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Effect of Covid-19 Pandemic on the Performance of Nigerian Stock Exchange

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ABSTRACT

This study investigated the effect of the Coronavirus (Covid-19) pandemic on the performance of the Nigerian Stock Exchange. This study used secondary data obtained from the Nigerian Stock Exchange and the Nigeria Centre for Disease Control website from Nov 2020 to May 2021. The study used Auto-Regressive Distributed Lag (ARDL) to analyze the time-series data. The bound test results for cointegration show that a long-run relationship exists among the variables except for the confirmed cases variable. Short and long-run ARDL demonstrate that coronavirus confirmed cases and death cases negatively affect stock prices in Nigeria, while recovered COVID-19 issues positively affect stock prices. The results indicate that COVID-19 is not statistically significant enough to determine the stock price movement. The study recommends that the stock exchange market operators should make sure that the accurate and useful information flows into the market environment through dependable source and transparent media, i.e the official websites, electronic and social media. Also, they should make sure that COVID-19 does not affect the stock prices to allow investors to make right investment decisions on the stock market.

Keywords: ARDL, COVID-19, Nigerian Stock Exchange

1. Introduction

In December 2019, infectious disease experts in Wuhan, China, discovered a coronavirus case known as COVID-19. The first documented fatality occurred on January 11, 2020. (Pharmaceutical Technology, 2020). Even though Wuhan municipal officials had taken measures to restrict the spread of the virus, it nonetheless spread to neighboring cities. Viruses continue to spread over the world because people travel. On March 11, the World Health Organization (WHO) announced that the virus is a worldwide pandemic and urged people to take precautions. Though it lasted about 15 months, the pandemic had a devastating impact, with more than 10 million people infected and 1.2 million people dying as a consequence (Pharmaceutical Technology, 2020). Since the epidemic, governments have imposed limits on foreign travel, reduced or almost halted aircraft operations, enforced lockdowns in regions where the virus spread the greatest and isolated people infected with the virus to manage the sickness. Economic activity has slowed significantly around the globe as a consequence of these precautionary measures, and the rate of failed enterprises has risen. As a result of the lack of economic activity, both small and large enterprises find it difficult to retain their employees. This is a global phenomenon. The pandemic affected the global economy via a variety of routes, including labor markets, global supply networks, and consumption patterns. The stock market trading that takes place on these channels is one of the most essential components of these channels (Ahmar & Del Val, 2020; Al-Awadhi, Alsaifi, Al-Awadhi, & Alhammadi, 2020). Equity securities, such as shares in a single company, may be traded on a stock market (Cheng & Gul 2010). Market experts have warned that pandemics like the coronavirus might have negative effects on the market since these pandemics raise stock-market uncertainty (Gormsen & Koijen, 2020; Hafiz et al., 2020). So, these pandemics present the stock market with external shocks, disrupting optimum economic trends and causing quick shifts in market sentiment as a consequence (Wealth Advisor, 2020). Stocks and other financial assets may be traded on the Nigerian Stock Exchange (NSE), which has been in operation since 1961. (Nurudeen, 2009). Transferring money from the economy's surplus to deficit has been made simpler because of the NSE's key role. Thus, Nigeria's capital market may be considered young, but it is one of the most rapidly expanding financial markets and has shown significant potential in recent years (Aliyu, 2014). Because economic growth was at its lowest pace in recent history and capital inflows were absent, emerging stock markets had very limited capacity to cope with the repercussions of the pandemic. Economic activity has been reported to have decreased, and this has hurted the performance of all stock markets (Haque & Sarwar, 2013; Waheed, Wei, Sarwar, & Lv, 2018). COVID-19's global pandemic has led to serious and far-reaching economic consequences for the world's financial markets, which have been affected by the virus's global expansion. Despite the general economic consequences, the reactions of the stock market to coronavirus has been noticed ; studies reveal that the risk level of all nations increased significantly in March when COVID-19 spread to more than 200 places. COVID-19 (Gormsen and Koijen, 2020; Zhang et al., 2020). Although it was late in March, governments and central banks had already devised a broad array of economic strategies to minimize the impact of the lockdown and the mounting panic that the epidemic was producing. Although the effects of COVID-19 have been widely anticipated until January 2021, there is a lot of uncertainty about how the measures will empirically affect emerging stock markets after they have been implemented. There are also an increasing number of countries where the virus has been effectively contained. The epidemic has made it harder to establish how the epidemic

has impacted emerging stock markets. Even though the government has taken various legal measures, such as making it simpler to lock down for economic reasons, the global economy continues to be affected by the pandemic that the virus has caused. The COVID-19 pandemic's effects are being felt across all sectors of the economy, and this trend is only expected to continue. Many African financial markets, including those in South Africa, Ghana, Nigeria, Mauritius, Egypt, Morocco, Kenya, Namibia, and Malawi, are experiencing bearish sentiment at the moment. Consequently, an investigation into the effect of coronavirus on Nigeria's stock market pricing is urgently required. In particular, the study aims to explore the association between coronavirus pandemic and stock market values in Nigeria and to identify the level to which the coronavirus pandemic effects on the operation of the Nigerian stock market.

2. Review of Literature

2.1 Pandemic of COVID-19 in Nigeria

Nigeria's Center for Disease Control (NCDC) (2020) reports that the coronavirus was initially discovered in Wuhan, China's Hubei Province, in late December of 2019. First, COVID '19 confirmed a case in January 2020, notwithstanding this. On February 27, 2020, a 44-year-old Italian patient in Lagos State, Nigeria, was diagnosed with COVID-19. The NCDC (2020) reports that the victim arrived in Lagos, Nigeria, at 10 p.m. on February 24, 2020, after traveling from Milan, Italy, aboard a Turkish airline. He traveled to his workplace in Ogun state on the next day, February 25, 2020. As a consequence of the person suspected of bringing the virus into Nigeria, the sickness has spread to all 36 states and the Federal Capital Territory (FCT). Confirmed COVID-19 cases were reported in all 36 states and the Federal Capital Territory (FCT) on September 25, 2020, and there were 213 more cases reported in 17 of Nigeria's states that same day. Only two people died as a result of the 538 discharges that originated from 10 different states. A total of 58,062 confirmed cases and 49,606 cleared cases were reported cases were on the same day. The total number of active COVID-19 cases in Nigeria reached 7353 at the end of the year. In Nigeria, there were a total of 1103 fatalities that may have been avoided.

2.2 The Nigerian Stock Exchange

The Nigerian stock market has become the most significant participant in the capital market as the topic of this essay. The stock exchange allows anyone to buy and sell shares, stocks, government bonds, debentures, and other officially recognized assets, but they must do it through one of the exchange's members. There is a market for stocks on the stock exchange (Anyanwu, 1993). Stockbrokers act as middlemen between investors of different sizes, making both big and small deals possible.

2.3 Theoretical Foundation

2.3.1 The Black Swan Hypothesis

In his publications, Talib said that the Black Swan phenomenon was relevant to Australia during the primitive age when it was unimaginable to the inhabitants of the time to see a black swan different than the white swans that they were familiar with. He firmly believed that the Black Swan principle applied at this point. A researcher found a blackbird that looks almost exactly like a common swan (Talib, 2007). This surprised many experts on birds from the old world. So utilize the fresh discovery of the black swan to describe sudden and unexpected events that might either have a negative or positive influence on the stock market and company operations. It follows that this theory is suitable for this project. There are no other viruses like it, and its discovery in China has shocked the whole globe due to its unique qualities, which have led to an increase in the global death toll and health care expenditures and pushed financial markets into meltdown. Because of the simultaneous effect of the coronavirus epidemic, there have been significant changes in the worldwide stock and money markets, causing a great deal of concern among investors. As a result, the outbreak is having an immediate impact (Fitzgerald, 2020). The closing of borders and putting up other restrictions has also affected global supply chains. This has caused the volatility of financial markets to rise in ways that nobody expected (Financial Times, 2020; The Telegraph, 2020).

2.3 Empirical Analysis

COVID-19's impact on 21 of the world's most significant financial markets was studied by Liu, Manzoor, Wang, Zhang, and Manzoor (2020), including those in Japan, Korea, Singapore, and the United States, Germany, Italy, and the United Kingdom (U.K.). A method called event study was utilized by them. Data shows that the stock markets of these countries fell precipitously once the coronavirus was discovered. Researchers Ibikunle and Rzayev (2020) examined the financial market's reaction to the coronavirus epidemic and the restrictions put on non-transparent trading. Representative samples of 55 control stocks and 55 treatment stocks were selected for the study. According to findings from univariate and multiple regression analysis, market volatility induced by COVID-19 led to deterioration in the informational efficiency of stock prices compared to equities subject to dark trading restrictions. Because of COVID-19's impact on the market, this was the situation. Ding, Levine, Lin, and Xie (2020) investigated how the COVID-19 pandemic shock affected stock prices and company characteristics in 56 different countries. More than 6,000 firms were surveyed for data. The data showed that stock prices at firms with a larger proportion of non-financial institutions' ownership benefited from the shock. When it comes to corporate social responsibility, companies that are well-capitalized and have a minimal risk of pandemic are more likely to engage in the practice. Using a panel VAR model, Kenourgios and Dimitriou (2020) looked at how the COVID-19 pandemic impacted the implied volatility of stock markets in several countries throughout Europe, Asia, the United States of America, and Australia. The correlation between COVID-19's Google trend indicators and the implied volatility of the stock

market was shown to be causal and direct, according to their empirical results. The impact of COVID-19 incidents on the S&P 500 Index in the United States was also studied by Yilmazkuday (2020) using the structural vector autoregressive (SVAR) model. When COVID-19 incidences in the United States rose by 1% per day for one day, 0.02 percent per week, and 0.08 percent per month, the Standard & Poor's 500 Index began to decline by 0.08 percent. Al-Awadhi, Al-Saifi, Awadhi, and Awadhi (2020) look at the influence of a coronavirus outbreak on the Chinese stock market's performance in that country. Between January 10 and March 16, 2020, researchers used panel data regression to analyze daily confirmed occurrences of COVID-19 and 1,579 equities from firms listed on the Hang Seng Index and Shanghai Composite Index. Between those times, the research was carried out. According to the findings of the research, there was a correlation between the number of confirmed active and fatal cases caused by the COVID-19 epidemic and the stock market's returns. A decline in stock market returns may have been caused by the early development of COVID-19. During the COVID-19 outbreak, researchers Takahashi and Yamada (2020) looked at what variables influenced the returns of Japanese stocks. A company's ownership structure, its liquidity, its exposure to two key partner nations, and scores on environmental, social, and governance concerns are all taken into account. A regression model based on the Ordinary Least Square approach was used to find out if companies in the Nikkei 225 index and those receiving foreign direct investment from the United States and China had opposite abnormal returns. Companies with a lack of liquidity, poor cash reserves, and excessive financial leverage all saw negative anomalous returns as a result of increased ESG intensity. To better understand the shifts in daily projections that happened during the SARS and COVID-19 pandemics, researchers conducted research in Hong Kong and the United States, respectively. It has been shown that, at the corporate level, losses in market value are linked with COVID-19 increases in capital intensity as well as debt and are bigger in sectors where disease transmission is more likely to occur. Also, it was thought that the stock market would become less volatile as the future path of the epidemic became clearer.

Researchers Adenomon, Maijamaa, and John (2020) studied the impact of the COVID-19 outbreak on the Nigerian stock market's performance. A kind of model known as GARCH was applied, which stands for Generalized Autoregressive Conditional Heteroskedasticity. Research shows that COVID-19 has a detrimental influence on Nigeria's stock market performance. Similarly, Osagie, Maijamaa, and John (2020) looked at how the COVID-19 outbreak affected the Nigerian stock market's performance in the country. The study's conclusions, which were generated through the use of the EGARCH estimate technique on daily data from January 2, 2020, to April 16, 2020, showed that COVID-19 had a significant negative influence on Nigeria's stock market performance. Stock market prices in underdeveloped countries in Africa are mostly unaffected by the COVID-19 epidemic despite an increasing amount of research on the subject.

3. Methodology

The research design is quantitative in nature; this is the standard experimental technique of most scientific disciplines. This study used already published secondary data from the Nigerian Stock Exchange and the Nigeria Centre for Disease Control website from Nov 2020 to May 2021. In addition, this study utilized weekly data in the present research ranging from November 2020 to May 2021. The weekly data for stock prices and coronavirus was obtained from the Nigeria Stock Exchange and the Nigeria Center for Disease Control website respectively.

Model specification

Following the model of Ahmed (2020), this study specified the functional relationship between coronavirus (measured as confirmed, recovered, and death cases) and stock prices, measured as the weekly NSE All-share index. This study is different from Ahmed (2020)'s in terms of geography (Nigeria as against his Pakistan) and frequency of data sets (weekly as against his daily data sets). Furthermore, his study was based on OLS, but this current study employs the Autoregressive Distributed Lag (ARDL). The functional relationship used is as follows:

STPt=f (CNFC, RECOV, DTH) (1)……(1)

Where STP is the Nigerian Stock Exchange's stock price;

CNFC is Cases that are being confirmed (confirmed cases)

RECOV stands for recovery.

"DTH is death;

$STPt=\beta_0+\beta_1 \text{CNFC}t+\beta_2 \text{RECOV}t+\beta_3 \text{DTH}t+\varepsilon t$ ……..(2)

ε is the error term; t is the time from 2020/11 to 2021/05.

The study used the ARDL approach to analyze the data

$$\Delta \text{stp}_{t-1}= \beta_0 + \sum_{t=1}^{w} \beta_{1i} \Delta \text{stp}_{t-1} + \sum_{t=1}^{w} \beta_{2i} \Delta \text{cnfc}_{t-1} + \sum_{t=1}^{w} \beta_{3i} \Delta \text{recov}_{t-1} + \sum_{t=1}^{w} \beta_{4i} \Delta \text{dth}_{t-1} + \beta_5 \Delta \text{stp}_{t-1} + \beta_6 \Delta \text{cnfc}_{t-1} + \beta_7 \Delta \text{recov}_{t-1} + \beta_8 \Delta \text{ dth}_{t-1} + \varepsilon_t \quad \ldots(3)$$

$$\Delta \text{cnfc}_{t-1}= \beta_0 + \sum_{t=1}^{w} \beta_{1i} \Delta \text{cnfc}_{t-1} + \sum_{t=1}^{w} \beta_{2i} \Delta \text{stp}_{t-1} + \sum_{t=1}^{w} \beta_{3i} \Delta \text{recov}_{t-1} + \sum_{t=1}^{w} \beta_{4i} \Delta \text{dth}_{t-1} + \beta_5 \Delta \text{stp}_{t-1} + \beta_6 \Delta \text{cnfc}_{t-1} + \beta_7 \Delta \text{recov}_{t-1} + \beta_8 \Delta \text{dth}_{t-1} + \varepsilon_t \quad \ldots(4)$$

$$\Delta \text{recov}_{t-1}= \beta_0 + \sum_{t=1}^{w} \beta_{1i} \Delta \text{recov}_{t-1} + \sum_{t=1}^{w} \beta_{2i} \Delta \text{cnfc}_{t-1} + \sum_{t=1}^{w} \beta_{3i} \Delta \text{stp}_{t-1} + \sum_{t=1}^{w} \beta_{4i} \Delta \text{dth}_{t-1} + \beta_5 \Delta \text{stp}_{t-1} + \beta_6 \Delta \text{cnfc}_{t-1} + \beta_7 \Delta \text{recov}_{t-1} + \beta_8 \Delta \text{dth}_{t-1} + \varepsilon_t \quad \ldots(5)$$

$$\Delta \text{dth}_{t-1}= \beta_0 + \sum_{t=1}^{w} \beta_{1i} \Delta \text{dth}_{t-1} + \sum_{t=1}^{w} \beta_{2i} \Delta \text{cnfc}_{t-1} + \sum_{t=1}^{w} \beta_{3i} \Delta \text{recov}_{t-1} + \sum_{t=1}^{w} \beta_{4i} \Delta \text{stp}_{t-1} + \beta_5 \Delta \text{dth}_{t-1} + \beta_6 \Delta \text{cnfc}_{t-1} + \beta_7 \Delta \text{recov}_{t-1} + \beta_8 \Delta \text{stp}_{t-1} + \varepsilon_t \quad \ldots(6)$$

From eqn 2 to 5, Δ is an operator of first difference, β_0 stands for constant, ε_t stands for white noise error term, from β_1 *to* β_4 stands for error correction dynamics while β_6 to β_9 stand for longrun relationship of the model. This below are the short-run dynamics:

$\Delta stp_{t-1} = \beta_0 + \sum_{t=1}^{w} \beta_{1i} \Delta stp_{t-1} + \sum_{t=1}^{w} \beta_{2i} \Delta cnfc_{t-1} + \sum_{t=1}^{w} \beta_{3i} \Delta recov_{t-1} + \sum_{t=1}^{w} \beta_{4i} \Delta dth_{t-1} + +\eta 1 ECTt{-}1 + \varepsilon t$ ……..…..(7)

$\Delta cnfc_{t-1} = \beta_0 + \sum_{t=1}^{w} \beta_{1i} \Delta cnfc_{t-1} + \sum_{t=1}^{w} \beta_{2i} \Delta stp_{t-1} + \sum_{t=1}^{w} \beta_{3i} \Delta recov_{t-1} + \sum_{t=1}^{w} \beta_{4i} \Delta dth_{t-} +\eta 2 ECTt{-}1 + \varepsilon t$ ……..(8)

$\Delta recov_{t-1} = \beta_0 + \sum_{t=1}^{w} \beta_{1i} \Delta recov_{t-1} + \sum_{t=1}^{w} \beta_{2i} \Delta cnfc_{t-1} + \sum_{t=1}^{w} \beta_{3i} \Delta stp_{t-1} + \sum_{t=1}^{w} \beta_{4i} \Delta dth_{t-1} +$

$+\eta 3 ECTt{-}1 + \varepsilon t$ ……(9)

$\Delta dth_{t-1} = \beta_0 + \sum_{t=1}^{w} \beta_{1i} \Delta dth_{t-1} + \sum_{t=1}^{w} \beta_{2i} \Delta cnfc_{t-1} + \sum_{t=1}^{w} \beta_{3i} \Delta recov_{t-1} + \sum_{t=1}^{w} \beta_{4i} \Delta stp_{t-1} + +\eta 4 ECTt{-}1 + \varepsilon t$ ……..……...……(10)

The cointegration model's rate reflects the speed of adjustment necessary to reestablish the long-run equilibrium connection, and the error coefficients (η1,2,3, η4) represent the pace of that adjustment. If the ECTt-1 coefficient is negative and significant, it suggests that any short-run movement between the dependent and explanatory variables will, at some point, revert back to the connection that exists over the long run.

4. Results and Discussion

Table 4.1: Unit root

VARIABLE	ADF	5% CRITICA VALUE	PP	5% CRITICAL VALUE	ORDER OF INTERGRATION
STP	-4.829090	-3.622033	-4.829523	-3.622033	I(0)
CNFC	-3.708403	-3.632896	-3.758954	-3.632896	I(1)
RECOV	-6.895485	-3.632896	-7.085493	-3.632896	I(1)
DEATH	-5.359398	-3.632896	-5.299505	-3.632896	I(1)

Source: Author's estimation using Eviews version 11 (2021).

Only STP, which was demonstrated to be stationary at level, other variables are stationary at first difference. This result depict necessity to subject the sequences to bound test

Table 4.2b: Bound Test Cointegration

Variables	F-statistics	Significance levels	Bound critical values I(0)	I(1)	t-statistics	Significance levels	Bound critical level I(0)	I(1)
Price		10%	3.47	4.45		10%	-3.13	-3.84
Cnfc		**5%**	**4.01**	**5.07**		**5%**	**-3.41**	**-4.16**
Recov		2.5%	4.52	5.62		2.5%	-3.65	-4.42
Death	**7.13344**	1%	5.17	6.36	**5.339755**	1%	-3.96	-4.73

Source: Author's estimation using Eviews version 11, (2021).

This result in table 4.2b showed the existence of longrun relationship. For example f-statistic value (7.13344) is greater than upper bound critical value at 5% levels. Similarly, the t-statistic value (5.339755) is greater than the its upper bound critical values at 5% levels.

Table 4.3: VAR selection lag criterion

Sample: 1 24

Included observations: 20

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-132.7625	NA*	51217.40	13.67625	13.87539	13.71512*
1	-132.1200	0.963744	53366.88*	13.71200*	13.96093*	13.76059
2	-131.4926	0.878254	55850.11	13.74926	14.04798	13.80758
3	-130.3646	1.466483	55796.63	13.73646	14.08496	13.80449
4	-130.0803	0.341122	60928.25	13.80803	14.20632	13.88578

Source: Author's estimation using Eviews version 11, (2021).

The Akaike Information Criteria (AIC) and Schwarz Bayesian Criterion (SBC) were utilised as pre-requisites for conducting a cointegration study (SBC). Researchers could only apply a total of four delays in their analysis because of the study's reliance on weekly data. Table 4.3 shows the AIC and SBC figures produced and analysed at different time delays. As seen in the next table, the AIC and SBC criterion have a one-year lag and are statistically significant. Using the AIC criterion for lag selection, this study we have chosen to conduct this experiment.

Table 4.4 Shortrun ARDL Dynamic Model Results

Dependent Variable: D(PRICE)

Method: Least Squares

Date: 05/15/21 Time: 01:59

Sample (adjusted): 3 24

Included observations: 22 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.773168	44.89519	-0.017222	0.9865
D(PRICE(-1))	0.009382	0.201449	2.046572	0.0334
D(CNFC(-1))	-0.019638	0.035904	-0.546942	0.5920
D(RECOV(-1))	0.040573	0.029365	1.381655	0.1861
D(DEATH(-1))	-0.107147	3.646527	-0.029383	0.9769
ECM(-1)	-0.253923	0.320224	-3.915762	0.0012

R-squared	0.622454	Mean dependent var	-0.758182
Adjusted R-squared	0.504471	S.D. dependent var	298.9420
S.E. of regression	210.4367	Akaike info criterion	13.76325
Sum squared resid	708537.4	Schwarz criterion	14.06080
Log likelihood	-145.3957	Hannan-Quinn criter.	13.83334
F-statistic	5.275793	Durbin-Watson stat	2.080783
Prob(F-statistic)	0.004733		

Source: Author's estimation using Eviews version 11, (2021).

The above table 4.4 shows the results of the short-run coefficients of ARDL. The result indicates that lag 1 of stock price (STP(-1)) has a positive and significant effect on itself in the original (level) form. This means that past prices of the stock determine the current price of the stock. Lag 1 of the differenced confirmed coronavirus cases [D(CNFC(-1)] has a negative (-0.0196) and non-significant (p-value=0.0.5920) effect on Nigerian stock prices.

The result from one week lagged recovered coronavirus showed a coefficient of 0.0457 and a p-value of 18.6% (0.1861), which is higher than the ideal values of 1%, 5%, and 10%. It implies that coronavirus confirmed cases can increase the share price in Nigeria, but it is not statistically significant. While the coefficient of coronavirus death cases does not have the potential to influence stock prices, it is not statistically significant. According to the expected ECM coefficient of -0.253923, the speed at which the modification is conducted to attain an equilibrium connection is also calculated. Furthermore, the ECM shows that any deviation from the long-term relationship in the current era requires a 25% adjustment, implying that change is permitted. To put it another way, the ECM expects this to happen.

Table 4.5: **Longrun ARDL Dynamic Model Results**

Dependent Variable: D(PRICE)

Method: Least Squares

Date: 05/15/21 Time: 01:51

Sample (adjusted): 3 24

Included observations: 22 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.620990	60.95053	-0.010188	0.9920
D(PRICE(-1))	0.489716	0.211788	2.312295	0.0336
D(CNFC(-1))	-0.050203	0.048487	-0.107307	0.9158
D(RECOV(-1))	0.220545	0.039258	0.523331	0.6075
D(DEATH(-1))	-1.393377	4.930469	-0.282605	0.7809

R-squared	0.260643	Mean dependent var	-0.758182
Adjusted R-squared	0.086676	S.D. dependent var	298.9420
S.E. of regression	285.6928	Akaike info criterion	14.34443
Sum squared resid	1387546.	Schwarz criterion	14.59239
Log likelihood	-152.7887	Hannan-Quinn criter.	14.40284
F-statistic	1.498236	Durbin-Watson stat	2.287815
Prob(F-statistic)	0.246891		

Source: Author's estimation using Eviews version 11, (2021).

D(PRICE) Method: Least SquaresDate: 05/15/21 Time: 01:51Sample (adjusted): 3 24Observations included: 22 after adjustmentsVariableCoefficientStd.Error

The outcomes of the thong-run ARDL that were analysed using the Akaike information criterion are shown in table 4.5. The stock price is employed as the dependent variable in this study, whereas confirmed cases, recovered cases, and death cases are used as independent factors. The model that was computed above has produced a lot of interesting outcomes. The computed coefficient of confirmed instances demonstrates a negative influence on stock prices, although this effect is not statistically significant at the level of significance used (5 percent). According to the confirmed cases coefficient, a one percent rise in confirmed cases might bring about a price reduction of up to 0.05 percent in the stock market. Therefore, proven circumstances have a beneficial influence on stock prices, but this effect is not statistically significant. This suggests that long-established coronavirus conditions do not affect or determine the movement of stock prices in Nigeria.

Second, the coefficient of recovered cases is positive and statistically insignificant, suggesting that an increase in the number of recovered instances causes a rise in stock prices in Nigeria. This is supported by the fact that the coefficient is positive. For instance, according to the coefficient of recovered conditions, a one percent gain might result in a price increase of up to twenty percent for a company's shares. Third, the coefficient of death cases has a negative influence on stock prices, although this effect is statistically insignificant when compared to a significance threshold of 5%. According to the

coefficient for death cases, a one percent rise in death cases was associated with a 1.39 percent reduction in stock values in Nigeria. The results of this study are similar to what Al-Awadhi et al. (2020) and Osagie, Maijamaa, and John (2020) found in their studies.

4.3 Post Diagnostic Tests

Table 4.6 Serial correlation test result

Breusch-Godfrey Serial Correlation L.M. Test:

Null hypothesis: No serial correlation at up to 2 lags

F-statistic	1.805663	Prob. F(2,14)	0.2006
Obs*R-squared	4.511254	Prob. Chi-Square(2)	0.1048

Table 4.7 Heteroskedastic test results

Heteroskedasticity Test: Breusch-Pagan-Godfrey

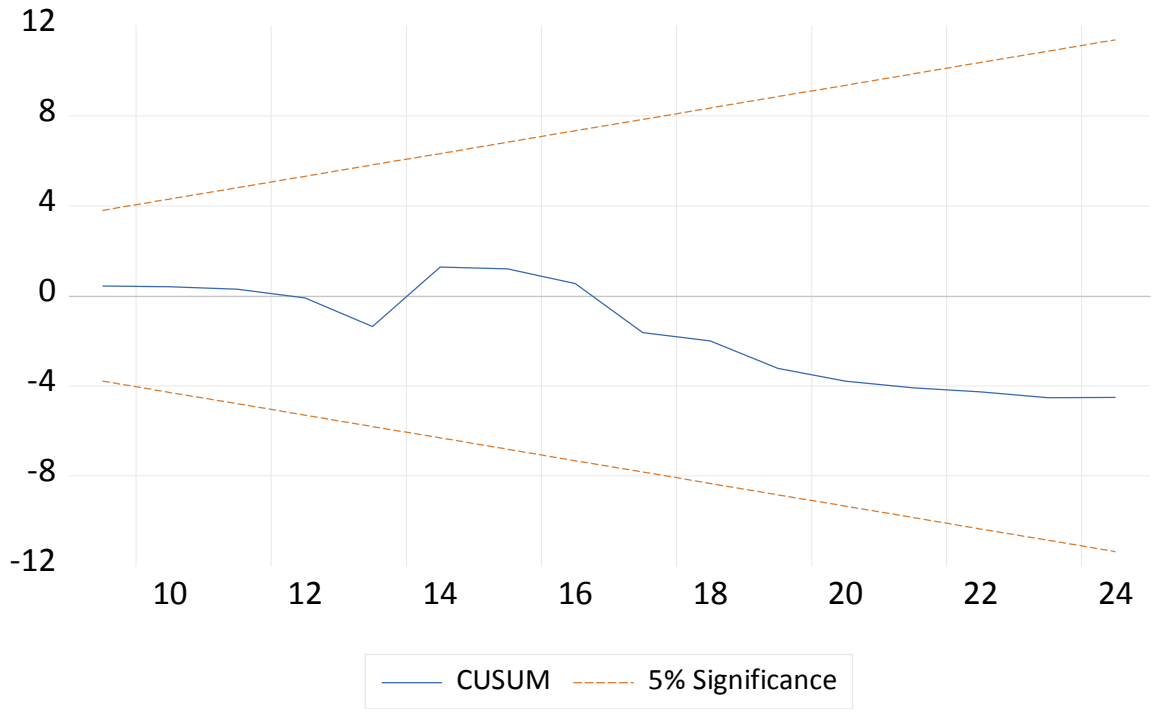
Null hypothesis: Homoskedasticity

F-statistic	0.945737	Prob. F(5,16)	0.4786
Obs*R-squared	5.018702	Prob. Chi-Square(5)	0.4136
Scaled explained SS	11.60531	Prob. Chi-Square(5)	0.0406

Source: Eview 11

The serial correlation and heteroskedasticity in the model errors were examined, and it was determined whether or not the model's functional form had been appropriately described. Additionally, the standard error distribution was confirmed. In addition, the consistency of the parameters is examined by the use of Brown et al.'s cumulative (CUSUM) and cumulative sum of squares (CUSUMSQ) measures (1975). When doing a regression analysis on a time series, the quality of the data is very important and needs careful inspection. They have a unit root in most cases and tend to be non-stationary in nature. In order to prevent any discrepancies in the estimate of the coefficients, Gujarati and Porter (2009) stated that the series in question ought to be stable.

Chart 1 Cusum Stability Test



The estimations were derived by the use of the cumulative sum (CUSUM) of the recursive residuals test by the research. The graphs of these experiments are shown in Figure 1, respectively. At a significance level of five percent, the figures in Figure 1 demonstrate that the CUSUM could not possibly go beyond the critical limits. As a result, it seemed the regression models were reliable.

5. Conclusion

In this study, we looked at how the coronavirus outbreak influenced the Nigerian Stock Exchange's performance. According to the results of this investigation, Nigeria's stock market seems to be unrelated to the COVID-19 outbreak in the long run. Even more so, ARDL shows that the Nigerian stock market is negatively affected by a confirmed case or death, but only a recovered case has a positive effect on stock prices.

According to the findings of this study, which are based on empirical studies (confirmed, recovered, and death), coronaviruses do not influence stock market movements. The feeling of uncertainty makes investors feel even worse, which has a ripple effect on prices and returns on the market.

5.1. Recommendations

In spite of the fact that the research found that covid-19 did not have an effect on stock prices, investors will be able to make more educated investing choices as a result of this. Accordingly, the research suggests that the stakeholders in the stock exchange market should make sure that relevant information flows into the market space through a medium that is dependable and transparent. Some examples of such mediums include official websites, electronic platforms, and social media platforms. In addition, all of the governments and other organisations that are worried throughout the world, including the government of Nigeria, need to work together to discover a treatment for the COVID-19 pandemic in order to lessen the wide range of negative effects it has on human and economic endeavours.

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