

Volatility and Capital Market Returns Amidst Corona Virus Pandemic: E-Garch Evidence From Nigeria

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Abstract

This study, the relationship between Volatility and Capital Market Returns amidst Corona Virus Pandemic in Nigeria is apt because an institution like the capital market should be properly bulwarked amidst the Novel Corona Virus (COVID-19) pandemic and its daily return trend should properly and adequately disclosed to investors for proper precautions. To achieve this objective, the daily time series data representing the capital market returns (proxied by All Share Index) was sourced from Nigerian Stock Exchange Reports for the period; February 03, 2020 to June 30, 2020. The EGARCH framework was used in order to ascertain the conditional variance (volatility), asymmetric effect and volatility persistence. The following findings were made, conditional variance (volatility) impacts insignificantly on the capital market returns in Nigeria amidst COVID-19 within the period under review. Again, the Nigerian capital market volatility is persistent amidst COVID-19 in Nigeria within the period of this study. Asymmetry effect was invalidated in the Nigeria capital market in the first four months of the pandemic in Nigeria. The presence of high persistent volatility clustering was confirmed within the period of the study. It was also found that conditional volatility will rise or fall when the absolute value of the standardized residual is larger (smaller). Having found that volatility is insignificantly related to the capital market return, the researchers; therefore encourage investors to go about their normal business activities in the capital market. Again, since volatility is persistent, the regulatory authority should increase her surveillance role in order to avert perceived doom days as a result of the COVID-19 pandemic.

Keywords: Capital Market, Volatility, Corona virus, E-GARCH, Nigeria

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I. Introduction

The outbreak and spread of corona virus pandemic named COVID-19 has undoubtedly disrupted the global economy in general and Nigerian financial system in particular. The evolution of the disease and its economic impact is highly uncertain which makes it difficult for investors and policymakers alike to formulate an appropriate macroeconomic policy and investment decisions. As a result, the shocks from the pandemic seem to have steered uncertainty in the Nigerian capital market and perceived to have also caused a sharp drop in the capital market returns. In the words of Warwick and Roshen [30], the decline in aggregate demand, together with the original risk shocks cause a sharp drop in equity markets. The funds from equity markets are partly shifted into bonds, partly into cash and partly overseas depending on which markets are most affected. Central banks respond by cutting interest rates which drive together with the increased demand for bonds from the portfolio shift, drives down the real interest rate. Equity markets drop sharply both because of the rise in risk of the COVID-19 and also because of the expected economic slowdown and the fall in expected profits.

Sequel to the aforementioned, special attention should be given to the capital market, especially in Nigeria. This is because the capital market as one of the environments of investment decisions; is an avenue for the interactions among the surplus and deficit economic units of any economy. The capital markets facilitate economic growth by enhancing liquidity and providing funds for industrialization and economic development. They also act as interesting investment centers and avails long-term capital to the listed firms by pooling funds from different investors and allow them to expand in business by offering investors alternative investment avenues to put their surplus funds. It plays a crucial role in economy of the country, which transfers investment fund from stock investors to stock borrowers as already stated which is necessary for healthy economy [24, 1, 14, 17].

On capital market return and volatility of the stock market, a rational investor makes investments with some expectation of returns and a fall in stock prices weakens consumer confidence and drive down consumer spending. Capital market volatility presence in the stock market would lead investors to demand a higher risk

premium, creating higher cost of capital, which impedes investment and slows economic development especially in this COVID-19 pandemic.

Emphatically, volatilities in capital market behavior are of importance as they shed light on the data generating process of the return. As a result, such issues guide investors in their decision making process because not only are the investors interested in returns, but also in the uncertainty of such returns. Efforts towards the capital market palliative amidst this pandemic would be an exercise in futility if volatility of the stock market is not addressed. This is because a volatile stock market weakens consumer confidence and drives down consumer spending. This can alter investment equilibrium position of an economy as investors turn to purchase stock of larger well known firms at the expense of new firms. It can trigger a general rise in cost of capital and directly affect economic growth. Investors' portfolio allocation would be affected as they would have to hold more stocks in their portfolio in order to reap the benefits of diversification [26,15]. Again an institution like the capital market should be properly bulwarked amidst the Novel Corona Virus (COVID-19) and its daily return trend should be adequately disclosed to investors for proper precautions. The above concerns triggered the interest of the researchers to embark on this study concentrating on the first four months of COVID-19 pandemic in Nigeria.

The subsequent sections of this study are decomposed as follows; section two takes care of review of related literature; section three handles the materials and methods of analysis adopted; section four analyses the data, results and interpretation, while section five addresses conclusion and recommendation.

II. Literature Review

In finance and economics, plethora of issues has aroused the interest of researchers to work on capital market returns and volatility. The novel COVID-19 has also queued as one such occurrence. According to Karolyi [19] the existence of excessive volatility or 'noise', in the stock market undermine the usefulness of stock prices as a 'signal' about the true intrinsic value of a firm, a concept that is core to the true paradigm of the information efficiency of markets. Emenike and Aleke [9] volatility is a measure of risk; hence an increase in volatility signals and higher expected future risk. To bear this risk, investors will require higher returns and are thus inclined to pay less for the relevant equity. It can be adduced then that relationship between expected returns and expected volatility has come to be. Theory generally predicts a positive relationship between expected stock returns and volatility, if investors are risk averse. That is, equity premium provides more compensation for risk when volatility is relatively high. In other words, investors require larger expected return from a security that is riskier [25]. Emenike [10] also added that volatility clustering occurs when large stock price changes, of both signs, and small price changes are followed by periods of small price changes. In another way, Asymmetry (leverage effect) means that a fall in returns is followed by an increase in volatility greater than the volatility induced by an increase in returns. This implies that more prices wander far from the average trend in a crash than in bubble because of higher perceived uncertainty [13, 3]. These characteristics are perceived as indicating a rise in financial risk, which can adversely affect investors' assets and wealth. A greater risk premium results in a higher cost of capital, which then leads to less private physical investment [25].

The orthodox measure of volatility as represented by variance or standard deviation is unconditional and does not recognize that there are interesting patterns in asset volatility, example, time-varying and clustering properties [6]. Scholars and researchers have introduced various models to explain and predict these patterns in volatility. Engle [12] introduced the autoregressive conditional heteroskedasticity (ARCH) to model volatility. Engle [12] modeled the heteroskedasticity by relating the conditional variance of the disturbance in the recent past. Bollerslev [5] generalized the ARCH model by modeling the conditional variance to depend on its lagged value as well as squared lagged value of disturbance, which is called generalized autoregressive conditional heteroskedasticity (GARCH). The model includes GARCH-in-mean (GARCH-M) model introduced by Engle and Granger [11] and other models introduced by other researchers.

On COVID-19 in synopsis, the outbreak was as a result of the SARS-CoV-2 virus. It was reportedly started in December 2019 in Wuhan city in Hubei province of China. It was formerly named on February 11, 2020 by the World Health Organization (WHO) as the Severe Acute Respiratory Syndrome Corona virus 2 (SARS-CoV-2). The novel COVID-19 continues to spread across the world with clusters of pneumonia cases. Initially the epicenter of the outbreak was China with reported cases either in China or being travelers from China. This outbreak after thorough examination was declared a Public Health Emergency of International Concern (PHEIC) by the World Health Organization (WHO) on January 30, 2020 [29]. Later named the Corona virus disease 2019 with abbreviation; COVID-19 [32, 31, 4].

Due to the outbreak, researchers around the globe are out to exhume the health, economic, social and political impacts of the pandemic [16, 27, 23]. For instance, Jordà et al [18] studied the long-run effects of a sample of 12 major epidemics in Europe stretching back to the 14th century and found that pandemics were followed by multiple decades of low natural interest rates, due to higher precautionary saving and depressed investment opportunities. Indeed, unlike wars, pandemics do not destroy physical capital, and typically give rise

to a long period of excess capital per surviving worker. Also, Correia et al, [8] estimate that this pandemic has drastically reduced manufacturing activity and consumption growth in USA by around 20%, while Barro et al, [2] with Cross-country panel regressions estimated the adverse effect of the pandemic impact on global GDP to be around 6–8% overall. For the US, the quarterly contraction is expected to be largest in the second quarter. It is also notable that, by the end of 2020, the level of US GDP under these projections would still fall short. It points to cross-country spillovers as an important amplification channel of the Covid-19 shock Correia et al [8]. Due to the rise in the cases and public health risk COVID-19 poses to the world, the World Health Organization (WHO) has declared a public health emergency of international concern to coordinate international responses to the disease, which is now a global pandemic [30]. Again, United Nations has tagged the COVID-19 pandemic a health, economic and social crisis [29]. In the same way, UNCTAD [28] sees the COVID-19 as a public health emergency and obvious economic threat.

In Nigeria, a good number of measures are put in place to combat the spread of the pandemic; President Muhammadu Buhari directed the cessation of all movements in Lagos and the Federal Capital Territory (FCT) for an initial period of 14 days, which took effect from 11 pm on Monday, 30th March 2020. The movement restriction, which was extended by another two-week period, was partially put on hold with some businesses commencing operations from May 4, 2020. On April 27th, 2020, Nigeria’s President, Muhammadu Buhari declared an overnight curfew from 8 pm to 6 am across the country, as part of new measures to contain the spread of the COVID-19. This came along with the phased and gradual easing of lockdown measures in FCT, Lagos, and Ogun States, which took effect from Saturday, 2nd May 2020, at 9 am. On Monday, 29th June 2020 the Federal government extended the second phase of the eased lockdown by 4 weeks and approved interstate movement outside curfew hours with effect from July 1, 2020 [20].

As recorded in one of the researchers’ work, notwithstanding the efforts and measures by the President of Nigeria, President Muhammadu Buhari under the auspices of the Presidential Task Force (PTF) and the National Centre for Disease and Control (NCDC), there is yet increased daily records of new cases of the COVID-19. As at the time of revisiting the two papers on July 14, 2020, 36 states and FCT had 199016 samples tested, 33616 cases were confirmed, discharged cases were 13792 and total fatalities were 754, while globally from 213 countries and territories had 12964809 confirmed cases and 570288 death [21]. Table 1 and Figure 1 in the appendix are distribution and the trend of confirmed cases, active cases, critical cases, new cases, new death, total death and total recovery computed from table. A close look at the figure 1 in the appendix as computed from table 1 in the appendix shows a persistent increase in all the cases recorded.

III. Data and Methods

The daily time series data representing the capital market returns (proxied by All Share Index (ASI)) employed in this study is obtained from Nigerian Stock Exchange Reports for period; February 03, 2020 to June 30, 2020. The choice of EGARCH framework is to accommodate examination of conditional variance (volatility), asymmetric effect and volatility persistence [22]. The model for volatility using EGARCH framework is specified as follows:

$$\ln \vartheta_t^2 = \omega + \beta_{in} \vartheta_{t-1}^2 + \alpha \left[\frac{\varepsilon_{t-1}}{\vartheta_{t-1}} - \frac{2}{x} \right] + \Upsilon \left| \frac{\varepsilon_{t-1}}{\vartheta_{t-1}} \right|$$

Where, ω , β , α , Υ are constant parameters, $\ln \vartheta_t^2$ = the one period ahead volatility forecast; ω = the mean level, β = persistence parameter α = volatility clustering coefficient

$\ln \vartheta_{t-1}^2$ = the past variance, Υ = the leverage effect.

Decision Rule

The EGARCH-in-mean model is an improvement of the GARCH which imposes a non-negativity constant on market variable, and permits for conditional variance to respond asymmetrically to returns innovations of different signs. If γ is negative, leverage effect exists, implying that, bad news increases predictable volatility more than good news of similar magnitude [3, 7]. In other words, negative value of γ is called the ‘sign effect’. If α is positive, then the conditional volatility tends to rise (fall) when the absolute value of the standardized residuals is larger (smaller). α is called the ‘magnitude effect’.

IV. Results and Discussion

4.1. Trend of Daily ASI from February 03, 2020 to June 30, 2020

A close look at the figure 1 below suggests the presence of fluctuations or volatility in ASI within the scope of the study in Nigeria. This shows the presence of ARCH effects in the model and confirmed the choice of EGARCH framework in the estimation of the model. It is observed that the trend tilted more towards negative than positive amidst the period under review.

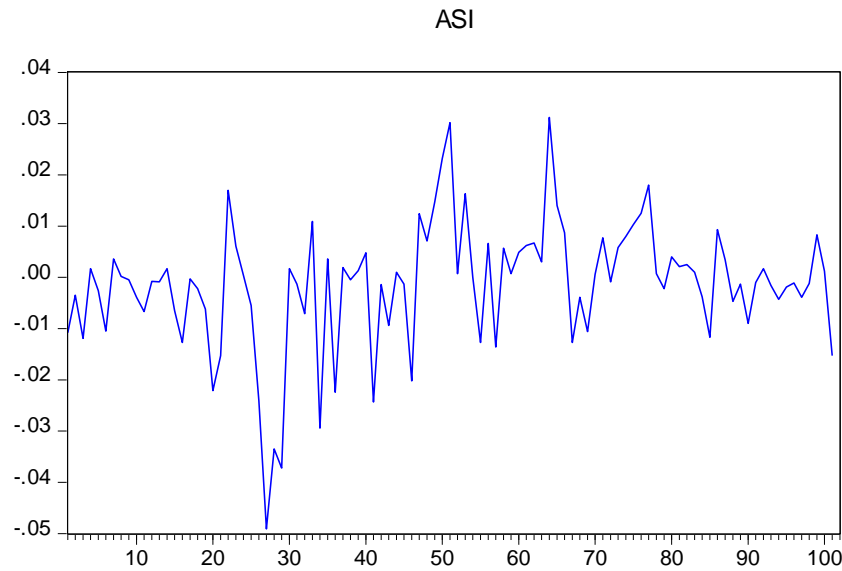


Figure 1: Trend of Daily ASI from February 03, 2020 to June 30, 2020

4.2. Description of the Data, ASI

Table 2 below is a summary of the distributional features of daily all share index (ASI). The table revealed that daily data Jarque Bera recorded coefficient of 34.70591 with probability value of 0.000000 suggesting an abnormal distribution.

Table 2. Descriptive Statistics of the Data, ASI

	ASI
Mean	-0.001547
Median	-0.000500
Maximum	0.031200
Minimum	-0.049100
Std. Dev.	0.012416
Skewness	-0.749670
Kurtosis	5.449271
Jarque-Bera	34.70591
Probability	0.000000
Sum	-0.156200
Sum Sq. Dev.	0.015416
Observations	101

4.3. Estimation of Model using EGARCH

The estimation results are shown below in table 3;

In table 3 below revealed as follows; the mean equation reveals that the coefficient of the conditional volatility (b_2) is positive and insignificant. This shows that conditional variance (volatility) impacts insignificantly on the capital market returns in Nigeria amidst COVID-19 within the period of this study. This result contradicts the general theory that predicts a positive relationship between expected stock returns and volatility, if investors are risk averse. That is, equity premium provides more compensation for risk when volatility is relatively high. In other words, investors require larger expected return from a security that is riskier.

The persistent parameter (β) is positive and significant suggesting that the Nigerian capital market volatility is persistent amidst COVID-19 in Nigeria within the period under study.

Asymmetry parameter (γ) is positive and insignificant, invalidating asymmetric effect in the Nigeria capital market in the first four months of the pandemic. This corroborates the result of the mean equation that reveals the coefficient of the conditional volatility (b_2) to be positive and insignificant. This shows that the news of COVID-19 is not magnifying volatility more than previous volatility in the capital market returns in Nigeria within the period of this study.

Also the sum of the ARCH and GARCH parameters $\alpha + \beta$ is approximated to be 1 ($\alpha + \beta = 1.331136$) for daily all share index suggesting a high persistent of volatility clustering. Magnitude effect (α) (volatility

clustering) coefficient of EGARCH is positive and significant. That means the conditional volatility will rise or fall when the absolute value of the standardized residual is larger (smaller). The Durbin-Watson (Dw) statistics is 1.633939, suggesting absence of autocorrelation in all the models.

Table 3. EGARCH Estimation

Dependent Variable: ASI				
Method: ML ARCH - Normal distribution (BFGS / Marquardt steps)				
Q = C(4) + C(5)*(Q(-1) - C(4)) + C(6)*(RESID(-1)^2 - GARCH(-1))				
GARCH = Q + C(7) * (RESID(-1)^2 - Q(-1)) + C(8)*(GARCH(-1) - Q(-1))				
Variable	Coefficient	Std. Error	z-Statistic	Prob.
B ₂ (GARCH)	11.59077	14.97121	0.774204	0.4388
b ₁ (ASI_1_)	0.231021	0.123695	1.867666	0.0618
b ₀	-0.002317	0.001832	-1.264146	0.2062
Variance Equation				
ω	0.000217	0.000258	0.839796	0.4010
α	0.975742	0.035287	27.65161	0.0000
γ	0.108229	0.088774	1.219147	0.2228
B	0.355394	0.180016	1.974236	0.0484
C(8)	0.014314	0.312227	0.045844	0.9634
R-squared	0.083920	Mean dependent var		-0.001547
Adjusted R-squared	0.065224	S.D. dependent var		0.012416
S.E. of regression	0.012004	Akaike info criterion		-6.115282
Sum squared resid	0.014122	Schwarz criterion		-5.908143
Log likelihood	316.8217	Hannan-Quinn criter.		-6.031426
Durbin-Watson stat	1.633939			

4.4. Autocorrelation Test for Daily ASI

For more authentications, the researchers proceeded to verifying with Autocorrelation test which is a special correlation test that examines the relationship between successive values of the same variable and not necessarily between two or more variables. The test is shown in table 4 below;

Table 4 below depicts the autocorrelation test for daily ASI. It revealed that the individual autocorrelation (AC) at different lags from 1-36 and the associated probability values suggest that successive autocorrelation of the prices are insignificant. This further suggest non rejection no autocorrelation. That means the researchers should not be bordered about presence of autocorrelation.

Table 4. Autocorrelation Test for Daily ASI

Autocorrelation	Partial Correlation	AC	PAC	Q-Stat	Prob*	
. *	. *	1	0.092	0.092	0.8836	0.347
. *	. *	2	0.147	0.140	3.1523	0.207
. .	. .	3	0.020	-0.004	3.1969	0.362
. .	* .	4	-0.059	-0.084	3.5750	0.467
. *	. *	5	0.116	0.130	5.0375	0.411
. .	. .	6	0.003	0.004	5.0387	0.539
. *	. .	7	0.100	0.067	6.1543	0.522
. .	. .	8	0.014	-0.009	6.1757	0.628
. *	. *	9	0.124	0.125	7.9275	0.541
. *	. *	10	0.122	0.092	9.6319	0.473
. *	. *	11	0.155	0.125	12.396	0.335
. .	. .	12	0.066	-0.003	12.909	0.376
. *	. *	13	0.092	0.080	13.911	0.380
. *	. *	14	0.112	0.087	15.401	0.351
. *	. *	15	0.095	0.075	16.496	0.350
. *	. .	16	0.117	0.049	18.181	0.313
. .	. .	17	0.035	0.009	18.336	0.368
. .	. .	18	0.027	-0.020	18.430	0.428
* .	* .	19	-0.090	-0.128	19.447	0.429
. .	. .	20	-0.009	-0.051	19.457	0.492

. .	. .	21	0.008	-0.026	19.464	0.555
. .	* .	22	-0.054	-0.117	19.848	0.593
. .	. .	23	0.023	-0.056	19.920	0.647
* .	* .	24	-0.106	-0.157	21.435	0.613
. .	. .	25	0.053	-0.006	21.823	0.646
. *	. *	26	0.153	0.136	25.065	0.515
. .	* .	27	-0.026	-0.096	25.160	0.565
. .	. .	28	0.066	0.009	25.775	0.585
. .	. .	29	-0.042	0.021	26.032	0.624
* .	* .	30	-0.132	-0.120	28.581	0.540
. .	. *	31	0.067	0.107	29.247	0.556
* .	* .	32	-0.135	-0.086	31.980	0.468
. .	. *	33	0.042	0.092	32.253	0.504
* .	. .	34	-0.113	-0.057	34.236	0.456
. .	. .	35	-0.011	0.060	34.256	0.504
. .	* .	36	-0.058	-0.075	34.796	0.526

*Probabilities may not be valid for this equation specification.

4.5. Heteroscedasticity Check

Table 5 below shows that F-statistic has coefficient of 0.025630, with probability value of 0.8731, which is insignificant at 5%, rejecting the presence of heteroscedasticity of the model, the model is homoscedastic.

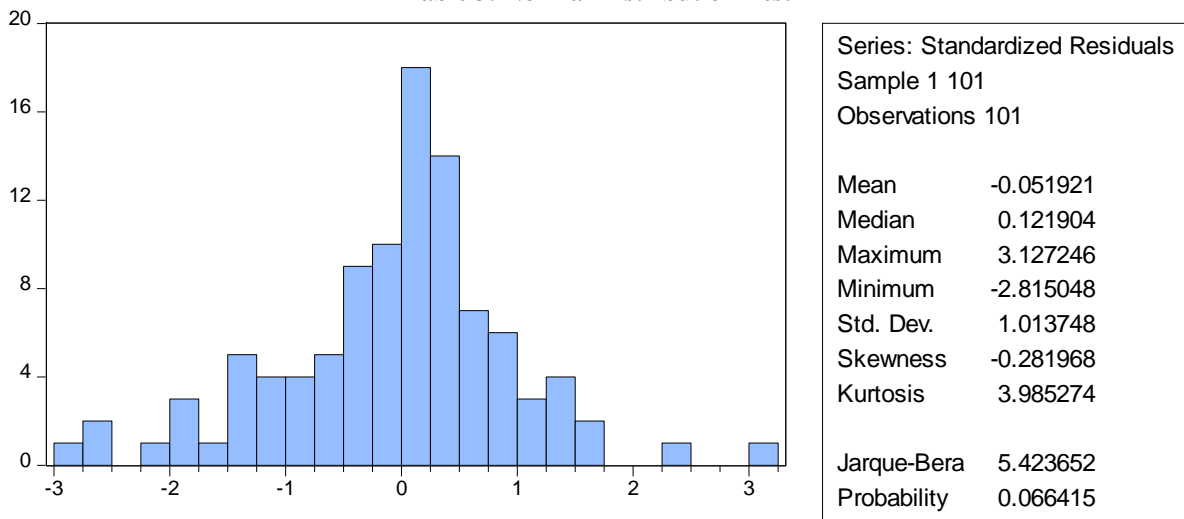
Table 5: Heteroscedasticity Test: ARCH

Heteroskedasticity Test: ARCH			
F-statistic	0.025630	Prob. F(1,98)	0.8731
Obs*R-squared	0.026146	Prob. Chi-Square(1)	0.8715

4.6. Normal Distribution Check

Table 6 below shows that the minimum value is -2.815048, while maximum value is 3.127246. The wide gap between the maximum and minimum lend credence to the suspected high volatility of ASI amidst the COVID-19 in Nigeria within the period of the study. Kurtosis is 3.985274, which is greater than 3 indicating leptokurtic distributions. Leptokurtosis is the tendency of financial asset returns to have distribution that exhibit fat tails and excess peakness at the mean. This shows that big shock of either signs is more likely to be present in the ASI amidst the COVID-19 pandemic. It is important to point out that the skewness is negatively skewed suggesting the distribution has a long left tail. These shows large negative movements in ASI are not normally followed by the same magnitude of positive movement. Finally, Jarque-Bera coefficient is 5.423652 with probability value of 0.066415, implying normal distribution at 5% significant level.

Table 3: Normal Distribution Test



V. Conclusion and Recommendations

This study examined the relationship between Volatility and Capital Market Returns amidst Corona Virus Pandemic in Nigeria. After the empirical examinations, the major findings are; volatility is not actually hampering the returns in the capital market returns in Nigeria amidst COVID-19 within the period of this study, though the market volatility is found to be persistent. Again, within the first four months of the pandemic in Nigeria, the news of COVID-19 is not magnifying volatility more than previous volatility in the capital market returns in Nigeria within the period of this study. It was also found that the market exhibit evidence of high persistent volatility clustering and that big shock of either signs are more likely to be present in the ASI amidst the COVID-19 pandemic.

From the empirical results, volatility is found to be insignificantly related to the capital market returns, the researchers; therefore encourage investors to go about their normal business activities in the capital market. Again, since volatility is persistent, the regulatory authority should increase her surveillance role in order to avert perceived doom days as a result of the COVID-19 pandemic.

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Appendix

Table 1: Confirmed Cases, Active Cases, Critical Cases, New Cases, New Death, Total Death and Total Recovery

Date	Confirmed case	New cases	Total deaths	New deaths	Total recovery	Active cases	Critical cases
28-Feb-20	1	1	0	0	0	1	0
10-Mar-20	2	0	0	0	0	2	0
17-Mar-20	3	1	0	0	0	3	0
18-Mar-20	8	5	0	0	1	7	0
20-Mar-20	12	4	0	0	1	11	0
21-Mar-20	22	10	0	0	1	21	0
22-Mar-20	30	8	0	0	2	28	0
23-Mar-20	40	10	1	1	2	37	0
24-Mar-20	44	4	1	0	2	41	0
25-Mar-20	51	7	1	0	2	48	0
26-Mar-20	65	14	1	0	2	62	0
27-Mar-20	70	5	1	0	3	66	0
28-Mar-20	89	19	1	0	3	85	0
29-Mar-20	111	22	1	0	3	107	0
30-Mar-20	131	20	2	1	8	121	0
31-Mar-20	139	8	2	0	9	128	0
1-Apr-20	174	35	2	0	9	163	0
2-Apr-20	184	10	2	0	20	162	0
3-Apr-20	209	25	4	2	25	180	0
4-Apr-20	214	5	4	0	25	185	0
5-Apr-20	232	18	5	1	33	194	2
6-Apr-20	238	6	5	0	35	198	2
7-Apr-20	254	16	6	1	44	204	2
8-Apr-20	274	22	6	0	44	226	2
9-Apr-20	288	14	7	1	51	230	2
10-Apr-20	305	17	7	0	58	240	2
11-Apr-20	318	13	10	3	70	238	2
12-Apr-20	323	5	10	0	85	228	2
13-Apr-20	343	20	10	0	91	242	2
14-Apr-20	373	30	11	1	99	263	2
15-Apr-20	407	34	12	1	128	267	2
16-Apr-20	442	35	13	1	152	277	2
17-Apr-20	493	51	18	4	159	317	2
18-Apr-20	541	48	20	2	166	356	2
19-Apr-20	627	86	22	2	170	436	2
20-Apr-20	665	38	23	1	188	466	2
21-Apr-20	782	117	26	3	197	560	2
22-Apr-20	873	91	29	3	197	648	2
23-Apr-20	981	108	32	3	197	753	2
24-Apr-20	1095	114	33	1	208	855	2
25-Apr-20	1182	87	36	3	222	925	2
26-Apr-20	1273	91	41	5	239	994	2
27-Apr-20	1337	64	41	0	255	994	2
28-Apr-20	1532	195	45	4	255	1232	2
29-Apr-20	1728	196	52	7	307	1369	2
30-Apr-20	1932	204	59	7	317	1556	2
1-May-20	2170	238	69	10	351	1751	2
2-May-20	2388	220	86	17	351	1952	2
3-May-20	2558	170	88	2	400	2070	2
4-May-20	2802	245	94	6	417	2291	2
5-May-20	2950	148	99	5	481	2370	4
6-May-20	3145	195	104	5	534	2507	1
7-May-20	3526	381	108	4	601	2818	4
8-May-20	3912	386	118	10	679	3115	4
9-May-20	4151	239	127	11	745	3278	4
10-May-20	4399	248	142	17	778	3479	4
11-May-20	4641	242	152	10	902	3589	4
12-May-20	4787	146	158	6	959	3670	4
13-May-20	4971	184	164	6	1070	3737	4
14-May-20	5162	193	168	3	1180	3815	4
15-May-20	5445	288	171	3	1320	3954	4
16-May-20	5621	176	176	5	1472	3973	7
17-May-20	5959	388	182	6	1594	4183	7
18-May-20	6175	216	191	9	1644	4340	7

19-May-20	6401	226	192	1	1734	4475	7
20-May-20	6677	284	200	8	1840	4637	7
21-May-20	7016	339	211	11	1907	4898	7
22-May-20	7261	245	221	10	2007	5033	7
23-May-20	7526	265	221	0	2174	5131	7
24-May-20	7839	313	226	5	2263	5360	7
25-May-20	8068	229	233	7	2311	5524	7
26-May-20	8344	276	249	16	2385	5710	7
27-May-20	8733	389	254	5	2501	5978	7
28-May-20	8915	182	259	5	2592	6064	7
29-May-20	9302	387	261	2	2697	6344	7
30-May-20	9855	553	273	12	2856	6726	7
31-May-20	10162	307	287	14	3007	6868	7
1-Jun-20	10578	416	299	12	3122	7157	9
2-Jun-20	10819	241	314	15	3239	7266	7
3-Jun-20	11166	348	315	1	3329	7522	7
4-Jun-20	11516	350	323	8	3535	7646	7
5-Jun-20	11844	328	333	10	3696	7815	7
6-Jun-20	12233	389	342	9	3826	8065	7
7-Jun-20	12486	260	354	12	3959	8173	7
8-Jun-20	12801	315	361	7	4040	8400	7
9-Jun-20	13464	663	365	4	4206	8893	7
10-Jun-20	13873	409	382	17	4351	9140	7
11-Jun-20	14554	681	387	5	4494	9673	7
12-Jun-20	15181	627	399	12	4891	9891	7
13-Jun-20	15682	501	407	8	5101	10174	7
14-Jun-20	16085	403	420	13	5220	10445	7
15-Jun-20	16658	573	424	4	5349	10885	7
16-Jun-20	17148	490	455	31	5623	11070	7
17-Jun-20	17735	587	469	14	5967	11299	7
18-Jun-20	18480	745	475	6	6307	11698	7
19-Jun-20	19147	667	487	12	6581	12079	7
20-Jun-20	19808	661	506	19	6718	12584	7
21-Jun-20	20242	436	518	12	6879	12847	7
22-Jun-20	20919	675	525	7	7109	13285	7
23-Jun-20	21371	452	533	8	7338	13500	7
24-Jun-20	22020	649	542	9	7613	13865	7
25-Jun-20	22614	594	549	7	7822	14243	7
26-Jun-20	23298	684	554	5	8253	14491	7
27-Jun-20	24077	779	558	4	8625	14894	7
28-Jun-20	24867	490	565	7	9007	14995	7
29-Jun-20	25133	566	573	8	9402	15158	7
30-Jun-20	25694	561	590	17	9746	15358	7

Source: NCDC, July 1, 2020.

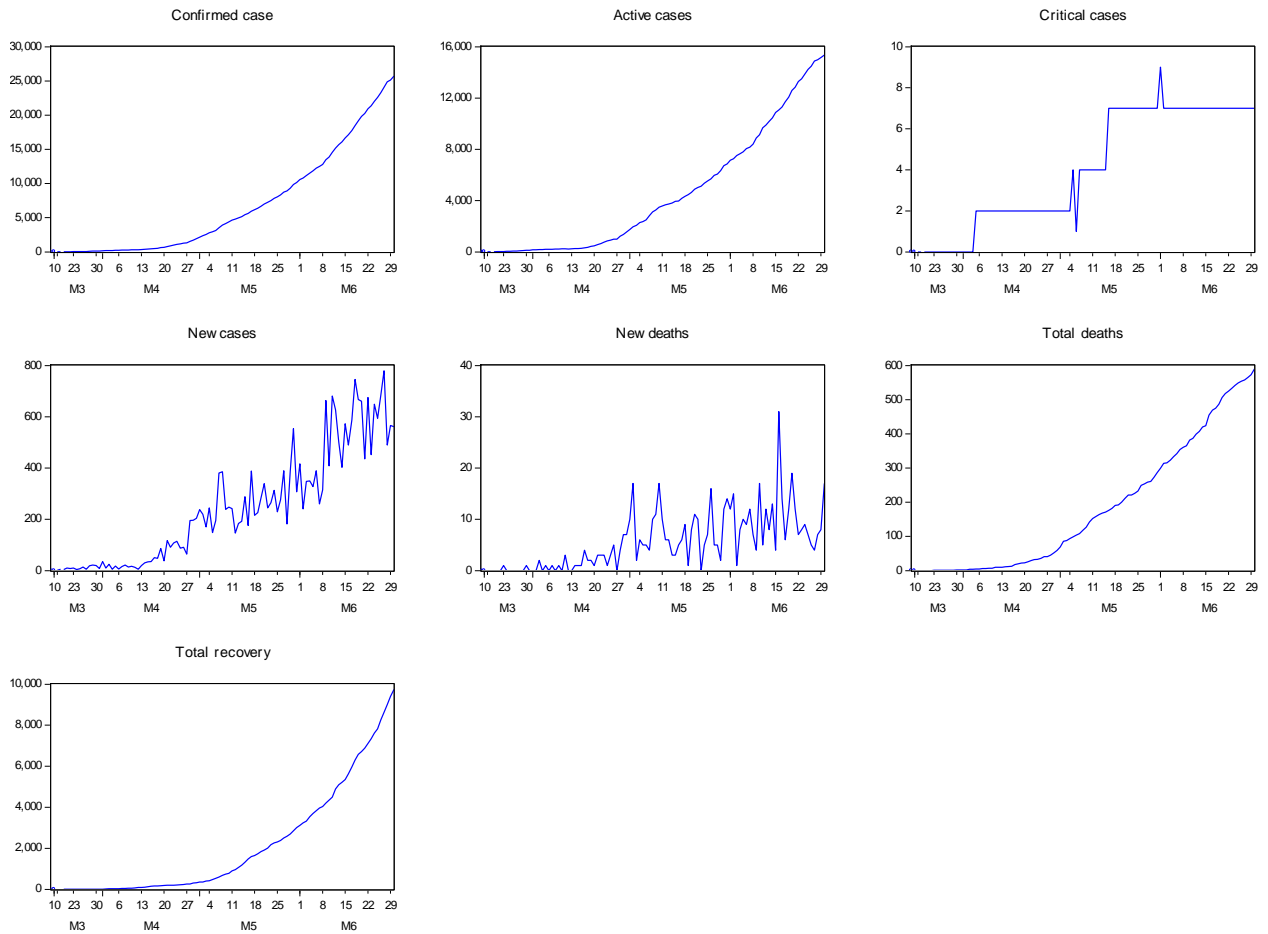


Fig 1: Trend of Confirmed Cases, Active Cases, Critical Cases, New Cases, New Death, Total Death and Total Recovery

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