

# Exploring the Nexus between Corruption and all share index of Nigeria Capital Market

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**Abstract:** The study examined Nigeria corruption perception index and Nigeria transparency index: its effect on all share index of Nigerian capital market. Specifically, the study determined the effect of Nigeria corruption perception index and corruption perception index on Nigeria capital market performance indicator as all-share index. The study is anchored on social disorganization theory which states that behaviour is influenced primarily by one's environment and that corruption and other deviant and criminal behaviour are a result of the weakened mechanism of social control. The study used descriptive statistics in the analysis and E-view 10 was used. The findings show that there is a significant effect of the Nigeria corruption perception index and Nigeria transparency index on all share index of the Nigerian capital market. This has a wide implication for the capital market in Nigeria as a continued increase in corruption index would adversely affect the all share index. The work recommended that capital market regulators should speedily adopt and enact policies that proactively address fraudulent practices in the Nigerian capital market.

**Keywords:** Capital market, Corruption, Index, Transparency

## I. INTRODUCTION

The capital market provides equity capital and infrastructure development capital that has strong socio-economic benefits through the development of roads, water and sewer systems, housing, energy, telecommunications and public transport. Perkins, Radelet, Lindauer & Block (2012) observed that these projects are ideal for financing through the capital market via long-dated bonds and asset-backed securities. Infrastructure development is a necessary condition for long-term sustainable growth and development. In addition, the capital market increases the efficiency of capital allocation by ensuring that only projects which are deemed profitable and hence successful attract funds. The foregoing will, in turn, improve the competitiveness of domestic industries and enhance the ability of domestic industries to compete globally, given the current momentum towards global integration. The result will be an increase in domestic productivity which may spill over into an increase in exports and economic development (Nwankwo, 2011).

Moreover, the capital market promotes public-private sector partnerships to encourage the participation of the private sector in productive investments (Akingbolunge, 2006). The need to shift economic development from the public to the private sector to enhance economic productivity has become

investable as resources continue to diminish. Nwankwo (2011) further pointed out that the capital market assists the public sector to close the resource gap and complement its effort in financing essential socio-economic development, through raising long-term project-based capital. It also attracts foreign portfolio investors who are critical in supplementing the domestic savings levels. It facilitates inflows of foreign financial resources into the domestic economy.

The role of the capital market in the economy cannot be overemphasized but fraud and corruption are capable of limiting the capacity of the capital market to play its role. A wave of fraud and corruption have hit the market, reviving attention on its effect on shareholders' value, corporate governance, and stock market performance (Bonini & Boraschi, 2009). Fraud and corruption in the capital market is a trillion-dollar industry globally, which represents the number of financial resources being lost on a yearly basis in terms of market performance (Kaufmann, Kraay, & Mastruzzi, 2018, World Bank Report, 2017). The typical forms of these fraudulent behaviours include financial misstatements on investment or operations, inadequate or inequitable information disclosure or delay, withholding information, bribery, insider trading, inappropriate short selling amongst others (Dyck, Morse & Zingales, 2017).

The menace of corruption and fraudulent activities, with their attendant consequences, has compelled both local and foreign investors and the government to think out of the box to fight this hydra-headed monster. Fraud has been an age-long threat to business establishments globally. This threat evolves and the magnitude of its devastations varies across different industries. The effect can be assumed to be relatively mild in some industries, but grievous in others especially in the financial system. So many big and reputable corporations have been abruptly grounded by the scourge of fraud.

Fraud and corruption is a cankerworm that gradually and silently depletes the fabrics of a nation's economy as well as reduces development in all sectors. The capital market in Nigeria is not exempted from this struggle. As an essential pillar of a country's economy, government bodies, corporations, stockholders (both the existing and potential ones) and all stakeholders judiciously study and monitor the activities of the capital market (Nazir, Nawaz, & Gilani, 2010). The investment decision of these stakeholders depends

on their observations and perceptions of the capital market performance. Fraud and corruption seem to have led to the loss of capital market integrity in Nigeria and the loss of investors' confidence. Therefore, it is not far from the truth that the effect of graft on capital 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 the graft is inherent and exists at all levels of the system.

Some researchers argue that fraud and corruption have a negative influence on capital market performance and have adversely affected the share index. The studies of Mashal (2011), You (2012), Pinhero (2010) and Meng and Friday (2010) revealed that fraud and corruption have drastically affected economic growth by decreasing competition in the capital market which impairs the efficiency of the capital market.

Some researchers however shared a contrary view. They believe that fraud and corruption could potentially increase the performance of the capital market, even the Nigerian capital market. The studies of Leff (1964), Lui (1985), Ahlin and Pang (2008), Huntington (1968) and Chene (2014) showed that corruption works like the engine of economic development in the situation when strict/inefficient regulations characterize governance. Thus, corruption "enables the private agents to buy their way out of politically imposed inefficiencies. They argue that corruption can overcome red tape and institutional weakness and grease the wheels of the economy and capital market.

Fraud and corruption are complicated phenomena. Meng and Friday (2010) described them as "simultaneously economic, political, criminal and sociological in origin." With the unsettled debate about the effect of corruption and fraud on the all-share index of the capital market and the complexity of the issues, this study was conducted to assess the effect of fraud and corruption on the capital market performance indicator "All-Share Index".

#### *Objective of the study*

The broad objective of this study is to examine the effect of fraud and corruption on capital market performance in Nigeria using all-share index as a measure.

#### *Hypothesis of the Study*

The research hypothesis in null forms:

Fraud and corruption have no significant effect on all share index of Nigeria's capital market.

## II. REVIEW OF RELEVANT LITERATURE

### *Corruption Perceptions Index (CPI)*

It is often reiterated that one of the necessary drivers to bring about human development is good governance, and controlling corruption is an important element of this. The assumptions are straightforward. Corruption can result in

resources being diverted from the public good to private consumption with the result that impacts intended to be of wider benefit are lost. Corruption may also drive up the costs of doing business with the result that investment is deterred and national development will suffer. But the very nature of corruption makes it difficult to gauge (Travits, 2010).

After all, those benefiting from corruption are unlikely to say so and openly declare how much they receive. Payers may be less reticent to talk about the extent of corruption as they are one of the losers, but there may be a danger of them exaggerating their problems and evidence may become somewhat anecdotal.

The Corruption Perceptions Index (CPI), created by the Berlin-based Transparency International (TI; a non-governmental organization) and first released in 1995, has been designed to provide a more systematic snapshot of corruption. The CPI is a homogenous index in the sense that all the components upon which it is based seek to measure the same thing.

The CPI is based on data collected over a number of years prior to the release of the index. The surveys evaluate the extent of corruption as perceived by country experts, non-residents and residents (not necessarily nationals) of the countries included, and are:

- Country Policy and Institutional Assessment by the IDA and IBRD (World Bank, 2005)
- Economist Intelligence Unit, (2006).
- Freedom House *Nations in Transit*, (2006).
- International Institute for Management Development, Lausanne, (2005) and (2006).
- Grey Area Dynamics Ratings by the Merchant International Group, (2006).
- Political and Economic Risk Consultancy, Hong Kong (2005) and (2006).
- United Nations Economic Commission for Africa, *African Governance Report*, (2005).
- World Economic Forum, (2005) and (2006).
- World Markets Research Centre, (2006).

Corruption is a variable that is complex to measure statistically. Therefore, Transparency International in collaboration with some organizations provided corruption indices that could help assess the level of corruption around the world.

These organizations include European Bank for Reconstruction and Development (EBRD), World Bank Business Environment and Enterprise Performance Survey and Freedom House's Nations in Transit (Natalia, 2016). Transparency International (TI) Corruption perception index (CPI) is a collective pointer that positions nations in relation to the level of corruption that is observed to occur among public officials and politicians. It is a compound index portraying all corruption-related data from a variety of reputable institutions based on surveys of domestic and

international business executives, financial journalists, and risk analysts who are experts and business elites. Data captured for CPI usage does not include views of the general public (Transparency International, 2011). CPI scale measurement is between 0–100.

The score scale of 0 means that the level of corruption in that country is very high while 100 is used to depict a country that is very clean. TI is an International Nongovernmental Organization established in 1993 with the aim of bringing together business, civil society, and government structures to fight graft. The CPI first publication by TI was in 1995 and it covered quite a number of countries [Natalia, 2016].

#### *Transparency Index*

Transparency International is a German registered voluntary association (Eingetragener Verein) founded in 1993. Based in Berlin, its nonprofit and non-governmental purpose is to take action to combat global corruption with civil societal anti-corruption measures and to prevent criminal activities arising from corruption. Its most notable publications include the Global Corruption Barometer and the Corruption Perception Index. Transparency International serves as an umbrella organization. From 1993 till date its members have grown from a few individuals to more than 100 national chapters which engage in fighting perceived corruption in their home countries. Transparency International does not conduct investigations into corruption itself but instead brings together officials in the areas of government, business, civil society and the media to promote transparency in private and public affairs and to lobby for anti-corruption measures. Transparency International targets corruption at every level, in keeping with its belief that corruption creates and perpetuates poverty, distorts national and international trade and threatens natural resources around the world.

Transparency index is a collective pointer that positions a nation in relation to the level of corruption that is observed to occur as prepared by Transparency International agency. It ranks countries “by their perceived levels of corruption, as determined by expert assessments and opinion surveys”.

#### *Performance of the Nigerian Capital Markets*

Capital 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. This requires sufficient volume and size of transactions in the market [Yartey & Adjasi, 2007]. The Nigerian Stock Exchange has performed exceptionally well in recent times. Many investors link this to the successful recapitalization of the Nigerian Banks in 2005, which was initiated by the Central Bank of Nigeria. The Exchange now experiences border listings and transactions, a high influx of foreign investments and investors and is adjudged to be one of or possibly the fastest growing Exchange in the world. It boasts of over 10 million shareholders/investors ([www.nigerianstockexchange.com](http://www.nigerianstockexchange.com)). There are basic tools that help

to determine the core performance of the capital market. They include market capitalization, the volume of transaction, market size, liquidity, total value traded ratio, turnover ratio and All-share index. This research work shall concentrate on the all-share index as its performance index.

#### *All Share index*

This is the index that monitors the performance of all the listed stocks in a particular stock exchange. All share index helps to determine the progress of Nigeria capital market and it sends a signal to investors whether to invest or not.

#### *Theoretical Framework*

Economists and financial analysts have postulated theories and models in an effort to establish the linkage between fraud and corruption on capital market performance in Nigeria. This study is anchored on social disorganization theory which states that behaviour is influenced primarily by one’s environment and that corruption and other deviant and criminal behaviour are a result of weakened mechanisms of social control.

#### *Social Disorganization Theory*

Social disorganization theory (SDT) originated as part of the Chicago School, a body of work focusing on urban sociology in the 1920s and 30s (Bernard, Snipes, & Gerould, 2010). Social learning theory belongs to a tradition of studying problems in light of the social processes that bring them about. The theory is based on the assumption that behaviour is influenced primarily by one’s environment, and that corruption and other deviant and criminal behaviour are a result of weakened mechanisms of social control (Steenbeek & Hipp, 2011). The theory has been applied to how antisocial attitudes develop in individuals, families, and communities, and how those attitudes conflict with larger social norms (Johnson, 1998).

According to social disorganization theory, dysfunctional behaviour has cultural, political, and economic causes (Akers & Sellers, 2009). Established communities experience increases in deviance and crime when their way of life and the established order change. Disorganized communities experience crime because informal social controls break down, resulting in the emergence of deviance and criminal cultures. Such communities lack the collective efficacy to fight crime and disorder (Hochstetler & Copes, 2008; Vito, Maahs, & Homes, 2007). The theory predicts that more crime will occur in neighbourhoods with fraying social structures, such as failing schools, vacant or vandalized buildings, changing ethnicity, and high unemployment (Steenbeek & Hipp, 2011).

The sociological perspective from which social learning theory emerged does not consider specific behaviour as a problem of an individual but instead considers individual behaviour as reflecting the social order in which an individual lives. This assumption agrees with Durkheim’s notion that all

behaviour is socially generated. In this view, a particular social problem such as corruption must be addressed by focusing on society, not a particular individual's behaviour (Steenbeek & Hipp, 2011). Johnson (1998) used social disorganization theory to argue that in many nations corruption is embedded in the overall society. In these countries, economic and political processes perpetuate corruption rather than resist it. Consistent with the assumptions of social disorganization theory, corruption can be reduced by developing enhanced criminal justice, political, social, and economic institutions, which will bring about social empowerment (Colombatto, 2003; Johnson, 1998).

### III. METHODOLOGY

This study adopts the "ex-post facto" research design. According to Asika (2006), ex-post facto research is a systematic empirical study in which the researcher does not in any way control or manipulate the independent variables because the events of the study already exist. This study collates historical data for the period 1999-2020. By implication, the study is a time series analysis and uses historical data to evaluate the relationship between the transparency index and the corruption perception index of Nigeria on the all-share index. Being an "ex-post facto" research, data were obtained through secondary sources. The data were sourced and collected for the period of 1999-2020 from the Transparency International agency, Nigeria stock exchange report and Security and Exchange Commission report. The data were on an annual basis.

In evaluating the effect of fraud and corruption on capital market performance, the following stochastic model was estimated.

$$ASI = f(NTI+CPI) \dots\dots\dots i$$

Where,

NTI = Nigeria Transparency index

CPI = Corruption perception index

ASI= All share index

To obtain the coefficients of the elasticity of the variables, while reducing the possible impact that any outlier may have, the model was represented in a log-linear econometric format. Thus:

$$\text{Log}ASI = a_0 + a_1\text{log} NTI + a_2\text{CPI} + U_t, \dots\dots\dots \dots vi$$

Where

Ao= constant term.

U= random error/disturbance term.

t = time trend.

#### Description of Variables

This study focuses on the effect of fraud and corruption on capital market performance in Nigeria from 1999-2020. The

dependent variable is All-share index. The independent variables are the transparency index and the corruption perception index.

*Nigeria Transparency index:-* It is a collective pointer that positions a nation in relation to the level of corruption that is observed to occur as prepared by the Transparency International agency. It ranks countries "by their perceived levels of corruption, as determined by expert assessments and opinion surveys". A situation where Nigeria is ranked high implies that this will affect the capital market performance on the All-share index, Market size, Market capitalization, Stock value traded and Turnover ratio negatively. A high level of corruption negates the performance in the Nigerian capital market.

*Corruption perception index:-* This is an indicator that shows the extent of corruption as perceived by country expert non-residents and residents of the countries as published by Transparency International, an organization that seeks to stop bribery and other forms of public corruption. The corruption perception index is an index that scores countries on how corrupt their governments are believed to be. A country's score can range from zero to 100, with zero indicating high levels of corruption and 100 indicating low levels.

*All share index:-* It is an index that monitors the performance of all the listed stocks in the Nigerian capital market. It is a series of numbers that shows the changing average value of the share prices of all companies on a stock exchange, and which is used as a measure of how well a market is performing. The Nigeria stock exchange computes the index regularly. The higher a country's CPI score, the higher will be the rate of investment which will increase the All-share index in the capital market. The lower a country's CPI score, the lower will be the rate of investment as a result of a high level of corruption which will affect the All-share index negatively.

### IV. METHODS OF DATA ANALYSIS

#### Descriptive Statistics

The descriptive Statistics utilized in this study include Mean, Standard Deviation, Kurtosis, Durbin Watin Statistics, Graphs and Histogram.

#### Diagnostic Tests

Following the argument of Gujarati and potter (2009) that time-series data are exposed to stationarity problems, we, therefore, subjected our data set to unit root test so as to avoid spurious results and to ensure the stationarity of the data used in the process of research. It also involves testing the behaviour of data pre and post estimation. This covers basic or descriptive statistics like mean, standard deviation, maximum, minimum, skewness, kurtosis.

#### Unit Root Test

In an attempt to estimate the effect of fraud and corruption on capital market performance in Nigeria, the first task was to

test for the presence of unit root. This was necessary in order to ensure that the parameters are estimated using stationary time series data. Thus, this study seeks to avert the occurrence of spurious results. To do this, both the Augmented Dick-Fuller (ADF) and Phillips-perron tests were used. The essence of the ADF tests is the null hypothesis of non-stationary. To reject this, the ADF statistics must be more negative than the critical value and significant. On the other hand, the Phillips-Perron test differs because it is a robust test for serial correlation and time-dependent heteroskedasticity.

#### Test Serial Correlation

In a time-series or panel data model, this is a correlation between the errors in different time periods. A series is said to be serially correlated where the data are correlated across time and the errors arise from adjacent time periods. It could either be a positive or negative serial correlation:

$$\text{Corr}(u_t, u_{t-1}) \neq 0$$

A suspicion of serial correlation may be corrected using,

*The Durbin-Watson (DW) Statistics:* A test for first-order autocorrelation, i.e. a test for whether a (residual) series is related to its immediate preceding values. One way to motivate the test and to interpret the test statistic would be in the context of a regression of the time t-error on its previous value. (Durbin and Watson, 1951)

$$U_t = \rho U_{t-1} + v_t$$

Where:  $u_t$  = Error term at time t;  $\rho$  = Probability values;  $v_t$  = Variable at time t.

#### Test for Heteroscedasticity

This is when the assumption of homoscedasticity is violated by the variables in the model. It is a situation where the variance of the error term is not constant. The presence of this error will make the regression estimators not be best linear unbiased estimator (BLUE) any longer ways to correct this will include the use of white tests (1980); Generalized least square (GLS); use of the log-linear model (Brooks, 2014).

#### Test for Ramsey Reset Specification

Ramsey (1969) Reset test is a general test for misspecification of functional form. It is also known as the non-linearity test. It reveals a situation where the share of the regression model estimated is linear but it should have been non-linear, it is essentially a model stability test and helps to give a strong level of reliability to the results of the model.

#### Regression Analysis

The ordinary least square (OLS) method of regression analysis was the fundamental technique of data analysis for this work. Regression analysis is basically concerned with the study of the dependence of one or two variables (dependent variables) on one or more other explanatory or independent variables (regressions) with the view to finding out or estimating/predicting the mean or average value of the former

in terms of known or repeated values of the latter (Gujarti and Porter, 2009) in specific terms, regression analysis, explain the variations in an outcome (dependent variable) y, as it depends on a predictor (independent explanatory) variable x

#### Overall significance of the model (f=Test).

The f-test is used to show if the model adopted is statistically significant. This was done on a tail test with the comparison of the table value to the estimated value of the f statistic. The data will be regressed in log-linear mode.

#### Correlation Coefficient Matrix

This is generally used to measure the strength of the relationship between two or more variables and as such will be adopted to measure the degree of the relationship between the variables under study namely Nigeria transparency index, corruption perception index, all share index, market sizes, market capitalization, stock value traded and turnover ratio

#### Hypothesis Testing

The hypothesis is the relationship between the regressor and the regressand. Hypotheses testing is to assess the plausibility of a hypothesis by using sample data. The test provides evidence concerning the plausibility of the hypotheses, given the data. The hypotheses will be tested using t-statistics and p-value at a 5% level of significance.

#### Decision rule

If the hypothesis is greater than 5%, it will be accepted. If it is below 5%, it will be rejected.

## V. PRESENTATION OF DATA AND DISCUSSION OF FINDINGS

Table 1: Distribution of Nigeria's All Share Index, Corruption perception index and transparency index

Year	All Share Index	Corruption Perception Index (Rank)	Corruption Perception Index (Score)
1999	5,266.40	98	16
2000	8,111.00	90	6
2001	10,963.10	90	10
2002	12,137.70	101	16
2003	20,128.90	132	14
2004	23,844.50	144	16
2005	24,085.80	152	19
2006	33,358.30	142	22
2007	57,990.22	147	22
2008	31,450.78	121	27
2009	20,827.20	130	25
2010	24,770.52	134	24
2011	20,730.63	143	24
2012	28,078.81	139	27

2013	41,329.19	148	25
2014	34,657.15	140	27
2015	28,642.25	137	26
2016	26,847.62	140	28
2017	32,161.12	148	27
2018	31430.50	144	27
2019	26842.07	146	26
2020	24479.22	149	25

Source: NSE report, Transparency International

*Descriptive Statistics*

Table 2: Descriptive statistics of variables utilised in the study

	All Share Index	RANK	SCORE
Mean	25546.38	130.3158	21.10526
Median	24770.52	139.0000	24.00000
Maximum	57990.22	152.0000	28.00000
Minimum	5266.400	90.00000	6.000000
Std. Dev.	12315.79	20.30887	6.428191
Skewness	0.620902	-1.062200	-0.891958
Kurtosis	3.886941	2.661078	2.752424
Jarque-Bera	1.843585	3.663791	2.567889
Probability	0.397805	0.160110	0.276943
Sum	485381.2	2476.000	401.0000
Sum Sq. Dev.	2.73E+09	7424.105	743.7895
Observations	19	19	19

Source: E-Views 10

Table 3: Correlation matrix of variables utilised in the study

	ASI	RANK	SCORE
ASI	1.000000	0.739633	0.615455
RANK	0.739633	1.000000	0.698488
SCORE	0.615455	0.698488	1.000000

Source: Authors' Data Analysis, E-Views 10

*Unit Root Test*

The data were checked for stationarity using the Augmented Dickey Fuller (ADF) test. This is consistent with Abdul Qadir and Yaroson (2013) while studying the role of macroeconomic variables and stock market development in Nigeria.

Table 4: Unit root test of All Share Index

*ADF Test of ASI at Level*

Null Hypothesis: ASI has a unit root				
Exogenous: Constant				
Lag Length: 0 (Automatic - based on SIC, maxlag=1)				
			t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic			-2.571064	0.1151
Test critical values:	1% level		-3.808546	
	5% level		-3.020686	
	10% level		-2.650413	
*MacKinnon (1996) one-sided p-values.				

Source: E-Views 10

*Unit root test of Transparency Index*

*ADF Test of RANK at Level*

Null Hypothesis: RANK has a unit root				
Exogenous: Constant				
Lag Length: 0 (Automatic - based on SIC, maxlag=1)				
			t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic			-1.851173	0.3472
Test critical values:	1% level		-3.788030	
	5% level		-3.012363	
	10% level		-2.646119	
*MacKinnon (1996) one-sided p-values.				

Source: Authors' Data Analysis, E-Views 10

*ADF Test of RANK at First Differencing*

Null Hypothesis: D(RANK) has a unit root				
Exogenous: Constant				
Lag Length: 0 (Automatic - based on SIC, maxlag=1)				
			t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic			-4.161202	0.0047
Test critical values:	1% level		-3.808546	
	5% level		-3.020686	
	10% level		-2.650413	
*MacKinnon (1996) one-sided p-values.				

Source: Authors' Data Analysis, E-Views 10

*Unit root test of Corruption Perception Index*

ADF Test of SCORE at Level

Null Hypothesis: SCORE has a unit root				
Exogenous: Constant				
Lag Length: 0 (Automatic - based on SIC, maxlag=4)				
			t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic			-1.351701	0.5855
Test critical values:	1% level		-3.788030	
	5% level		-3.012363	
	10% level		-2.646119	
*MacKinnon (1996) one-sided p-values.				

Source: Authors' Data Analysis, E-Views 10

ADF Test of SCORE at First Differencing

Null Hypothesis: D(SCORE) has a unit root				
Exogenous: Constant				
Lag Length: 0 (Automatic - based on SIC, maxlag=1)				
			t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic			-7.629155	0.0000
Test critical values:	1% level		-3.808546	
	5% level		-3.020686	
	10% level		-2.650413	
*MacKinnon (1996) one-sided p-values.				

Source: Authors' Data Analysis, E-Views 10

*Cointegration Test*

*Johansen Cointegration test of ASI, RANK and SCORE*

Date: 08/25/21 Time: 13:41				
Sample (adjusted): 2001 2019				
Included observations: 19 after adjustments				
Trend assumption: Linear deterministic trend				
Series: ASI RANK SCORE				
Lags interval (in first differences): 1 to 1				
Unrestricted Cointegration Rank Test (Trace)				
Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.845906	62.63075	29.79707	0.0000
At most 1 *	0.599729	27.09711	15.49471	0.0006
At most 2 *	0.399834	9.700438	3.841466	0.0018
Trace test indicates 3 cointegratingeqn(s) at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				
**MacKinnon-Haug-Michelis (1999) p-values				

Source: Authors' Data Analysis, E-Views 10

The Trace statistic showed values at none (62.63), at most 1\* (27.09) and at most 2\* (9.70); with p-values less than .05. The statistics showed 3 cointegrating equations; while, the unrestricted VAR determined the optimal lag at 1 as shown by several measures LR, FPE, AIC, SC, and HQ. The details are shown in the Appendix. The decision is stated below as follows:

*Decision:* The null hypothesis of no cointegration is rejected against the alternative of cointegrating relationship in the model. The results are also confirmed using the Max-eigenvalue test indicates 3 cointegratingeqn(s) at the 0.05 level

*RQ:* To what extent has fraud and corruption affected all share index of Nigeria's capital market?

The normalized cointegrating coefficients (results shown in the Appendix) showed that RANK (corruption perception index) in the long-run, has a positive impact while SCORE (transparency index) in the long-run, has a negative impact on ASI, on average, *ceteris paribus*.

*Hypothesis*

*Ho:* Fraud and corruption had no significant effect on all share index of Nigeria's capital market.

Table 5: OLS output for hypothesis one

Dependent Variable: LOG(ASI)				
Method: Least Squares				
Date: 08/25/21 Time: 12:18				
Sample (adjusted): 1999 2019				
Included observations: 21 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	7.055234	0.462394	15.25805	0.0000
RANK	0.019332	0.004777	4.046631	0.0008
SCORE	0.020221	0.014961	1.351558	0.1933
R-squared	0.747132	Mean dependent var		10.03870
Adjusted R-squared	0.719036	S.D. dependent var		0.557340
S.E. of regression	0.295424	Akaike info criterion		0.530753
Sum squared resid	1.570955	Schwarz criterion		0.679970
Log likelihood	-2.572905	Hannan-Quinn criter.		0.563137
F-statistic	26.59172	Durbin-Watson stat		1.224496
Prob(F-statistic)	0.000004			

Source: Authors' Data Analysis, E-Views 10

The OLS estimates shown in the Table above, indicated that the model had an R-squared value of .747; and, Adjusted R-squared value of 0.719. These values explain the proportion of variance in the dependent variable caused by the explanatory variables. Thus, the explanatory variables explain approximately 72% variation in the dependent variable (ASI).

The F-statistic value is 26.592 which is highly significant (p=0.000). The F statistic checks the overall statistical significance of the model with a p-value less than .05 (the chosen alpha level); thus, the hypothesis that all the regression coefficients are zero is rejected. The t-statistic of the variables of interest: CPI and TI were 4.047 and 1.352. The CPI had a p-value less than .05; while, the TI had a p-value greater than .10. However; the study rejects the null hypothesis and accepts the alternate. Thus, fraud and corruption had a significant effect on all share index of Nigeria’s capital market (based on p-value of the F-statistic). The Table below shows the VECM estimation output of the model.

Table 6: VECM output for hypothesis one

Vector Error Correction Estimates			
Cointegrating Eq:	CointEq1		
LOG(ASI(-1))	1.000000		
RANK(-1)	-0.007634		
	(0.00375)		
	[-2.03795]		
SCORE(-1)	0.004029		
	(0.01251)		
	[ 0.32204]		
C	-9.181800		
Error Correction:	D(LOG(ASI))	D(RANK)	D(SCORE)
CointEq1	-0.572415	-19.71236	-1.058582
	(0.16417)	(5.98643)	(1.55414)
	[-3.48676]	[-3.29284]	[-0.68114]
D(LOG(ASI(-1)))	0.120287	-3.224789	3.276910
	(0.21183)	(7.72437)	(2.00533)
	[ 0.56785]	[-0.41748]	[ 1.63410]
D(RANK(-1))	0.001054	0.008417	0.007945
	(0.00559)	(0.20370)	(0.05288)
	[ 0.18863]	[ 0.04132]	[ 0.15024]
D(SCORE(-1))	0.024647	1.565788	-0.115950
	(0.01773)	(0.64654)	(0.16785)
	[ 1.39012]	[ 2.42181]	[-0.69080]
C	0.034857	2.323684	0.792421
	(0.06161)	(2.24662)	(0.58325)
	[ 0.56576]	[ 1.03430]	[ 1.35864]
R-squared	0.496641	0.519466	0.309063
Adj. R-squared	0.352824	0.382171	0.111652

Sum sq. resids	0.855373	1137.398	76.65764
S.E. equation	0.247180	9.013473	2.339988
F-statistic	3.453288	3.783570	1.565585
Log likelihood	2.496406	-65.83439	-40.21148
Akaike AIC	0.263536	7.456252	4.759103
Schwarz SC	0.512073	7.704789	5.007640
Mean dependent	0.062987	2.947368	1.052632
S.D. dependent	0.307258	11.46722	2.482689
Determinant resid covariance (dof adj.)		8.672159	
Determinant resid covariance		3.469369	
Log likelihood		-92.69724	
Akaike information criterion		11.65234	
Schwarz criterion		12.54707	
Number of coefficients		18	

Source: E-Views 10

$$ECT_{t-1} = [1.000 (\text{Log.ASI})_{t-1} - 0.008\text{RANK}_{t-1} + 0.004\text{SCORE}_{t-1} - 9.182]$$

$$\Delta(\text{Log.ASI})_t = [-0.572ECT_{t-1} + 0.120(\text{Log.ASI})_{t-1} + 0.001\text{RANK}_{t-1} + 0.245\text{SCORE}_{t-1} + 0.035]$$

The prior period deviation from long-run equilibrium is corrected at a speed of 57.2% points; a percentage change in RANK is associated with 0.001 increase in ASI, on average, *ceteris paribus* in the short-run. A percentage change in SCORE is associated with 0.245 increase in ASI, on average, *ceteris paribus* in the short run. The VEC residual serial correlation LM test is shown in the Appendix. The test indicates the absence of serial correlation (p>.05). The normality test output is also shown in the Appendix. The results showed the (joint) p-values of normality of the variables (p=0.3355) and no presence of heteroskedasticity using the white test (p=0.3662). Therefore, the model is not heteroskedastic.

The first hypothesis revealed a significant effect of fraud and corruption on all share index of Nigeria’s capital market. This is consistent with the study by Nwude (2006) on a sample of commercial banks, which found a significant correlation between fraud and stock market values. The variables RANK and SCORE had positive coefficients and values. However, the only RANK was significant at 5%. This is consistent with studies by Kanu and Okorafor (2013), which revealed a positive significant relationship between bank deposits and fraud in the Nigerian banking industry. Using a sample of banks, Abdulrasheed, Babaitu, and Yinusa (2012) found a significant relationship between profit (ROA and ROE) and the total amount of funds involved in fraud.

This is in contrast to Yartey (2010) that reports a negative relationship between corruption and stock market development. Nwaze (2009), found a negative effect of bank fraud on equities of the studied banks. Similarly, utilizing a sample of DMBs Ojeaga, Ikpefu and Odejimi, (2014) reported

a negative effect of banking fraud on the share price of the banks causing a decline in market capitalization of the Nigerian Stock Exchange. Adebayo and Topson (2014) found a negative correlation between fraud, corruption and performance both within the fulcrum of the bank bottom line and on the capital market.

Yet others, Akindele (2008) and Berney (2008) using empirical data from Nigerian banks found a significant negative relationship between corruption and capital market performance. They further state that the reason for such was the negative publicity which follows from press releases following fraud discovery.

The hypothesis, therefore, revealed that there is a significant effect of fraud and corruption on all share index of Nigeria's capital market ( $p < .05$ )

### III. CONCLUSION

The study concludes that fraud and corruption affect the all-share index of the Nigerian capital market. The capital market has remained one of the institutions to guarantee the growth of any economy via its savings accumulation and attracting portfolio investments. By providing an investment outlet also maintains optimality of resources allocation. However, the extent it achieves its numerous functions is highly dependent on fraud mitigation and transparency from reduced corruption. The study empirically examined the influence of fraud risk and corruption level on capital market development indices. The study documents mixed findings. The fraud and corruption indicators had a significant effect on all share index, market size, and market capitalization of the capital market. However, in contrast, the indicators had no significant effect on the stock value traded and turnover ratio of Nigeria's capital market.

### IV. RECOMMENDATIONS

The study makes the following recommendations for policymakers and regulators in the Nigerian capital market:

- 1 The capital market regulators should speedily adopt and enact policies that proactively address corporate fraudulent practices for their negative impact on the stock market development. Advanced countries have continually leveraged technology and other recent advancements to promote stock market transparency.
- 2 The industry regulators should see an urgency for several corporate governance reforms, such as gender equity and minority representation as strategies to curb managerial fraud practices. Regulators should also pay attention to internal corporate practices such as the appointment and selection of internal auditors and the design of internal control systems.
- 3 The apex regulators, such as SEC and NSE inclusive of anti-graft agencies in the country should embed recent fraud detection methodologies such as the use of forensic accountants or auditors to further strengthen

the oversight role and aid the detection of fraud among companies.

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