A CONCEPTUAL ANALYSIS OF PRICE MOVEMENT, STOCK DETERMINANTS AND THEIR EFFECTS ON ECONOMIC GROWTH IN NIGERIA

BY

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ABSTRACT

This study explores the effects price movements in stocks and its determinants on growth in Nigerian economy. The study in specific terms model's stock price fluctuations against economic growth and insecurity, exchange rate, interest rate, inflation rate, stock price movement against GDPGR in Nigeria. To achieve the above objectives, the study employs the ex-post facto research design. Quarterly time series data were obtained from the Central Bank of Nigeria (CBN) statistical Bulletins using already available data from 1985 - 2019. The data were analyzed via the aids of econometric techniques such as the descriptive statistics test, the Augmented Dickey-fuller (ADF) unit root test, Correlation matrix and Heteroskedasticity ARCH effect, granger causality, the GARCH (1,1) model and ARDL model for estimations. Findings from the analysis shows price fluctuations had positive and significant effect on growth of the Nigerian Economy. Also, it was opined that insecurity, interest rate, inflation rate, exchange rate, and GDPGR have long-run significant effects on share price volatilities in Nigeria. Finally, it was revealed insecurity, interest rate, inflation, exchange rate and GDPGR have a long-run significant effects on share price fluctuations in Nigeria. On the bases of this finding studies recommended that Authority through its agencies should formulate working document that would stabilize macroeconomic variables and by extension reduce the fluctuation of the stock price as this is required to enhance confidence amongst investors in the market. Also, that the CBN should design and implement policy instruments that would stabilize interest rate to promote significant short run investments and sustain the long run benefits of investments in Nigeria. Government should expedite efforts to reduce the rate of inflations and stabilize the price of goods and services as this promises greater savings

and encourages investments which will translate into economic growth. Lastly, policies to tackle cases of corruption in the security framework should be formulated, while the Government should be proactive about its fight against insecurity in Nigeria as this would help stabilize share prices and enhance economic growth in Nigeria.

Keywords: Heteroskedasticity, White Noise, Market Capitalization, Fluctuations

INTRODUCTION

Shares traded in the stock market are traded at a consideration called price, hence, stock price is the rate at which securities traded in the stock market are bought and sold. These prices reacts swiftly and uncharacteristically to negative information, political uncertainties, and changes in policy, interest rate variations, inflationary rate changes, and real gross domestic product movements (Corrado & Jordan, 2002; Idaka, Ogar-Abang & Kankpang, 2020 and Udoka & Anyingang, 2013). These prompt and uncharacteristic variations in stock prices are referred to as stock price fluctuations; in other words, share price volatility. Researchers as well as scholars use fluctuation and volatility interchangeably as a matter of semantics. It has been argued that there exists a nexus or relationship between fluctuations in stock price and economic growth. For instance, the argument goes that, gyration in stock prices is often synonymous to macroeconomic information available in the market and may lead to unpredictable outcomes in terms of investment decisions by individual investors (Corrado & Jordan, 2002). Porterba (2000) revealed that the unpredictability of returns in stock markets obstruct the smooth functioning of the financial system and adversely influences economic performance. In the same vein, Chinzara, (2011) reported that fluctuations in the stock market prices bring about uncertainty in macroeconomic variables. See also for example, Onakoya (2013). Thus, fluctuations signal growth in a negative or positive direction. The world witnessed a major financial crisis during the period spanning 2007-2009, with overwhelming effects on the global financial markets as a consequence of globalization. For instance, the Nigerian capital market whose capitalization was at an all-time high of N13.5 trillion in March, 2008 declined to less than N4.6 trillion by the second week of January 2009 (NSE, 2010). The shrink in capitalization was occasioned by capital flight as foreign investors pulled out their investments from the Nigerian capital market. Thus, dumping of shares overwhelmed the demand capacity of domestic investors (Nwude, 2012). Statistics also indicated that interest rate expanded from 9.75 percent in 2008 to 12 percent in 2012 with a relating decline in shares exchanged from 32.15 billion U. S. dollars with a base 2.14 billion U. S. dollars in 1993 and limit of 84.89 billion U. S. dollars in 2007, and from 11% in 2015 to 13.5 percent in 2019. Likewise, expansion rate changed from 15.10 percent in 2008 to 12 percent in 2012 and from 9.6 percent in 2015 to 11.98 percent in 2019 with a relating decline to 43.92 billion U.S. dollars for correlation the world typical in 2019 in light of 61 nations is 632.33 billion U. S. dollars This lead to a fall in all share index from 50110.59 billion in 2008 to 23645.69 billion in 2012 and a further decrease of all share index from 30975.96 billion in 2015 to 28935.56 billion in 2019 which accounted for a decline in GDP growth rate from 7.20 per

cent in 2008 to 4.21 per cent in 2012 and a further depletion of GDP growth rate from 2.79 per cent in 2015 to 2.27 per cent in 2019 (The Global Economy.com).

Nigeria currently ranks at 147th globally, as per the global peace index (GPI) report delivered in November 2020, making it the third most threatened country on the planet for the subsequent year pursuing Iraq and Afghanistan. Observational writings across the globe have endeavored to lay out the causal correlation between stock price fluctuations and development of the economy with mixed results. Conflicting results stem from the choice of methodological framework in terms of selection of relevant macroeconomic variables, taken together with stock price fluctuations to determine development of the economy. In an emerging economy such as Nigeria with multiple macroeconomic challenges such as insecurity, unemployment, decline in purchasing power and GDP, rising inflation and dwindling government revenue; there exists research gaps in both methodology and scope of study. Over the years Nigeria has been grappling with the challenge of raising insecurity, the prevailing insecurity situation has continued to hamper investments in the stock market. Many financial analysts have posited that if the current insecurity climate in the country is not addressed, the stock market could yet experience further capital erosion (Uford, 2017). The present research work assesses what the actual direction and magnitude of the effect of stock price fluctuation on Nigerian economic development.

2.0   Literature Review and Theoretical Background
2.1 Theoretical background
This research study is based on Neoclassical Theory – Solow Growth Model, The Solow Solow-Swan growth theory. It was named after Robert (Bob) Solow and Trevor Swan.

Solow-Swan Theory (1956)
The Solow-Swan model is a financial model of long-run economic development set inside the structure of neoclassical economic concepts. The model was grown independently by Robert Solow and Trevor Swan in 1956. The theory holds that long-run monetary development is an element of capital collection, work (population development), and innovation. The theory accepts that monetary development can be dissected as far as changes in the populace development rate, the reserve funds rate, and the pace of mechanical advancement. This theory is accepted to be the reason for the modern theory of monetary development; therefore proponents of this theory believe that determinants of economic growth are factor inputs such as capital, labour, technology as well as other activities that involve human efforts. The researcher finds this theory relevant to the work because stock price fluctuations and insecurity challenges are products of human activities, and therefore capable of determining economic growth.

Neoclassical Growth Theory (1957)
The Neoclassical growth theory is a modified version of the Solow-Swan growth theory established in 1957 this economic theory holds that a consistent economic growth are

results from a blend ns of three driving elements - capital, technology, labour. The National Bereau of Economic Research names Roberts Solow and Trevor Swan as having the benefits of fostering the theory in 1956. The model originally analyzed exogenous populace increments to set the growth rate in any case, in 1957. Solow added mechanical change into the Model. The theory further expresses that for an economy to acknowledge growth, three key elements are required - capital, labor and technology. Subsequently, while an economy has restricted assets in capital and labor the commitment from technology to growth is vast. The theory expresses that momentary equilibrium comes about because of fluctuating measures of labor and capital in the production capability. The theory additionally contends that mechanical change has effect on an industry and economic growth would be slowed down without innovative advances.

This Growth theory places that the amassed capital inside an economy, and how such capital, is utilized is of most extreme significance to economic growth. Besides, in this way attesting the connection among capital and labor in an economy decides its result. Convincingly, technology is remembered to improve labor productivity and increment the result capacities of labor. Subsequently, production capability of neoclassical growth theory is utilized to gauge the growth and equilibrium of an economy.

Being $Y = AF(K, L)$.

Y suggests an economy gross domestic product (Gross domestic product)

K suggests portion of capital

L suggests how much untalented labor in an economy

A suggests determinant level of technology

Expanding any one element of production above shows the impact on Gross domestic product. Be that as it may, in the event that the three elements of neoclassical growth theory are not all at per. The returns of both incompetent labor and capital on an economy reduce. These reduced returns suggest that expansions in these two data sources have dramatically diminishing returns while technology is vast in its commitment to growth and the subsequent result it can produce.

2.2 Literature Review

Fluctuations in stock movement implies volatilities that is gyrations in prices of securities, it fluctuation further refers to how much vulnerability or hazard of changes in the worth of a security or its index esteem. Higher variances infer a security worth might possibly fluctuate over a bigger scope of values. This implies that the cost of the security can change promptly. A lower vacillation suggests that protections esteem doesn't very quickly, yet the progressions in its worth are prescient over the timeframe. It is often said that change is a well-mannered approach of calling investors anxiety regarding information. Variance is consequently the all over development of the market. it is typically estimated by the standard deviation from the assumption. On the off chance that we check out at the market on an everyday (Charles & Uford, 2023), any development up or down of the market from its assumption is the change. The most driver of change is a drop on the lookout. There are straightforward influence justifications for why market drops causes variance. Yet, past that basic system, following a drop on the lookout, variance regularly shoots far up for a period before it hoses down once more.

Measure of price fluctuation

Daily variations in prices of stock, is a proportion of volatility, that is to say, how much a protections esteem changes. it is an everyday proportion of normal day to day varieties which can be determined by including individual day to day price changes and partitioning the all out by the quantity of days to recognize an all the more long haul pattern. Investors utilize a few devices of calculations to direct their choices about when to trade protections. These apparatuses are mind boggling; however investment sites and soft products simplify them. The everyday price variety of a stock is the contrast between its most elevated and least qualities on a given exchanging day. Everyday price variety is a proportion of volatility; normal day to day varieties can be determined by including individual day to day price varieties and separating the complete by the quantities of days to detect an all the more long haul pattern. To get how much a day to day price variety, you should know the high and the low prices for a given stock on a given day. Most paper and online stock statements give this fundamental information, named "high" and "low" take away the more modest number from the larger number to decide the everyday price variety. Since it is just a proportion of variety, or distinction, it doesn't make any difference whether the stock acquired or lost value.

2.3 EMPHIRICAL REVIEW

Yeh and Chi (2009) opined using auto regressive distributive lag (ARDL) to investigate the legitimacy of the different Hypotheses that make sense of this relationship. The consequence of this investigation of 12 OECD nations shows that these economies display a short-run adversely critical co - development between stock returns and inflation. Besides, economies like Australia, France, Ireland and Netherland don't show a long-run connection between the two factors in harmony. This outcome is predictable with the hypotheses of Fama (1981). Leon, (2008) researched the impact of financing costs volatility on market returns and volatility involving week after week returns on the stock market in Korea code named Kospi 200 concocted the place that loan fees have major areas of strength for a power for stock returns and frail prescient power for fluctuations, which subsequently influences market execution over the long haul. Analyzing the impacts of revenue and the stock market additionally, Onakoya (2013) examined the overall commitments of stock market volatility on economic growth in Nigeria for the periods 1980-2010. Utilizing Remarkable Generalized Autoregressive Conditional Heteroskedasticity (EGARCH), concentrates on uncovered that the volatility shock is very diligent in Nigeria, which might mutilate the customary pattern or circle of growth in the economy growth. Thus, the consequence of the review expects there is a bi-causal connection between stock market volatility and economic growth in Nigeria. The outcome further uncovered that little financial backers are more intrigued by transient additions and thusly, pay less attention to long-term investment opportunities.

3.0 RESEARCH METHODOLOGY

3.1 Research design and Sources of data.

Research design is the specification of procedures for grouping and breaking down information important to assist with tackling the present challenges. It can be referred to

as the direction that will guide the investigator in the process of collecting, analyzing and interpreting results (Uford & Duh, 2021). The research design adopted for the research was the ex-post facto study. Quarterly time series data from 1985-2019 were collected on stock price fluctuations and economic growth and used in the research. Where stock price fluctuation for the period was arrived at by, computing the standard deviation of the all share index within Nigeria stock market.

3.2 Methods of data collection and Model specification

Quarterly time series information was gathered for the period 1985 to 2019 on Economic growth (Gross Domestic Product Growth Rate (GDPGR), Price Fluctuation (PFT), Inflation, (INFL) Interest Rate (INR), Insecurity (INSEC) and Exchange Rate (EXR). The structure taken on in this examination is a form of the Neo-classical view of Solow-Swan growth model as propounded by Robert Solow and Trevor swan (1957). This theory believes that economic growth can be analyzed in terms of changes in the population growth rate, the reserve funds rate, and the pace of mechanical advancement. This hypothesis is accepted to be the reason for the advanced hypothesis of economic growth; thus proponents of this theory believe that price movements' responds to information through its determinants, and economic growth are as a response to factor inputs such as capital formulation, labour, and technology as well as other activities that involve human efforts.

$$GDPGR = f (SPF) \ldots\ldots\ldots\ldots (1)$$

$$SPF = a_0 + b_1 \triangle SPF + b_2 \triangle INFR + b_3 \triangle EXR + b_4 \ INSEC + b_5 \ INR + e_t \ldots\ldots (2)$$

Where

$$GDPGR = a_0 + b_1 \triangle SPF + b_2 \triangle INFR + b_3 \triangle EXR + b_4 \triangle INSEC + b_5 \ INR + e_t \ldots (3)$$

GDPGR = Gross Domestic Product Growth Rate

SPF = Share Price Fluctuation

INFR = Inflation Rate

INR = Interest Rate

INSE = Insecurity

EXR = Exchange Rate

$\triangle$ = Changes

a_0 = Regression Constant

$b_1 - b_5$ = Regression parameters

Where:

GDPGR= Economic growth

SPF = Stock price fluctuation

Estimation techniques

The study utilized the descriptive statistics to analyze the construction of the time series utilizing descriptive insightful. It additionally utilized the relationship framework procedure to evaluate the connection between the factors of the model as well as their

pretext conditions. Estimations technique for price fluctuation, growth equation conditional and time variance heteroskedastic test. The study examined the data to assess whether or not there was present in the data coitional heteroskedasticity and time variance heteroskedasticity. To this effect, the study plotted residuals of the data and observed the presence of clustering fluctuation. This was necessary to test whether there was conditional fluctuation in the data, where periods of low fluctuation were followed by periods of high fluctuation for prolong period. With this condition being fulfilled, the study proceeded to test for the presence of ARCH effect in the data for time varying variance. To examine for the presence of ARCH effects before estimating the GARCH-M estimate the following specification was used:

$$U2t = b0 + b1\hat{U}2t\text{-}1 + et \dotfill (4)$$

Null hypothesis: b1 = 0; there the series are homoscedastic;
Alternative hypothesis: b1 ≠ 0; there the series are heteroscedastic;

GENERALIZED AUTOREGRESSIVE CONDITIONAL HETEROSKEDASTICITY (GARCH) MODEL

With the presence of clustering fluctuation and ARCH effect the study proceeded to estimate a GARCH (1 1). The GARCH (1 1) model enables the conditional mean to depend on its own conditional standard deviation or variance. This study models a time-varying riskiness of an investment to explain growth using its standard deviation ts:

$$Y_t = C + \varepsilon_i\sqrt{h_t} + u_t \dotfill (5)$$

Therefore, the GARCH (p, q) model was specified as thus:

$$h_t = \varphi + \sum^p_{k=1} \theta_k h_{t\text{-}k} + \sum^q_{i=1} b_1 u^2_{t\text{-}i} \dotfill (6)$$

h_t = Variance of the residuals
φ = Constant term
$h_{t\text{-}1}$ = GARCH term
$u^2_{t\text{-}i}$ = ARCH Term

Unit root test

The study used the Augmented Dickey-Fuller (ADF) unit root test to examine on the off chance that the time series were fixed giving time series information steady with a specific pattern and since economic hypotheses proof that it ought to be exposed to differencing methodology to keep away from plausibility of having false outcome. The study applied the Augmented Dickey-Fuller (ADF) to tests for unit root which may present multiple outcomes. Firstly, all the series may be integrated at levels, meaning that the series may be of order I (0), in which case, it is often said that the time series is stationary and does not require an examination of whether there is a long-run stochastic trend among the variables; secondly, all the series may be integrated at the order I (1), implying that, the series will not be integrated at level, but may become stationary after first difference; thirdly, series may be mixed, meaning that all variables may either be integrated at first difference or levels; that is, the time series data should be integrated of

order I (1) and I (0). The third outcome was achieved in this study. This led the study into adopting the ARDL estimating technique.

Autoregressive Distributive Lag (ARDL)

This study also-ran the Autoregressive Distributed Lag (ARDL) bounds test approach since the series was a combination of order I (0) or I (1). The ARDL approach offers some desirable statistical advantages over other co-integration techniques. Other co-integration approach needs all variables to be integrated of the same order, the ARDL test procedu re provides valid results whether the variables are a combination of order I (0) or I (1) or mutually co-integrated and provides very efficient and consistent estimates in small and large sample sizes. From the result of the test, since the variables were cointegrated, the study proceeded to estimate both short-run (ARDL) and long-run (VECM) model. The ARDL (p q) model is generalized thus:

$$Yt \quad = \quad y0i \quad + \quad \Sigma pi\text{-}1 \quad di \quad yt\text{-}1 \quad + \quad \Sigma qi\text{-}0 \quad bi$$
…………………………………………………………. (7)

Where:

Yt = vector

Xt = Regressors

and b = coefficient

= constant term

P and q = optimal lag order

= Stochastic error term

Thus, since there exist co-integration, the error correction model (ECM) representation was specified thus:

………………………………………………………………………………………………………
.… Eqn. (8)

It is expedient to state that the parameters and variables retain their meaning as been discussed above.

Model Evaluation and Test of Significance

To establish the stability of the outcomes generated by the ARDL strategy, the CUSUM test was adopted. CUSUM (cumulative sum control chart) is a sequential analysis strategy. The CUSUM plots the cumulative amounts of the deviations of the sample values from a target value. Moreover, the review applied the Breusch-Godfrey serial correlation LM test, the normality test and the heteroskedasticity test to examine whether the residuals of the model are reliant. Lastly, the review utilizes the Wald test to analyze if or generally the independent lagged variables have a joint significance on dependent variable.

4.0   DATA PRESENTATIONS, ANALYSIS AND DISCUSSION OF FINDINGS
4.1Data presentation

This study employs quarterly time series data for the period 1985 to 2019 on GDPGR, share price fluctuation, interest rate, and exchange rate, insecurity and inflation rate. The data was plotted for visualization and trend analysis as presented below: Table 1
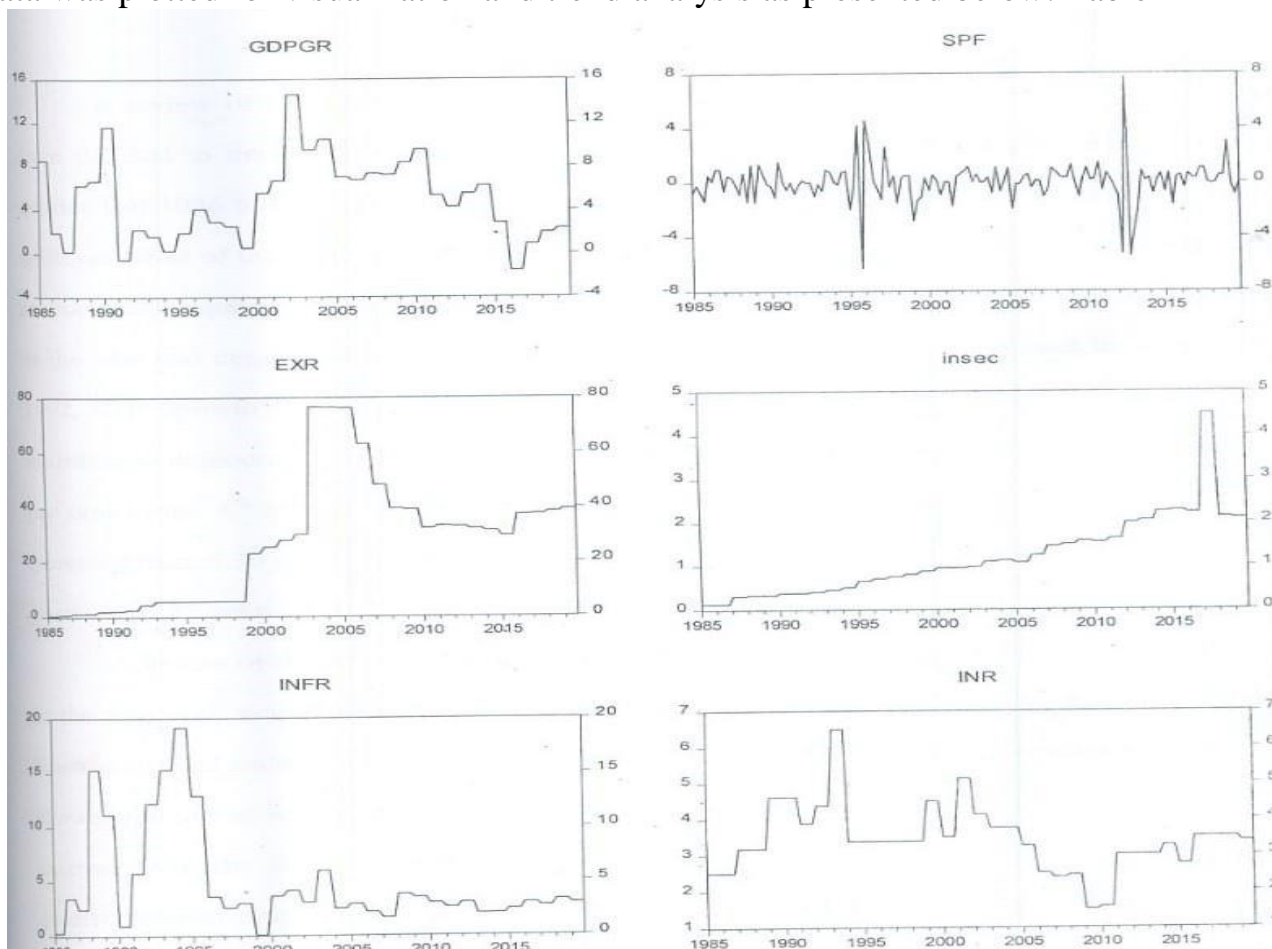
A review of the above trend showed that GDP growth rate in 1985 was 8.52 percent from the first to the 4th quarter. This was followed by a reduction from 1.88 percent in 1st quarter of 1986 to 6.65 percent in 4th of 1989. This reduction could be attributed to the spillover effect of the structural adjustment program during which the whole economy was being restructure. By quarter 1 of 1990, GDPGR had staggered 11.62 percent but got recessed by 1998 as the year had negative GDP growth rate of 0.55 percent. From 2.19 percent in quarter 1 of 1992, GDP growth rate staggered to 2.49 percent in the 4th quarter of 1998. Following the transition to democracy in 1999, GDPGR nosedived to 0.52 percent and increased steadily 9.53 per cent in the 4th quarter of 2010. Between quarter1 of 2011 to quarter 4 of 2014 GDPGR increased from 5.30 percent to 6.22 percent but decrease steadily from 2.78 percent in 2015 1st quarter to 2.27 percent in the 4th quarter of 2019.

A review of the price fluctuation data showed high volatilities level in the data with a simple pattern of clustering where high fluctuations were followed by low fluctuations and low fluctuations were followed by high fluctuations for a prolong period. This showed the rate at which stock prices responds to information both internal to the market and external as the changes in prices where obvious from quarter to quarter. Interest rate from 2.2 percent in the first quarter of 1985 increased steadily to 6.5 percent in the 4th

quarter of 1993. By the 4th quarter of 1998, interest rate had decreased to 3.37 but then staggered between 3.25 percent and 5.12 percent from 1999 to 2005 quarter 4. Interest rate then fell from 2.5 percent in 2006 quarter 1 t0 4 to 1.56 in quarter 4 of 2010. This was followed by an increase from 3 percent in the first quarter of 2011 to 3.37 percent in the quarter 4 of 2019. Exchange rate grew steadily from 0.25 percent in the 1st quarter of 1985 to 76.44 percent in 2005 4th quarter but fell from 63.37 percent in the first quarter of 2006 to 39.29 29.64 percent in the 4th quarter of 2015. Exchange rate further increased from 37.22 in the first quarter of 2016 to 39.37 percent in the fourth quarter of 2019. Inflation rate also increase from 0.25 percent in the 1st quarter of 1985 steadily to 15.30 percent in the 4th quarter of 1988 but with a rapid fall to 11.16 percent from the 1st quarter of 1989 and staggered between 0.90 percent in the 1st quarter of 1990 to 5.73 percent in the 4th quarter of 1991. From 12.20 percent in the 1st quarter of 1992, inflation rate increased to 19.18 in the 4th quarter of 1994 and then started falling and became 1.64 percent in the 1st to 4th quarter of 2007. From this point, inflation rate became highly volatile to 2019 4th quarter where it was 2.93 percent. Money supply rose persistent from ₦ 5.57 in the 1st quarter of 1985 to ₦ 8562.92 in the last quarter of 2019. Insecurity in Nigeria has consistently maintained an upward trend from quarter one of 1985 to quarter four of 2019. For instance, from 0.125 percent in the first quarter of 1985, insecurity increased consistently to 2.225 percent in the fourth quarter of 2016. By 2017, insecurity in Nigeria reached its all-time highest at 4.50 percent but fell to 2.125 percent from the first to the fourth quarter of 2018 and then to 2.1 percent in from the first to the 4th quarter of 2019.

Descriptive statistics
Presented in the table below is the descriptive statistics of the dataset collected for this study. These data were punched into the E-views statistical package which generated the following result as presented in Table 4.1 below.

Table 2: Descriptive statistics

	GDPGR	SPF	EXR	INSEC	INFR	INR
Mean	4.8776 15	6.24E-17	26.238 01	1.1921 43	4.7964 65	3.4142 86
Median	5.3079 00	0.0824 74	29.641 73	0.9750 00	2.9782 31	3.3750 00
Maximum	14.604 30	7.7269 27	76.730 14	4.5000 00	19.189 72	6.5000 00
Minimum	1.5830 60	-6.3222 21	0.2234 38	0.1250 00	0.0559 02	1.5000 00
Std. Dev.	3.7430 80	1.5114 36	22.786 52	0.8774 92	4.6378 37	0.9477 21
Skewness	0.4319 19	0.0528 07	0.6941 93	1.5142 42	1.7437 13	0.7595 57

	2.6687	11.237	2.7523	6.4717	4.8864	4.8769
Kurtosis	05	16	91	56	35	35
Jarque-	4.9931	395.86	11.602	123.81	91.704	34.011
Bera	74	15	06	14	52	79
Probabil	0.0823	0.0000	0.0030	0.0000	0.0000	0.0000
ity	66	00	24	00	00	00
	682.86	6.16E-	3673.3	166.90	671.50	478.00
Sum	60	15	21	00	51	00
Sum Sq.	1947.4	317.53	72172.	107.02	2989.8	124.84
Dev.	80	68	35	89	25	64
Observat						
ions	140	140	140	140	140	140

Source: Researchers E-views 10 Computation, 2021

This section examined the descriptive statistics of the dataset. Table 2 showed the result of the descriptive statistics as obtained from the E-views software. From finding it is deduced that the mean values of GDPGR, SPF, EXR, INSEC, INFR and INR were respectively 4.8776, 6.24, 26.238, 1.192, 4.7964 and 3.414 with their corresponding standard deviations of 3.743, 1.511, 22.786, 0.877, 4.6378 and 0.947, ranging respectively from -1.583to 14.604, -6.322 to 7.726, 0.223 to 76.730, 0.125 to 4.500, 0.0559 to 19.189 and 1.5 to 6.50.

It deserving to note that the measures of skewness explains not just the amount of the heading of the data dissemination. A nearby examination of the skewness of the data set as displayed in table 4.2 revealed that GDPGR, SPF, EXR, INR, INFR and INSEC were decidedly slanted (right-slanted circulation), meaning that their means are also to one side of the peak, with skewness values of 0.4319, 0.0528, 0.694, 1.514, 1.7437and 0.7595 respectively. The kurtosis coefficient of the whole variables aside from GDPGR and EXR is higher than 3.00 relative to the normal, meaning that the circulation produces larger and more outrageous exceptions than does the normal conveyance. This is proven by the kurtosis values of 11.237, 6.471, 4.886 and 4.876 for SPF, INR, INSEC, INFR and INR. It could equally be seen that the kurtosis values of GDPGR of 2.668 and EXR of 2.752 were under 3.00 relative to normal. This derived that the circulation produces smaller anomalies than does normal conveyance.

The Jarque-Bera (JB) test measured the distinction of the skewness and kurtosis of the series with the ones within normal appropriation. The JB values of 395.86, 11.602, 123.81, 91.704 and 34.011 for SPF, EXR, INR, INFR and INSEC respectively with their respective p-values less than 5 per cent showed that the dataset for these variables were not normally distributed. However, the JB values of 4.993 for GDPGR with its corresponding p-values of 8.236 per cent showed that the data for this variable was normally distributed.

Correlation Matrix

Correlation matrix is employed in studying the correlation between variables. Correlation matrix result   presented in Table 3 below:

Table 4
Correlation matrix
Covariance Analysis: Ordinary
Date: 08/15/21   Time: 05:58
Sample: 1985Q1 2019Q4
Included observations: 140

Correlation Probability Observations	GDPGR	SPF	EXR	INSEC	INFR	INR
GDPGR	1.000000 ----- 140					
SPF	0.040037 0.6386 140	1.000000 ----- 140				
EXR	0.371053 0.0000 140	0.000797 0.9925 140	1.000000 ----- 140			
INSEC	-0.109441 0.1980 140	0.027542 0.7467 140	0.497872 0.0000 140	1.000000 ----- 140		
INFR	-0.250747 0.0028 140	0.014001 0.8696 140	-0.376534 0.0000 140	-0.366195 0.0000 140	1.000000 ----- 140	
INR	-0.144078	-0.032889	-0.238828	-0.254233	0.362259	1.000000

| 0.0894 | 0.6997 | 0.0045 | 0.0024 | 0.0000 | ----- |
| 140 | 140 | 140 | 140 | 140 | 140 |

Source: E-views 10 Computation, 2021

From Table 3, the relationship between GDPGR and share price fluctuation, GDPGR and exchange rate were positive. This was because their Pearson correlation coefficient of 0.04003 and 0.371 were positive. However, while the relationship between GDPGR and INSEC, GDPGR and INFR and GDPGR and INR were negative with coefficient values of 0.1094, 0.2507 and 0.144. The p-value of exchange rate and inflation were significant since its P-value was less than 5 per cent, the P-value of the relationship between GDPGR and SPF, INSEC and INR were insignificant. This was evidenced by their p-values of 63.86 percent, 19.80 percent and 8.94 percent. This implies there exists a positive and significant relationship between share price fluctuation and Gross Domestic Product Growth Rate, there was a negative but significant relationship between inflation rate and Gross Domestic Product Growth Rates. Again, the relationship between GDPGR and exchange rate was positive and significant. The relationship between GDPGR, interest rate, and inflation were negative and very weak.

The relationship between SPF and exchange rate, SPF and insecurity and SPF and inflation rate were positive and weak. This was because their Pearson correlation coefficients of 0.0007, 0.0275 and 0.0140 had probability values of 99.25 per cent, 74.67 percent and 86.96 percent, greater than 5 percent, implying that there was a positive and insignificant association between EXR and SPF, INSEC and SPF and INF and SPF. However, the relationship between interest rate and SPF was negative and weak. This was because of its correlation coefficient of -0.0328 and its p-value of 69.97 percent which was above 5 percent.

Table 3 further showed that the relationship between exchange rate and insecurity was positive and significant as evidence by its correlation coefficient value of 0.497 and its p-value less than 5 per cent. The correlation coefficient of exchange rate and inflation and exchange rate and interest rate were negative but strong. This was because their Pearson correlation coefficient values of -0.3765 and -0.2388 had probability values less than 5 per cent. The relationship between inflation rate and insecurity had a Pearson correlation coefficient value of -0.36619 with a corresponding p-value less than 5 per cent. Meaning that there was a negatively critical connection among insecurity and inflation rate. Essentially, the connection between financing cost and uncertainty had a Pearson relationship coefficient worth of - 0.254223 with a comparing p-esteem under 5%. This implies that there exists an adversely huge connection among frailty and inflation rate. In conclusion, the connection between loan fee and inflation rate was emphatically critical. This was because its Pearson correlation coefficient of 0.3622 had p-values less than 5 per cent.

Pre-test condition

The pre-test condition for this model equation includes clustering volatility test and test for time varying volatility (ARCH-effect test). The second pre-test condition covered model equation 2 which attempts to estimate the determinants of share price volatility in Nigeria. The pre-test condition for this was unit root test. The study also employed an optimal lag test using the AIC for model equation 2.

Pre-test condition for Price fluctuation on Economic growth

Clustering fluctuation

To assess whether the dataset had conditional fluctuation, where high fluctuation was followed by high fluctuation for a prolong period and low fluctuation was followed by low fluctuations for an extended period, as trends alternates in circles, the study plotted the residuals of price fluctuation against GDPGR in a least square estimation. From the plot in figure 4.2 below, It could be observed that the residuals of the model showed that low fluctuations of the residuals were followed by increasingly lower fluctuation from the first quarter of 1985 to the 4th quarter of 1995 and higher trends were followed by further rise in trends from the 1st quarter of 1996 to the 2nd quarter of 2011. This therefore showed the presence of conditional fluctuation in dataset as large change in the residual were followed by large changes for a long period and small change in the residuals were also followed by small changes for a long period.
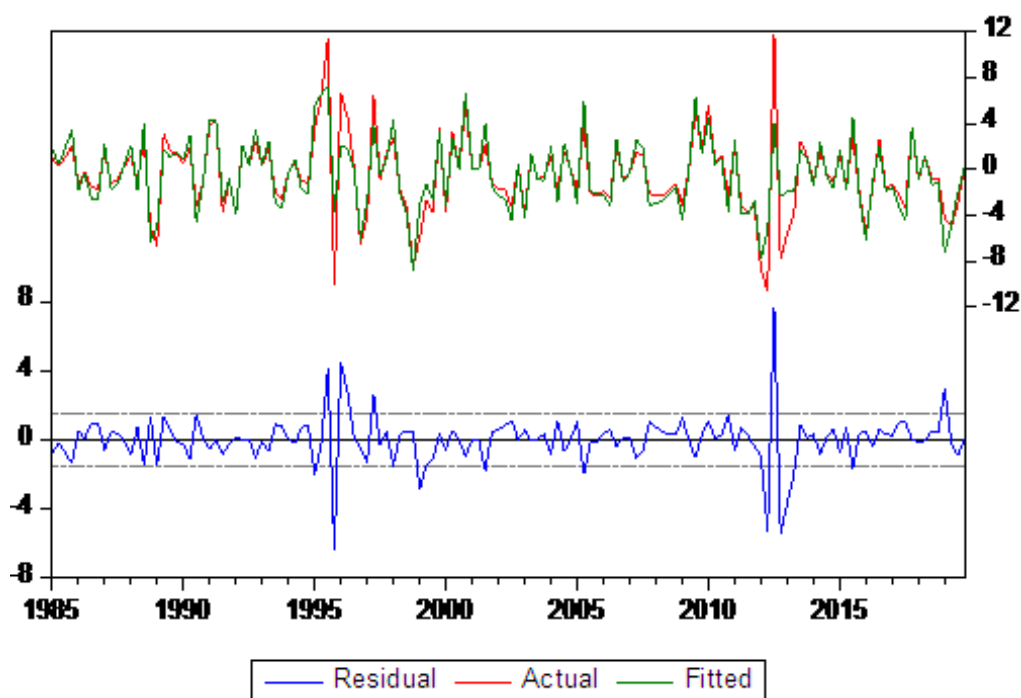

Figure 2: Clustering fluctuation test
Sources: E-views output, 2021.

Test for time varying fluctuation

To justify that there was time varying variance in the dataset, the study test for the presence of ARCH effect in the dataset. The null hypothesis state that there is no ARCH effect. From the table below, the F-statistics and the observed R-squared values of the

heteroskedasticity test were respectively 50.672 and 37.46 with corresponding P-values less than 5 percent. Interpreting this result, the null hypothesis was dropped and the alternative hypothesis accepted. It therefore implies that there was ARCH effect in the dataset. It is therefore, proven that the estimating technique for equation 1 of this model would be the GARCH (1 1) in mean estimating technique.

Table 5: Test for ARCH effect

Heteroskedasticity Test: ARCH

F-statistic	50.67263	Prob. F(1,136)	0.0000
Obs*R-squared	37.46035	Prob. Chi-Square(1)	0.0000

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 08/14/21   Time: 20:52
Sample (adjusted): 1985Q3 2019Q4
Included observations: 138 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.975847	0.433668	2.250215	0.0260
RESID^2(-1)	0.521048	0.073197	7.118471	0.0000

R-squared	0.271452	Mean ward var	2.038737
Adjusted R-squared	0.266095	S.D. subordinate var	5.583119
S.E. of regression	4.782961	Akaike data measure	5.982384
Sum squared resid	3111.234	Schwarz measure	6.024808
Log likelihood	-410.7	Hannan-Quinn criter.	5.999624

	845		
	50.67	Durbin-	2.13
F-statistic	263	Watson detail	3432
Prob(F-statistic)	0.000 000		

Source: E-views 10 Computation, 2021

Pre-test condition for the determinants of stock price fluctuation equation

Unit Root Test

The test for stationarity was analyzed whether there was the exits unit root in the dataset collected for this study. it was achieved through the Augmented Dickey-Fuller approach. The result of the ADF as extracted from appendix two was presented in Table 4.6 below

Table 6: Augmented Dickey-Fuller (ADF) Unit Root Test

Variables	ADF Test Statistics		Order of integration
	Level	1st Difference	
GDPGR	-3.013939		I (0)
SPF	-16.57618		1(0)
EXR	-1.419155	-11.70414	I (1)
INR	-2.961808		1(0)
INFR	-2.699029	-11.66297	I (1)
INSEC	-2.221385	-7.255262	I (1)

Test value within level: 1% = - 3.477835, 5% = - 2.882279, 10% = - 2.577908
Test value within first Diff: 1% = - 3.478189, 5% = - 2.882433, 10% = - 2.577990
Source: A E-view of researcher 10 Calculation, 2021.

Table 6 indicated that exchange scale, inflation rate and frailty had unit root at levels however in the wake of differencing one time they became fixed. This was so as their test statistics at levels, taking their outright upsides of 1.419, 2.699 and 1.732 were smaller

than critical score of 2.882 at 5%. Nonetheless, subsequent to differencing one time, the test statistics, taking exert value of 11.70, 11.662 and 3.671 were then higher than critical value of 2.882 at 5% level. Likewise, the Gross domestic product development rate, value variance and loan fee had no unit root at levels as their test statistics, taking its outright worth of 11.695, 10.473 and 2.961 were more prominent than their basic value of 2.882 at 5% level. Since the variables that were not significant had been subjected to detrending and were now stationary, it followed that a test for fluctuation clustering and ARCH effect were necessary to assess the estimating technique for this study.

VAR lag order selection criteria
To select the ideal slack length for the present research work, the "VAR lag order selection criteria" . The reason for lag length determination was the AIC basis. From the outcome introduced in Table 4.5 beneath, the AIC basis showed that slack eight was the most reasonable slack length for this review. Since the AIC model leaned toward slack eight, it implied that slack eight was the ideal lag length for this study.

Table 7: VAR Lag Order Selection Criteria

VAR Lag Order Selection Criteria
Endogenous variables: SPF GDPGR INFR INR INSEC EXR
Exogenous variables: C
Date: 08/21/21   Time: 19:25
Sample: 1985Q1 2019Q4
Included observations: 132

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-1706.286	NA	7453.762	25.94373	26.07477	25.99698
1	-1159.808	20.16069	5.647658	18.75466	20.45813	19.44687
2	-1150.295	16.28664	8.506257	19.15599	21.64568	20.16768
3	-	16.4	12.7	19.5	22.8	20.8

	1140.125	8787	7972	4735	2326	7853
4	-1088.289	79.32454*	10.31650	19.30741	23.36954	20.95807
5	-1064.483	34.26611	12.90224	19.49217	24.34052	21.46232
6	-1044.958	26.32883	17.50241	19.74179	25.37636	22.03142
7	-1025.392	24.60670	24.21357	19.99078	26.41157	22.59990
8	-1170.989	1013.821	3.864986*	18.37862*	19.29588*	18.75135*

* indicates lag order selected by the criterion

LR: sequential modified LR test statistic (each test at 5% level)

FPE: Final error in prediction

AIC: Akaike criterion for information

SC: Schwarz criterion for information

HQ: Hannan-Quinn criterion for information

Model estimation

The model of this study was estimated using two estimating techniques namely GARCH (1 1) technique and Autoregressive distributive lag technique as indicated by their respective pretest conditions.

GARCH (1 1) model estimation

Since the pre-test condition had shown that the data set had fluctuation clustering and time variance fluctuation, it was indicative that the estimating technique suitable for model equation one was the ARCH family model estimator. However, due to the peculiarity of this study, the GARCH (1 1) technique was adopted since it provides a superior technique to other ARCH family estimating methods. The estimated GARCH (1 1) model was introduced within Table 4.8 below:

Table 8 GARCH (1 1) output

Dependent Variable: GDPGR
Method: ML ARCH - Normal distribution (BFGS / Marquardt steps)
Date: 08/19/21   Time: 05:27
Sample: 1985Q1 2019Q4
Included observations: 140
Convergence achieved after 30 iterations
Coefficient covariance computed using outer product of gradients
Presample variance: backcast (parameter = 0.7)
$GARCH = C(3) + C(4)*RESID(-1)^2 + C(5)*GARCH(-1)$

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	0.005092	0.025155	0.202429	0.8396
SPF	2.418885	0.020185	119.8357	0.0000

	Variance Equation			
C	0.066505	0.012967	5.128765	0.0000
RESID(-1)^2	1.985517	0.287742	6.900336	0.0000
GARCH(-1)	0.048457	0.047221	10.26185	0.0000

R-squared	0.740398	Mean dependent var		-0.456391
Adjusted R-	0.738	S.D. dependent		3.46

squared	517	var	2692
S.E. of regression	1.770661	Akaike info criterion	2.344435
Sum squared resid	432.6633	Schwarz criterion	2.449494
Log likelihood	-159.1104	Hannan-Quinn criter.	2.387128
Durbin-Watson stat	2.477193		

Source: Researchers E-views 10 Computation, 2021

From Table 8, there are two equations in the output — the mean equation and the variance equation. Looking at the coefficient, they are positive and the p-values, are statistically significant at 1 per cent level. The C represent the average growth rate of the Nigerian economy where there was in volatility in the stock market. The positive coefficient a 1 per cent increase in share price fluctuation would result in a positive (2.41 %) enhancement in Nigeria economic growth. The variance equation term meant that past volatilities in the Nigerian stock market resulted in a positive growth in the Nigerian economy. In other words, a 1 per cent change in stock price fluctuation in the current period would result in about 2.41 per cent enhancement in economy growth in Nigeria. This enhancement in economic growth occasioned by share price fluctuations, were large as evidence by the significance of the p-values at 1 per cent level.

Similarly, a review of the variance equation showed that holding all factors internal to the stock market, the Nigerian economy would be at 0.06 per cent. The variance equation terms (RESID (-1) ^2 and GARCH (-1)) showed that an increase in internal stock market factors led to a positive effect on the growth of the Nigerian economy. Specifically, a 1 per cent increase in stock market internal factors, other than share price fluctuation resulted in within 1.98% and 0.048 % increase in the Nigerian economy respectively. This effect was significant as the probability of the z-statistics test of 6.90 and 10.26 were less than 1 per cent. This truly showed that other than price fluctuation, other stock market related internal factors influences economic growth in Nigeria.

5. Discussion of Findings, Conclusion and Recommendation
5.1 Discussion of findings
Determinants of share price fluctuation such as insecurity, interest rate, inflation rate and exchange rate were regressed in the second equation against stock price fluctuation. The first equation model was assessed using ARCH effect test, and GARCH (1 1) estimation technique and ARDL test and the second equation model was assessed using the ARDL analytical technique. The significant discoveries from these examinations were summed

up as follows: Cost vacillation affected the development of the Nigerian economy, loan fee meaningfully affected financial development in the short-run in Nigeria, expansion rate affected monetary development in the short-run, conversion scale significantly affected financial development in the short-run in Nigeria, weakness affected financial development in the short-run in Nigeria, there is a joint tremendous impact of uncertainty, conversion standard, inflation rate, interest rate and share price fluctuation on economic growth in Nigeria in the long-run. it was concluded that fluctuations in stock prices is a critical factor in analyzing growth within the economy. According to this study, stable prices would only produce low earnings to risk adverse investors, while volatile prices provides high returns to risk taking investors. This creates high income, resulting in high savings and by extension investment and output growth. Share price movement is determined by interest rate, exchange rate, GDPGR, insecurity and inflation rate, however, the degree to which these influence share price fluctuations is small in the short-run.

Government through its agencies should arrive at policies that would stabilize macroeconomic variables and by extension enhance predictability by investors and better forecast of fluctuations in stock prices as this is required to enhance built confidence among investors in the market, implement policy instruments that would stabilize interest rate to promote significant short run investment and sustain the long run benefits of investment in Nigeria, reduce the rate of inflation and stabilize the price of goods and services as this promises greater saving and encourage investments which will translate into economic growth, foreign exchange and domesticate local industries and productivity as this would enhance economic growth in Nigeria.

Contributions to knowledge

The introduction of insecurity into this study model is a new direction that could serve as a revelation to reasons why investment and return tends to be inconsistent by way of reaction to information. Although several studies have been conducted on this area, no single study was done combining stock price, interest rate, inflation rate, exchange rate and insecurity in the same model. Thus, insecurity has been identified as a grey area for further studies.

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