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The impact on insurance companies trading during unexpected events: An empirical study

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Abstract: Significant disruptions to the economy, businesses, and people's lives have been brought about by unforeseen events, such as the coronavirus disease 2019 (COVID-19) pandemic and political developments. National supervisory bodies should take action to mitigate the pandemic's impact on the insurance industry. The operations of insurance companies are at risk because they must strike a balance between maintaining capital adequacy and solvency and a sharp rise in claims. This study counts as the first to address the issue of trading in uncertain events. This study examines the impact of the COVID-19 pandemic on insurance companies, utilizing stock market data from Saudi insurance companies spanning the years 2017–2025. For this paper, we use time series; precisely, the GARCH (EGARCH) model was applied to the data extracted from the TASI index for the Saudi market. The STATA program is used for our data analyses. The findings unequivocally demonstrate that the pandemic had a significant impact on the operation of the insurance industry. Additionally, it has been found that insurance company trading volumes reached their peak during the pandemic. COVID-19 had a much greater impact on the trading volume than other political events.

Keywords: *Coronavirus, Insurance, Pandamic, COVID-19, Political event, Saudi Arabia, Traded, TASI.*

1. Introduction

Saudi Arabia is one of the few nations that offers free medical care via public hospitals. The government vaccinated citizens and foreign residents during the COVID-19 pandemic. Employees of large corporations and medium-sized businesses typically have insurance coverage. However, the insurance industry, larger economies, and people's lives can be severely impacted during times of crisis, such as pandemics or political unrest. Many businesses filed for bankruptcy as a result of the global disruption caused by the coronavirus disease 2019 (COVID-19) pandemic. Furthermore, consumer behavior can be influenced by regional instability and uncertainty, which raises questions regarding the solvency of insurance companies.

The Saudi government responded by working closely with national supervisory authorities to lessen the pandemic's effects on the insurance and occupational pension industries. "The insurance sector must deal with challenging market conditions and maintain operations while at the same time protecting employees and policyholders," stated Gabriel Bernardino, Chairman of the European Insurance and Occupational Pensions Authority [1-4]. Insurance companies found themselves in a precarious position as a result of the pandemic, having to handle an increase in claims while preserving their capital and financial stability [5]. As a result, the insurance industry's risk exposure has increased due to the pandemic and surrounding instability. Market dynamics suggest a "double-hit" scenario, where insurers face threats to both assets and liabilities [6]. An increase in past-due liabilities and a decrease in asset liquidity could lead to a decline in asset values relative to liabilities, particularly in light of recent adverse market events during the pandemic [1-4].

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This study examines the impact of political unpredictability and the COVID-19 pandemic on the trading activity of insurance companies. It examines Saudi insurance companies' stock market data from 2017 to 2025, including the pre-pandemic period, the actual pandemic, and the ongoing political unrest. It is well known that lockdowns had a negative effect on the stock market and other industries, such as insurance. Any disruption to the operations of insurance companies has significant ramifications, as they are important participants in the financial markets and underwrite the risks of both individuals and businesses.

Therefore, it is crucial to examine how COVID-19 has impacted the insurance stock market. According to preliminary data, the insurance industry's risk exposure significantly increased as the pandemic had a severe impact on people, the financial sector, and overall economic activity [1-4]. The purpose of this study is to determine whether and to what extent the COVID-19 pandemic and political events have impacted the performance of the insurance stock market.

Scholarly studies on the pandemic's effects on the insurance sector are still scarce, despite the issue's worldwide significance. For example, Shevchuk, et al. [7] highlighted how COVID-19 led to significant changes in customer relationships in Ukraine's insurance market, possibly acting as a catalyst for innovation. In contrast, Babuna, et al. [8] detailed the unfavorable financial outcomes faced by Ghana's insurance sector. Given the broader economic impacts of COVID-19, Goodell [9] emphasizes the need for further research on the disease's effects on the insurance industry.

This study makes several significant contributions to the existing body of literature, providing financial economists and policymakers with insightful information. To our knowledge, this is the first comprehensive analysis that focuses specifically on how the COVID-19 pandemic and political events have impacted the trading volume of insurance companies listed on the Saudi stock market. Previous research has examined the effects of COVID-19 on financial markets and the stock performance of insurance companies

2. Literature Review

A well-established insurance industry is crucial to a nation's economic development. A large number of stakeholders, including policyholders, shareholders, employees, intermediaries, regulators, and potential investors, are directly impacted by the financial performance of insurance companies. The public is increasingly debating the insurance industry's solvency issues. Therefore, one of the primary areas of regulatory research has become identifying firms that may pose problems. The size of the industry, which directly employs approximately a million people, manages assets worth a trillion, and serves almost every home and business, is one factor contributing to this urgency.

Ul Din, et al. [10] found a positive and statistically significant relationship between life insurance and economic growth in all the countries they examined, both in the short and long term. Additionally, due to increased education and national development, the insurance market has expanded significantly over the past few years. This implies that there is a stronger correlation between insurance and economic development, resulting from the insurance sector's increasing proportion in the financial system [11].

Another economic crisis was brought on by the COVID-19 pandemic, which led to numerous sector disruptions and extensive company closures. Insurance companies are significant long-term players in international financial markets due to the long-term nature of insurance contracts and the high level of integration within the global financial system [12].

Al Saud [13] examined the impact of major Islamic holidays, including Ramadan, Ashura, and the Hajj, on the Tadawul All Share Index (TASI), a key stock index in the Saudi market. According to the Generalized Autoregressive Conditional Heteroskedasticity (GARCH) model, the Hajj period had no discernible effect on stock returns; however, Ramadan and Ashura exhibited notable fluctuations. These variations highlight how investor sentiment and religious events impact market behavior in nations

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with a large Islamic population. The study highlights the importance of considering sentiment-driven and seasonal trends when making market forecasts, particularly in markets with similar cultural norms.

Using machine learning models, specifically decision trees, Al-Najjar, et al. [14] investigated the relationship between air quality indices (AQI) and stock index values to evaluate how air quality affects TASI performance. The study found a quantifiable effect of environmental factors on market performance by examining pollutants like PM10, O_3, NO_2, SO_2, and CO. According to the findings, certain pollutants may affect investor behavior and, in turn, impact stock performance. By highlighting the market's sensitivity to environmental factors, in addition to conventional economic indicators, this study introduces an ecological perspective to financial analysis.

Wasiuzzaman [15] investigated the impact of COVID-19 on trading volume, returns, and volatility in the Saudi stock market. The study, which employed the GARCH model, found that although the pandemic had a minimal impact on TASI's overall returns, it had a significant effect on volatility in particular industries. Furthermore, as a result of increased investor sentiment and activity during the crisis, trading volumes rose. Because sector-specific volatility can increase overall investment risk, these findings underscore the importance of portfolio diversification during periods of market uncertainty. The study highlights the necessity of adaptive risk management techniques in response to extraordinary world events and provides insightful information for investors and policymakers alike.

Hypothesis 1 (H1). The traded quantity of insurance companies during the events is more than at other times.

Kestens, et al. [16] demonstrated how the crisis affected the value of trade payables and receivables, underscoring the vulnerability of financial operations during periods of economic uncertainty. In light of this, the current study aims to investigate whether political instability—such as that experienced in Lebanon, Palestine, Syria, and Jordan—affects the trading volume of insurance companies. The global financial crisis of 2007–2008 put the stability of financial institutions and businesses as a whole to the test.

The resilience of the Tadawul All Share Index (TASI) during global financial crises was investigated by Khan and Joy [17] using time series analysis. The study's results show that TASI is more resilient than other major global markets, a robustness attributed to Saudi Arabia's conservative fiscal and monetary policies. Additionally, strategic adjustments within the Saudi financial sector contributed to enhanced market stability. This research offers investors and policymakers valuable insights by demonstrating how well-calibrated policy decisions can effectively protect emerging markets from severe economic disruptions.

Assous, et al. [18] investigated the potential of utilizing global market indices, such as the Nikkei and S&P 500, to forecast changes in TASI. Their results using the ARIMA model showed that some global indices have the ability to predict TASI performance. This highlights how Saudi Arabia's stock market is influenced by global market dynamics, underscoring the importance of diversifying international portfolios for investors.

Granger causality tests were used by Mohammed, et al. [19] to investigate further the connection between TASI and U.S. indices, specifically the Dow Jones Industrial Average. Their findings indicated a two-way causal relationship, indicating that both markets have an impact on each other. By demonstrating how changes in one market can affect others, this study contributes to the broader discussion on financial globalization. These results underscore the importance of maintaining an international perspective when selecting domestic markets for investment.

Hypothesis 2 (H2). Insurance companies typically experience higher returns during periods of high risk.

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3. Sample, Data Collection, and Methodology

3.1. Data Collection

The Saudi Stock Exchange (Tadawul) website provides daily data for all listed insurance companies, which is used in this study. The goal is to examine how the COVID-19 pandemic and political developments have impacted the volatility of the Saudi insurance market. Secondary time series data covering the period from August 2017 to January 2025 is used in the study. A thorough comparison of market behavior over various time periods is made possible by this period, which encompasses both the pre-pandemic and post-outbreak years

All insurance companies listed on the Tadawul stock exchange are included in the 2,111 observations that make up the dataset. The chosen time frame encompasses significant political and economic developments pertinent to this investigation and aligns with the availability of comprehensive data within the TASI index.

The insurance industry's trading volume and projected returns from 2017 to 2025 are shown in Figures 1 and 2, respectively. It is evident that trading volumes were relatively low prior to 2020. However, there was a decline and subsequent volatility after trading activity peaked toward the end of 2020 and again in the middle of 2021. Significant political events, such as civil unrest and conflict in Palestine, Lebanon, and Syria, coincide with a notable but discernible increase in trading volume between 2023 and 2025. The observed pattern in trading volume and the trend in expected returns support the idea that these events have an impact on market behavior.

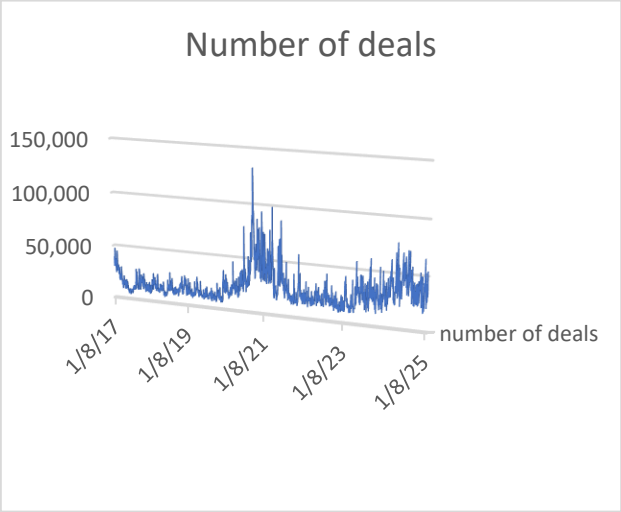

Figure 1.
The traded quantity for the period.

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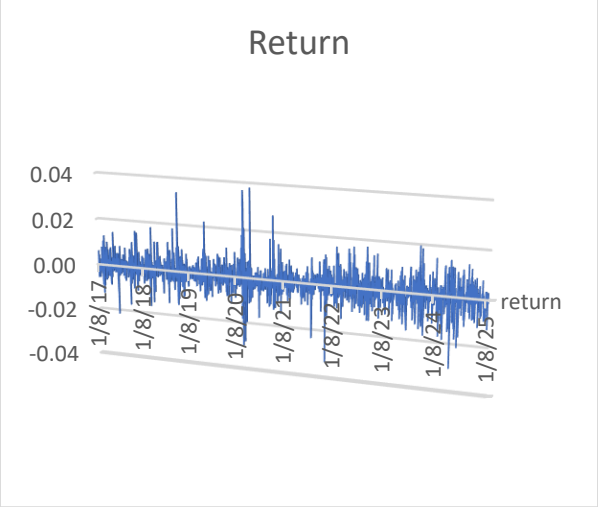

Figure 2.
T return for the period.

4. Methodology

This study examines the impact of political developments and the COVID-19 pandemic on the volatility and returns of the Saudi stock market. It uses secondary time series data from August 2017 to January 2025 and employs a quantitative research design. The number of transactions and stock market returns, both sourced from the Saudi Arabian Tadawul website, are the dependent variables.

To calculate daily stock market returns, the following logarithmic return formula is applied:

$$\text{Returnst} = \log\left(\frac{p_t}{p_{t-1}}\right)$$

Where Pt and Pt-1 represent the closing prices of the market index on the current and previous trading days, respectively.

To investigate stock return volatility over time, the study uses a multi-method approach that combines descriptive statistics, unit root testing, and sophisticated econometric models. First, the TASI Index's descriptive statistics are used to gain a deeper understanding of the dataset's overall features.

The stationarity of the data series is then evaluated using a unit root test, such as the Augmented Dickey-Fuller (ADF) test. The Autoregressive Conditional Heteroskedasticity (ARCH) test is used to determine whether heteroskedasticity is present prior to applying volatility modeling techniques.

The Generalized Autoregressive Conditional Heteroskedasticity (GARCH) model, proposed by Engle,is used to more accurately model volatility. By adding lagged conditional variance as an autoregressive component, the GARCH model overcomes the drawbacks of the ARCH model and more accurately depicts the persistence of volatility [20].

The Exponential GARCH (EGARCH) model is also used to account for volatility asymmetries, which are especially important when evaluating the influence of political events. Since negative news frequently has a greater impact on market volatility than positive news, this model is well-suited to reflect the different effects of positive and negative shocks.

The GARCH-in-Mean (GARCH-M) model, which permits the conditional mean of returns to be a function of the conditional variance, is also used in this study. This is especially helpful when evaluating the trade-off between risk and return. Due to its ability to capture the impact of risk on expected returns, Engle [21] advocated for the use of the GARCH-M model in volatility analysis. It is anticipated that the results of this methodology will provide insight into the degree to which political stability or instability affects stock market volatility. The GARCH-M model is useful, but it

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assumes that the effects of positive and negative shocks are symmetric. This is a known drawback, as real-world financial data often exhibits asymmetric responses, particularly during times of crisis.

4.1. Summary Statistics

Table 1 summarizes statistics of return and the number of transactions traded for the sample period (2017–2025).

Table 1.
Presents the summary statistics.

Variable	Obs.	Mean	Std. Dev.	Min	Max
Transactions	2,113	963.5689	559.2303	1	1953
Return	2,112	-.033628	39.73217	-650.279	760.2401

5. Data and Empirical Results

For several reasons, the current analysis included data from 2017 to 2025. Significant events that caused unrest and had a significant impact on the nation's capital during the period under consideration included the COVID-19 pandemic and political developments across the Middle East, including in Palestine, Syria, Lebanon, Jordan, and Turkey.

The descriptive information for stock market returns and the quantity of traded transactions is shown in Table 1. With a standard deviation of 39.73217 and an average return of -0.033628, the stock market ranges from -650.279 to 760.2401. The number of transactions traded ranges from 1 to 1953, with an average of 963.5689 and a standard deviation of 559.2303.

The outcomes of the Augmented Dickey-Fuller (ADF) test, which assesses the stationarity of the TASI Index for insurance companies, are presented in Table 2. The differencing approach was used to confirm the significance level of the data. With a single lag, this test yielded a statistically significant ADF p-value of 0.000 (Table 2). This implies that our data is stationary [22]. This outcome is consistent with the first diagnostic analysis of the two variables, returns and transactions.

The transactions that occurred during this period are illustrated in Figure 3. The predicted values of the disturbance terms are higher at particular times, which is supported by the fact that some time periods show more volatility than others. The homoscedasticity assumption must therefore be satisfied. In this instance, the present variance depends on past variance.

Table 2.
Result of the augmented Dickey-Fuller test.

Number	Variable	Coef.	Std.Err	T- Value	P-Value
1.1	Transaction L1.	-0.4103318	0.0175654	-23.36	0.000
	_cons	395.0201	19.56622	20.19	0.000
1.2	Transaction L1.	-0.30996932	0.019118	-16.20	0.000
	LD	-0.2446807	0.0211049	-11.59	0.000
	_cons	298.1793	20.73111	14.38	0.000
2.1	Return L1.	-1.409219	0.0196403	-71.75	0.000
	_cons	0.0706818	0.780349	0.09	0.928
2.2	Return L1.	-1.723608	0.0354907	-48.57	0.000
	LD	0.2159308	0.0210092	10.28	0.000
	_cons	0.1223007	0.7603382	0.16	0.872

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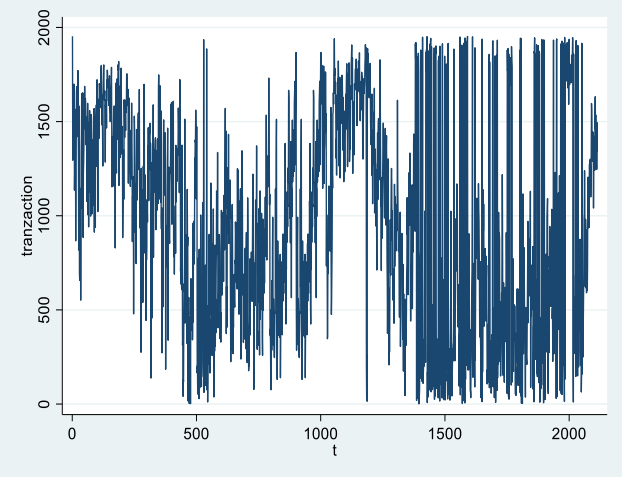

Figure 3.
Shows the volatility of transactions traded.

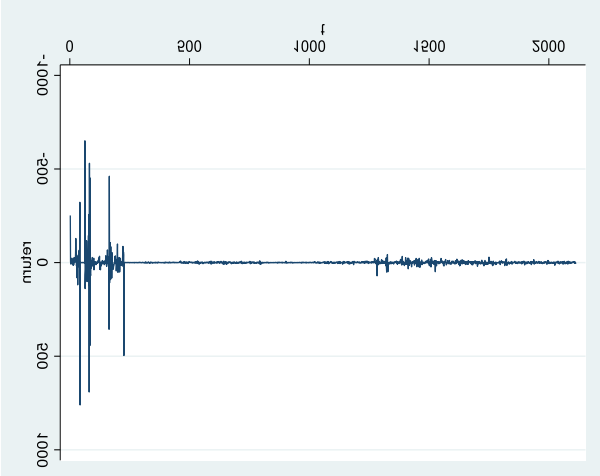

Figure 4.
Shows the volatility of return.

A basic tenet of the conventional linear regression model is that the variance of the standard error term has a zero mean and constant variance. The outcomes of the linear regression are shown in Table 3. Heteroskedasticity arises when this presumption is violated, resulting in inaccurate results. Since the ARCH model works better with heteroskedastic data, it was employed to address this issue. The probability value is less than 0.000, according to the ARCH results, which are displayed in Table 4. Consequently, the null hypothesis (H0), which asserts that there is no ARCH effect, is rejected, and the alternative hypothesis (H1), which suggests the existence of an ARCH effect, is accepted. This result validates the ARCH effect in both transaction volume and stock market returns.

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Table 3.
Linear regression model.

Variable	Return	Number of Transaction
Coef.	-0.4092195	0.58996682
Std. Err.	0.0196403	0.0175654
t	-20.84	33.57
P>|t|	0.000	0.000
Prob > F	0.0000	0.000
R-squared	0.1707	0.3478
Number of obs	2,111	2112

Table 4.
Result of ARCH test.

Variable	Coef.	OPG Std.Err	Z	P>|Z|
Transaction L1.	0.6089361	0.0150137	40.56	0.000
_cons	388.6395	15.96167	24.35	0.000
ARCH L1.	0.4907181	0.0543574	9.03	0.000
_cons	113419.3	4647.837	24.40	0.000
Return L1.	-0.3163764	0.0093768	-33.74	0.000
_cons	0.5077127	0.2589659	1.96	0.050
ARCH L1.	2.074324	0.093063	22.29	0.000
_cons	297.109	0.5291635	561.47	0.000

This study proceeds to the analysis and estimation of the GARCH model, which captures the primary stylized feature of index returns, as stock market returns are susceptible to the ARCH effect. Tables 5 and 6 show the results of the GARCH model.

The results of the GARCH (1, 1) model for transactions with a single lag are presented in Table 5. At the 1% significance level, the coefficient of the lagged transaction term (0.7106571) is positive. Since it shows the number of transactions made on a particular day and indicates whether the volume of transactions is increasing, this is to be expected.

Additionally, Table 6 presents the results of the GARCH (1, 1) model for stock market returns. Stock returns have been used as a single lagged term in the model's estimation. The lagged stock returns term's coefficient (0.002364) is positive but not statistically significant at the 1% significance level. The idea that stock returns rise during events is rejected. These findings contradict earlier research suggesting that stock returns have a positive and significant impact on future returns. This suggests that stock returns are susceptible to political influences and tend to fluctuate in response to significant events. On the other hand, investors typically feel more confident and are more likely to maintain or increase their investments when stock returns exhibit upward trends.

Because it guarantees strong economic growth, boosts investor confidence, and reduces investor reluctance, political stability is a crucial factor in influencing investor decisions [23]. These results are consistent with other research, which indicates that increased capital investment in the stock market leads to higher stock prices [24]. These findings indicate that political stability has a positive impact on current stock market outcomes, both directly and indirectly. More precisely, the findings suggest that eliminating uncertainty enhances decision-making effectiveness and that greater political stability within a nation leads to increased certainty [25].

This stability leads to higher stock market returns, which aligns with the findings of other studies [26, 27]. This study contributes to the literature by analyzing elements frequently associated with political instability, including terrorism, autocracy, and the democratic era. These elements erode investor confidence, breed uncertainty, and discourage investors from investing in the stock market, claims [28]. The findings underscore the importance of political stability and predictability in maintaining a stable stock market. Unusual events, such as bad news, changes in power, and other

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situations that create uncertainty, have a negative impact on the stock market, as noted by Ashraf, et al. [29]. The results confirm that historical stock returns are closely linked to political stability.

Table 5.
Results of the GARCH (1, 1) transaction in the equation.

Variable	Coef.	Std.Err	Z	P>|Z|
Transaction L1.	0.7106571	0.0117483	60.49	0.000
_cons	314.4719	13.77187	22.83	0.000
ARCH				
L1.	0.1621882	0.0137806	11.77	0.000
Garrch.				
L1.	0.8078451	0.0129	62.62	0.000
_cons	7152.03	998.1531	7.17	0.000

Table 6.
Results of the GARCH (1, 1) return in the equation.

Variable	Coef.	Std.Err	Z	P>|Z|
return L1.	0.002364	0.0254455	0.09	0.926
_cons	-0. 5143368	0.7874882	-0.65	0.514
ARCH				
L1.	1.257491	0.0688186	18.27	0.000
Garrch.				
L1.	0.3386209	0.0074491	45.46	0.000
_cons	177.2488	2.842424	62.36	0.000

This study captured the asymmetrical impact of returns using the EGARCH model. The results of the EGARCH model, which incorporates the stock return index in the mean equation, are shown in Table 7. The stock return index has a positive coefficient (0.0889377) and is significant at the 1% level. The coefficient of the GARCH (L1) term is 0.3386209, positive and significant at the 1% level. Given that the coefficient is both positive and statistically significant at the 1% level, this indicates an asymmetric influence.

Furthermore, the EGARCH model results, using the transaction index in the mean equation, are presented in Table 8. The transaction index has a positive coefficient (0.7196679) and is significant at the 1% level, indicating an asymmetric influence.

Table 7.
Results of the EGARCH model Return.

Variable	Coef.	Std.Err	Z	P>|Z|
return L1.	0.0889377	0.0220227	4.04	0.000
_cons	-0.120859	0.0269198	-4.49	0.000
EARCH				
L1.	-0.1176508	0.0057438	-20.48	0.000
EARCH_a	0.3875369	0.0091233	42.48	0.000
EGARCH.				
L1.	1.00888	0.0003478	2901.01	0.000
_cons	0.0311765	0.0019403	16.07	0.000

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Table 8.
Results of the EGARCH model number of transaction.

Variable	Coef.	Std.Err	Z	P>|Z|
Tranzaction L1.	0.7196679	0.0095446	75.40	0.000
_cons	314.5251	12.90649	24.37	0.000
EARCH				
L1.	0.0126781	0.0129608	0.98	0.328
EARCH_a	0.3414484	0.0190046	17.97	0.000
EGARCH.				
L1.	0.9708627	0.0055895	173.69	0.000
_cons	0.368334	0.0668052	5.51	0.000

6. Discussion

This study examines the impact of various events on the insurance stock market. The findings indicate that events have a significant impact on stock returns, with larger swings observed during the pandemic or in response to political events.

The number of transactions increases during both political and pandemic events, according to an analysis of transaction volumes, which reveals a positive and significant relationship. Interestingly, transaction volumes increased more significantly during the pandemic than during the political era. This result is consistent with other research that suggests pandemic events tend to increase volatility more than political events [27, 30].

Political events, such as sudden changes in leadership, terrorist attacks, or religious disputes, significantly increase uncertainty in the economic system, according to the study's findings. Decision-making becomes more uncertain under such conditions, which causes changes in investor sentiment. As investors become more risk-averse and adjust their portfolios in response to political risk, this increased uncertainty exacerbates market volatility.

Political developments can also create an atmosphere that encourages companies to feel more confident in making strategic choices as they mature [25] which can have a positive impact on the stock market.

7. Conclusion

Despite its extreme sensitivity to a wide range of events, both big and small, the stock market remains a reliable gauge of a country's economic health. Unexpected events have the power to drastically change investor sentiment toward the stock market, according to behavioral finance theory. Globally, the main forces affecting financial markets and economic policy are often political and catastrophic events, such as pandemics.

Using data spanning from 2017 to 2025, this study employed the GARCH and EGARCH models to investigate the impact of political events on the volatility and returns of the Saudi insurance stock market. Political developments have a big impact on the volatility and returns of the Saudi stock market, according to the GARCH analysis. We rejected the second hypothesis, however, because the returns coefficient was found to be insignificant, suggesting that stock market returns typically decline during unforeseen events.

According to traditional finance theory, investors seek stability to reduce uncertainty and make informed investment choices. However, according to behavioral finance theory, investor behavior can be influenced by cognitive biases, which often lead to irrational decisions. According to the study's findings, political developments have an impact on stock market returns both directly and indirectly by influencing the climate for investing. Additionally, the EGARCH model indicates that market volatility

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is higher in response to negative shocks—such as political instability—than in response to positive shocks, like political stability.

The study concludes that financial investors in Saudi Arabia's stock market are more significantly impacted by pandemic events than by political ones. Because investors are prone to making irrational decisions in uncertain times due to behavioral biases, political instability raises risk and is a serious threat to investment. Additionally, investors become more risk-averse and adjust their portfolios in response to political risks, which intensify market volatility due to political uncertainty. Saudi Arabian stakeholders should prioritize establishing political stability and a welcoming investment environment to attract investors and enhance stock market performance.

The current study has some limitations, despite the focus period of 2017–2025 being limited by data availability. Future studies could compare countries with similar political challenges, extend the time frame to examine longer-term trends, introduce novel methodologies to further enhance the analysis, and investigate event-based studies to evaluate the impact of specific events.

Abbreviations:

GARCH Generalized Auto-Regressive Conditional Heteroskedasticity.
EGARCH Exponential Generalized Auto-Regressive Conditional
ARCH Heteroskedasticity. Autoregressive Conditional Heteroskedasticity.

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Transparency:

The author confirms 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.

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