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Article

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West African Journal of Monetary and Economic Integration

Provided in Cooperation with:

West African Monetary Institute (WAMI), Accra

Suggested Citation: Adekunle, Peter; Nwachukwu, Udochukwu; Betsy, Oloyede (2021) : Assessing the response of Nigeria's capital market to the Covid-19 pandemic, West African Journal of Monetary and Economic Integration, ISSN 0855-594X, West African Monetary Institute (WAMI), Accra, Vol. 21, Iss. 2, pp. 1-24

This Version is available at:

<https://hdl.handle.net/10419/281953>

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ASSESSING THE RESPONSE OF NIGERIA'S CAPITAL MARKET TO THE COVID-19 PANDEMIC

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Abstract

This paper assessed the response of Nigeria's capital market to the COVID-19 pandemic using daily observations from the 28th of February 2020 to the 26th of June 2020. The study also examined whether the pandemic had different effects on the different sectors of the capital market in Nigeria. It employed the autoregressive distributed lag (ARDL) model bounds testing technique to estimate the different models specified and analyze the output. The findings showed that the COVID-19 pandemic has adversely affected the activities of the Nigerian capital market especially with respect to the NSE all share index. Specifically, the study reveals that the COVID-19 pandemic has adversely affected some sectors of the capital market in the short-run. However, the market performance will improve in the long run should the standard measures put in place to overcome Covid-19 pandemic are upheld. It is important that investors and government responses to the COVID-19 pandemic should take cognizance of the observed heterogeneities in the response of the capital market to the pandemic. This will guide investors' preferences and government's policies in that regard.

Keywords: COVID-19 pandemic, Capital market, Sectoral stocks, ARDL model.

JEL Codes: C22, I15

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1.0 INTRODUCTION

The outbreak of the global public health crisis-the COVID-19 pandemic, which unsettled the world economy, was caused by the spread of a new strain of the coronavirus. The spread of the virus metamorphosed into a pandemic and disrupted the direction of many economies and rendered previous growth forecasts for the year 2020 unrealistic. The outbreak of this disease started in December 2019, in Wuhan, Hubei province, China. On January 30, 2020, the outbreak was declared a public health emergency and by March 11, 2020, it was declared a pandemic by the World Health Organization (WHO), and concerns were raised regarding the outbreak in China and potential spread to other countries (Zhang, et al., 2020) and (WHO, 2020a). However, the Coronavirus disease (COVID-19) has continued to spread across the world with an average mortality rate of 2.3%. As of 20th March 2020, there were 234,073 confirmed cases of people infected with the virus across the world and 9,840 deaths. The pandemic has been severe, and cases keep portraying the severity of the virus globally (WHO, 2020b). Measures such as lockdowns, travel restrictions, social distancing, etc. were put in place to curb the spread and reduce the infection rates.

The pandemic from inception posed a tremendous threat to the economic growth and development of many nations, most especially, nations with weak health systems. Those nations are in a position of great disadvantage to manage the pandemic (Tokyi & Bentum-Ennin, 2021). A post-traumatic concern from the last global financial crises driven by fear and uncertainty has been the experience of investors and economists since the beginning of the pandemic. There was panic in the global financial system at the inception of the outbreak, which disrupted its activities including that of the capital market. In the middle of the first quarter of the year 2020, the outbreak of the pandemic triggered a fall in shares across the globe. As of February 19, 2020, the weighted average shareholder returns declined by 50% across sectors, especially the aerospace and defense, air, and travel sectors (Bradley & Stumpner, 2021). Later, by February 21, 2020, S&P 500 Index had plunged by 33% through March, 23 but rose by 30% in April, 2020.

In the Nigerian stock market, the year 2020 started off strong where the NSE All-Share index (ASI) and market capitalization appreciated by 9.07 % and 16.55 %, respectively (CBN, 2020). This was largely because the Central Bank of Nigeria banned individuals and pension fund administrators from accessing the Open Market Operations (OMO) bills. This bullish run was, however, altered by the emergence of the pandemic, which caused a 20.53 % loss in the value of the ASI. Nevertheless, at the beginning of the second quarter of 2020, the market began a slow recovery. The NSE ASI oscillated around 24,000 to 26,000 points in that quarter through the third quarter of the year. As of October 2020, the market had entered a bullish run, where the ASI had gained 6.23 % during one trading session that resulted in a 30-minute shutdown of all stocks. All the sectors recorded positive returns in 2020, except the ASeM index, Consumer goods, and Oil and Gas indices, with losses of 0.70, 3.29, and 13.84 %, respectively, (Nigerian Stock Exchange, 2021).

From the above, we therefore, argue that the emergence of the novel coronavirus and the resulting pandemic led to the fluctuations observed in the key market indices in 2020 and had implications on the Nigerian capital market. There is a growing literature on the impact of the COVID-19 pandemic on stock markets. However, empirical evidence from Nigeria on the response of the capital market is sparse. Therefore, the objective of our study is to assess the nature and the extent of the response of the Nigerian capital market to the COVID-19 pandemic and investigate whether the pandemic has different effects on some selected sectors of the market. This paper aims to bridge the gap of the limited literature on the impact of the COVID-19 pandemic on Nigeria's capital market using the ARDL model for the analysis of the subject matter. The paper further consists of four other sections that include, review of related literature; methodology and model specifications; the empirical results; and conclusion.

2.0 LITERATURE REVIEW

The capital market responds differently to different shocks and events. This section reviews the existing literature on issues of the capital market and health pandemics, such as the COVID-19. Pandemics are not new events; however, their occurrences are not predictable. Studies have revealed that a pandemic has implications on the economy. Evidence shows that the 1918 flu pandemic caused economic disruptions both in the short or long run (Correia et al., 2020). Bachman (2020) opined that a pandemic affects the global economy. The economic impact of a pandemic such as the COVID-19 includes disruption in production, supply chain, and market activities, including the capital market.

Baldwin and Tomiura (2020) examined the economic impact of the COVID-19 especially with concerns on trade. The study observed that the supply chain disruptions that were possibly caused by the COVID-19, could result in a hike in supply chain repatriation, therefore, showing signs of the capacity to endanger the policies driven by the trading activities and firms' reactions.

However, the investigation on the macroeconomic implications of the COVID-19 by Veronica et al., (2020) concluded that demand may overreact to the supply shock, thereby, leading to a demand-deficient recession. This implies that firms' exit and job destruction arising from the COVID-19 pandemic could cause supply shocks, thereby, leading to an economic recession. Warwick and Roshen (2020) also examined the global macroeconomic impacts of the COVID-19 using seven scenarios. In the study, the scenarios demonstrated that even a controlled outbreak could significantly impact the global economy in the short run. The scenarios also revealed that the scale of the cost could be avoided if greater investment is directed to public health systems in all economies and, most especially, in developing economies.

HaiYue, et al., (2020) used events study method to examine the COVID-19 outbreak and stock market response of the affected countries. The study indicated that stock markets, majorly in affected countries, fell immediately after the virus outbreak. More so, the outcome from the panel regression analysis supported that there is an adverse effect of the COVID-19 confirmed cases on stock indices. The finding is not farfetched from the investors' pessimism on future returns and fear of uncertainties.

Yan, et al., (2020) examined the possible effects of the COVID-19 on the stock market in the United States of America (USA) and arrived at a conclusion that the market would react adversely to the pandemic in text-based methods. Baker et al., (2020) also used text-based methods and found that the COVID-19 forcefully affected the USA stock market. Yilmazkuday (2020) also analyzed the effects of COVID-19 on the S&P 500 Index in the US and found a decline in the index caused by the pandemic. Other authors, Ahundjanov et al., (2020), Papadamou et al., (2020), and Amstad et al., (2020), all examined the relationship between internet searches relating to the pandemic and the stock markets across various regions of the world and found a decline in the global financial indices and implied volatility, resulting from the pandemic.

Hamim (2020) also investigated the subject of the COVID-19 and capital market chaos while focusing on the activities of the Dhaka Stock Exchange (DSE). The study found that brokerage layoffs, a drastic decline in the DSE income, tax loss on trading, and a fall in foreign funds were among the impacts of the COVID-19 on DSE.

Furthermore, Takyi and Bentum-Ennin (2021) evaluated the short-run impact of the COVID-19 pandemic on stock performances across Africa, using a novel Bayesian Structural time series approach. The results revealed that stock markets' performance in Africa significantly reduced, between 2.7 and 20 %, because of the emergence of the pandemic. The results for Nigeria also

revealed that the NSE performance reduced by 13 %, but also had the likelihood of a positive performance of 0.99 %. Using the GARCH models, Adenomon et al., (2020) corroborated this finding, as the study investigated the effect of the COVID-19 outbreak on the Nigerian stock exchange performance from 2nd January 2020 to 16th April 2020. The study revealed that there was a loss in stock returns and high volatility in stock returns under the COVID-19 period in Nigeria. It was found that the COVID-19 had negatively affected the stock returns in Nigeria during the period studied.

3.0 METHODOLOGY

In assessing the response of the Nigerian stock market to the COVID-19 pandemic empirically, on sectoral stock prices in Nigeria, we employ the Autoregressive Distributed Lag (ARDL) Bounds testing approach proposed by Pesaran and Shin (1999) and Pesaran et al., (2001). In other words, the ARDL approach estimates the relationship between the incidence of the COVID-19 pandemic and the Nigerian stock market.

The need for this study has prompted the use of time series data of daily frequency from the period, 28th of February 2020 to 26th of June 2020 (the COVID-19 pandemic era). Considering the operations of the stock market, Saturdays and Sundays were excluded, as there are no transactions on these days.

3.1 Model Specification

This study examines the response of the capital market in Nigeria to the COVID-19. Based on the study objective – we specify a functional form that relates the capital market developments to the selected explanatory variables, including a proxy for our focal variable– the COVID-19 pandemic. Thus, the model is stated as:

$$NSEASI = f(CCTN, OP, ER) \quad 1$$

where *NSEASI* stands for Nigerian stock exchange all share index, *CCTN* is the confirmed cases of infected persons arising from the COVID-19 pandemic, *OP* represents oil price and *ER* is exchange rate. Note that *f* is a functional notation. stated in equation (1) are described in section 3.2. It is noteworthy to state that the responsiveness of the stock market as captured with *NSEASI* in equation (1) is also observed by considering another proxy for the incidence of the COVID-19 pandemic in Nigeria. In the base model specified, the first proxy is *CCTN*. To confirm the sensitivity of the model, the second proxy used is *CDTN*. This is done by substituting the confirmed cases of infected persons arising from the COVID-19 pandemic (*CCTN*) in equation (1) with the confirmed cases of death arising from the COVID-19 pandemic (*CDTN*). There are other proxies for the COVID-19 pandemic such as number of samples tested (*NST*), number of discharged cases (*NDC*), total active cases (*TAC*), etc. However, *CCTN* and *CDTN* are used to capture the severity of the pandemic by the Nigeria Centre for Disease Control (*NCDC*). The a priori expectations hold that there is a negative relationship between the *NSEASI* and *CCTN*. The same relationship is applicable to *NSEASI* and *CDTN*. The rationale behind the inclusion of exchange rate and oil price as control variables in the model is informed by the stock market indices captured in the specification which are/or may be spontaneously influenced by some macroeconomic variables. Hence, Ogbulu (2018) notes that stock market prices are significantly impacted by crude oil price because changes in oil price could have ripple effect on the stock market. More so, the Nigeria stock market trading is influenced by the decisions of the foreign portfolio investors. In this study, we also assume a positive relationship between oil price (*OP*) and the Nigerian Stock Exchange All Share Index (*NSEASI*). The positive relationship between them is informed by the empirical work of Effiong (2014) who found that that the stock market's response to aggregate demand and oil-specific demand shocks is significantly positive in Nigeria. The empirical validation of the relationship is furthermore drawn

from Narayan and Narayan (2010) who found that oil prices have a positive and significant impact on Vietnam's stock prices. However, there is an expected negative relationship between exchange rate (ER) and stock market activity (NSEASI). In this case, a depreciation of the local currency renders exporting goods attractive, raises foreign demand level, thereby, increasing a firm's revenue. Thus, stock prices increase.

To avoid the problem of spurious regression, the time series properties of the data set employed in the estimation of equation (1) must be ascertained. It is, therefore, necessary to test for the presence (or otherwise) of a unit root in the series using the Augmented Dickey Fuller (ADF) and Phillips-Perron (PP) techniques. Furthermore, to investigate whether the variables are cointegrated or possess an equilibrium or a long run relationship, this study employed the autoregressive distributed lag (ARDL) model bounds testing technique developed by Pesaran and Shin (1999) and Pesaran, Shin, and Smith (2001). The optimum lag length for this purpose is obtained by Hannan-Quinn (HQ) criterion based on a maximum lag length of 3. This study employed the ARDL estimation technique as it allows for the use of variables in the dataset with a combination of $I(0)$ and $I(1)$ orders of integration. The dependent variables considered in our model include the Nigerian Stock Exchange All Share Index (NSEASI) as well as its sectoral components such as (NSE30), premium board (NSEPREM), NSE Mainboard (NSEMBD), NSE ASeM (NSEASEM), NSE Corporate Governance (NSECG), and NSE Lotus Islamic Index (NSELOTUS).

The ARDL representation of the model presented in equation (1) is expressed as follows:

$$\begin{aligned} \Delta NSEASI_t = & \alpha + \sum_{i=1}^n \beta_{1i} \Delta NSEASI_{t-i} + \sum_{i=0}^n \beta_{2i} \Delta CCTN_{t-i} + \sum_{i=0}^n \beta_{3i} \Delta OP_{t-i} + \sum_{i=0}^n \beta_{4i} \Delta ER_{t-i} \\ & + \beta_5 NSEASI_{t-1} + \beta_6 CCTN_{t-1} + \beta_7 OP_{t-1} + \beta_8 ER_{t-1} \\ & + \varepsilon_t, \end{aligned} \quad (2)$$

where n is the lag length for the right-hand side variables, the parameter α is the intercept, the short run model coefficients are $\beta_{1i} - \beta_{4i}$, and the long run coefficients are $\beta_5 - \beta_8$. Similarly, the ARDL representations for the other segments of the capital market are as follows:

$$\begin{aligned} \Delta NSE30_t = & \alpha + \sum_{i=1}^n \beta_{1i} \Delta NSE30_{t-i} + \sum_{i=0}^n \beta_{2i} \Delta CCTN_{t-i} + \sum_{i=0}^n \beta_{3i} \Delta OP_{t-i} + \sum_{i=0}^n \beta_{4i} \Delta ER_{t-i} \\ & + \beta_5 NSEB30_{t-1} + \beta_6 CCTN_{t-1} + \beta_7 OP_{t-1} + \beta_8 ER_{t-1} \\ & + \varepsilon_t \end{aligned} \quad (3)$$

$$\begin{aligned} \Delta NSEASEM_t & \\ = & \alpha + \sum_{i=1}^n \beta_{1i} \Delta NSEASEM_{t-i} + \sum_{i=0}^n \beta_{2i} \Delta CCTN_{t-i} + \sum_{i=0}^n \beta_{3i} \Delta OP_{t-i} + \sum_{i=0}^n \beta_{4i} \Delta ER_{t-i} \\ & + \beta_5 NSEASEM_{t-1} + \beta_6 CCTN_{t-1} + \beta_7 OP_{t-1} + \beta_8 ER_{t-1} \\ & + \varepsilon_t \end{aligned} \quad (4)$$

$$\begin{aligned} \Delta NSELOTUS_t = & \alpha + \sum_{i=1}^n \beta_{1i} \Delta NSELOTUS_{t-i} + \sum_{i=0}^n \beta_{2i} \Delta CCTN_{t-i} + \sum_{i=0}^n \beta_{3i} \Delta OP_{t-i} \\ & + \sum_{i=0}^n \beta_{4i} \Delta ER_{t-i} + \beta_5 NSELOTUS_{t-1} + \beta_6 CCTN_{t-1} + \beta_7 OP_{t-1} + \beta_8 ER_{t-1} \\ & + \varepsilon_t \end{aligned} \quad (5)$$

$$\begin{aligned} \Delta NSEMBD_t = & \alpha + \sum_{i=1}^n \beta_{1i} \Delta NSEMBD_{t-i} + \sum_{i=0}^n \beta_{2i} \Delta CCTN_{t-i} + \sum_{i=0}^n \beta_{3i} \Delta OP_{t-i} + \sum_{i=0}^n \beta_{4i} \Delta ER_{t-i} \\ & + \beta_5 NSEMBD_{t-1} + \beta_6 CCTN_{t-1} + \beta_7 OP_{t-1} + \beta_8 ER_{t-1} \\ & + \varepsilon_t \end{aligned} \quad (6)$$

$$\begin{aligned} \Delta NSEPREM_t = & \alpha + \sum_{i=1}^n \beta_{1i} \Delta NSEPREM_{t-i} + \sum_{i=0}^n \beta_{2i} \Delta CCTN_{t-i} + \sum_{i=0}^n \beta_{3i} \Delta OP_{t-i} \\ & + \sum_{i=0}^n \beta_{4i} ER_{t-i} + \beta_5 NSEPREM_{t-1} + \beta_6 CCTN_{t-1} + \beta_7 OP_{t-1} + \beta_8 ER_{t-1} \\ & + \varepsilon_t \end{aligned} \quad (7)$$

$$\begin{aligned} \Delta NSECG_t = & \alpha + \sum_{i=1}^n \beta_{1i} \Delta NSECG_{t-i} + \sum_{i=0}^n \beta_{2i} \Delta CCTN_{t-i} + \sum_{i=0}^n \beta_{3i} \Delta OP_{t-i} + \sum_{i=0}^n \beta_{4i} ER_{t-i} \\ & + \beta_5 NSECG_{t-1} + \beta_6 CCTN_{t-1} + \beta_7 OP_{t-1} + \beta_8 ER_{t-1} + \varepsilon_t \end{aligned} \quad (8)$$

The test for long run relationships in equations (2) – (8) is based on the computed F-statistic, which tests for the joint significance of the long run coefficients in each of the equations. The hypothesis being tested is of the form:

$$H_0: \beta_5 = \beta_6 = \beta_7 = \beta_8 = 0 \quad (\text{Null hypothesis: No cointegration})$$

$$H_1: \beta_5 \neq \beta_6 \neq \beta_7 \neq \beta_8 \neq 0 \quad (\text{Alternative hypothesis: Existence of cointegration})$$

If the null hypothesis (H_0) is rejected, it implies there exists a cointegrating relationship; thereby, allowing for the estimation of the associated error correction model. For any of the equations in (2) – (8) where cointegration is established, an appropriate error correction model is estimated. For instance, in the case of the *NSEASI*, the error correction model can be specified as follows:

$$\begin{aligned} \Delta NSEASI_t = & \alpha + \sum_{i=1}^n \beta_{1i} \Delta NSEASI_{t-1} + \sum_{i=0}^n \beta_{2i} \Delta CCTN_{t-i} + \sum_{i=0}^n \beta_{3i} \Delta OP_{t-i} + \sum_{i=0}^n \beta_{4i} \Delta ER_{t-i} \\ & + \gamma ECM_{t-1} + \mu_t, \end{aligned} \quad (9)$$

$$\text{where:} \quad ECM_{t-1} = NSEASI_{t-1} - \frac{1}{\beta_5} (\hat{\alpha} + \hat{\beta}_6 CCTN_{t-1} + \hat{\beta}_7 OP_{t-1} + \hat{\beta}_8 ER_{t-1})$$

where ECM_{t-1} is the one period lag of the error correction term derived from the estimated equation (2) and its coefficient, γ , represents the speed with which the system adjusts to the long run equilibrium path following a disequilibrium error resulting from a shock. For the long-run relationship to be valid and for convergence to occur following, the coefficient of the error correction term, γ , must be negatively signed, less than one in absolute terms, and statistically significant.

3.2 Variables Description

Table 1 below presents a list of the variables included in the model as well as their description. With respect to the choice of index, the selected indices were informed by religion, small and mid-sized fast-growing companies, accessibility of global pool of fund for investors, trace of corporate governance index, price-weighted index, and funding board with geographical diversity in listed companies.

Table 1: List of Variables in the Model as Defined

Variable	Description/Unit of Measurement
<i>NSE ASI</i>	The <i>NSE ASI</i> (Nigerian Stock Exchange All Share Index) is a total market index revealing the total picture of the behaviour of the common shares quoted on the Nigerian Stock Exchange. Its unit of measurement is in points.
<i>CCTN</i>	Confirmed cases of infected persons arising from the COVID–19 pandemic. It is measured using number of infected persons.
<i>CDTN</i>	Confirmed cases of death (CDTN) arising from the COVID–19 pandemic. In unit of measurement, it is same with <i>CCTN</i> but with attention on dead persons.
<i>OP</i>	Crude Oil Price (US\$/Barrel). The crude stream used as a proxy to represent oil price is Bonny Light.
<i>ER</i>	Exchange rate (₦ per US\$)
<i>NSE MBD</i>	The <i>NSE Mainboard</i> . Main Board is the founding board. It reflects the sectoral and geographical diversity in listed companies, catering to the funding needs of the enterprises.
<i>NSE 30</i>	It is a price index that is weighted by the adjusted market capitalization—the number of a company's listed shares, multiplied by the closing price of that company, multiplied by a capping factor.
<i>NSE CG</i>	The Nigerian Stock Exchange Corporate Governance Rating System (CGRS) Index. It is an index that tracks the performance of all CGRS rated companies listed on the Nigerian Stock Exchange. The CGRS Index is a capitalization-weighted and free-float adjusted index.
<i>NSEPREM</i>	<i>The NSE Premium</i> . A Premium Board listing gives a company access to a global pool of investors who are focused on companies managed in conformity to the highest standards in their target markets.
<i>NSE ASeM</i>	<i>The NSE Alternative Security Market</i> . ASeM provides a platform for small and mid–sized fast-growing companies to raise critical long-term capital at relatively low cost to realize their business potential.
<i>NSE LOTUS</i>	It is known as the NSE Lotus Islamic Index. It is an equity index that tracks the performance of selected Shari’ah compliant and high–capped equities listed on the floor of the Nigerian Stock Exchange. <i>Note: All the stock market variables are measured in points. Also, it is important to note that the series were logged.</i>

Sources: Nigerian Stock Exchange (NSE); Max Roser, Hannah Ritchie, Esteban Ortiz-Ospina and Joe Hasell (2020). "Coronavirus Pandemic (COVID-19)". Published online at OurWorldInData.org. Retrieved from: '<https://ourworldindata.org/coronavirus>' (The data runs from September 2, 2019, to June 26, 2020).

4.0 RESULTS

4.1 Descriptive statistics

Table 2 reveals the descriptive statistics, which summarize the outlook of the raw data, thereby giving more insight into the data employed. As observed from the pre-COVID-19 pandemic era spanning from 2nd September 2019 to 27th February 2020, the sample covered a total of 124 observations. Within this period, the table shows that there were neither confirmed cases of infected persons (CCTN) with nor confirmed cases of deaths (CDTN) from COVID-19. Also, the minimum exchange rate (ER) was ₦361.7k while the maximum rate was ₦365.5k. It is also recorded that oil price (OP) had a minimum and maximum value of 54.7USD and 72.2USD per barrel, respectively, while the average price was 64USD per barrel. The All-share index (NSE ASI) had a minimum value of 26,090.0 and a maximum of 29,710.6 within the period of observation.

Table 2: Descriptive Statistics

	Sample: Pre-Covid, 02/09/2019 - 27/02/2020					Sample: Covid, 28/02/2020 - 26/06/2020				
	Mean	Max	Min	Std. Dev	No. Obs	Mean	Min	Max	Std. Dev	No. Obs
CCTN	0.0	0.0	0.0	0.0	124	5,132.7	1.0	22,614.0	6,721.8	80
CDTN	0.0	0.0	0.0	0.0	124	141.3	0.0	549.0	174.7	80
ER	363.1	365.5	361.7	1.0	124	382.1	365.3	392.2	7.4	80
OP	64.0	72.2	54.7	3.9	124	29.2	7.2	55.0	12.3	80
NSEASI	27,326.3	29,710.6	26,090.9	987.8	124	23,681.1	20,669.4	26,426.2	1,572.1	80
NSE30	1,154.1	1,320.0	1,064.0	78.4	124	1,020.2	871.3	1,157.7	77.4	80
NSEPREM	2,268.5	2,525.7	2,065.6	110.1	124	2,050.5	1,708.9	2,313.8	177.7	80
NSEMBD	1,109.0	1,209.9	1,053.1	37.9	124	961.5	856.1	1,054.8	62.7	80
NSEASEM	752.4	779.0	732.6	17.1	124	750.1	735.0	762.5	13.5	80
NSECG	1,030.0	1,178.8	936.5	68.4	124	805.1	656.7	958.5	79.6	80
NSELOTUS	1,803.6	2,064.2	1,644.9	128.0	124	1,697.3	1,439.4	1,867.7	131.6	80

The premium board (NSEPREM) had a mean value of 2,268.5 while it is observed that it recorded a minimum and maximum value of 2,065.6 and 2,525.7, respectively. NSE 30 had a mean value of 1,154.1 while its maximum and minimum values were 1,320 and 1,064, respectively. NSE Mainboard (NSEMBD) revealed a lower value than NSEPREM within the period of observation with an average value of 1,109, a minimum value of 1,053.1, and a maximum value of 1,209.9. In table 2, it is glaring that NSE ASEM (NSEASEM) recorded the lowest value among the capital market sectoral variables. This is confirmed with the mean value of 752.4, minimum and maximum values of 732.6 and 779, respectively. NSE Lotus Islamic (NSELOTUS) recorded an average value of 1,803.6 which was greater than the average value of 1,030 recorded by NSECG within the period of observation.

There is another span of series from the period 28th February 2020 to 26th June 2020, which captured a sample of 80 observations. Within this period, the table revealed that there were confirmed cases of infected persons (CCTN) and confirmed cases of death (CDTN), which recorded maximum values of 22,614 and 549, respectively. This implies that during the period of observation, CCTN was greater than CDTN. The table also revealed that the exchange rate (ER) increased (depreciated) during the COVID-19 pandemic era than the pre-COVID era. The pre-COVID-19 era recorded a maximum exchange rate of ₦365.5k while the COVID-19 pandemic era recorded a maximum exchange rate of ₦392.2k. However, in comparison with the value before the pandemic era, it could be said that the COVID-19 induced an oil price (OP) drop that recorded a maximum value of 55USD per barrel. The All-share index (NSE ASI) had a minimum value of 20,669.4 and a maximum of 26,426.2 within the period of observation. The premium board (NSEPREM) had a mean value of 2,050.5 and standard deviation of 177.7 during the pandemic whereas, it recorded an average value of 2,268.5 and standard

deviation of 110.1 in the pre-pandemic era. The standard deviation during the pandemic and pre-pandemic eras indicated that there is wide disparity of NSE Premium within the observation. NSE 30 witnessed maximum and minimum values of 871.3 and 1,157.7, respectively. NSE Mainboard (NSEMBD) witnessed a higher value than NSEASEM within the period of observation. This was evident by the maximum values of the two variables at 1,054.8 and 762.5, respectively. In the table, it is obvious that NSELOTUS recorded a higher value than NSECG with the maximum values of 1,867.7 and 958.5, respectively. More so, the standard deviations of the variables (NSE 30, NSEMBD, NSEASEM, NSELOTUS, NSECG) as seen from table 2 during the pandemic showed that their respective values in the dataset are very much dispersed from their averages.

4.2 Unit root test

Tables 3 and 4 present the unit root test results for the series of Covid-19 era using the Augmented Dickey Fuller (ADF) and Phillips-Perron (PP) techniques, both at level and first difference with constant and constant & trend. Using the ADF test, the table reveals that only CCTN and ER were stationary at level with constant. Further, the table shows that the NSEASI, NSE 30, NSECG, NSEPREM, and NSELOTUS became stationary while using the ADF test at level with trend and intercept.

Table 3: Augmented Dickey-Fuller (ADF) Test Results

	Level				First difference			
	ADFc	pvalue	ADFc,t	pvalue	ADFc	pvalue	ADFc,t	pvalue
CCTN	-3.9423	0.0029	-1.5765	0.7928	-4.5014	0.0005	-9.3195	0.0000
CDTN	-1.2879	0.6312	-1.9713	0.6069	-2.1597	0.2227	-2.2191	0.4719
OP	-1.1972	0.6717	-2.1060	0.5336	-8.7552	0.0000	-8.9170	0.0000
ER	-2.9131	0.0487	-2.2608	0.4494	-12.4163	0.0001	-12.7261	0.0001
NSEASI	-1.8779	0.3409	-4.5841	0.0023	-3.4169	0.0134	-4.6519	0.0018
NSEMBD	-0.4288	0.8979	-3.4336	0.0548	-5.8628	0.0000	-6.1223	0.0000
NSE30	-1.9627	0.3025	-4.5014	0.0029	-3.0988	0.0310	-4.6167	0.0020
NSECG	-1.7712	0.3918	-4.1200	0.0091	-6.4369	0.0000	-6.4629	0.0000
NSEPREM	-1.8232	0.3666	-4.1776	0.0077	-3.6633	0.0067	-3.7230	0.0269
NSEASEM	-1.1963	0.6721	-1.7733	0.7076	-8.5330	0.0000	-8.4874	0.0000
NSELOTUS	-0.9711	0.7595	-4.3673	0.0044	-6.5351	0.0000	-6.9201	0.0000

Considering the first differences and using the ADF test with intercept and trend & intercept, all the variables became stationary except CDTN. Furthermore, it is evident that the same outcomes appear to generally apply to the results found in the PP test. Using the PP at level with constant and constant & trend, CCTN and ER confirmed the results of the ADF test while using first differences in the PP test, all the series became stationary, both with constant, and trend and constant. All indications point toward some variables being stationary at level, that is, $I(0)$ while others stationary at first difference, $I(1)$. Therefore, the combination of $I(0)$ and $I(1)$ variables justifies the use of the ARDL estimation technique.

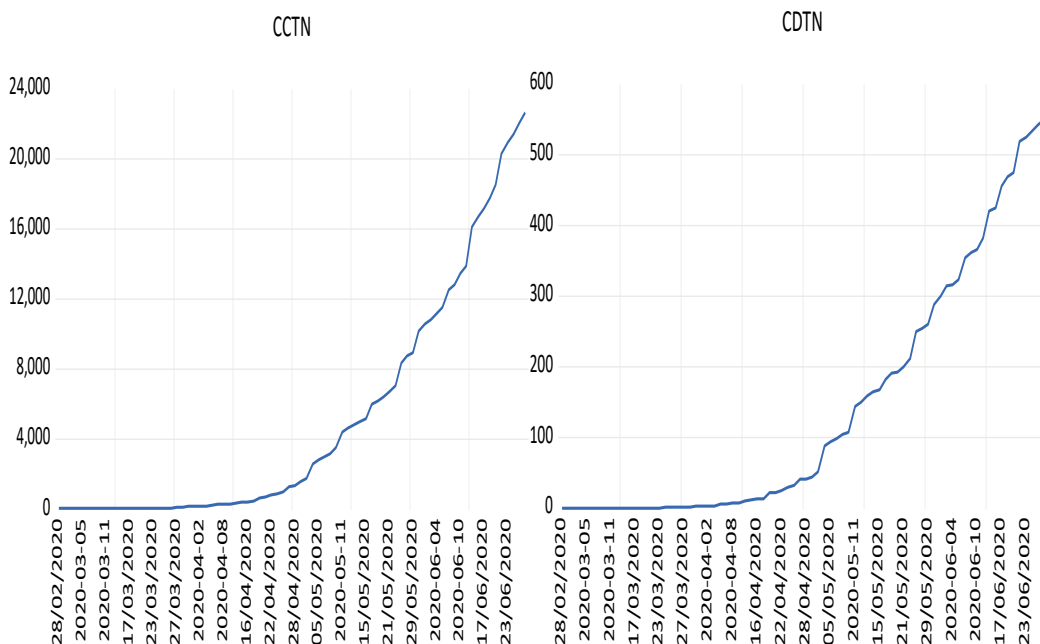
Table 4: Philip Perron (PP) Test Results

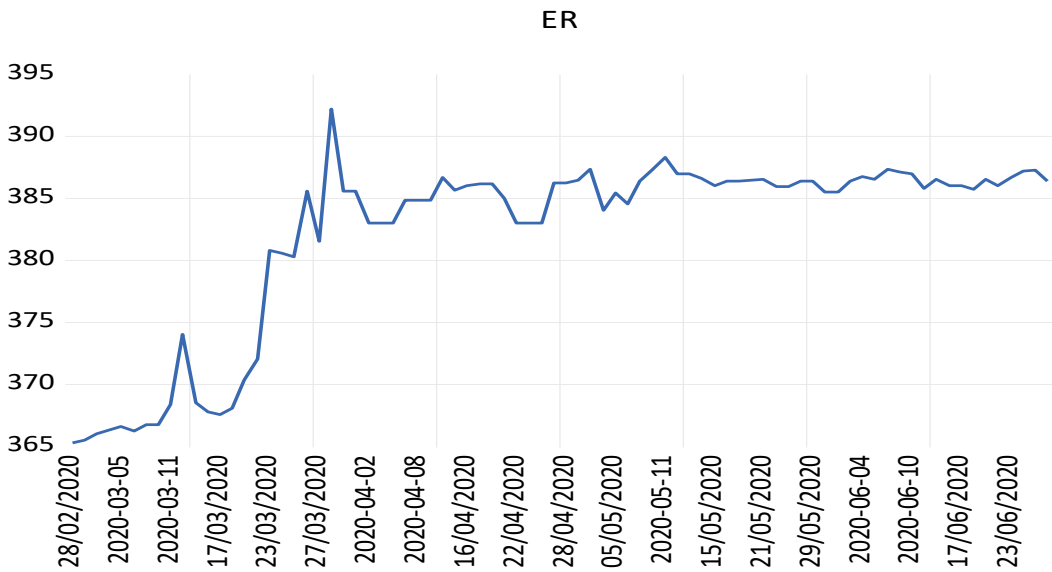
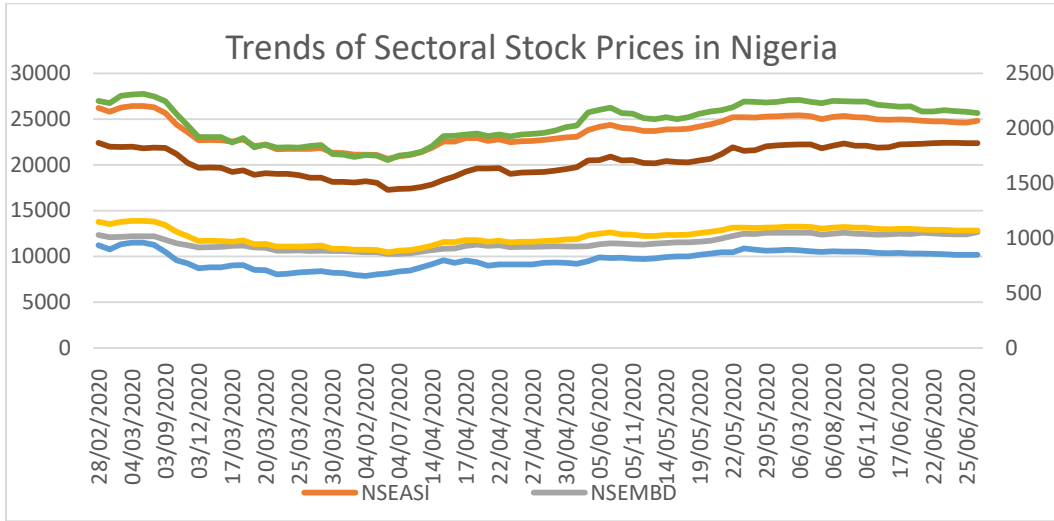
	Level				First difference			
	PPc	pvalue	PPc,t	pvalue	PPc	pvalue	PPc,t	pvalue
CCTN	-4.0235	0.0022	-1.5835	0.7901	-8.1601	0.0000	-9.2751	0.0000
CDTN	-0.9016	0.7825	-0.5093	0.9810	-9.1064	0.0000	-9.1171	0.0000
OP	-1.2137	0.6645	-2.0695	0.5537	-8.7586	0.0000	-8.9529	0.0000
ER	-2.9420	0.0455	-2.5774	0.2917	-12.3046	0.0001	-12.6306	0.0001
NSEASI	-1.5675	0.4940	-4.6469	0.0019	-5.6851	0.0000	-6.0209	0.0000
NSEMBD	-0.4302	0.8976	-3.7080	0.0280	-5.7283	0.0000	-6.0181	0.0000
NSE30	-1.6174	0.4687	-4.6078	0.0021	-5.7886	0.0000	-6.0865	0.0000
NSECG	-1.4591	0.5486	-4.3263	0.0050	-6.4369	0.0000	-6.4629	0.0000
NSEPREM	-1.5137	0.5212	-4.1121	0.0094	-6.5018	0.0000	-6.6942	0.0000
NSEASEM	-1.1963	0.6721	-1.8090	0.6904	-8.5330	0.0000	-8.4874	0.0000
NSELOTUS	-1.0199	0.7422	-4.0928	0.0099	-6.6362	0.0000	-7.0328	0.0000

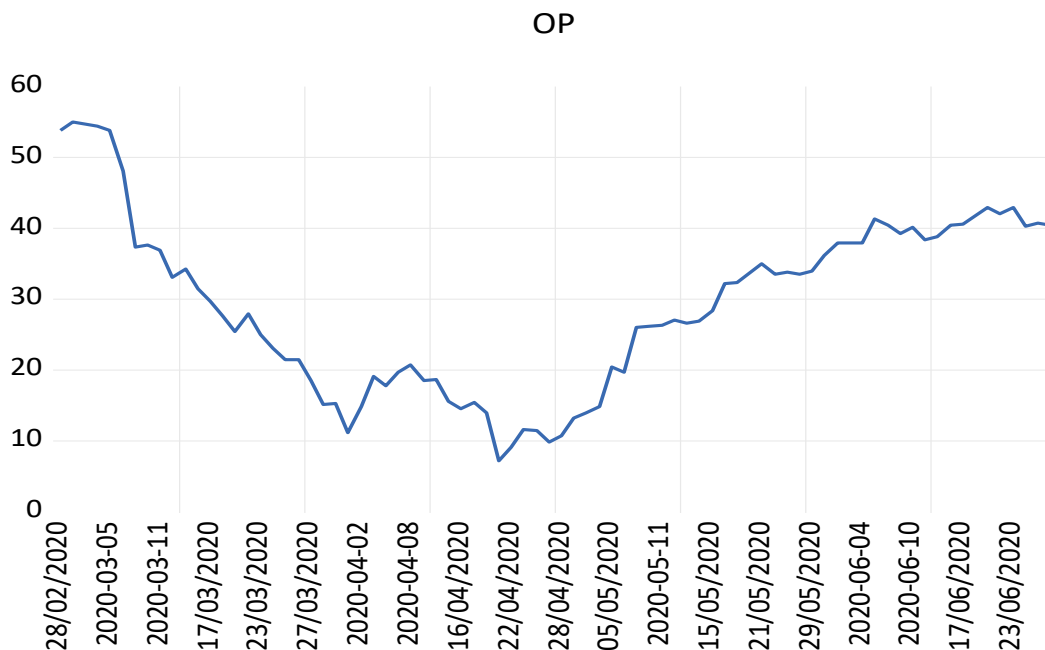
Note: It is practically sensible to ascertain whether a series is stationary around a trend or not. Therefore, trend and constant in the ADF and PP tests is used.

4.3 Graphical presentation

Line graphs for the series are presented below to trace the trends within the period of study. As shown by the graphs, while CCTN and CDTN were continuously trending upwards, on the average, NSEASI, NSEMBD, NSE30, NSECG, NSEPREM, NSEASEM and NSELOTUS had a downward trend till almost 6th April 2020. Afterwards, they were characterized by unstable trends which started rising but associated with slight decreasing and increasing movements. OP trended downwards from the start date to 16th April 2020 on the average, thereafter, moved upwards. ER maintained a rising trend on the average, with subsequent trend fluctuating within the rest of the periods.







4.4 Cointegration test results

The maximum lags for all the variables in the underlying ARDL equation was fixed at 3 while the automatic model selection method using the Hannan-Quinn (HQ) criterion selected an ARDL model of order (3,1,0, 0)⁴ For equation 2, 3, 6 and 7. Other selected orders for model 4 is (1,0,1,0), model 5 is (1,0,0,0) and model 8 is (3,1,1,0). Having observed that the series are integrated of orders $I(0)$ and $I(1)$, the ARDL estimation technique was adopted. In using the F-Bounds test, the null hypothesis states that there is no level relationship. The criteria states that if the computed F-statistic is below the $I(0)$ bound critical value, the null hypothesis cannot be rejected. However, if the computed F-value is higher than the $I(1)$ bound critical value, the null hypothesis of no cointegration is rejected. There is inconclusive evidence when the F-statistic falls between $I(0)$ and $I(1)$ bounds.. Considering the dependent variable – NSE All share index (NSE ASI), the computed F-statistic, as observed in table 5, is approximately 7.87 while the $I(0)$ and $I(1)$ bounds critical values are 2.79 and 3.67, respectively. The null hypothesis of no cointegration is, therefore, rejected since the computed F-statistic (7.87) is greater than the $I(1)$ bound critical value (3.67) at the 5% significance level

⁴ An ARDL(3,1,0,0) model implies three lags of the dependent variable, one lag of the first independent variable, zero lag of the second and third independent variables in the equation.

Table 5: Cointegration Test Results (Covid-19 era)

Model	F-statistic	Critical values		Conclusion
		I(0)	I(1)	
NSEASI	7.8663	2.79	3.67	Cointegration
NSE30	7.7433	2.79	3.67	Cointegration
NSEASEM	4.6191	2.79	3.67	Cointegration
NSECG	7.0373	2.79	3.67	Cointegration
NSELOTUS	5.7542	2.79	3.67	Cointegration
NSEMBD	5.0788	2.79	3.67	Cointegration
NSEPREM	5.8803	2.79	3.67	Cointegration

Note: Critical values at 5% significance level

Furthermore, evidence of cointegration was also found with the other estimated models where NSE30, NSEASEM, NSECG, NSELOTUS, NSEMBD, and NSEPREM served as the dependent variables. These are confirmed by their respective F–statistics, which are greater than their $I(0)$ and $I(1)$ bounds critical value of 2.79 and 3.67, respectively.

4.5 Short run analysis (Covid-19 era): Capital market response to reported Covid-19 cases

The focus of our discussion will be on the estimated model with NSEASI as the dependent variable. Equation [9] reveals that $\Delta NSEASI$ depends on its lag, the differenced independent variables, and the equilibrium error term. Since the latter is negative, its absolute value determines how fast equilibrium is restored. Therefore, it is estimated from the output that the coefficient of the error correction term is 0.1995 (Table 6). This implies that any deviation from the long-run equilibrium relationship in the previous day is adjusted by 19.95% in the following day.⁵ The sign borne by the coefficient of the error term is negative and significant, indicating the validity of the long run equilibrium relationship between the dependent variable (NSEASI) and the explanatory variables (CCTN, OP, and ER). The plots of the Cumulative Sum (CUSUM) and the Cumulative Sum of Square (CUSUMSQ) of the Recursive Residual are employed to ascertain if the ARDL models are stable. A model is stable when the plots of the recursive residuals are within the two critical boundaries at the 5% level of significance. It implies that the plots are within the lower and upper critical limits. Both the CUSUM and CUSUMSQ plots, which are shown in Appendix 1 from a recursive estimated model bearing NSEASI and Reported Covid-19 Cases (Confirmed cases of infected persons (CCTN) arising from COVID–19 pandemic) indicated relative instability in some periods. While the case is slightly found to be the same in Appendix 2 regarding CUSUMSQ plot from a recursive estimated model bearing NSEASI and Reported Covid-19 Deaths (Confirmed cases of death (CDTN) arising from COVID–19 pandemic), the case is different from CUSUM plot of a recursive estimated model bearing NSEASI and Reported Covid-19 Deaths. Therefore, the CUSUM test as observed indicated that the coefficients are stable over the sample period. The CUSUMSQ plots indicated some evidence of instability in the coefficients of the model. The reason could come from the variance of the dataset (of itself and) between other variables (Imokhai, 2017). Another factor could be linked to structural breaks.

Table 6 also reveals the short run dynamic parameters. Thus, the short run coefficients reveal that a 1% increase in confirmed cases of infected persons (CCTN), will result in 0.02% decrease in the NSE all share index (NSEASI) on the average in the short run. There exists a good fit for the model since 57.7% of the total variation in NSEASI is explained by the explanatory variables. Moreover, there is no serial correlation since the p–value of the F–statistic is 0.7456. Also, the model estimated shows that the model is desirable since its residuals is homoscedastic.

⁵ Recall our data is of daily frequency.

Table 6: Error correction model: capital market response to reported Covid-19 cases

Variable	NSEASI	NSE30	NSEASEM	NSELOTUS	NSEMBD	NSEPREM	NSECG
D(AR(-1))	0.2341***	0.2273***			0.2848***	0.1386	0.2350***
	0.0823	0.0816			0.0909	0.0929	0.0784
D(AR(-2))	0.2616***	0.2688***			0.1848**	0.2507***	0.1994**
	0.0828	0.0822			0.0908	0.0933	0.0786
D(CCTN)	-0.0171***	-0.0204***			-0.0179***	-0.0093	-0.0424***
	0.0041	0.0047			0.0039	0.0069	0.0075
D(OP)			-0.0210***				0.0329**
			0.0026				0.0136
CointEq(-1)*	-0.1995***	-0.1967***	-0.0912***	-0.1719***	-0.1407***	-0.1994***	-0.2058***
	0.0308	0.0306	0.0184	0.0311	0.0271	0.0357	0.0336
R-squared	0.5766	0.577613	0.492809	0.2970	0.4587	0.4358	0.56608
Model diagnostics							
<i>Breusch-Godfrey Serial Correlation LM Test:</i>							
F-statistic	0.2949	0.2788	0.6305	1.7146	0.1875	0.0776	0.5207
P-value	0.7456	0.7576	0.5356	0.1880	0.8295	0.9254	0.5967
<i>Heteroskedasticity Test: ARCH</i>							
F-statistic	0.0025	0.0000	0.1108	0.0040	1.1578	0.0375	2.8402
P-value	0.9602	0.9975	0.7402	0.9501	0.2856	0.8471	0.0654

Note: ***, **, and * represent statistical significance at the 1%, 5% and 10% levels, respectively.

The speed of adjustment coefficients in the models for NSE30, NSEASEM, NSELOTUS, NSEMBD, NSEPREM and NSECG are -0.1967 , -0.0912 , -0.1719 , -0.1407 , 0.1994 and -0.2058 respectively. These imply that the systems would correct the previous period disequilibria daily at the speed of 19.67%, 9.12%, 17.19%, 14.07%, 19.94% and 20.58%, respectively. The signs borne by the coefficient of the error correction terms are negative and significant, indicating the validity of the long run equilibrium relationship between the various dependent variables and the explanatory variables (CCTN, OP, and ER).

The short run coefficients reveal that 1% increase in confirmed cases of infected persons (CCTN), will result to 0.0204% decrease in the NSE30, 0.0179% decrease in the NSEMBD and approximately 0.01% decrease in the NSEPREM on the average. This is a prove that Covid-19 pandemic could cause shock and panic among both local and international investors. This could result in a sharp panic-selling response as noted by Qing et al., (2020). Invariably, investors' decisions would be influenced by the pandemic, which could significantly influence the stock market. This could also be evident in the stock market upwards and downwards trend which would reflect in the optimistic and pessimistic perception of the investors, respectively. In the light of this, Liu et al., (2020) argued that investors would tend to wait to enter the market until the market starts to pick up. This finding is in line with Takyi and I. Bentum-Ennin (2021) who found that stock market performances in Africa have significantly reduced during and after the occurrence of the COVID-19.

Obviously, the above situations would make the stock market to be pricing in fear. More so, as envisaged by He et al., (2020), many investors would resort to holding other assets to lessen risk during these periods of economic uncertainty. No doubts, the economic consequences of the investors' actions could reduce stock market prices, thereby leading to low performance of the market.

4.6 Long-Run Coefficients (Covid-19 era): Capital market response to reported COVID-19 cases

From table 7, we observe the dependent variables (capturing the capital market, being proxied by stock market variables) are significantly influenced by the explanatory variables such as Covid-19 pandemic, oil price and exchange rate. This is evident from the t -statistics of the coefficients of the individual parameters. Though the covid-19 coefficients are not negatively signed, they are indications that continuous interventions by the monetary authorities and government in the form of palliative/stimulus packages such as grants, loans, etc. during the pandemic era will cause the adverse effect of the pandemic on the capital (stock) market to fizzle out in the long run.

Furthermore, table 7 reveals that oil price though not statistically significant, is positively related with the capital market. Apart from the result found from NSEPREM, it is estimated that growth in the capital market is caused by increase in the oil price. No doubt, the Nigeria capital market especially stock market is foreign investors driven. To the foreign investors in Nigeria, a rise in the oil price will trigger economic boom. Hence, the demand to invest in the stock market shares will rise. The study finding is likened to Alamgir and Amin (2021) who found a positive nexus between the stock market index and world oil price, indicating that an increase in oil price will result in a boom in the stock market. The result from the Table 7 also shows that exchange rate depreciation will significantly impact on stock market indices.

Table 7: ARDL analysis: Long-Run Coefficients

VARIABLE	NSEASI	NSE30	NSEASEM	NSELOTUS	NSEMBD	NSEPREM	NSECG
CCTN	0.0239*** (5.0058)	0.0271*** (4.9033)	0.0193*** (2.7748)	0.0406*** (4.6578)	0.0213*** (3.2484)	0.0399*** (5.0771)	0.0314*** (3.8419)
OP	0.0313* (1.8818)	0.0344* (1.7835)	-0.0495* (-1.7489)	0.0280 (0.9423)	0.0549** (2.5166)	0.0154 (0.5468)	0.0332 (1.2129)
ER	-2.5783*** (-3.1534)	-2.9954*** (-3.1643)	-2.2925** (-2.1378)	-3.2701** (-2.2809)	-1.9207* (-1.7084)	-3.966*** (2.9987)	-3.0721** (-2.1298)
C	25.15*** (5.1677)	24.46*** (4.3402)	20.29*** (3.1616)	26.52*** (3.1062)	17.99*** (2.6889)	30.89*** (3.9234)	24.66*** (2.8743)

Note: ***, **, and * represent statistical significance at the 1%, 5% and 10% levels, respectively and t -statistics in ().

4.7 Robustness analysis: capital market response to reported cases of Covid-19 deaths

For the robustness checks, we repeated the first set of regressions by applying the same dependent variables (NSEASI, etc.) but substituted one of the independent variables, CCTN, with the confirmed cases of death (CDTN) while retaining the remaining two independent variables, oil price (OP) and exchange rate (ER).

Table 8: Bounds Test

Model	F-statistic	Critical values		Conclusion
		I(0)	I(0)	
NSEASI	9.7614	2.79	3.67	Cointegration
NSE30	9.5143	2.79	3.67	Cointegration
NSEASEM	6.1864	2.79	3.67	Cointegration
NSECG	6.3402	2.79	3.67	Cointegration
NSELOTUS	9.0840	2.79	3.67	Cointegration
NSEMBD	4.6600	2.79	3.67	Cointegration
NSEPREM	4.8723	2.79	3.67	Cointegration

Note: Critical values at 5% significance level

With focus on the NSEASI as the dependent variable, it is also established that there is an existence of a long run relationship among the variables. The F-Bounds test in table 8 shows that the F-statistic is 9.7614, while its $I(0)$ and $I(1)$ bounds are 2.79 and 3.67, respectively. Thus, the null hypothesis of no cointegration is also rejected since the F-statistic (9.7614) is higher in value than the $I(1)$ bound (3.67).

4.8 Capital market response to reported cases of Covid-19 deaths

The economic implications of this estimate are revealing on the capital market performance (stock market) in Nigeria. The result in table 9 representing the performance of capital market with respect to the reported cases of Covid-19 deaths replicates the outcome from the estimated results from the reported cases of Covid-19 infected persons (table 7). Invariably, the positive sign borne by the coefficients of the confirmed case of death (CDTN) could be explained by the stringent measures stipulated by the government to contain the virus. Capital market activities will continue to grow in the long run should measures to overcome the pandemic are followed.

Table 9: Long-Run Coefficients: Capital market response to reported Covid-19 cases: Estimation with confirmed case of death (CDTN)

VARIABLE	NSEASI	NSE30	NSEASEM	NSELOTUS	NSEMBD	NSEPREM	NSECG
CDTN	0.0233*** (7.2109)	0.0265*** (7.0702)	0.0133*** (5.4528)	0.0359*** (7.4078)	0.0202*** (3.4871)	0.0335*** (5.4745)	0.0356*** (6.2482)
OP	0.0291** (2.3804)	0.0321** (2.2675)	-0.0337*** (-2.9143)	0.0282 (1.4668)	0.0521** (2.4272)	0.0339 (1.3444)	0.0417* (1.9902)
ER	-0.7744 (-1.6223)	-0.9239 (-1.6638)	-0.6647** (-2.4384)	-0.9835 (-1.5137)	0.2942 (0.3285)	-1.1159 (-1.2663)	-0.9976 (-1.1584)
C	14.50*** (5.1677)	12.22*** (3.6891)	10.64*** (6.4788)	13.07*** (3.3683)	4.89 (0.9143)	14.02* (2.666)	12.35** (2.4007)

Note: ***, **, and * represent statistical significance at the 1%, 5% and 10% levels, respectively and t -statistics in ().

4.9 Error Correction Model: capital market response to reported cases of Covid-19 deaths

The error correction model reveals the speed of adjustment of the capital market. This is the short run dynamics of the model presented in table 10. The speed of adjustment, which is the coefficient attached to CointEq (-1), according to the findings lies between zero and one. The error correction term for NSEASI [CointEq (-1)] of -0.2743 in table 10 showed that error generated in the capital market each period is automatically corrected at a speed of 27.43% in the subsequent period.

The speed of adjustments in the model for other sectors of the capital market, NSE30, NSEASEM, NSECG, NSELOTUS, NSEMBD, and NSEPREM have coefficients as -0.2709 , -0.1660 , -0.3084 , -0.2540 , -0.1548 , and -0.2237 , respectively. These imply 27.09%, 16.60%, 30.84%, 25.4%, 15.48%, and 22.37%, respectively, of errors that are generated in each period corrects itself in the subsequent periods. From table 10, the short run coefficients reveal that any increase in confirmed cases of dead persons (CDTN), will result to a decrease as well in the sectoral indices--NSE30, NSEASEM, NSELOTUS, NSEMBD, and NSEPREM, on the average. The Breusch-Godfrey Serial Correlation LM Test and Heteroskedasticity test were applied to determine whether there is existence of serial correlation and heteroscedasticity. The model, therefore, exhibits desirable qualities as there is no serial correlation and its residual has no heteroskedasticity.

Table 10: Error correction model

Variable	NSEASI	NSE30	NSEASEM	NSECG	NSELOTUS	NSEMBD	NSEPREM
D(AR(-1))	0.1554* 0.0826	0.1495* 0.0822		0.1998** 0.0890		0.3226*** 0.0896	0.1472* 0.0873
D(AR(-2))	0.2728*** 0.0808	0.2762*** 0.0803		0.1950** 0.0877			0.2609*** 0.0878
D(CDTN)	-0.0129** 0.0056	-0.0153** 0.0064	-0.0025 0.0018		-0.0131 0.0081	-0.0124** 0.0058	-0.0047 0.0086
D(CDTN(-1))							0.0236*** 0.0087
D(OP)			-0.0196*** 0.0024		0.0009 0.0109		0.0313** 0.0120
D(OP(-1))					-0.0269** 0.0110		
D(ER)	-0.6650*** 0.1664	-0.7829*** 0.1906		-1.0355*** 0.3302		-0.5521*** 0.1641	-0.7513*** 0.2546
CointEq(-1)*	-0.2743*** 0.0381	-0.2709*** 0.0381	-0.1660*** 0.0289	-0.3084*** 0.0531	-0.2540*** 0.0365	-0.1548*** 0.0311	-0.2237*** 0.0439
R-squared	0.6015	0.5998	0.5298	0.4763	0.3982	0.4225	0.5199
Model diagnostics							
<i>Breusch-Godfrey Serial Correlation LM Test:</i>							
F-statistic	2.0060	0.6460	0.2396	0.7511	2.2977	1.4342	0.4846
P-value	0.1432	0.4246	0.7876	0.4760	0.1089	0.2460	0.6183
<i>Heteroskedasticity Test: ARCH</i>							
F-statistic	0.1117	0.0969	0.5042	0.0019	0.3225	0.1174	1.3070
P-value	0.7392	0.7565	0.4800	0.9658	0.5719	0.7329	0.2568

5.0 CONCLUSION

This paper examines the impacts of the COVID-19 pandemic on the Nigerian capital market. Our results show that a rise in the pandemic (as captured by the confirmed cases of infected persons and total number of reported COVID-19 deaths) generates a negative impact on the capital market in the short run with a focus on stock market segments. This result points to heterogeneities in the effects of the COVID-19 pandemic on the different sectors of the stock market. However, the capital market performance will improve in the long run should the standard measures put in place to overcome Covid-19 pandemic are upheld.

The adverse effect of the pandemic on the capital market (stock market) is felt from the shock and panic among investors. Many investors would resort to holding other assets to reduce risk during the period of the pandemic. Eventually, the consequences arising from the actions of the investors could be a reduction in stock market prices, hence leading to low performance of the market. Sequel to the pandemic, the performance of the Nigerian capital market will be significantly influenced by the effectiveness of sector-specific interventions as well as how the government responds to the health crisis. It is important that government's response to the COVID-19 pandemic should take cognizance of the observed heterogeneities in the response of the capital market to the pandemic. The post-COVID-19 regulatory regime should involve consistent and coordinated policy responses that will help boost confidence in the capital market.

Suggestion for Further Study

Further research in this area should improve upon this work by considering other inherent responses of the Nigerian Capital market to the COVID-19 or precautions to take in the face of such pandemic.

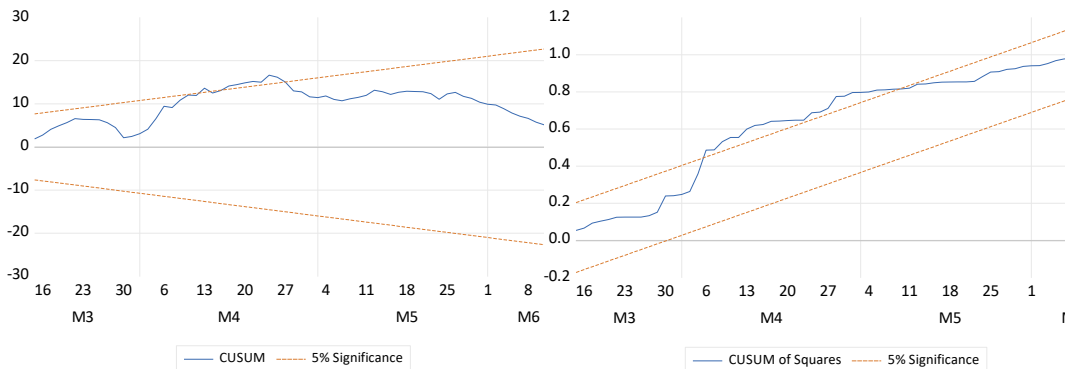
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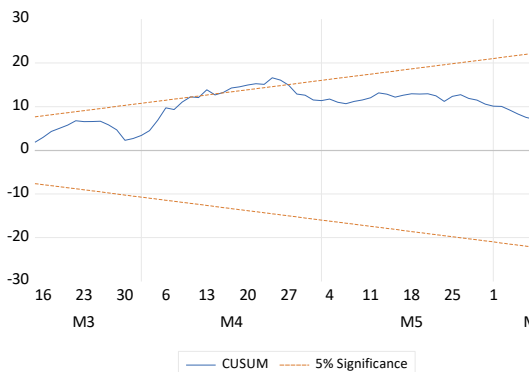
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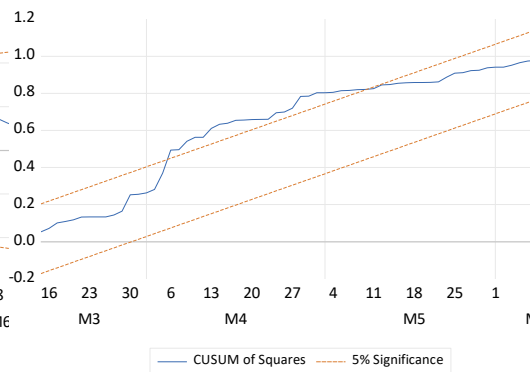
Appendix 1: CUSUM and CUSUM OF SQUARES plots for the Reported Covid-19 Cases Models
 NSEASI: CUSUM NSEASI: CUSUMSQ



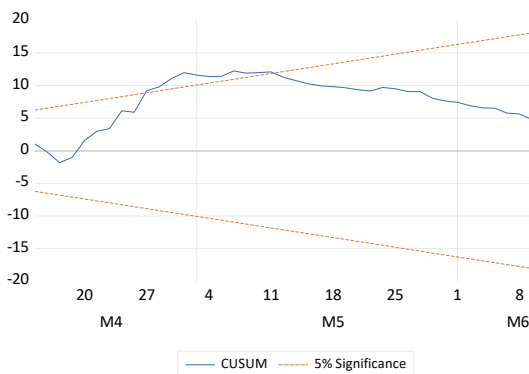
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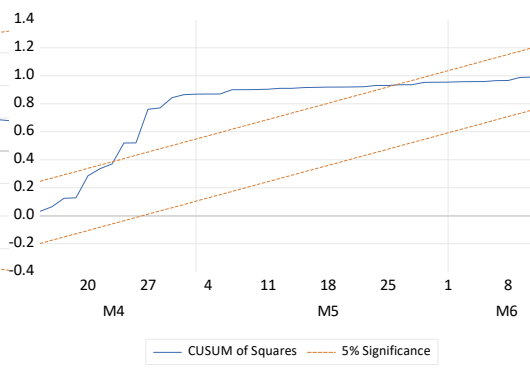
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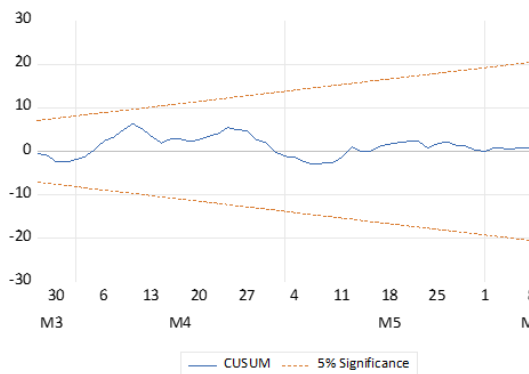
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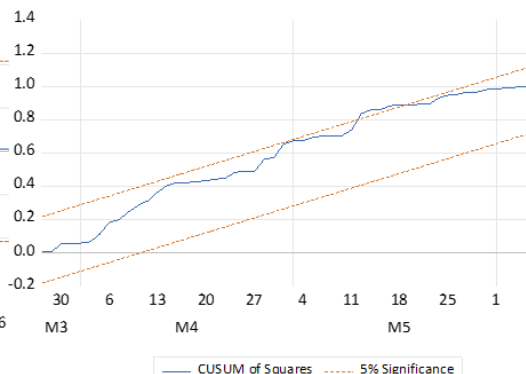
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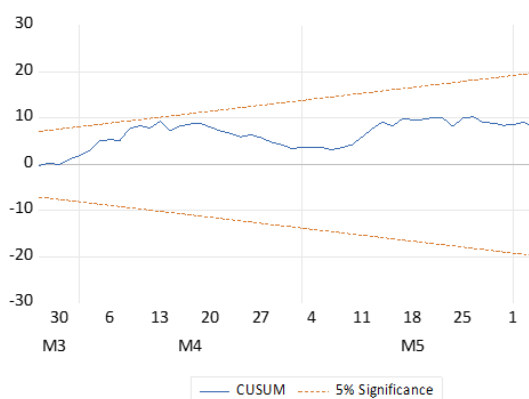
NSELOTUS: CUSUM



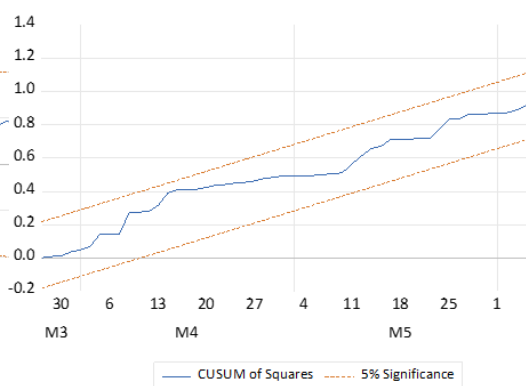
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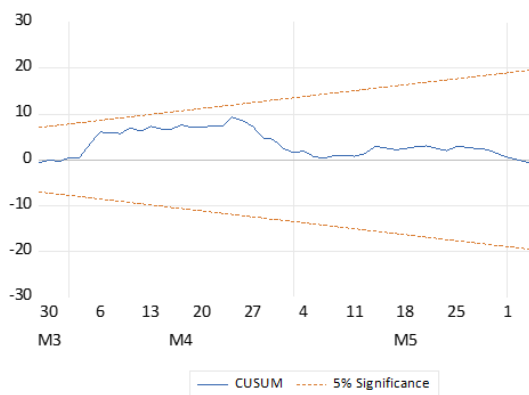
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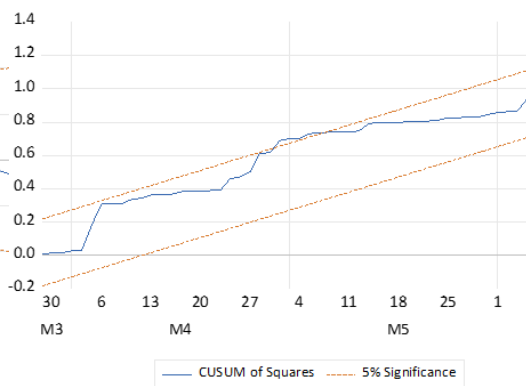
NSEMBD: CUSUMSQ



NSEPREM: CUSUM



NSEPREM: CUSUMSQ



Appendix 2: CUSUM and CUSUM OF SQUARES plots for the Reported Covid-19 Deaths Models

