

THE NEXUS BETWEEN OIL PRICE AND ISLAMIC STOCK MARKETS IN AFRICA: A WAVELET AND MULTIVARIATE-GARCH APPROACH

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17 PARTNERSHIPS FOR THE GOALS



46.681

Keywords

• Multivariate-GARCH-DCC

• Crude oil

• Africa

• Wavelet

• Islamic equity indices

• Diversification



Introduction

- Oil prices affected the world economy.
- The upward and downward movements of oil prices in the international market have long been a significant determinant in managing most industrial sectors around the world.
- Africa is home to some of the world's largest oil exporters and importers.
- Investors closely watched crude oil price movements (upward or downward) in their decision-making processes.
- Considering stock markets as the barometer of economic activities (Gourene & Mendy, 2018), researchers have tried to investigate how changes in oil prices affect stock market returns.
- The relationship between oil prices and stock returns is important to study because of development in the global equities.
- This paper has two goals:
 - i. focus on developing economies, especially in Africa.
 - ii. use African Islamic stock markets to study the nexus between oil prices and stocks.
- This study is critical as it sheds light on the dynamic relationship between oil-price shocks and the stock markets in Africa.



Methodology

Method	Purpose
1 Time-series techniques – unit-root analysis, co-integration, vector error correction modelling (VECM), and long-run structural modelling (LRSM)	To examine the nature of the relationships among the selected variables under study.
2 The dynamic conditional correlation (DCC)	To examine the correlation and volatility of oil-price changes and stock market returns.
3 Maximum overlap discrete wavelet transformation (MODWT)	To examine the lead-lag relationship between the dependent and independent variables – that is, to decompose the time-series into different components.
4 Continuous wavelet transformation (CWT)	To map the original time series, which is a function of just one variable, time, into the function of two different variables, time and frequency.

Data



The study employs daily data:

- for the period from May 3, 2011, to January 26, 2018 on the Islamic stock price index.
- on the West Texas Intermediate (WTI) crude oil-price index with that on Islamic stock market returns for five African countries:

Country	Islamic stock index
South Africa	FTSE Islamic index
Tunisia	S&P 500 Islamic index
Morocco	
Egypt	
Nigeria	NSE All-Share Lotus Capital Islamic

Source: The Thomson Reuters Datastream

Conclusion and Policy Recommendations

- The findings of the co-integration test reveal a long-run relationship between selected African Islamic stock indices and crude oil prices.
- The results of the ECM shows the Tunisian, South African, and Egyptian Islamic indices are exogenous, while the Nigerian and Moroccan Islamic indices and crude oil prices are endogenous.
- The discussion of MODWT reveals that at almost all levels, Egyptian Islamic indices lead Tunisian and South African indices.
- The result of the CWT shows that investors in African Islamic capital markets gain diversification benefits based on the investment holding period.
- The findings on multivariate GARCH shows South African Islamic indices as a lagging market and Tunisian Islamic indices as among the leading Islamic markets in Africa.
- The findings in this study have several policy implications:
 - i) act as a guide to investors, portfolio managers, firm managers, and financial analysts when they are making investment decisions on portfolio selection and a portfolio risk minimization strategy.
 - ii) policy makers can help to maintain a resilient economy and survive sharp shocks that could adversely affect their stability.
- The potential for diversification in Africa's Islamic markets is more apparent in the short and medium term than in the long run.

Reference

Gourene, G. A. Z., & Mendy, P. (2018). Oil prices and African stock markets co-movement: A time and frequency analysis. *Journal of African Trade*, 5(1-2), 55-67.
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