

THE EFFECT OF CORRUPTION AND TERRORISM ON THE PERFORMANCE OF THE NIGERIAN EXCHANGE

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Abstract

The study investigated the effect of corruption and terrorism on the performance of the Nigerian Exchange. Thirteen-year time-series data was used for this study from 2011 to 2023 sourced from Nigeria stock exchange, transparency international, and Economic and peace. Data was subjected to Autoregressive distributed lag regression analysis which was used to estimate the parameters of the model. The findings of the study indicate that corruption and terrorism have a negative effect on stock market performance in Nigeria. Based on the findings, the study concluded that corruption and terrorism have negative effect on the performance of the Nigerian Exchange. The study recommended that the federal government should intensify its efforts in the fight against terrorism and also increase effort in providing an enabling environment for businesses to strive and increase employment opportunities. This will reduce the number of citizens available for both financial and violent crimes.

Keywords:Corruption, terrorism, stock market performance.

1.0 Introduction

All over the world stock markets are one of the most important investment avenues for investors. Therefore, the performance of stock markets has been dimed important for the economic growth of any economy. The performance of stock markets depends on external and internal events. Factors affecting stock market development in many countries have received a great deal of attention, especially Latin America, Middle East and Central Asia, which have shouldered an increasing share of world growth (Aljazaerli, Sirop and Mouselli, 2016). The Nigerian stock market is also a developing financial market that tends to be affected by internal and external factors.

Nazir et al (2018) posited that the most common challenge to the efficient market hypothesis is the anomalies. The study cited the definition of anomaly by Frankfurter and McGoun (2002) as deviation and irregularities from natural or common order or exceptional conditions. Tversky and Kahneman (1986) defined anomaly as: “An anomaly is a deviation from the presently accepted paradigms that is too widespread to be ignored, too systematic to be dismissed as random error, and too fundamental to be accommodated by relaxing the normative system.” as cited by (Nazir et al, 2018).

Socio-political events such as terrorist attacks, political instability and corruption have been found to disturb the flow of financial resources among nations and affect the income of businesses, profits and stock prices. During the last decade, the world began to change rapidly

and become more vulnerable. Several studies investigated many factors such as economic and political factors that can affect stock market returns. Political and terrorist events are uncertain and disastrous for an economy which creates more risk and fear among investors especially in emerging countries that are unable to recover quickly like in developed countries (Nazir et al, 2018). Terrorist attacks create uncertainty by increasing investment risks; this adversely affects stock markets, can lead to lower economic growth, increased costs to companies, smuggling and negatively affects society (Aslam & Kang, 2013).

Although terrorism is not new, the terrorist attacks of 9/11 changed the scope of terrorism as a geo-political risk that affects the worldwide economy and financial markets. Nigeria is not only faced with terrorism, there are a growing number of attacks by bandits. Armed banditry has increased the security concerns in the country. The number of deaths due to armed banditry has been on the increase since 2016.

Corruption is also highly accentuated by the aggressive perpetration especially among public officials and the institutional environment in Nigeria. In 2020, Nigeria ranked 149 the least corrupt nation out of 180 countries promulgated to Transparency International. The corruption perceptions index indicates the outrageous occurrences of an aggravated situation which looms largely on money laundering, bribery, tax evasion, forgery and perjury, aiding and abetting, ghost workers payroll, ghost contract award, nepotism, electoral malpractices, embezzlement and others. Corruption has been responsible for the political instability of successive governments since the Nigerian First Republic of 1963. Every coup since the first republic has been in the name of fighting corruption (Ojeka et al, 2019). Based on these arguments this study intends to explore the relationship between corruption, insecurity, and stock performance.

Corruption is a serious global issue. Governments, policymakers, global institutions, and academics are fascinatingly concerned about the effect of corruption practices on economic development and the enabling business environment. The global vulnerability to corruption is imminent in the absence of stringent international legislation and regulations, which currently cost 5% of the global Gross Domestic Product (IMF, 2019). In the past, corruption has led to the loss of Stock Market integrity in Nigeria as was experienced in the late 1990s and early 2000, during this period many banks collapsed under the watch of CBN and the number of banks categorized as distressed increased from 8 to 52 (Babalola, 2010 as cited in Omodero & Dandago, 2018). Corruption has affected investors' confidence in Nigeria due to the window dressing that occurs during financial reporting for companies. This window dressing kept increasing the share prices of companies that even had financial and corporate governance challenges. Though, the introduction of corporate governance structure was supposed to serve as a deterrent to all manner of cosmetic accounting in companies, frequent boardroom squabbles, insider abuses, fraud and forgeries, and weak or ineffective internal control systems would not give room for the objective to be achieved (Babalola, 2010).

Hence, it is pertinent to note that the effect of graft on stock market performance in Nigeria is even more grievous than the influence of external factors such as inflation, exchange rate and interest rate. This is because graft is inherent and exists at all levels of the system (Omodero & Dandago, 2018).

The magnitude of insecurity in Nigeria has increased over time, which constitutes a serious threat to lives and properties, obstructs commercial activities, and discourages local and foreign investors, all of which suppresses Nigeria's socio-economic growth. This rising wave of insecurity has not subsided but has assumed an unsafe facet that is threatening the communal existence of the country as one geographical entity (Jelilov, 2018). Terrorism hurts GDP, economic growth and financial markets all over the world; however, significance of the impact varies from country to country and market to market (Aslam & Kang, 2013). Attacks on certain parts of the country by terrorists create uncertainty by increasing investment risks in the country. These attacks can adversely affect stock markets, reduce the level of economic growth, and increase costs to companies due to payments for extra security protection. Muneeswaran and Babu, (2017) posit that different events have different effects on stock markets. Therefore, it becomes essential to study any unlikely events and their effects on stock markets to understand the reaction of investors from time to time. There studies have been carried out on corruption and the stock market Ojeka et al., (2019), Aljazaerli et al., (2016) while some were on terrorism and stock market reaction and development; Aslam and Kang, (2013), Jelilov, (2018) and Laborda et al., (2019). Most studies usually focus on either corruption or terrorism, but literature on the effect of both variables on stock market performance is limited. Hence, the need for this study to investigate the effect of corruption and insecurity on the performance of the stock market.

The aim objective of the study is to investigate the effect of corruption and terrorism on the performance of the Nigerian Exchange. The specific objectives are as follows:

To examine the effect of corruption on the performance of the Nigerian Exchange.

To assess the effect of terrorism on the performance of the Nigerian Exchange.

H₀₁: Corruption does not have a significant effect on the performance of the Nigerian Exchange.

H₀₂: Terrorism does not have a significant effect on the performance of the Nigerian Exchange.

2.0 Conceptual Review

Concept of Corruption

Many definitions have been offered for corruption. The Enterprise Survey of World Bank defines corruption "as the percentage of informal payments to public officials". Jain (2002) as cited in Aljazaerli et al., (2016) describes corruption as "an act in which the power of the public office is used for personal gain in a manner that contravenes the rules of the game". Corruption is the misuse of delegated authority for personal benefit (Transparency International, 2011). It is also a deliberate way of misrepresenting facts, realities and management of situations in which someone finds himself to deceive and gain both material and non-material things (Akinlabi, Hamed, & Awoniyi, 2011). According to Hasan and Nuri (2013), corruption is the misuse of public office for private gains. It is globally held that corruption is endemic and pervasive in nature, thereby constituting a major hindrance to economic and investment growth, also impacts negatively the public service delivery as well as increasing the social inequality (Bolgorian, 2011).

Furthermore, the pioneering theoretical work of Leff (1964) as cited in Aljazaerli et al., (2016) stated that corruption works like the engine of economic growth in the situation when strict/inefficient regulations are forced by the government because corruption “Enables the private’s agents to buy their way out of politically imposed inefficiencies”.

Although corruption is a variable that cannot be measured directly, in recent years, some organizations have provided corruption indices across a wide range of countries based on surveys to qualitatively assess the level of corruption. One of the most renowned indices is the Corruption Perception Index (CPI) published by Transparency International. This index is defined as abuse of public power for private benefit; it is an aggregate indicator that classifies countries based on the degree to which corruption is perceived to exist among politicians and public authorities. This study measured corruption using the CPI.

Concept of Terrorism

Sandler and Enders (2008) describe terrorism as the “Premeditated, threatened or actual use of force or violence to achieve a political goal through fear, coercion or intimidation”. This definition brings within its fold the four features of terrorist activity as given by Shughart (2006) firstly using violence for political purposes, secondly a well-devised way for an action; thirdly such behavior which is not within the accepted rules of warfare and fourthly an effort to produce great fear and sense of insecurity among the people, particularly, the civilians. Terrorism causes biggest threat to the economy. The greatest of them all is the loss of human lives and that also of innocent people. According to Faheem and Hyoung-Goo (2019) terrorist attacks create uncertainty by increasing investment risks; this adversely affects stock markets, can lead to lower economic growth, increased costs to companies, smuggling and negatively affects society.

The organized assaults from the Boko Haram group in the northern part of the nation, other than making life hopeless for Nigerians, have influenced such vast numbers of organizations working in that district. The bomb blasts started by these terrorists have been on the expansion prompting massive death toll and property and a general air of dread and social pressure in the nation. The ramifications of the difficult circumstances in Nigeria for business exercises can be viewed from the expansion in the cost of working together either through direct loss of merchandise and properties or the cost of playing it safe against business dangers and vulnerability. These expenses negatively affect business improvement. This circumstance has the harmful outcome of offering a sign to the global group that Nigeria isn't a sheltered and secure place, and in that capacity not reasonable for venture and business exercises (Jelilov, 2018).

Concept of Stock Market Performance

Stock market performance is the appraisal of an efficient market. A basic feature of an efficient capital market is constant liquidity, an easy mechanism for entry and exit by investors. Share price is used as a yardstick to measure a firm's performance and its deviations as a pointer of the economic health or otherwise of a firm hence the need to be conversant with the factors that could adversely affect share prices (Osoro, 2013). All share price index is a way of measuring the performance of a market and is used by investors and capital providers to compare their return with that of the market (Barasa, 2014).

Empirical Review of Relevant Literature

Saad (2024) investigated the impact of terrorist attacks on the volatility and returns of the stock market in Tunisia. The study employed a sample comprised 1250 trading days from the Tunisian stock index (Tunindex) and stock closing prices of 64 firms listed on the Tunisian stock market (TSM) from January 2011 to October 2015. Data analysis was conducted using general autoregressive conditional heteroscedasticity (GARCH) and exponential generalized conditional heteroscedasticity (EGARCH) models. Results from the document a substantive impact of terrorism on the returns and volatility of the TSM index. Furthermore, the findings of the event study method show negative significant effects on mean abnormal returns with different magnitudes over the dates of the event.

In addition Asaad and Marane, (2020) evaluated how corruption, terrorism, political stability, and oil prices affected the Iraq stock exchange. The study collected data from 2005 to 2019 using the Ordinary Least Square method to conduct the analysis. The results show that the level of corruption, terrorism activities and political stability coefficient is significantly positive with Iraq stock exchange. In contrast, the oil price coefficient is significantly negative with the Iraq's stock exchange, which means that lower levels of corruption, fewer terrorism activities, and more stability in the political system have a strong influence on stock market development in Iraq.

Pham, (2020) investigated the dual effects of corruption control on economic growth in relationship with the stock market and trade openness in developing countries. The study used difference S-GMM method on the dynamic panel data model in the period (2002-2017) with data collected from the World Bank. The study found that corruption control impacts the relationship with the stock market on economic growth and also corruption control has a significant impact on the relationship between trade openness and economic growth in the developing countries. In addition, the study shows that inefficient stock markets in developing countries will not promote economic growth.

Another comprehensive study by Butt (2020) investigated the impact of terrorism activities on five economies (Developing and Developed) financial stock markets. Spain, United Kingdom, India, Pakistan, America and France were chosen for the analysis. The variables considered were terrorist activities and market return of the financial stock markets. Daily time series data for the period from 1st Jan 2001 to 31st Dec 2018 was analyzed by applying simple linear regression model to estimate the effects of terrorist activities on financial stock market returns of the selected countries. Findings from the study suggest that the market return is affected by the terror events and the model is overall statistically significant.

Ojeka et al. (2019) investigated the effect of corruption perception and institutional quality on the performance of firms based on extracted data for 135 listed companies in Nigeria from 2013–2017. The study employed Generalized Method of Moment (GMM) for data analysis. Findings from the study revealed that corruption is negatively related to market value (TobinQ) and accounting value performance (ROA). Institutional quality is also negatively related to TobinQ and ROA. The results suggest that corruption and institutional quality weaken the market and accounting performance of firms in Nigeria.

Scanlon, (2019) also investigated the effects that terrorist attacks and mass shootings had on the U.S. stock market, using high-frequency intraday data to identify stock price and variability reactions in the hours after the attack. The effect that terrorist attacks had on price level variability was examined using the generalized autoregressive conditional heteroskedasticity (GARCH) model. The findings from the study indicated that domestic attacks cause a large increase in variability and a decrease in the price level in the hour after the incident, whereas attacks that occurred in foreign countries had virtually no impact on the U.S. stock market. There is evidence that suggests that stock prices gain stability within the same day of attack.

Hadhek and Halfaoui, (2019) evaluated the long-term impact of terrorism on stock market performance. The study examined 12 stock market exchanges which it classified into three categories (developed, emerging and frontier market) over the 8-year (2008 to 2015). A Fixed-effect panel regression model was employed and The MSCI Standard Total Return Index for each country in the sample was used as proxy for stock market performance and the Global Terrorism Index (GTI) was used as a proxy for terrorism. The result from the study shows that terrorism has an immediate short-term negative impact on all the stock market returns and developed markets benefit by a positive stock return for emerging markets the study found that terrorism has a significant negative impact on stock performance. For frontier markets, the stock market return has no correlation with the terrorism impact; which means the stock market reaction will be indifferent in the long term.

Laborda et al., (2019) evaluated the spillover effects between terrorist activity and Spanish stock market returns for the period 1993-2017 using the recent methodology proposed by Diebold and Yilmaz (2012). The study constructed a daily Terror index that reflects the terrorist activity of different types of perpetrators: domestic terrorism (ETA) and international terrorism linked to Islamic extremism. The findings from the study show that connectedness is important, as it explains about half of the forecast error variance; most of it is attributed to shocks from terrorist events on stock market return forecasts. Furthermore, the study also found an increase in spillover effects between the early periods characterized by ETA terrorist attacks to the recent past characterized by Islamic terrorist attacks.

Markoulis and Katsikides, (2018) examined the relationship between terrorist attacks and stock market performance, by employing the event-study methodology to examine eleven major terrorist attacks that occurred in the 21st century. Results from the study suggest that earlier events appear to result in higher negative abnormal returns when compared to more recent ones. Where evident, these abnormal returns seem to persist beyond the date of the event, but tend to disappear rather quickly. Some events appear to exhibit a spill-over effect influencing international stock markets too.

Similarly, Chaudhrya (2018) investigated the impact of terrorism on stock markets in South Asian Association of Regional Cooperation (SAARC) countries during 2000–2015. An event-study analysis and fixed-effect regression technique were employed to assess whether the impact of various terrorist attacks on the stock market returns of 'highly affected' countries differs from that of 'less affected' countries in the SAARC region. The study found that the attack day is significant in both less affected and highly affected countries in the SAARC region. In addition, the negative impact continues into the next day in less affected countries.

Bombing attacks in highly affected countries hurts stock market returns. Meanwhile, in less affected countries, armed assault and hostage-taking have negative impacts on stock markets.

Jelilov (2018) examined the issue of insecurity in Nigeria and its implication for socio-economic development. The study conducted empirical research on the effect of insecurity and investment on the economy of Nigeria from 2007 to 2017, using three variables as input. Nigeria Terrorism Index, Foreign Direct Investment Inflow and Oil Prices. The study employed the use of correlation and regression techniques to analyses the collected data. Using Nigeria Terrorism Index as a proxy for insecurity and Foreign Direct Investment as a proxy for investment. The study found that Nigeria's terrorism index shows that terrorist activities have a significant effect on the growth of the economy.

Another study investigated political and terrorist events as external information that can create uncertainty and risk for investors in the capital markets. The study examined the Pakistan Stock Exchange (Pakistan), Bombay Stock Exchange (India), Chittagong Stock Exchange (Bangladesh) and Colombo Stock Exchange (Sri Lanka). Event study methodology was used in the study. By using the Market Model, it analyzed 47 terrorists and 45 political events in all four countries of study during the 2005-2016 period. The empirical result shows that political and terrorist events have a significant impact on stock market returns. The result also showed that stock markets of South Asian countries are inefficient in 15-day event window and the noisy information does not absorb the markets (Nazir et al, 2018).

In addition, Omodero and Dandago (2018) evaluated the effect of corruption (using corruption perception index and Nigeria's corruption ranking as proxies) on the stock market performance (proxied with the share price index) in Nigeria. The study employed time series data spanning twenty years (1996-2016). The study used multi-regression analysis and t-test for the test of hypotheses. The study finds a significant positive correlation between corruption and stock market performance in Nigeria. The result reveals robust positive and significant relationships between Nigeria's Corruption Ranking, Corruption perception index, and Share price index.

Missiaoui et al. (2018) evaluated the impact of corruption on the bond and stock market development. The study analyzed a sample of 20 listed Tunisian firms from the Stock Exchange and Financial market, covering the period from 2006 to 2016 by using pooling cross-section techniques. The results find a significant positive effect of the level of corruption on the stock market index and the logarithm of capitalization. Furthermore, the results showed a negative not significant association with the dependent variable of traded value as a percentage of the number of listed companies.

Muneeswaran and Babu, (2017) evaluated the impact of terrorist attacks and their effects on the stock markets of India, using the Bombay Stock Exchange of India Limited. The study investigated five major terrorist attack events from 2005 to 2009 and indexes such as S&P BSE Auto, Bankex, Consumer Durables, Consumer Goods, Metal, Oil & Gas, and S&P BSE Sensex. Various statistical techniques are used including unit root Augmented Dickey Fuller Test (ADF) and GARCH. The findings of the study show that the short-term investors can make predictions about the reactions of the markets after a terrorist attack and they could find possible investment solutions like, S&P BSE Auto and S&P BSE Consumer Durables which recorded low volatility, on both during pre and post-attack periods.

Tavor et al. (2017) examined the effects of natural disasters, artificial disasters and terrorism on the stock market to reveal profit opportunities. The study collected data on 344 significant events that received media attention and examined the differences between the three types of events using the Pessimism Index. The findings from this study showed that natural disasters cause the greatest damage to the economy, whereas terrorism causes the least damage; while natural disasters exhibit the highest level of severity, whereas artificial disasters have the lowest severity.

Aljazaerli et al., (2016) explored the impact of corruption on stock market development focusing exclusively on Gulf Cooperation Council (GCC) countries because of its special characteristics of combining richness with a relatively high level of corruption. Results from an estimation of alternative regression models on a panel of six GCC countries over the period 2003–2011, through which CPI is legitimately comparable, confirm the positive impact of corruption on stock market development, where the latter is measured by market capitalization.

The study of Faheem and Hyoung-Goo (2013) examined the impact of 470 terrorist attacks on the stock market of Pakistan over the period of twelve years from 2000 to 2011. The study found that attacks on cities with stock markets affected the KSE-100, while any attack on Federally Administered Tribal Areas (FATA) shows a positive significant effect on the performance of the stock market. Furthermore, attacks with gaps are associated with larger negative market reactions as compared to frequent attacks. Results of the study show that from year 2000 to 2011, there was a surge in terrorist trends, much of which came with a corresponding negative effect on the KSE-100 index. The study concluded that different types of terrorist attacks have varied effects on financial markets.

Theoretical Framework

The study adopted three theories that explain the behaviour of the variables and the relationship between the variables.

Policy-Oriented Theory of Corruption

Teveik et al. (1986) propounded this theory in their effort to elaborate the responsibilities of the government in anti-graft fight. The theory stated that the existence of corruption in both developed or developing countries will always result in a dwindling economy. Therefore, the government's endeavor to develop policies and strategies to combat corruption and to seriously investigate its effect on all facets of the economy remains a huge benefit.

Rational criminal Theory

Becker (1968) developed a Rational criminal theory stating that all the individuals rationally spend their time; that is, a method through which they can maximize their utility; between the legal and criminal activities. According to his theory each individual considers the following things before doing any crime (a) the risk of being caught, the chances and magnitude of the punishment (b) the stigma and moral cost related to the criminal activities. while he concluded that a person is more likely to indulge in criminal activity when he is getting the maximum marginal benefit from the concerned activity. Indeed, all the evidence stated that an ill-educated person with a lower wage is more likely to perform property crimes relative to murder and other violations that are unconcerned with the person's economic activity.

Market Efficiency Theory

Barasa (2014) described an efficient market as one that is rational and provides appropriate pricing. Fama (2000) carried out a detailed empirical work and review of efficient market theory and came up with the definition that market efficiency is one in which prices always reflect all available information. Fama (2000) identified three sets of information which include: past prices, publicly available information and all other information which includes private information. The information available to investors could make them change their minds and investment decisions on a particular security and its value. According to Akinsulire (2006), this is what is referred to as an efficient market hypothesis. The efficient market hypothesis is divided into three forms: the weak form, the semi-strong form, and the strong form. The weak form of efficiency reflects all historical market data such as past prices and trading volumes without any prediction of future prices (Fama, 2000). Semi-strong form of efficiency reveals current share prices in addition to the past prices, all publicly available information which includes basic data regarding the firm's product line, quality of management, published accounting information, divided and even stock split announcements (Akinsulire, 2006). The strong form of efficiency reflects share price and all past prices, publicly available information and private information (Fama, 2000).

3.0 Methodology

The ex-post facto research design was adopted for this study. The study collected annual time-series data for thirteen years 2011-2023 from secondary sources. The study obtained from data on All-Share Price Index from the Nigeria stock exchange. The Nigerian Exchange Index (ASI) is a general index that is derived from all companies that are listed on the Nigerian Exchange. Stock market performance was measured using the NGX All Share Index. The study used Transparency International's Corruption Perception Index (CPI) as a measure of corruption. Global Terrorism Index indicates a general expansion of terrorism activities and events. Overall, the index with a higher value produces high terrorism acts and vice versa and the index value is between (0) and (1). The study measured terrorism using the GTI from the Institute for Economics and Peace. The study conducted data analysis using descriptive statistics and the Autoregressive distributed lag model. The descriptive statistics showed the summary and characteristics of the variables employed in the study. Unit root analysis was also conducted to establish the stationary of the data set.

Model Specification

The study investigated the effect of corruption and terrorism on stock market performance using the ARDL technique based on the stationarity result of the variables indicates that all of the variables are integrated at I(1). Therefore, in this model, all variables are stationary at first difference. In addition, it employs the normality and multicollinearity tests, and the equation of the study model is as follows:

$$\Delta \ln(SMP_t) = \beta_0 + \sum_{i=1}^v \beta_{1i} \ln(SMP_{t-i}) + \sum_{i=1}^v \beta_{2i} (COR_{t-i}) + \sum_{i=1}^v \beta_{3i} (TER_{t-i}) + \beta_4 \ln(SMP_{t-i}) + \beta_5 (COR_{t-i}) + \beta_6 (TER_{t-i}) + \mu_t$$

Whereas SMP, COR, and TER represent stock market performance, corruption and terrorism, respectively. A natural form of logarithmic series is indicated by ln. The long-run elasticities of SMP, COR, and TER are indicated by β_1 , β_2 , and β_3 . Δ indicates that the variables are integrated at first difference and the optimal lag length is indicated by v . Short- run elasticity of

the model are represented by β_1 , β_2 and β_3 and long-run elasticity were indicated by β_4 , β_5 and β_6 . μ_t represents error term at time t and β_0 is the intercept of the regression line.

Table 1:
Definition and measurement of Variables

| S/N | Variables | Symbol | Measurements | Source |
|-----|-------------------|--------|--------------|--|
| 1 | Stock performance | market | SMP | All share index Aljazaerli et al., (2016) |
| 2 | Corruption | | COR | Corruption Perception Index Aljazaerli et al., (2016) |
| 3 | Terrorism | | TER | Global Terrorism Index Hadhek and Halfaoui, (2019) |

Source: Author's compilation, (2024).

4.0 Data Presentation and Analysis

Unit Root Test Results for Variables

This study conducted unit root tests on the variables employed to estimate the time series regression using the Kwiatkowski-Phillips-Schmidt-Shin (KPSS) test and the result is represented in table 2 below;

Table 2:
Unit Root Test

| KPSS Unit Root Test results | | | |
|-----------------------------|------------|--------------|----------------------|
| Variable | Statistics | Stationarity | Order of Integration |
| SMP | 0.42*** | No | N/A |
| SMP | 0.25 | Yes | I(1) |
| COR | 0.20*** | No | N/A |
| COR | 0.22 | Yes | I(1) |
| TER | 0.15*** | No | N/A |
| TER | 0.36 | Yes | I(1) |

Source: EViews 10 Output, 2024.

The Result from Table 2 indicates that the variables of the study stock market performance, corruption and terrorism are stationary at first difference. The p-values for SMP, COR and TER are 0.18, 0.85, and 0.61 respectively. This implies that the test statistics are not significant at all conventional levels. Therefore, we fail to reject the null hypothesis and accept that the data is stationary at first difference.

Descriptive Statistics

This section presents the result, analysis and interpretation of study variables in order to fully understand the characteristics and behavior of the data. The series was analyzed using descriptive statistics to determine the central tendency for the data (mean), the range (Minimum and Maximum), to show the least and highest value of each data series, skewness, kurtosis, and

standard deviation. The normality result of all the variables was also presented and interpreted in this section. Table 3 contains a summary of the descriptive statistics.

Table 3
Descriptive Statistics of Variables

| | SMP | COR | TER |
|-----------|----------|------|-------|
| Mean | 35164.42 | 0.26 | 8.02 |
| Std. Dev. | 10962.07 | 0.01 | 0.49 |
| Minimum | 23393.37 | 0.24 | 6.89 |
| Maximum | 62140.66 | 0.28 | 8.80 |
| Skewness | 1.18 | 0.02 | -0.65 |
| Kurtosis | 3.85 | 1.68 | 3.54 |
| Normality | 3.39 | 0.94 | 1.08 |
| Obs. | 13 | 13 | 13 |

Source: EViews 10 Output, 2024.

From table 3 the value of the mean for SMP is 35164.42, the value represents the average price stocks of all stock in the market. The range of risk from the series starts from the minimum value of 23393.37 to the maximum of 62140.66 indicating a relatively wide range for the all-share index. The wide range between the minimum and maximum values is a pointer towards the relatively high level of variability within the data series. The standard deviation of 10962.07 further suggests a high degree of variation from the mean and that the data are spread out from the mean. The skewness of beta is 1.89 which suggests that there are more positive than negative observations within the series, which implies that most of the stock prices in the market are positive. In addition, the kurtosis value is 3.54, indicating that the distribution of beta series is peaked around the mean. Lastly, the Jarque-Bera normality statistics value for SMP is 3.39 while the p-value is 0.18, it implies that the data series is normally distributed. Therefore, the result leads to the conclusion that the data is normally distributed.

Table 3 also shows that COR has a mean value of 0.26, the value indicates that the level of corruption in the country is averagely ranked at 0.26 on a scale of 0 to 1, 0 representing most corrupt and 1 representing the least corrupt nation. The range of risk from the series starts from the minimum value of 0.24 to the maximum of 0.28 indicating a relatively narrow range for corruption perception. The standard deviation of 0.01 suggests a low degree of variation from the mean and that the data are spread around the mean. The skewness of beta is 0.02 suggests that there are more positive than negative observations within the series. The kurtosis value is 1.68, indicating that the distribution is platykurtic. Jarque-Bera normality statistics value is 0.94 not significant at all conventional levels, this implies that the data series is normally distributed.

In addition, TER has a mean value of 8.02, the value indicates that the level of terrorism in the country is averagely ranked at 8.02 on a scale of 1 to 10, 1 representing most peaceful and 10 representing the most terrorized nation. The range of risk from the series starts from the minimum value of 6.89 to the maximum of 8.88 indicates a narrow range. The standard deviation of 0.48 suggests a low degree of dispersion from the mean. The skewness of beta is -0.65 suggests that there are more negative than positive observations within the series. The kurtosis value is 3.85, indicating that the distribution is leptokurtic. Jarque-Bera normality

statistics value is 1.09 not significant at all conventional levels, this implies that the data series is normally distributed.

Correlation Matrix

The study conducted correlation analysis as a statistical technique to evaluate the strength of the relationship between the variables under study. The results of the correlation analysis are presented in Table 4, which shows both the correlation coefficient of relationships.

Table 4
Correlation Matrix

| | SMP | COR | TER |
|-----|-------|------|-----|
| SMP | 1 | | |
| COR | -0.34 | 1 | |
| TER | 0.03 | 0.51 | 1 |

Source: EViews 10 Output, 2024.

The results in table 4 show that SMP has a negative coefficient with COR -0.34 while it has a positive correlation coefficient with TER 0.03 and COR has a positive and significant relationship with TER. This indicates that the dependent variable has both positive and negative relationships with the independent variables although the strength of the relationship is weak. The relationship between the independent variables (COR and TER) is positive and exhibits a moderate strength with a coefficient is 0.51. This indicates that all variables are correlated and the level of association ranges from weak to moderate exceeding the benchmark of 0.80 as set by Hair *et al*, (2010), thus the possibility of collinearity between the variables is minimal.

Lag Selection Results

The study conducted lag selection test to determine the appropriate lag for the model. The purpose of choosing optimal lag is to reduce residual correlation. Table 5 shows the test statistic for each of the criteria for lag selection.

Table 5:
Lag Selection Results

| LR Statistic | FPE Statistic | AIC | SC | HQC | Lags |
|--------------|---------------|--------|--------|--------|------|
| NA | 1.17 | 21.40 | 21.51 | 21.33 | 0 |
| 4.27* | 7770 | 20.97 | 21.12 | 20.88 | 1 |
| 1.76 | 7216* | 20.86* | 21.04* | 20.75* | 2 |

Source. EViews10 Lag Selection Criteria Output, 2024.

*Indicates lag selected by the criterion

Table 5 shows the result of the lag selection model for SMP with corresponding lags for sequential modified (LR) test statistic, Final prediction error (FPE), Akaike information criterion (AIC), Schwarz information criterion (SC) and Hannan-Quinn information criterion (HQ) respectively. From the result four of the criteria selected lag 2 for the model. The AIC, FPE SC and HQC statistic favours lag 2. Therefore, based on the result the study selected lag 2 for the analysis of the model.

Collinearity Diagnostics

Collinearity refers to a linear relationship between two explanatory variables. Variance Inflation Factor determines the strength of the correlation between the independent variables. The study conducted VIF for all the independent variables using SMP as the dependent variable. Table 6 contains the VIF values for the study variables.

Table 6:
Collinearity Test Results

| Variable | Centered VIF |
|----------|--------------|
| COR | 2.79 |
| TER | 1.66 |
| Mean VIF | 2.23 |

Source: EViews10 Collinearity Test Results, 2024

Table 6 shows that the VIF values for SMP model of all the independent variables ranges between approximately 1.66 and 2.79. The mean VIF for all the independent variables was approximately 2.23. Based on the results in the table, the values do not predict any harm in terms of collinearity. This implies that there is no disturbing evidence of variance inflation for any of the independent variables used in this study.

ARDL Bounds Test for Co-integration Results

This study conducted the ARDL bounds test for the co-integration method and tested the presence of a long-run relationship between the variables. Table 7 shows the values for the lower bound and upper bound of the F-bound test.

Table 7:
ARDL Bounds Test for Co-integration Results

| F-Bound test | F-statistics | I(0) | I(1) |
|--------------|--------------|------|------|
| 10% | 6.68 | 2.63 | 3.35 |
| 5% | | 3.1 | 3.87 |
| 2.5% | | 3.55 | 4.38 |
| 1% | | 4.13 | 5 |

Source: EViews 10 Output, 2024

The result in table 7 presented the calculated f-statistic as 6.68 for SMP. From the result the null hypothesis for the variable cannot be rejected, since the f-statistics value is larger than the critical values. Meaning that there is no co-integration among the variables in the long-run.

5.0 Test of Hypotheses

ARDL Regression Model

The study estimated the ARDL model to establish the effect of corruption and terrorism on the Nigerian Exchange. Table 4.7 shows the summary of the regression model.

Table 8:
ARDL Regression Model

| Variable | Coefficient | Std. Error | t-Statistic |
|--------------------------|-------------|------------|-------------|
| C | 271925.6 | 56278.96 | 4.84*** |
| SMP(-1) | 0.55 | 0.28 | 1.95 |
| SMP(-2) | -0.63 | 0.28 | -2.23* |
| COR | 272878.9 | 187345.7 | 1.46 |
| COR(-1) | -312268.5 | 164077.5 | -1.90 |
| COR(-2) | -389920.1 | 146473.2 | -2.66* |
| TER | -14864.0 | 5571.32 | -2.67* |
| R-squared | 0.92 | | |
| Adjusted R-squared | 0.80 | | |
| F-statistic | 7.70** | | |
| Durbin-Watson statistics | 2.65 | | |

Source: EViews 10 Output, 2024.

From table 8 above, it can be seen that the constant, which is a measure of the average value of the dependent variable, is approximately 271925.6 with a corresponding t-statistics of 4.83 which is significant at the 1%. The result from the table also revealed that dependent variable stock market performance (SMP) has a coefficient of approximately 0.55 and a corresponding t-statistics of 1.95 at lag 1, a coefficient of -0.63 and t-statistics of -2.23 at lag 2, the variable is significant at lag 1 but is significant at 10% in lag 2.

The table also shows that the coefficient of corruption (COR) at lag 0 is approximately 272878.9 with a corresponding t-statistics of 1.46 which is statistically not significant at all the conventional levels. COR in lag 1 has a negative coefficient of -312268.5 and a t-statistics of -1.90, this result is not significant. COR in lag 2 has a negative coefficient -389920.1 and a t-statistics of -2.66 significant at 10%. The negative coefficient of corruption suggests that an increase in corruption will result in a decrease in stock market performance.

The table also present the coefficient of terrorism (TER) to be -14864 while the t-statistics is -2.67 which is statistically significant at the 10% level. This imply that terrorism has a negative effect on stock market performance.

Furthermore, the result shows an R^2 of 92% and adjusted R^2 of 80% which indicates goodness of fit of the regression model and the value denotes that about 80% of the variations or changes in dependent variable are explained by the variations in the independent variable. The F-statistics shows that the model is very fit to explain the relationship and is significant at 5%.

Discussion of Findings

The study earlier hypothesized that corruption does not have significant effect on the stock market performance in Nigeria. Result from the study has established that corruption has a negative and significant effect on stock market performance hence, the study will reject the null hypothesis. the findings from the study is in line with the findings of Ojeka et al., (2019) while it negates the findings from Pham, (2020), Omodero and Dandago (2018) and Aljazaerli et al., (2016).

The second hypothesis stated that terrorism has no significant effect on stock market performance. Result from the study indicates that terrorism has a negative and significant effect on stock market performance. Therefore, the study will reject the null hypothesis. The findings of the study is consistent with the findings of Scanlon, (2019), Hadhek and Halfaoui, (2019) and Saad (2024) while the findings is in contrast with the result from Asaad and Marane, (2020) and Faheem and Hyoung-Goo (2018).

Post Estimation Test

Serial LM Test

Serial correlation, also known as autocorrelation, occurs when the regression residuals are correlated with each other. Table 4.8 presents summary of the results for auto-correlation test.

Table 9:
Serial Correlation LM Test Result

| SRISK | Test Statistic | Prob. |
|---------------|----------------|-------|
| F-statistics | 0.7 | 0.47 |
| Obs*R-squared | 2.07 | 0.15 |

Source: EViews 10 Output, 2024.

Result from Table 9, presented shows that the test statistics was approximately 0.70, which was found to be statistically insignificant at all conventional levels. Therefore, the study fails to reject the null hypothesis which states that there is no serial correlation among the residuals. This means the regression coefficients are not biased and the model is free from misspecification.

Heteroskedasticity Test

The heteroskedasticity test shows whether the variance of the residuals is unequal over a range of measured values. This means that the variance of the residual term in the model varies widely. Table 10 shows the result of the Breusch-Pagan Godfrey hetttest.

Table 10:
Hetttest Result

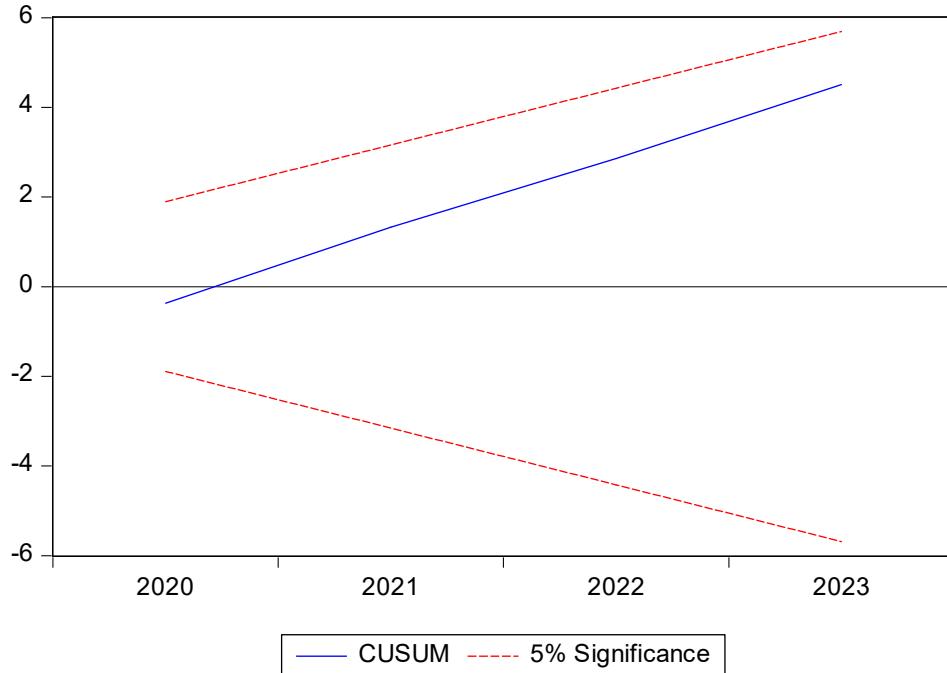
| SRISK | Test Statistic | Prob. |
|---------------|----------------|-------|
| F-statistics | 1.63 | 0.33 |
| Obs*R-squared | 7.81 | 0.25 |

Source: EViews 10 Output, 2024

Result from Table 10, shows the F-statistic is approximately 1.63, which was found to be statistically insignificant at all conventional levels. This means that the study fails to reject the null hypothesis which states that there is no heteroskedasticity in the model. The failure to reject the null means that the residual is homoscedastic.

Cumulative Sum Test

Stability test was carried out on the model to establish and identify the stability of the model.



The stability test results as shown in Fig 1 suggest that all long-run and short-run coefficients are within the bounds of critical value at 5%. Therefore, based on the result, the study failed to reject the hypothesis and suggested that the cumulative sum of the residual has zero mean. This implies that the model is very stable and does not contain any structural break.

5.0 Conclusion and Recommendations

The study investigated the effect of corruption and terrorism on the Nigerian Exchange performance for the period (2011-2023) using autoregressive distributed lag method. The finding from the regression model (COR and TER) shows that the coefficient values are significant at (10%). Hence, it indicates that the study cannot reject the hypothesis (H_0_1 and H_0_2). The study concludes that the country is being more corrupt and less transparent and this affect the performance of the Market. The increased terrorist attacks in form of banditry and Kidnapping has increased the level of violence and public possibility of destabilization which has a negative effect on the Nigerian Exchange performance. The study recommends that the federal government should intensify their fight against all forms of terrorism and should also increase their efforts on job creation, provision of enabling business environment, and formulation and implementation of policies that will provide legal and morally right income to most of the population. This will reduce the incentive citizens have to commit both financial crimes and violent crimes.

References

Akinlabi, A. O., Hamed, B., & Awoniyi, M. A. (2011). Corruption, foreign direct investment and economic growth in Nigeria: An empirical investigation. *Journal of Research in International Business Management*, 1(9), 278–292.

Akinsulire, O. (2006). *Financial management* (4th ed.). Lagos: Ceemol Nigeria Limited.

Aljazaerli, M. A., Sirop, R., & Mouselli, S. (2016). Corruption and stock market development: New evidence from GCC countries. *Business Theory & Practice*, 17(2), 117–127. <https://doi.org/10.3846/btp.2016.555>

Asaad, Z. A., & Marane, B. M. (2020). Corruption, terrorism and the stock market: The evidence from Iraq. *Journal of Asian Finance, Economics and Business*, 7(10), 629–639. <https://doi.org/10.13106/jafeb.2020.vol7.no10.629>

Barasa, J. W. (2014). Macro-economic determinants of stock market performance in Kenya: Case of Nairobi Securities Exchange. (Master's thesis, University of Nairobi).

Becker, G. S. (1968). Crime and punishment: An economic approach. In *The economic dimensions of crime*. London: Palgrave Macmillan.

Bolgorian, M. (2012). Corruption and stock market development: A quantitative approach. *Physica A*, 390, 4514–4521.

Butt, S., Masood, O., & Javaria, K. (2020). Terrorism activities influence on financial stock markets: Empirical evidence from United Kingdom, India, France, Pakistan, Spain and United States. *Global Journal of Social Sciences Studies*, 6(1), 1–12. <https://doi.org/10.20448/807.6.1.1.12>

Faheem, A., & Hyoung-Goo, K. (2013). How different terrorist attacks affect stock markets. Unpublished manuscript, pp. 1–35.

Fama, E. F. (2000). Short-term interest rates as predictors of inflation. In *The debt market*. Cheltenham: Elgar.

Hadhek, Z., Halfaoui, S., & Mosbah, L. (2019). Terrorism and stock market performance. *International Research Journal of Finance and Economics*, 171, 48–62.

Jelilov, G., Ozden, K., & Briggs, S. O. (2018). Impact of insecurity on investment in Nigeria. *Journal of Management, Economics, and Industrial Organization*, 2(3), 41–61.

Laborda, R., & Olmo, J. (2021). An empirical analysis of terrorism and stock market spillovers: The case of Spain. *Defence and Peace Economics*, 32(1), 68–86.

Markoulis, S., & Katsikides, S. (2018). The effect of terrorism on stock markets: Evidence from the 21st century. *Terrorism and Political Violence*, 00(00), 1–23. <https://doi.org/10.1080/09546553.2018.1425207>

Muneeswaran, R., & Babu, M. (2017). Impact of terrorism on Indian capital market: An empirical study. *Amity Journal of Management Research*, 2(1), 61–75.

Nazir, M. S., Khan, M. K., Akram, A., & Ahmed, I. (2018). Impact of political and terrorist events on stock market returns: A case study in South Asian context. *Journal of Political Studies*, 25(1), 179–200.

Ojeka, S., Adegbeye, A., Adegbeye, K., Umukoro, O., Dahunsi, O., & Ozordi, E. (2019). Corruption perception, institutional quality and performance of listed companies in Nigeria. *Heliyon*, 5, e02569. <https://doi.org/10.1016/j.heliyon.2019.e02569>

Omodero, C. O., & Dandago, K. I. (2018). Corruption and stock market performance in Nigeria. *Annals of Spiru Haret University Economic Series*, 18(4), 23–40. <https://doi.org/10.26458/184>

Pham, V. T. H. (2020). Impacts of corruption control on economic growth in relationship with stock market and trade openness. *Journal of Asian Finance, Economics and Business*, 7(12), 73–84. <https://doi.org/10.13106/jafeb.2020.vol7.no12.073>

Scanlon, K. (2019). Effects of terrorism on the U.S. stock market: Evidence from high frequency data. (Unpublished manuscript). Western Kentucky University.

Tavor, T., Teitler-Regev, S., & Yezreel, S. (2017). The impact of disasters and terrorism on the stock market. *Disasters and Terrorism*, 1–8.

Tevei, F. N., Albert, C. P., & Charles, S. (1986). A policy-oriented theory of corruption. *American Political Science Review*.

Transparency International. (2011). Corruption perception index. <https://www.transparency.org>