroeconomic capital mobilization and risk diversification. Expressed market liquidity is the ratio of the value of traded shares to the value of the entire economy, and it is used to gauge the market's capacity to absorb large volumes of stock trades without producing substantial price fluctuations.

This action is intended to boost the market value of the firms. The size of a market is not necessarily proportional to the volume of daily share trading. There is no evidence in the existing literature that the stock market positively impacts the economic growth of enterprises in Saudi Arabia. This is the first study of its type. It will help fill a knowledge vacuum in the stock market growth and economic expansion of developing country corporations by improving readers' understanding of the elements that have contributed to the success of Saudi Arabian businesses.

2. Theoretical Framework and Research Hypothesis

Using these approaches to assess listed securities faces the first issue of distinguishing the value of shares from the company's worth. Three competing theories—capital asset pricing theory (CAPT), arbitrage pricing theory (APT), and efficient market theory (EMT)—can be used to assess the state of the stock market (Dumiter & Turcas, 2022).

Arbitrage pricing theory (APT) states that shares confront not just market risk but also common systematic economic hazards that are not diversifiable, such as interest rate, inflation rate, aggregate output, and industry effect. The APT model postulates that stock returns are vulnerable to impact from multiple systemic and market risk sources in the economy. Dumiter and Turcas (2022) discovered that applying the APT to the stock market could resolve the factor structure variation issue, notably between countries. The capital asset pricing theory (CAPT) is a prominent framework. The efficient frontier model graphically depicts this idea by estimating the maximum possible stock return for a specified degree of risk (Manzoor et al., 2019). It is widely acknowledged that this work laid the framework for modern portfolio theory. It is possible to evaluate the link between a stock's risk and expected return using CAPT by estimating its risk and expected return (Dumiter & Turcas, 2022).

According to the efficient market theory (EMT), the context of efficient markets is that stock prices reflect in an unforeseen manner; hence, the free and unfettered the market is, the more efficient it is. The past should not affect current stock prices in a fully efficient market. Gan (2017) expounded on this notion by stating that investors cannot get above-average returns in an efficient stock market without simultaneously assuming above-average risk. In addition, the essential assumption of the EMT is that stock prices reflect all available information about the value of assets, including economic uncertainty, which, coupled with macroeconomic considerations, may affect stock market performance (Manzoor et al., 2019). Hence, the following hypothesis was identified:

H_{01}: Stock Market Price has no relationship with the economy of Saudi Arabian Firms

- **H_{11}:** Stock Market Price has a relationship with the economy of Saudi Arabian Firms

Traders likely focus on volume for some theoretical reasons. Noting that low volume and extreme price volatility are both indicators of an illiquid market is essential. High volume and low-price volatility are additional indicators of a liquid market. According to his efficient market hypothesis (EMH), examining the association between trading volume and stock returns is ineffective in generating an abnormal rate of return. Theoretically and practically, stock returns (volatility of returns) and trading volume are determined by the same market dynamics and are thus inextricably linked.

Consequently, market professionals and academics thoroughly examined the relationship between price and volume (Dumiter & Turcas, 2022). Numerous studies have investigated the relationship between trading volume and stock price from various perspectives and with various analytic techniques (returns) (Akinleye & Olanipekun, 2021; Ali et al., 2016; Kapaya, 2020; Pham, 2014; Sheth et al., 2022). The following are hypothesized:

- **H02:** Trading volume has no impact on the economy of Saudi Arabian Firms
- **H12:** Trading volume has an impact on the economy of Saudi Arabian Firms

The market approach addresses the minority shares' market value, which has no influence on the worth of the business as a whole. It is important to remember that one cannot infer the worth of a firm from its stock market price. Market capitalization is determined by multiplying the total number of outstanding shares by the current stock price; this metric should not be confused with the issuer's market value (Odubuasi et al., 2020). As a result, this study hypothesizes the following:

- **H_{03}:** The economy of Saudi Arabian firms is independent of market capitalization.
- **H_{13}:** The economy of Saudi Arabian firms depends on market capitalization.

The prevalent belief that currency rates precede stock prices is the first. This theory posits that changes in the dollar's value are transferred to the value of a company's shares via changes in the competitive landscape and the value of its assets and liabilities, most of which are denominated in foreign currency. In the portfolio technique, it is assumed that changes in stock prices influence investors' portfolio modifications (inflows and outflows of foreign capital) (Sheth et al., 2022). According to this theory, foreign investors are more likely to invest when stock prices rise. However, a drop in stock prices would reduce the wealth of local investors, leading to a decrease in the demand for money and lower interest rates, culminating in capital outflows and a currency devaluation. As a result, this study hypothesizes the following:

- **H_{04}:** The currency exchange rate is unrelated to the economy of Saudi Arabian Firms
- **H_{14}:** The currency exchange rate is related to the economy of Saudi Arabian Firms

Discounts or rapid market shifts can explain the relationship between the two values. In the case of a takeover or merger, discounts or premiums might be applied to the overall firm valuation to account for synergy. It is nonsensical for the stock market to fluctuate when there are no issuer announcements or other significant market news, and discounts are becoming increasingly contentious (Yaya et al., 2021). Hence, the following are hypothesized:

- **H_{05}:** The COVID-19 Pandemic Period does not affect the economy of Saudi Arabian Firms
- **H_{15}:** The COVID-19 Pandemic Period does affect the economy of Saudi Arabian Firms

CAPT and APT are flawed because they need to account for uncertainty in market efficiency. In other words, economic uncertainty is important information that can be put into the EMH related to stock market efficiency. Based on the abovementioned hypothesis, we can conclude that the market is inefficient when macroeconomic factors and stock prices exhibit a unidirectional link, but a bidirectional relationship between these variables implies inefficiency (Dumiter & Turcas, 2022). As macroeconomic factors can explain stock prices, generating anomalous profits from the market is possible. On the contrary, an efficient stock market is one in which stock prices accurately represent all essential information regardless of direction (Tapa & Hussin, 2016).

3. Methodology

This article used a descriptive methodological approach. A descriptive study focuses on describing "what exists" about relevant factors or situations. Current conditions, practices, structures, differences, relationships, opinions, procedures, and trends are the focal points of a descriptive study (Matović & Ovesni, 2021). This study aims to examine the relationship between many elements; therefore, a descriptive method is acceptable (stock market performance and economic growth). In addition, a descriptive method was used for this study because it was the most suitable for fulfilling the objectives.

In this study, the methods of data collection and analysis are discussed. This study employs a time series analysis of the interrelationships between thirty Saudi Arabian companies' economic variables and financial stock markets, stocks, commodities, and currency to achieve its objectives. This study used secondary data from finbox.com and wsj.com/market-data/quotes/fx/SARUSD from the third quarter of 2013 to the third quarter of 2022. The financial stock markets, stocks, commodities, and currencies within the economy of Saudi Arabian firms are among the valid and dependable factors employed in this analysis. Since the correlation between the variables in the study needed to be evaluated, the researcher used Stata (statistical analysis software) for the analysis (Villiers & Fouché, 2015).

In the study, regression analysis was used. OLS regression analysis aims to investigate the present and future state of the relationship between the variables. Statistically, statisticians utilize regression analysis to establish educated judgments regarding the relationships between various elements (Masoud & Hardaker, 2014). Many modeling and analysis techniques can be used to examine the relationship between a dependent variable (return on equity) and one or more independent variables (open stock price, close stock price, dividend yield, market capitalization, trading volume, price-to-earnings ratio, open currency exchange, and close currency exchange) (Bello et al., 2022). Specifically, regression analysis reveals how the average value of the dependent variable fluctuates in response to changes in a single independent variable while the others remain constant. Conditional expectation of the dependent variable given the independent variables is typically estimated through regression analysis (Odubuasi et al., 2020).

The serial correlation method can evaluate the strength and direction of a relationship between two variables. The correlation coefficient measures the linear link between two variables. There is a direction of the link between the variables, as indicated by the sign of the correlation coefficient. A positive correlation coefficient suggests a stronger relationship between the variables, while a negative coefficient indicates the opposite (Onyeoma & Okoduwa, 2011). This can be as simple as a percentage or as complex as a range of values and provides context. Their primary function is to provide the most fundamental description of the study's data. They consist of concise descriptions of the study's sample and evaluation instruments. In conjunction with elementary graphical analysis, they provide the basis of any numerical data investigation (Kapaya, 2020).

4. Results

Table 1 *Descriptive Statistics*

Variables	Observation	Mean	Std. Dev.	Minimum	Maximum
ROE (%)	1080	4.58	20.64	-153.5	63.2
Stock Price (Open)	1080	14.76	18.68	1.36	142.15
Stock Price (Close)	1080	10.41	9.84	1.37	77.89
Dividend Yield (%)	1080	3.25	3.59	0	21.6
Market Capitalization	1080	1.04e+10	1.80e+10	4.66e+07	1.05e+11
Trading Volume	1080	2475195	6817629	4214	7.65e+07
Price to Earnings Ratio(x)	1080	20.53	460.72	-3348.2	12753.9
SAR to USD (Open)	1080	0.266556	0.0001833	0.2656	0.2667
SAR to USD (Close)	1080	0.266556	0.0001818	0.2656	0.2667

The average of all the variables across all firms from the third quarter of 2013 to the second quarter of 2022 is displayed in the table above. The minimum and highest values across time and firms and their corresponding standard deviation are also shown.

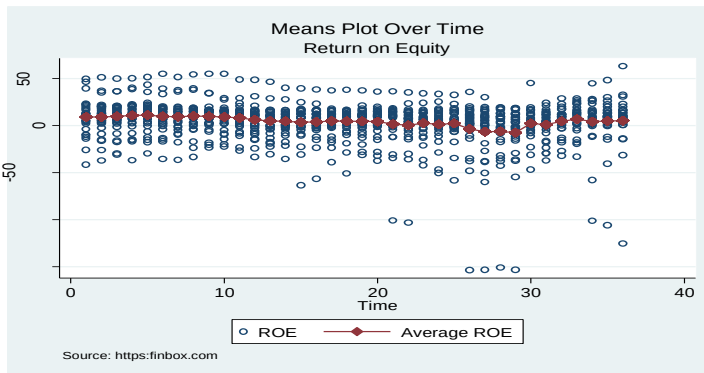

Figure 1 *Means Plot of Return on Equity of Saudi Arabian Firms Over Time*

The means plot shown above demonstrates that the average Return on Equity across Saudi Arabian firms is stable over time, meaning there have been few changes to its average over the years and no persistent upward (increase) or downward (decrease) effects on the distribution.

The validity of inference processes, specification tests, and forecasting critically depends on the normality assumption. We performed a Skewness and Kurtosis analysis to identify the cause of the non-normality of the residual error components and the individual-specific error components in a panel data model.

H₀ (s_u & k_u): $s_u = 0$ and $k_u = 3$ (Firm-Specific Error Component)

H₀ (s_e & k_e): $s_e = 0$ and $k_e = 3$ (Residual Error Component)

Table 2 *Joint Test for Normality of the Variables*

	Residual Error Component ***(e)***	**Firm-Specific Error Component** ***(u)***
Skewness	-10047.75 (8200.133)	-803.0899 (566.6629)
Kurtosis	140948 (993702.9)	12751.61 (19266.89)
Joint Test for Normality	3.52	2.45
Degree of Freedom	2	2

*Standard Errors in Bracket; Statistical Significance: *<0.05, **<0.01*

The joint test for normalcy on each element of the error term is presented above, along with the relevant p-values. As far as testing can tell, both parts are identical. As a result, symmetry makes it hard to rule out the null hypothesis of normalcy for both error components.

Panel data models offer information on firms' return on equity over time and across firms. Both cross-sectional and time-series dimensions are present in the data and models. The relationship between stocks, commodities, and currency within the economy of Saudi Arabian firms will be examined using the best model, which will be chosen after looking at the pooling, random effects, and fixed effect models. The following presentation shows the results of the three estimates.

The findings of the Pooled OLS, Random Effect Model, and Fixed Effect Model were all obtained and are given in the table. The coefficients depict the percentage change in Return on Equity at Saudi Arabian companies caused by a unit change in each independent variable. The data are fitted to the pooled OLS model at the 1% significance level since the F-statistic value of 39.82 is statistically significant at the 1% level, indicating that the model is appropriate.

Once the Random Effect Model is obtained, a multiplier test may be run to ascertain the presence or absence of random effects. In the Breusch-Pagan-Lagrange Formula in a multiplier test, the estimate from the Random Effect Model outperforms that from the Pooled OLS by a chi-squared value of 1625.65, which is

significant at the .01 levels. Firm- and time-specific error variance components are assumed to be zero if they are to be distinguished from one another.

Table 3 *Estimated Panel Data Models*

Variables	Pooled OLS	Random Effect Model	Fixed Effect Model
Stock Price (Open)	-0.2787** (0.0416)	0.1261* (0.0517)	0.2069** (0.0531)
Stock Price (Close)	0.2432** (0.0798)	0.2696** (0.0992)	0.2783** (0.1020)
Dividend Yield (%)	2.0919** (0.1628)	0.5850** (0.1702)	0.3606* (0.1724)
Market Capitalization	1.63e-10** (3.21e-11)	2.24e-10** (6.47e-11)	1.65e-10* (8.11e-11)
Trading Volume	1.03e-07 (8.23e-08)	-6.606e-09 (9.35e-08)	-3.72e-08 (9.50e-08)
Price to Earnings Ratio (x)	0.0002 (0.0011)	-9.55e-06 (0.0009)	-0.00006 (0.0008)
SAR to USD (Open)	8613.643** (3308.766)	4133.409 (2542.444)	3541.75 (2477.09)
SAR to USD (Close)	7632.953* (3331.45)	3789.883 (2590.383)	3488.358 (2528.751)
COVID-19 Period	-1.7109 (1.5173)	-4.0580** (1.2192)	-4.1529** (1.1977)
Constant	-4332.733** (1365.636)	-2115.172* (1061.749)	-1876.93 (1036.276)
F-test	39.82**		14.12**
DF	1070		1041
R^2	0.2509		0.5975
SSE(SRMSE)	344451.292		185083.144
SEE or $\hat{\sigma}_v$	17.942	13.3339	13.334
θ		0.76656092	
Breusch-Pagan LM Test		1625.65**	
Hausman Test			58.51**
N	1080	1080	1080

*Standard Errors in Bracket; Statistical Significance: *<0.05, **<0.01*

As asserted by Pulka (2019), the Fixed Effect Model is also estimated using the least square dummy variable (LSDV1) approach since it provides more accurate statistics than the "within" estimator. In order to compare the Random Effect and Fixed Effect Models, the Hausman test is used. It produces a chi-square value of 58.51 and is statistically significant at 0.01. For this reason, it can be inferred that the Fixed Effect Model estimate is superior to the random Effect Model. Serial correlation in a linear panel data model (Ali et al., 2016) biases the standard error and makes the results less effective. The 36 quarters in this dataset will be used to test for serial correlation of the residuals. Standard errors are underestimated, and R-

squared is overestimated due to serial correlation. The Wooldridge test for autocorrelation in panel data models will be used.
H_0: There is no serial correlation.
H_1: There is a serial correlation.

Table 4 *Test for Serial Correlation*

Wooldridge test for Autocorrelation in Panel Data	
F-Statistic	27.053** (29)

*Degree of Freedom in Parenthesis; Statistical Significance: *<0.05, **<0.01*

With an F-statistic of 27.053, which is significant at the 0.01% level, the Wooldridge test for autocorrelation rejects the null hypothesis and confirms the presence of serial correlation in the panel data model. Testing for heteroskedasticity is a crucial first step in any panel data analysis. When heteroscedasticity is present in the data, Olawale and Adebayo (2022) suggested that the individual-specific error term would not be homoscedastic. Assuming a fixed regression model, we will use the Modified Wald test to look for signs of heteroscedasticity.
H_0: There is a presence of homoscedasticity.
H_1: There is a presence of heteroscedasticity.

Table 5 *Test for Heteroscedasticity*

Group-Wise Heteroscedasticity in a Fixed Effect Regression Model Using a Modified Wald Test	
Chi-square Statistic	1.1e+05** (30)

*Degree of freedom in parenthesis; Statistical significance: *<0.05, **<0.01*

The Fixed Effect Regression Model exhibits heteroscedasticity, as indicated by a chi-square value of 1.1e+05 when tested using the Modified Wald Test for Group-wise heteroscedasticity, which is statistically significant at 0.01. As a result, Cross-Sectional Time-Series Feasible Generalized Least Square (FGLS) Regression will be employed to consider heteroscedasticity while neglecting the issue of serial correlation. The results of an FGLS regression are displayed below.

According to the FGLS regression model results, Saudi Arabian firms' stock price (both open and close) during each quarter contributes to the rise in Return on Equity for the chosen firms. However, the impact of the stock closure price is not particularly significant. In other words, there is a possibility of a 2.7% increase in the Return on Equity of each firm for every ten unit increases in the open stock price of each quarter. The dividend yield across the firms also influences the outcome variable since the contribution is statistically significant at the 1% level and increases the outcome variable by 1.9% for every 10-unit increase in the dividend yield. The outcome variable is also greatly increased by the market capitalization at 1%.

Table 6 *Feasible Generalized Least Square Regression Model*

FGLS REGRESSION	
Stock Price (Open)	0.2728** (.0839)
Stock Price (Close)	0.0688 (0.0948)
Dividend Yield (%)	0.1991** (0.0515)
Market Capitalization	1.41e-10** (1.03e-11)
Trading Volume	-2.79e-08* (1.12e-08)
Price to Earnings Ratio (x)	-0.0004 (0.0009)
SAR to USD (Open)	-1214.068 (816.3981)
SAR to USD (Close)	-1835.167* (842.9931)
COVID-19 Period	-3.5576** (0.3899)
Constant	820.2438* (337.6007)
Wald Chi-Square	223.93**
Number of groups	30
Periods	36
Number of Observation	1080

*Standard Errors in Bracket; Statistical Significance: *<0.05, **<0.01*

Both the price-to-earnings ratio and the trading volume reduce the outcome variable. However, only the trading volume's reduction is discernible at a statistically significant level of 5%. The Saudi Arabian Riyal negatively impacts the Return on Equity of the chosen companies to the US Dollar exchange rate, but only when compared to its closure price, where the impact is severe at 5%. The COVID-19 Pandemic Period is also taken into account to estimate its impact on Return on Equity across firms, and it is revealed that during the COVID-19 Pandemic Period, return on equity decreased by up to 3.5% across enterprises in Saudi Arabia. This impact is statistically significant at the 1% level. Following is a presentation of the FGLS Regression Model.

$$ROE_{it} = 820.2438 + 0.2728 * OpenStockPrice_{it} + 0.0688 * CloseStockPrice_{it} + 0.1991 * DividendYield_{it} + 1.41e - 10 * MarketCap_{it} - 2.79e - 08 * TradingVolume_{it} - 0.0004 * P/ERatio_{it} - 1214.068 * SARUSDOpenPrice_{it} - 1835.167 * SarUsdClosePrice_{it} - 3.5576 * COVID19\ Period_{it}$$

With the Pooled OLS, Fixed Effects, and Random Effects Models in hand, the Hausman test shows that the Fixed Effect Model is the superior option. Researchers employed the Modified Wald Test for Heteroskedasticity in Fixed Effect Regression and the Wooldridge Test for Autocorrelation in Panel Data to check for heteroskedasticity and serial correlation. We used Feasible Generalized Least Squares (FGLS) Regression to build our Panel Regression Model.

5. Conclusion

This analysis focuses on the interplay between the Saudi Arabian economy, stock markets, commodities, and currencies. Tests of the hypothesis that the growth of the stock market is a major impediment to the economic growth of firms in Saudi Arabia were conducted using the dependent variable (return on equity) and the independent variables (open stock price, close stock price, dividend yield, market capitalization, trading volume, price-to-earnings ratio, open currency exchange, and closed currency exchange). The size and activity of the stock market significantly influence the development of businesses. Pham (2014) research also reveals that as the stock market rises, businesses that rely significantly on equity capital grow more swiftly than those that do not. These results support the hypothesis that opening up the stock market to Saudi Arabian companies aids in economic development. Using the developed model, we can deduce that the open stock price has a positive effect on the economy of Saudi Arabian firms, dividend yield, market capitalization, trading volume, and the open exchange rate of the Saudi Arabian Riyal to the US Dollar while harming the open exchange rate and trading volume. It was also determined that during the COVID-19 Pandemic, the Return on Equity of Saudi Arabian enterprises fell dramatically, indicating that these firms' economies were damaged.

The outcomes of this study have major consequences for policymakers, who should prioritize boosting small and medium-sized enterprises' access to funding. In addition, policymakers should increase the breadth of the legal charter defending the rights of stakeholders and engage with global regulators, both of which are crucial for Saudi Arabian enterprises. Future research into Saudi Arabian companies and the stock market may benefit from using different indicators. This would offer a complete grasp of the nation's financial structure. Furthermore, future study is required to give up-to-date information on the aspects of the capital market and its financial institutions among enterprises of all sizes in Saudi Arabia. Therefore, future studies might examine how rising stock prices affect national economic variables, including capital formation, private savings rates, and business productivity expansion.

6. References

1. Akinleye, G., & Olanipekun, C. (2021). Risk Management and Financial Performance of Manufacturing Firms in Nigeria. Financial Risk and Management Reviews, 7, 67–77. https://doi.org/10.18488/journal.89.2021. 71.67. 77

2. Algaeed, A. H. (2021). Capital market development and economic growth: an ARDL approach for Saudi Arabia, 1985–2018. Journal of Business Economics and Management, 22(2), 388–409. https://doi.org/10.3846/jbem.2020.13569
3. Ali, N., Rehman, M., & Nasir, N. (2016). Stock Market Capitalization, Capital Formation and Growth Evidence from Saudi Arabia. 3.
4. Alshammary, M. (2014). Stock market development and economic growth in developing countries: Evidence from Saudi Arabia. Corporate Ownership and Control, 11(3), Article 3. http://www.virtusinterpress.org/-Corporate-Ownership-and-Control-.html
5. Bello, U., Zubairu, U., & Ibrahim, U. A. (2022). Impact of Capital Market Performance on Economic Growth in Developing Nations: A Qualitative Approach. Journal of Service Science and Management, 15(3), Article 3. https://doi.org/10.4236/jssm.2022.153020
6. Dumiter, F. C., & Turcas, F. (2022). Theoretical and Empirical Underpinnings regarding Stock Market Forecasts and Predictions. Studia Universitatis „Vasile Goldis" Arad – Economics Series, 32, 1–19. https://doi.org/10.2478/sues-2022-0001
7. Gan, P.-T. (2017). A conceptual model of stock market efficiency: Does economic uncertainty matter? Journal of Contemporary Issues and Thought, 7, 79–87.
8. Kapaya, S. M. (2020). Stock market development and economic growth in Tanzania: An ARDL and bound testing approach. Review of Economics and Political Science, 5(3), 187–206. https://doi.org/10.1108/REPS-11-2019-0150
9. Manzoor, R., Ahmed, V., & Maken, A. M. (2019). Literature Review (Pakistan-China Financial Market Integration, pp. 3–7). Sustainable Development Policy Institute. https://www.jstor.org/stable/resrep24388.5
10. Masoud, N., & Hardaker, G. (2014). Stock Market Development, Banks and Firms Growth: Empirical Evidence from Saudi Arabia. International Journal of Economics and Finance, 6(6), Article 6. https://doi.org/10.5539/ijef.v6n6p159
11. Matović, N., & Ovesni, K. (2021). Interaction of quantitative and qualitative methodology in mixed methods research: Integration and combination. International Journal of Social Research Methodology, 0(0), 1–15. https://doi.org/10.1080/13645579.2021.1964857
12. Mensi, W. (2019). Global financial crisis and co-movements between oil prices and sector stock markets in Saudi Arabia: A VaR based wavelet. Borsa Istanbul Review, 19(1), 24–38. https://doi.org/10.1016/j.bir.2017.11.005
13. Odubuasi, A., Wilson-oshilim, U., & Ifurueze, M. (2020). Effect of market risks on the financial performance of firms in Nigeria. Review of Quantitative Finance and Accounting, 8, 28–45.
14. Olawale, A. N., & Adebayo, A. D. (2022). Heteroskedasticity in panel data: A big challenge to data filtering. In Heteroskedasticity in panel data: A big challenge to data filtering (pp. 89–116). De Gruyter. https://doi.org/10.1515/9783110697216-006

15. Onyeoma, S., & Okoduwa, E. (2011). The effect of the stock market on economic growth in Nigeria.
16. Pham, H. (2014). Relationship between Stock Market Development and Economic Growth: Evidences from Canada and Australia. International Journal of Economics and Finance. https://www.academia.edu/10470526/Relationship_between_Stock_Market_Development_and_Economic_Growth_Evidences_from_Canada_and_Australia
17. Pulka, B. (2019). An Asymmetric Relationship between Exchange Rate and Stock Price in Nigeria. 1.
18. Rehman, M. Z. (2018). Banking sector development, stock market development and economic growth evidence from Saudi Arabia. Academy of Accounting and Financial Studies Journal, 22.
19. Sheth, A., Sushra, T., Kshirsagar, A., & Shah, M. (2022). Global Economic Impact in Stock and Commodity Markets during Covid-19 pandemic. Annals of Data Science, 9(5), 889–907. https://doi.org/10.1007/s40745-022-00403-x
20. Tapa, A., & Hussin, M. (2016). The Relationship between Stock Return and Trading Volume in Malaysian ACE Market. International Journal of Economics and Financial Issues, 6, 271–278.
21. Touny, M. (2012). Stock Market Development and Economic Growth: Empirical Evidence from Some Arab Countries. 197–177 ,32 ,المجلة العربية للإدارة. https://doi.org/10.21608/aja.2012.20110
22. Villiers, R. R. de, & Fouché, J. P. (2015). Philosophical Paradigms and Other Underpinnings of the Qualitative and Quantitative Research Methods: An Accounting Education Perspective. Journal of Social Sciences, 43(2), 125–142. https://doi.org/10.1080/09718923.2015.11893430
23. Yaya, O., Gil-Alana, L., Adekoya, O., & Vo, X. V. (2021). How fearful are commodities and US stocks in response to global fear? Persistence and cointegration analyses. Resources Policy, 74, 102273. https://doi.org/10.1016/j.resourpol.2021.102273