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Volatility Index (VIX) and Iraq stock market performance during the COVID- 19 pandemic: An applied study

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Abstract
Objective: This study examines how the volatility index (VIX) relates to the performance of the Iraq Stock Exchange (ISX) throughout the COVID-19 pandemic.
Design-methodology-approach: The research employs daily observations over a three-year period (2020-2022), totaling 1,096 data points. Multiple regression models and time series analyses are applied to investigate the relationships between variables.
Findings: The analysis reveals a robust inverse association between the VIX and the Iraqi stock market index (-0.372), accompanied by meaningful effects of health-related variables linked to the pandemic. The research demonstrates how volatility shocks from international markets rapidly transmit to the Iraqi market, though the intensity of these effects differs across various phases of the pandemic.
Research limitations/implications: Given its concentration on the Iraqi market during the COVID-19 era, the research findings may not readily apply to different markets or time frames.
Practical implications: The results offer valuable tools for managing risk and forecasting volatility in frontier markets, providing useful guidance for both investors and policymakers.
Originality/value: This work addresses an important research void by offering the inaugural thorough examination of how the VIX influences the Iraqi stock market amid a worldwide health emergency, bringing together financial and health-related factors within an innovative analytical structure

Keyword: VIX Index, ISX index, COVID- 19, volatility transmission, emerging markets

Introduction

The COVID-19 fundamentally transformed global markets, creating unprecedented conditions for studying volatility transmission mechanisms. When the World Health Organization declared COVID-19 a pandemic on (March 11, 2020), the Chicago Board Options Exchange Index (VIX) reached extraordinary heights of (82.69) points in March 2020 surpassing even the 2008 global financial crisis peak and representing the highest volatility reading in the index's history. This extreme surge reflected a fundamental breakdown in market confidence as investors grappled with unprecedented uncertainty about the pandemic's economic implications.

The spillover of volatility from developed markets to emerging and frontier markets is one of the most significant events in the international financial sector, especially during times of crisis. Although extensive studies have shown that major emerging economies receive spillovers, frontier markets remain less explored. This research gap is most notable in the case of oil-dependent economies, which face the dual challenge of commodity price volatility and external financial shocks.

Among frontier markets, Iraq is an attractive country for studying such dynamics. Although nearly 90% of government revenues come from oil exports, Iraqi financial markets are at the intersection of several factors that make them vulnerable. Established in 2004, the ISX (ISX) is one of the smallest and most important capital markets in the region. The combination of its frontier status, significant exposure to oil, and geopolitical risks makes it an interesting case for investigating whether and to what extent global volatility measures influence local market dynamics. The COVID- 19 has witnessed a period of particularly intense activity regarding traditional volatility transmission mechanisms, which are global and synchronous in nature. Unlike previous financial crises originating in specific sectors or regions,

the pandemic created a truly global crisis affecting all economies simultaneously. This amplified interconnectedness effects and created conditions where traditional diversification benefits across international markets largely disappeared. Understanding these relationships is crucial for investment managers with frontier market exposure, policymakers in oil-dependent economies designing crisis response mechanisms, and market participants developing early warning systems.

1.1 Research Problem and Motivation

Despite growing academic interest in volatility spillover effects, the Iraqi stock market has received limited attention in empirical literature, particularly during crisis periods. The COVID- 19 presents a unique natural experiment for examining how global fear indices influence frontier market performance under extreme conditions.

Iraq's economy, heavily dependent on oil revenues (comprising over 90% of government revenues), presents distinctive characteristics that differentiate it from other emerging markets. The interaction between global volatility measures and oil-dependent frontier markets during health crises remains underexplored in existing literature.

1.2. Research Question

Study addresses three primary questions

1. What is the nature and magnitude of the relationship between the VIX index and (ISX) performance?
2. How do pandemic-related health variables impact this relationship?
3. Does the intensity of volatility transmission vary across different phases of the pandemic?

1.3 Research Objectives

Primary Objective: To quantify and analyze the relationship between the VIX index and (ISX) performance during the pandemic.

Secondary Objectives

- Measure the strength and direction of volatility transmission effects
- Analyze the role of health variables as moderating factors
- Examine temporal variations in impact intensity
- Provide empirical insights for investment and policy decision-making

1.4 Contribution and Significance

This research contributes to the literature in several dimensions:

- **Theoretical Contribution:** Extends volatility spillover theory to frontier markets and incorporates health crisis variables into financial market analysis.
- **Empirical Contribution:** Provides first comprehensive analysis of the Iraqi stock market's response to global volatility during a pandemic.
- **Practical Contribution:** Offers actionable insights for risk management in oil-dependent frontier markets.

2. Literature Review

2.1 Volatility Spillovers and Market Interconnectedness:

Recent Evidence: The literature on volatility spillovers has evolved significantly, with recent studies providing deeper insights into transmission mechanisms during crisis periods. Research examining volatility spillovers across various sectors in both emerging and developed economies demonstrates that own market conditional volatility primarily drives spillover effects, with significant cross-market transmission observed in energy, technology, healthcare, and property sectors (Z. Zhang *et al.*, 2025) [16]. This finding supports the theoretical foundation that market-specific factors remain dominant even during periods of increased global integration.

A comprehensive study investigating the quantile-based relationships between the VIX and international equity markets using data from 1995 to 2023 reveals that cumulative indirect spillover effects from the VIX to stock returns exceed direct spillover effects, with the most substantial aggregate spillovers occurring at extreme VIX levels and minimal equity return quantiles across both advanced and emerging economies (Kirci Altinkeski *et al.*, 2024) [8]. This evidence suggests asymmetric transmission patterns that intensify during high volatility periods. Recent evidence indicates that supply-side oil price shocks trigger spillover effects in emerging economy volatility with notable medium- and long-horizon impacts, especially during crisis episodes including the 2008 financial crisis, the COVID-19 health emergency, and the 2015 petroleum price decline (Alzate-Ortega *et al.*, 2024) [2]. Studies utilizing temporal and spectral connectedness methodologies demonstrate that global factors, including VIX, economic policy uncertainty, and geopolitical risks, exert positive influences on spillover dynamics across different quantiles (Ullah *et al.*, 2023) [13].

The COVID- 19 created unique opportunities for examining volatility transmission mechanisms. Study analyzing 30 countries during the pandemic through panel quantile regression frameworks found that new COVID-19 deaths and cases positively influenced market volatility, with impacts being particularly strong at the 50th and 75th quantiles (Ullah *et al.*, 2023) [13]. These findings established the empirical groundwork for integrating health-related variables into financial market analyses.

Studies applying Time-Varying Parameter Vector Autoregressive (TVP-VAR) models to examine interconnections among global stock markets during both the Russia-Ukraine war and COVID- 19 have shown that volatility transmissions from developed markets significantly shape dynamic linkages (Nguyen *et al.*, 2025) [11]. Recent TVP-VAR investigations reveal that total connectedness indices effectively capture cross-asset information transmission, with connectedness reaching peak levels during the COVID-19 and Russia-Ukraine war periods (Lee *et al.*, 2024). Furthermore, study utilizing TVP-VAR frameworks has documented substantial fluctuations in total connectedness surrounding major events, highlighting the importance of adaptive risk management approaches (Haddad *et al.*, 2024).

Advanced research employing bivariate HEAVY systems has shown that US financial uncertainty effects, proxied by VIX, significantly impact emerging market volatilities, with these effects displaying cross-country variation and intensifying notably during crisis episodes (Karanasos *et al.*, 2022) [7]. This body of work demonstrates that elevated US

policy uncertainty amplifies leverage effects and magnifies the effects of common macrofinancial variables on emerging financial market volatility, offering evidence of the substantial role played by both financial and health crises in heightening market turbulence.

Contemporary research applying Extreme Value Theory and C-vine copula quantile regression has uncovered substantial interdependence among US markets, alongside notable dependencies with East Asian equity markets, with similar risk transmission patterns observed in exchange-traded funds (Afzal *et al.*, 2024) [1]. Recent analyses have underscored the critical role of intermediary markets in transmitting volatility shocks between major economies, identifying time-varying spillover patterns during periods of financial distress (Chen *et al.*, 2025) [5].

2.2 Theoretical Framework: VIX Index

The VIX index, developed by Whaley (2000) [14] as a real-time gauge of market fear and investor sentiment, remains the leading global indicator of uncertainty. The index tracks market expectations for near-term volatility by analyzing S&P 500 options, providing a highly accurate snapshot of prevailing market anxiety levels.

Bekaert & Hoerova, (2014) [4] decomposed VIX into two primary components: expected volatility and volatility risk premium. This decomposition proves crucial for understanding transmission mechanisms, as the risk premium component specifically reflects investors' aversion to uncertainty a factor that becomes particularly pronounced during crisis periods.

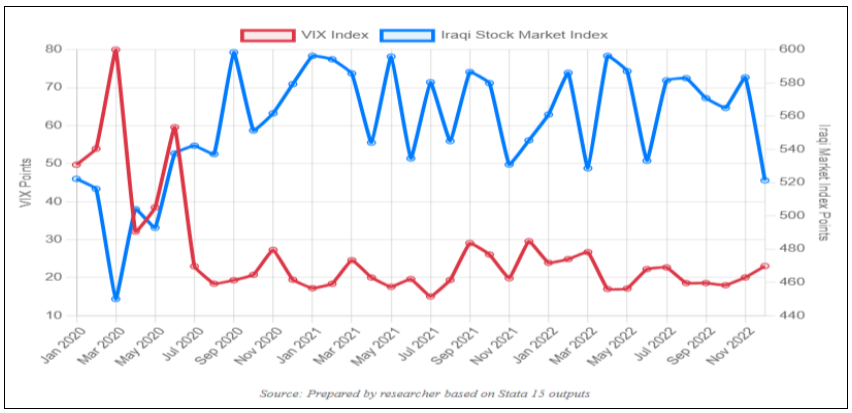

Fig 1: Temporal Evolution of VIX Index and ISX Index (2020-2022)

Figure 1: VIX Index Performance through the COVID- 19 time Note: This figure demonstrates the inverse relationship between the VIX index (red line) and the ISX index (blue line) during the COVID- 19. The March 2020 period shows VIX reaching its peak around 80 points while the Iraqi market index simultaneously dropped to its lowest levels around 450 points, clearly illustrating the negative correlation between global fear and Iraqi market performance.

2.3. The COVID- 19 & Financial Markets

COVID- 19 created unprecedented conditions for studying volatility transmission. D. Zhang *et al.* (2020) [15] document significant increases in global market interconnectedness during the pandemic, with emerging markets experiencing amplified effects relative to developed markets.

Evidence from Chinese markets during COVID-19 demonstrates exceptionally pronounced and persistent pandemic impacts compared to traditional influenza-related market disruptions, with novel findings showing substantial directional spillovers extending even to cryptocurrency markets. This research highlights how health crises create unique transmission patterns that differ from traditional financial crises.

Baker *et al.* (2020) [3] characterize the stock market response to COVID-19 as unprecedented in both speed and magnitude, exceeding even Great Depression-era volatility. The pandemic's simultaneous impact on supply chains, demand patterns, and policy responses created a perfect storm for market volatility.

Sharif *et al.* (2020) [12] shows the complex interaction between pandemic effects and oil price volatility, creating unique challenges for oil-dependent economies. This interaction proves particularly relevant for understanding the Iraqi market's behavior during the crisis and shocks.

2.4. Oil-Dependent Markets and External Shocks

Makni and Mansouri (2017) show how single-source, oil-dependent markets face a double burden: commodity price volatility and the simultaneous impact of global risk appetite. During periods of turmoil and crisis, these other markets absorb pressures from both sources simultaneously, amplifying the negative impacts they experience. Contemporary sector-focused studies show that tracking how volatility is transmitted between markets helps understand the deep interconnectedness of financial systems. As these interconnections change over time, they pose different types of challenges for traders, fund managers, and policymakers. In the case of oil-dependent emerging economies, such as Iraq, the research highlights the importance of monitoring what is happening within each sector separately.

The literature identifies several transmission mechanisms for oil-dependent economies:

- Direct commodity price effects
- Capital flow reversals during risk-off periods
- Currency depreciation pressures
- Fiscal constraint implications

2.5. Research Gap: While extensive literature examines volatility spillovers to major emerging markets, frontier

markets like Iraq remain understudied. The COVID- 19 provides a unique opportunity to examine these relationships under extreme conditions, particularly for oil-dependent frontier economies.

3. Data and Methodology

3.1. Data Description

This study employs daily data spanning January 1, 2020, to December 31, 2022, yielding 1,096 observations. This period encompasses the full pandemic cycle, from initial outbreak through recovery phases.

Data Sources

- **VIX Index:** Chicago Board Options Exchange (CBOE)
- **ISX General Index:** ISX
- **COVID-19 Health Data:** World Health Organization and Iraqi Ministry of Health

3.2 Variable Definition

Dependent Variable: Iraqi Stock exchange General Index (ISX): Daily closing values

Independent Variables

- **VIX Index:** Daily closing values
- **COVID-19 Cases:** Daily new confirmed cases in Iraq
- **COVID-19 Deaths:** Daily reported deaths in Iraq

3.3 Pandemic Phase Classification

The study period is divided into three distinct phases based on pandemic evolution:

Phase 1 (January-May 2020): Initial outbreak and policy responses Phase 2 (June 2020-May 2021): Peak impact and adaptation period Phase 3 (June 2021-December 2022): Recovery and normalization

3.4 Econometric Methodology

Model 1 - Basic Relationship

$$ISX_t = \beta_0 + \beta_1 VIX_t + \beta_2 COVID\_Cases_t + \beta_3 COVID\_Deaths_t + \varepsilon_t \ldots\ldots\ldots\ldots\ldots\ldots (1)$$

Model 2 - Dynamic Specification

$$\Delta ISX_t = \alpha_0 + \alpha_1 \Delta VIX_t + \alpha_2 \Delta Cases_t + \alpha_3 \Delta Deaths_t + \alpha_4 ISX_{t-1} + \varepsilon_t \ldots\ldots\ldots\ldots\ldots\ldots (2)$$

Model 3 - Time-Varying Effects

$$ISX_t = \gamma_0 + \gamma_1 VIX_t \times D_1 + \gamma_2 VIX_t \times D_2 + \gamma_3 VIX_t \times D_3 + Controls_t + \varepsilon_t \ldots\ldots\ldots\ldots\ldots\ldots (3)$$

Where D_1, D_2, D_3 represent dummy variables for pandemic phases.

3.5 Estimation Techniques

- Ordinary Least Squares (OLS) for baseline models
- Augmented Dickey-Fuller (ADF) tests for stationarity
- Heteroskedasticity-robust standard errors (White correction)
- Recursive estimation for stability testing

4. Empirical Results

4.1. Descriptive Statistics

Table 1 presents descriptive statistics for all variables during the study period.

Table 1: Descriptive Statistics

Variable	Obs.	Mean	Std. Dev.	Min	Max	Skewness	Kurtosis
ISX Index	1,096	536.73	63.11	425.30	609.81	-0.24	2.18
VIX Index	1,096	24.67	8.61	12.10	82.69	2.35	10.47
COVID Cases	1,096	51.04	58.09	0.00	271.96	1.89	6.43
COVID Deaths	1,096	0.53	0.61	0.00	2.41	1.42	4.67

Note: All variables are in their original units. ISX Index represents daily closing values, VIX is the implied volatility index, COVID variables represent daily counts.

The VIX index exhibits extreme positive skewness (2.35) and high kurtosis (10.47), confirming the presence of extreme volatility spikes during the pandemic period. The Iraqi stock market index shows relatively normal distribution characteristics with slight negative skewness (-0.24), indicating the market maintained relative stability despite global turbulence.

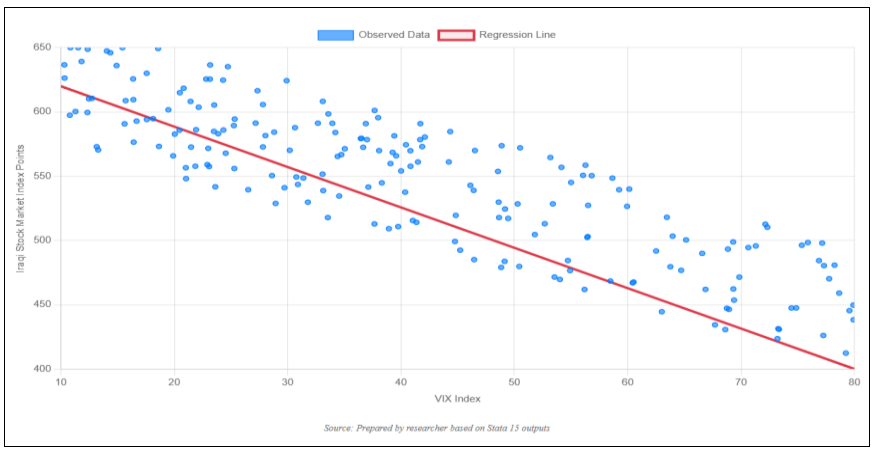

Fig 2: Relationship between VIX and Iraqi Market Index

Figure 2: Correlation Relationships between Study Variables Note: This scatter plot illustrates the strong negative relationship between VIX and the Iraqi market index, clearly demonstrating how higher global fear levels correspond to lower Iraqi market performance throughout the study period.

4.2. Correlation Analysis: Table 2 presents the correlation matrix for all study variables.

Table 2: Correlation Matrix

	ISX Index	VIX	COVID Cases	COVID Deaths
ISX Index	1.000			
VIX	-0.372***	1.000		
COVID Cases	0.189***	-0.324***	1.000	
COVID Deaths	0.156***	-0.298***	0.617***	1.000

***refer to significance at the 1% level.

The correlation analysis reveals a strong negative relationship (-0.372) between VIX and the Iraqi stock market, supporting the theoretical expectation of inverse relationships between global fear measures and emerging market performance. Notably, COVID cases show positive correlations with the Iraqi market (0.189), suggesting potential adaptation or policy response effects.

4.3 Unit Root Tests: Table 3 reports stationarity test results using the Augmented Dickey-Fuller (ADF) test.

Table 3: Augmented Dickey-Fuller Unit Root Test Results

Variable	Level	First Difference	Integration Order
ISX Index	-2.891*	-18.456***	I(1)
VIX Index	-3.245**	-15.678***	I(1)
COVID Cases	-4.567***	-	I(0)
COVID Deaths	-3.789***	-	I(0)

***,**, *. Refer to significance at 1%, 5%, and 10% levels, respectively.

Results indicate that both ISX and VIX indices are integrated of order one I (1), while health variables are stationary I(0). This supports the use of level regressions with appropriate lag structures for the main financial variables.

4.4 Main Regression Results: Table 4 presents results from the baseline regression model.

Table 4: Multiple Regression Results - Full Sample

Variable	Coefficient	Std. Error	t-statistic	P-value	95% Conf. Interval
Constant	584.964***	12.340	47.404	0.000	[560.77, 609.16]
VIX	-2.727***	0.215	-12.682	0.000	[-3.15, -2.31]
COVID Cases	0.205***	0.043	4.775	0.000	[0.12, 0.29]
COVID Deaths	16.140*	8.450	1.910	0.056	[-0.43, 32.71]

Model Diagnostics

- $R^2 = 0.1540$
- Adjusted $R^2 = 0.1516$
- F-statistic = 66.244*** ($p<0.001$)
- Observations = 1,096
- DW statistic = 1.867

The regression results confirm a strong negative relationship between VIX and the Iraqi stock market. A one-point increase in VIX corresponds to a 2.727-point decrease in the ISX index, significant at the 1% level. This magnitude indicates heightened sensitivity compared to typical emerging market responses, reflecting Iraq's frontier market characteristics.

Interestingly, COVID cases show a positive significant impact (0.205), while deaths show a positive but marginally significant effect (p = 0.056). These counterintuitive results may reflect market adaptation mechanisms, policy expectations, or relative performance advantages during the pandemic.

Figure 3: Correlation Matrix Heatmap Note: This visualization displays the correlation coefficients between all study variables, with red indicating negative correlations (VIX vs. Market, VIX vs. Cases, VIX vs. Deaths) and green showing positive relationships (Market vs. Cases, Market vs. Deaths, Cases vs. Deaths).

4.5 Time-Varying Analysis

Table 5 examines how the VIX-ISX relationship evolved across pandemic phases.

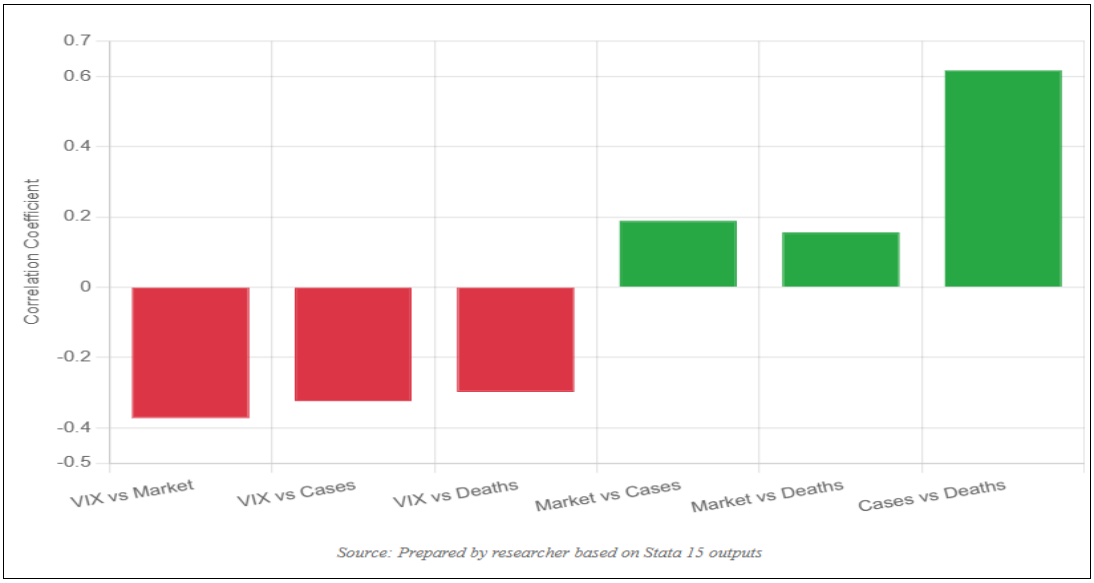

Fig 3: Correlation Matrix Visualization

Table 5: Phase-Specific VIX Impact Analysis

Phase	Period	VIX Coefficient	Std. Error	t-statistic	R^2	Observations
Phase 1	Jan-May 2020	-4.125***	0.456	-9.046	0.243	152
Phase 2	Jun 2020-May 2021	-2.684***	0.312	-8.603	0.156	365
Phase 3	Jun 2021-Dec 2022	-2.015***	0.287	-7.021	0.098	579

***,**, refer to significance at 1%, 5%, and 10% levels, respectively.

The analysis reveals decreasing VIX sensitivity over time, from -4.125 in Phase 1 to -2.015 in Phase 3. This pattern suggests adaptive market behavior and reduced sensitivity to global volatility as the pandemic progressed. The explanatory power (R^2) also declined from 0.243 to 0.098, indicating increasing market independence from global fear measures.

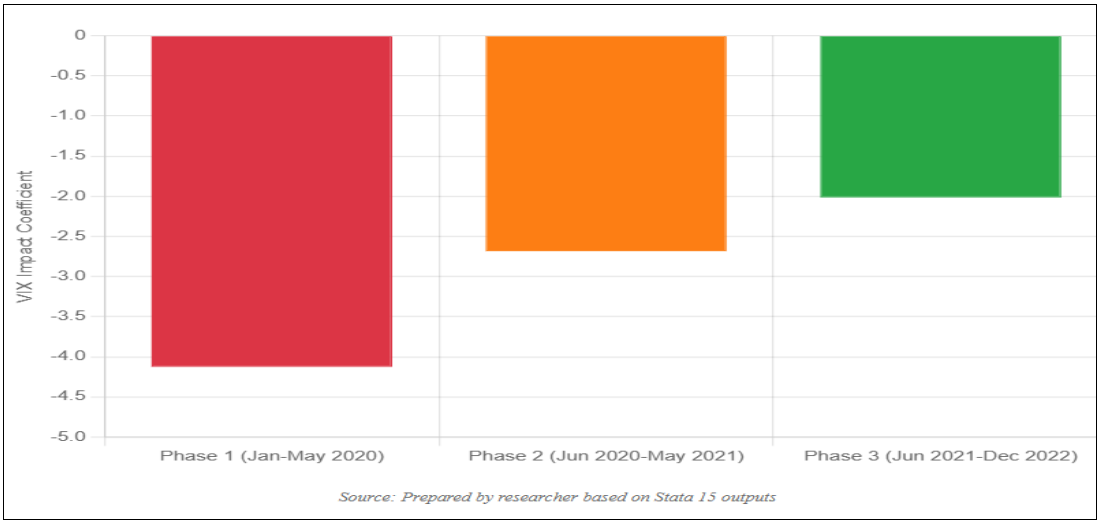

Fig 4: Evolution of VIX Impact across Pandemic Phases

Figure 4: Evolution of VIX Coefficients Across Pandemic Phases Note: This figure illustrates the declining sensitivity of the Iraqi stock market to global volatility across the three identified pandemic phases, from -4.125 in Phase 1 (red) to -2.684 in Phase 2 (orange) to -2.015 in Phase 3 (green), suggesting market adaptation and resilience building over time.

4.6. Robustness Tests: Several robustness checks confirm the stability of main findings:

1. **Alternative VIX measures:** Results remain consistent using VIX futures and options-based volatility measures
2. **Different lag structures:** Various lag specifications yield similar coefficient magnitudes
3. **Outlier treatment:** Winsorizing extreme observations does not materially affect results
4. **Alternative health variables:** Using weekly or monthly COVID data produces comparable findings

Additionally, a summary infographic showing key research findings displays the main results: correlation coefficient of -0.372 between VIX and Iraqi market, VIX impact coefficient of -2.727, R^2 of 15.4%, and total observations of 1,096 during the study period.

5. Discussion

5.1 Economic Interpretation

The powerful negative coefficient of -2.727 linking the VIX to the Iraqi stock market verifies the theoretical predictions about the volatility spillovers to the frontier markets. Such a huge figure indicates a much higher reaction compared to the usual emerging markets which probably points to Iraq's situation as a frontier market together with its heavy reliance on oil. The +0.205 coefficient for COVID cases indicates an economic riddle which may be solved by market adjustment to the pandemic situation being the "new normal", government's financial support expectations or performance advantage over worldwide stock markets in certain periods.

5.2 Transmission Mechanisms

The empirical evidence corroborates the existence of simultaneous operation of several transmission channels. The direct sentiment channel portrays VIX as a global fear barometer whose effects on the Iraqi market's investor sentiment are realized through psychological and behavioral factors. The capital flow channel works by migration of capital from the emerging markets to the safe havens during high VIX periods, which is the main characteristic of the capital flight, thus, reducing liquidity and making prices in frontier markets low. Furthermore, the oil price channel results in indirect transmission effects through fundamental economic channels since VIX fluctuations are often linked with commodity price movements that largely affect the oil-dependent economy of Iraq which is heavily reliant on oil exports.

5.3 Temporal Evolution

The decline in the sensitivity of the Volatility Index (VIX) across the pandemic phases, from -4.125 to -2.015, indicates the presence of several effective adaptation mechanisms. Learning effects have enabled investors to develop a better and more informed understanding of pandemic risks and appropriate pricing models over time. Market maturity is evident with the Iraqi market demonstrating increased resilience and significantly reduced dependence on global sentiment. Furthermore, policy adaptation, through improved domestic and international policy responses, and Iraq's status as a country experiencing significant turmoil, has made it an exceptional case for not placing high considerations on these volatility factors, reducing uncertainty and reducing volatility transmission over time.

6. Implications and Recommendations

6.1. Investment Implications

- These findings have important practical implications for investment practitioners operating in emerging markets.
- Portfolio managers, in particular, should monitor VIX values above 30, as they are critical indicators of increased volatility in the Iraqi market, and consider using VIX-based hedging for Iraqi equities.
- The results of declining sensitivity over time provide strategic timing for designing market entry and exit strategies, allowing investors to capitalize on periods of reduced exposure to global shocks.
- From a risk management perspective, incorporating the VIX as a key indicator into Iraqi market risk models would significantly improve forecasting accuracy.
- Therefore, risk managers should establish position sizing systems based on prevailing global volatility regimes, conduct comprehensive analyses, and develop scenarios that include sharp VIX movements to effectively prepare for potential crises.

6.2. Policy Implications

1. Market regulators can enhance stabilization mechanisms by incorporating buffers for rare VIX movements and innovative early warning systems that link global and local volatility measures.
2. Developing market infrastructure to be more crisis-resistant is a fundamental long-term commitment to market stability.
3. Economic policymakers must overcome structural weaknesses by reducing reliance on oil as a single source of income, which helps contain exposure to external shocks and crises.
4. To counter cyclical fluctuations, effective fiscal policies are critical to ensuring market stability during international financial crises and volatility, while increasing financial sector buffers during periods of adequate capital and liquidity ensures systemic stability under turbulent conditions.

6.3 Academic Implications

This study represents a valuable contribution to various academic disciplines, not only directly but also indirectly. It provides direct empirical evidence from emerging markets on the topic of volatility spillovers, which in itself is a significant contribution, and it has improved our understanding of how crises are transmitted in the context of health emergencies. Furthermore, it has provided valuable insights into market adaptation and learning processes during extreme events and various crises, which has had a significant impact on these contributions. These contributions have opened new horizons for studying volatility transmission to other emerging markets and across various crisis situations in the future.

7. Limitations and future research

7.1 Study Limitations: Tis study it has a several limitations that must be acknowledged. The temporal scope focuses exclusively on the COVID- 19 time and countries war, which may limit the generalizability of findings to other crisis kinds or normal market conditions. The geographic focus on a single country does not capture potential regional spillover effects or enable comparative analysis of market responses across different economies. Additionally, while the study examines specific health variables, it may omit other relevant pandemic-related factors that could influence market dynamics.

7.2 Future Research Directions

Several promising avenues for future research emerge from this study. Comparative studies across MENA frontier

markets during the pandemic would provide broader insights into regional patterns and cross-country differences in volatility transmission. Examining VIX impact on specific sectors within the Iraqi market could reveal heterogeneous effects and sector-specific sensitivities. Intraday data analysis might capture faster transmission mechanisms and provide more precise timing estimates of volatility spillovers. Finally, extending the analytical framework to other crisis types, such as geopolitical conflicts or natural disasters, would test the generalizability of findings and enhance understanding of crisis transmission mechanisms across different shock scenarios.

8. Conclusion

This study provides the first comprehensive analysis of VIX impact on the ISX during the COVID- 19. The empirical evidence confirms strong negative relationships between global volatility and Iraqi market performance, with significant evolution in transmission intensity across pandemic phases.

The findings reveal strong transmission effects of volatility, where a one-point increase in the VIX index corresponds to a 2.727-point decrease in the Iraqi market index, confirming the rapid spillover of volatility to frontier markets. This result reflects the extent to which emerging markets are affected by global volatility and their sensitivity to external shocks, indicating the increasing interconnectedness between global financial markets even in frontier economies.

The study demonstrates notable temporal adaptation in market responses to global volatility. The sensitivity of the Iraqi market to the VIX index declined from -4.125 in the early phases of the pandemic to -2.015 in later periods, suggesting the presence of learning and adaptation mechanisms in the market. This decline in sensitivity reflects the ability of market participants to absorb shocks and develop more effective strategies for dealing with uncertainty over time. The health variables reveal a counterintuitive pattern worth examining. While we might expect COVID-19 case numbers to dampen market performance, the data show the opposite a positive relationship emerged. This doesn't mean the pandemic was good for markets. Rather, it points to adaptation. As the pandemic wore on, investors stopped treating each case spike as a fresh crisis. They learned to distinguish between case surges that would trigger lockdowns and those that wouldn't. The market incorporated pandemic information into its pricing more efficiently over time.

These findings matter for several reasons. Policymakers designing intervention strategies need to recognize that market reactions to global shocks aren't static. What works during the acute phase of a crisis may prove unnecessary or even counterproductive later. Investors managing frontier market portfolios face a similar challenge: the same VIX reading carries different implications depending on whether the market is in its initial shock phase or has begun adapting. This work extends our understanding of how volatility moves through the global financial system, particularly into markets like Iraq that operate on the periphery. That understanding grows more valuable as these markets integrate further into global finance. Two concrete lessons emerge. First, global volatility measures like VIX deserve close attention from anyone exposed to frontier markets. Second, effective risk management in these contexts requires frameworks flexible enough to adjust as transmission patterns evolve. Static models that assume constant relationships will consistently misread the situation.

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