

Collective Investment Schemes' Returns And One Year Covid-19 Experience: The Nigeria's Case

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ABSTRACT

This study examines the impact and nexus between cases of coronavirus disease (COVID-19) and the returns of seven classes of collective investment schemes (CIS) in Nigeria (bond funds, equity-based funds, fixed income funds, ethical funds, money market funds, mixed funds and real estate funds) within the first 52 weeks of the outbreak of the pandemic in Nigeria, 27th February, 2020 to 26th February, 2021 using Auto-regressive Distributed Lag and Pearson correlation techniques. Empirical findings suggest that COVID-19 cases and returns of collective investment schemes in Nigeria are cointegrated while COVID-19 cases are negatively correlated with the returns from bonds funds, equity based funds and money market funds as against the positive correlation between COVID-19 cases and returns from ethical, fixed income and real estate funds. Furthermore, COVID-19 confirmed cases are negatively related with returns from mixed fund as against the fund's returns' positive correlation with COVID-19 fatal and discharged cases. Moreover, except for COVID-19 discharged cases which has significant positive impact on fixed income funds' returns, none of the other indicators of COVID-19 exerts significant influence on the returns of each of the seven CIS in Nigeria. It can be concluded that COVID-19 cases do not have significant impact on collective investment schemes' returns in Nigeria. It is recommended that collective investment schemes in Nigeria should be accorded the popularization, incentives, boost, empowerment it deserves by the government and the organized private sector.

KEYWORDS: ARDL; COVID-19; Collective Investment Schemes; Returns; Mutual funds.

JEL CLASSIFICATION: E44, G11, G14

INTRODUCTION

The synergy in a group operating together as a team in attaining the group goal is not only an axiom and a managerial principle but a key idea behind the innovation of collective investment scheme. Hence, in the scheme various people's resources are pooled together for the purpose of investing in a portfolio managed by a professional funds manager and the risk and returns therefrom are shared among the unit holders in proportion of their investment. Risk and returns considered to be the Siamese twins of investment decision (Babarinde, 2020a) are affected by several factors, such as firm specific features (like size,

liquidity, product diversification), macroeconomic factors (like exchange rate, inflation, population growth, economic growth, interest rate). Like any form of investment decision, collective investment is information-driven. Therefore, the barrage of factors adduced to be of influence on the performance of the scheme reflect in the form of information endogenously and exogenously generated in the market and the economy-wide sources too. The efficient market hypothesis laid the foundation for the study of the influence of information on the performance of investment market but the theory could not provide a comprehensive list of all

conceivable information sets capable of influencing investment decision.

Investment world is full of risk, particularly the collective investment schemes have the potential of being affected by several risks. Pfeiferová and Kuchařová (2020) submit that the main risks associated with investments in collective investment funds include interest rate risk, currency risk, equity risk, credit risk, counterparty risk, liquidity risk, operational risk and political risk. Other types of risk include Market risk(economy-wide), investment risk (loss of principal), inflation risk, custodian risk (bankruptcy of custodian). In the mist of these web of risks surrounding collective risks, came the health pandemic which put the world at hold and the financial market in tension. On the 27th of February 2020, Nigeria detected her first case of the novel coronavirus disease 2019 (COVID-19) after its first discovery in December 2019 in China (Nigeria Centre for Disease Control[NCDC], 2021). COVID-19-induced pandemic has generated high level of fear and apprehension, with the associated huge losses, disruption of businesses and global economic loss has caused unprecedented global socio-economic loss (Stanley et al, 2020).

Despite the increase from the single index case of COVID-19 in Nigeria as at 27th February 2020, as 28th February 2021, the total cumulative confirmed cases became 133,742, while 1,907 deaths reported with a case fatality rate (CFR) of 1.2% and the total recoveries stood at 133,742 cases. Despite the incidence of COVID-19 in Nigeria, there has been increase in the performance of collective investment schemes in Nigeria in terms of numbers and net asset values. For instance, the total number of mutual funds in Nigeria as at the months ended 29th February 2020 and 28th February 2021 was 94 and 106 respectively

(Securities and Exchange Commission [SEC], 2021) representing a 12.8% increase in the total number of mutual funds spread across seven different classes of funds, (equity-based, money market, bonds, fixed income, real estate, mixed, and ethical funds), within a one-year period. In the same vein, the net asset value (NAV) of the mutual funds within the same period also posted an increase of about 30% from ₦1,167,212,606,967.12 on 29th February, 2020 to ₦1,517,189,145,722.44 as at 28th February 2021.

Regular handwashing, physical distancing, proper use of face masks and lockdown measures have been used to reduce the risk of spread of the virus. The lockdown and social distancing have disrupted business activities, employment and investment activities from which people derive their income. These possess a risk to the livelihood of people generally and in this pandemic-induced uncertainty, the financial market, particularly are perceived not to be left unaffected. The recent COVID-19 came with its aftermath not only medically but also financial market implications. For instance, the pandemic has brought panic selling syndrome among investors and desire for safe haven for their investment (Babarinde, Abdulmajeeed & Ugwuanyi, 2020).

However, the extent to which information on cases of coronavirus disease affects the performance of collective investment is yet to be clarified empirically. Unlike most previous studies that mostly focused on COVID-19 and its relationship with capital market (Alfaro et al, 2020; Babarinde,2020b), banking sector (Babarinde, Abbulmajeeed et al, 2020, Iwedi et al, 2020), our study is unique in the sense that it focused on the effects of COVID-19 on the collective

investment scheme, an area which remained relatively unexplored.

The thrust of this study is to examine the impact of COVID-19 on returns of collective investment schemes in Nigeria in the first 52 weeks of the outbreak of the pandemic in Nigeria (27th February 2020 to 26th February 2021 with a particular focus on the seven mutual funds in Nigeria (bond funds, equity-based funds, fixed income funds, ethical funds, money market funds, mixed funds and real estate funds).

The scope of this study is limited to only the seven classes of mutual funds of the collective investment scheme in Nigeria while others like special funds and exchange-traded funds are not covered. The seven types of mutual funds examined are relatively actively traded compared to the special funds and exchange-traded funds where there are less activities. The first 52 weeks of the outbreak of the pandemic in Nigeria, 27th February 2020 to 26th February 2021 was the period of study. These weeks are considered sufficient for data analysis and one year is also regarded as relatively adequate enough to determine the influence of event such as the COVID-19 on collective investment schemes' performance in Nigeria. The weekly time series was analyzed using the Auto-regressive Distributed Lag (ARDL) and Pearson correlation techniques.

The rest of this study is organized as follows: Section two reviews relevant literature on collective investment scheme and COVID-19 cases. Section 3 describes the methodology of the study while in section four, the results of data analysis are presented and discussed. Section 5 concludes the paper and provides some policy recommendations.

LITERATURE REVIEW

Conceptual Review

Collective investment schemes also known as mutual funds, investment funds, unit trusts or funds, which according to Trinidad and Tobago Securities and Exchange Commission (TTSEC) (2020) refers to investment option where resources of different investors are pooled together to form more diversified portfolio. The Investments and Securities Act (2007) defines a collective investment schemes as a scheme where members of the public invest money or other assets in a portfolio and the members hold a participatory interest in a portfolio via shares, units or any other forms and the risk and the benefit of investment are shared and born in proportion to their participatory interest in a portfolio of a scheme. From this statutory definition, it is clear that collective investment schemes could be open-ended, or otherwise, and contain different classes of assets such as money, shares, units, to form a portfolio. It is a large pool of participatory interests, and it also involves risk and returns sharing. In other words, a mutual fund is a professionally-managed form of collective investments that pools money from many investors and invests it in stocks, bonds, short-term money market instruments, and/or other securities to be managed by a team of investment professionals such as fund administrators and managers (Standard chartered, n.d.; Funds Manager Association of Nigeria, n.d.; Orok et al, 2019; Manoj & Avinash, 2020). Therefore, mutual funds are investment outlets of a pool of different investors who gather their resources together for investment in different classes of securities and investment such as stocks, shares, treasury bills, real estate, money market instrument, bonds, debentures, etc but such that the funds are managed by a professional and the risk and returns

therefrom are shared among the investors according to their pecuniary holding in the funds. It is an investment vehicle that allows you to pool your money with that of other investors and have it managed by a team of investment professionals.

The collective investment scheme (CIS) in Nigeria may be grouped into exchange-traded funds, mutual funds and special funds. Other CIS to include unit trusts, venture capital funds, open-ended investment Companies, specialized funds. The mutual funds in Nigeria consist of basically seven classes, namely, equity based-funds, money market funds, bond funds, fixed income funds, mixed funds, real estate funds and ethical funds. Infrastructure fund is a typical example of special fund in Nigeria. Equity-based funds are that part of mutual funds that is devoted to investment in ordinary shares, stock and related securities. Bonds funds is a collective investment arrangement where unit holders engage in the investment of bonds like government bonds, corporate bonds or high yield bonds. In fixed income funds, bonds, certificates of deposit, treasuries, corporate bonds, government bond, corporate bond, municipal bond and convertible bond and other fixed income securities constitute the portfolio. Ethical Funds are funds whose investment is limited to certain kind of business due to ethical, moral, religious reasons, such as investing in companies do charge interest on lending, do not deal in tobacco, pork, etc. Mixed funds or hybrid funds or balanced based funds are funds that engage in investment in varieties of securities which could be fixed income or equities bonds and money market securities or others with bring income, gains, capital appreciation, risk hedging features. money market funds are funds whose portfolio consist of mainly money market instruments such as treasury bills,

certificates of deposit and commercial paper etc. Exchange-traded funds are mutual fund securities that are traded on a recognized stock exchange and track a market index.

CIS is important in an economy for several reasons. For instance, CIS acts as a source retirement income, ensures ownership of diversified portfolio by small investors, risk reduction (Isiaka and Okoh (2019), Igbinosa, 2020). Similarly, they are very cost efficient and very easy to invest in (Manoj & Avinash, 2020). Other benefits of CIS are access to professional investment management, low diversification cost, convenience and flexibility, personal service, liquidity, transparency (Funds Manager Association of Nigeria, n.d.).

Coronavirus has been described as zoonotic disease, believed to be caused by a new strain of coronavirus (SARS-CoV-2) that has not been previously identified in humans and the symptoms of the disease include: cough, fever, shivering, body pains, headache, sore throat, recent loss of taste or smell, difficulty in breathing/shortness of breath, loss of speech or mobility or confusion, diarrhea/abnormal pain, running nose/catarrh, tiredness, aches and pains, red or irritated eyes, a rash on the skin or discolouration of fingers or toes (Nigeria Centre for Disease Control [NCDC], 2020; World Health Organisation [WHO], 2020). Coronavirus disease 2019 (COVID-19) is a respiratory virus that spreads via droplets of the coughs, sneezes, saliva or discharge from the nose of an infected person and measures applied to curb the virus (Babarinde, 2020b).

According to NCDC (2021), 27th February 2021 marked one year since Nigeria's first COVID-19 case was confirmed but as at the week, 22nd - 28th February 2021, the number of new confirmed cases and discharged cases

were 3,583 and 5,123 respectively. Furthermore, the number of reported new deaths from COVID-19 complications reported in the week was 68. Further details show that cumulatively, since the outbreak began in Week 9, 2020 there have been 1,907 deaths reported with a case fatality rate (CFR) of 1.2% while the total recoveries as at 28th February 2021 stood at 133,742 cases while total cumulative confirmed cases are 155,657. However, globally, the count for confirmed COVID-19 cases is 113,467,303 with 2,520,550 deaths resulting in a case fatality rate of 2.2% in the entire globe (NCDC, 2021).

Overview of Performance of Collective Investment Schemes in Nigeria

One of the most popular indicators of performance of CIS is the net asset value, which simply refers to the quotient of total market value of the fund to the number of units outstanding in the fund. It is mutual fund's assets - mutual fund's liabilities ÷ number of outstanding units or shares of the mutual fund.

As presented in Table 1, the comparative analysis of Net Assets value of CIS as at the end of January, February and March 2020, indicate that between

January and February 2020, most of the mutual funds in Nigeria reflect positive changes in their NAV. Specifically, except money market funds (-13.1%), all other funds (equity based (32.1%), real estate (12.8%), mixed (16.5%), ethical funds (2006.5%), bonds funds(248.9%) and fixed income funds (200.9%) posted positive changes in their NAV, even though the overall change still remains positive (35.0%) in terms of NAV changes. However, further inference from February-March 2020 changes in NAV of the mutual funds shows that more negative returns are recorded in the one-month period, such that equity based funds (-40.3%), bonds funds (-57.1%), fixed income funds (-57.8%), real estate funds (-14.2%), mixed funds (-25.6%), and ethical funds (-71.3%) experienced loss in their NAVs. However, only money market funds (13.1%) out of the seven classes of mutual funds posted a positive change from February-March 2020 period. These statistical results may suggest the panic created in the collective investment market occasioned by some factors prominent among which is the COVID-19 cases.

Comparative analysis of net assets values(NAV) of mutual funds in Nigeria as at the end of January, February and March 2020

Mutual funds	NAV as at January 2020	Change	NAV as at February 2020	Change	NAV as at AT March 2020
Equity-based funds	11,615,654,357.70	32.1%	15,348,246,303.57	-40.3%	9,166,535,371.00
Money market funds	817,119,892,938.50	-13.1%	710,318,076,174.84	13.1%	803,145,214,101.87
Bonds funds	67,948,867,508.78	248.9%	237,069,979,411.10	-57.1%	101,588,798,778.66
Fixed income funds	153,134,063,886.53	200.9%	460,684,990,150.40	-57.8%	194,433,168,048.15
Real Estate funds	44,107,820,436.35	12.8%	49,758,621,807.64	-14.2%	42,677,962,725.63
Mixed funds	25,380,590,075.53	16.5%	29,571,514,039.66	-25.6%	22,000,984,052.72
Ethical funds	4,710,314,130.59	206.5%	14,437,717,835.23	-71.3%	4,150,647,886.54
Total	1,124,017,203,333.98	35.0%	1,517,189,145,722.44	-22.4%	1,177,163,310,964.57

Source: Securities and Exchange Commission Database, 2021 and Authors' computation, 2021.

Furthermore, presented in Table 2 is the monthly Net Assets values of the seven

classes of mutual funds in Nigeria as at the 29th February, 2020 and 28th

February, 2021 as well their percentage changes- the changes in the NAV in the two comparable months (February 2020) when COVID-19 touched the soil of Nigeria and a year after of its outbreak in the country, February, 2021. Generally, almost all the seven classes of CIS (mutual funds) (except money market funds which a negative change), have a positive

change in their respective NAV. There was a general average of 30% increase in NAV in the total NAV with ethical funds having the lead in terms of positive returns and followed by bonds funds and fixed income funds in that order as second and third best performing mutual funds respectively.

Net assets values of mutual funds in Nigeria as at February 2020 and February 2021

Mutual funds	NAV as at February 2020	NAV as at February 2021	change(%)	Rank
Ethical funds	4,558,319,619.77	14,437,717,835.23	216.7%	1 st
Bonds funds	89,888,080,578.04	237,069,979,411.10	163.7%	2 nd
Fixed income funds	177,705,586,665.39	460,684,990,150.40	159.2%	3 rd
Real Estate funds	34,635,598,423.13	49,758,621,807.64	43.7%	4 th
Equity-based funds	10,750,493,146.90	15,348,246,303.57	42.8%	5 th
Mixed funds	23,288,820,132.57	29,571,514,039.66	27.0%	6 th
Money market funds	826,385,708,401.32	710,318,076,174.84	-14.0%	7 th
Total	1,167,212,606,967.12	1,517,189,145,722.44	30.0%	

Source: Securities and Exchange Commission Database, 2021 and Authors' computation, 2021.

Theoretical Review

The two theories reviewed in this study are the Efficient Market Hypothesis and Rational Theory of Mutual Funds' Attention Allocation. The Efficient Market Hypothesis focuses on information as a determinant of stock prices such that the efficiency of the market is gauged by how fast and effective information available are impounded/reflected in the security prices. To what extent do information of cases of COVID-19 is reflected in the performance of CIS become relevant consideration here in this study.

On the other hands, Kacperczyk et al (2014)'s Rational Theory of Mutual Funds' Attention Allocation emphasizes the role of business cycle in predicting information choices, which in turn 'predict observable pattern of portfolio investment returns'. Therefore, the prevalent economic condition is the attention allocation factor of

consideration in the choice of mutual funds investment techniques which ultimately impact the funds/portfolio returns. The theory views some investment manager as having skills and expertise and thus attention allocation is done on rational basis while factoring the economic-wide factors and thus in deploying their skillfulness, fund manager's rational consideration is key, especially in allocating attention.

Although, basically COVID-19 is a medical issue in the economy but its aftermath has economic implications. Babarinde, Abdulmajeed et al (2020) aptly posit that COVID-19 is not only medically contagious but economically and financially contagious in effect and aftermath. There is therefore the need for consideration of COVID-19 as factor in mutual funds investment strategy and a relatively potential predictor of returns of mutual funds and other performance

indicator of the funds. By these arguments, this study is therefore, underpinned the Rational Theory of Mutual Funds' Attention Allocation.

Empirical Review

Most studies focused on performance analysis of collective investment schemes and in Nigeria, Isiaka and Okoh (2019)'s study indicated that the weekly performance was not significantly difference among the six types of funds examined. Oduwole (2015) indicates that mutual funds in Nigeria were on average not able to predict stock prices well enough to outperform a buy-the-market and-hold policy. Orok, Emori and Ikoh (2019) confirm a positive connection between growth of collective investment funds and the development of the capital market in Nigeria. Ilo et al (2018) showed that the market generated negative risk premium and the mutual fund portfolios similarly generated negative mean excess return, failing to compensate investors for investing in risky assets.

In a surveyed on COVID-19 impact on investment and financial decisions of individuals in small towns in developing nations such as India, Gurbaxani, and Gupte (2021) found a drop in SIP investments during the COVID-19 pandemic. Manoj and Avinash (2020) show that the outbreak of Covid-19 pandemic, has impacted negatively on NAV's of mutual funds in India. In another study, Pastor and Vorsatz (2020) present a comprehensive analysis of the performance and flows of U.S. actively-managed equity mutual funds during the COVID-19 crisis of 2020. The authors found that most active funds underperform passive benchmarks during the crisis. Bellucci et al (2020) examine possible reallocation effects on venture capital investment due to the spread of COVID-19 around the globe. The authors confirm a

shift of venture capital towards deals in pandemic-related categories.

Attempts have been made by previous studies to clarify the nexus between COVID-19 and the financial market. For instance, in Nigeria, studies like Iwedi et al (2020) COVID-19 nexus with banking firms and found that negative non-significant relationship between the two unlike Babarinde, Abdulmajeed, et al (2020) who show a negative and weak correlation between coronavirus and banking sector's stock returns in Nigeria. Likewise, in a related study, Babarinde, Abdulmajeed and Ugwuanyi (2020) show that the cumulative confirmed and fatal cases of coronavirus have significant negative impact on stock market capitalization in Nigeria. Moreover, Alade et al (2020) show that confirmed cases of COVID-19 not to significant impact the Nigerian stock market capitalization. However, Ikwuagwu, et al (2020) found that the pandemic interacts positively with stock returns of the health sector in Nigeria. Takyi and Bentum-Ennin (2020) also concluded that the pandemic has restrictive effects on stock market performance in African economies. Findings from Hassan and Gavilanes (2021)'s model of the dynamic impact of the COVID 19 pandemic on the first affected countries' stock market indices and the global commodity markets, reveal the negative short-termed impact of the virus spread rate on the returns of the stock market indices. Other studies have confirmed a COVID-19 negative relationship with stock market returns in selected 64 countries (Ashraf (2020), China, France, Germany and Spain (Alber (2020), Malaysian stock market (Lee et al (2020)), Saudi stock market (Chaouachi and Chaouachi (2020)), USA and Europe stock markets (Ngwakwe (2020)), China (Sansa (2020)). Conversely, a positive

relationship was established between COVID-19 and Karachi stock exchange (Waheed et al (2020)), and Chinese stock market (Ngwakwe (2020)).

In summary, this review has shown that previous studies in Nigeria still have a relatively growing empirical literature on COVID-19 financial market nexus with differing results though but the relationship between collective scheme particularly mutual funds and the cases of the virus disease has not been empirically determined to the best of our knowledge. Hence, one of the motivation for this current study.

METHOD, DATA AND ANALYSIS

In this study a disaggregated approach was employed in analyzing the relationship as well as the impact of confirmed, discharged and fatal cases of coronavirus disease (COVID-19), on each of the seven components of mutual funds in Nigeria. The ex-post facto design allows the researcher to obtain secondary data in the analysis. The frequency of the data is weekly and therefore the week-long period holding returns from the collective investment scheme is computed thus:

$$CIS_R = \frac{[NAV_t - NAV_{t-1}]}{NAV_{t-1}}$$

Where;

CIS_R is the collective investment scheme returns, on disaggregated basis for each of equity-based funds, money market funds, bond funds, mixed funds, ethical funds, fixed income funds and real estate funds.

NAV_t represents net asset value of each fund in the current period (week)

NAV_{t-1} denotes net asset value of each fund in the previous period (week)

The weekly data on the confirmed, discharged and fatal cases of COVID-19 was obtained from the Nigeria Centre for Disease Control's websites while data on net asset value of each fund in the collective investment scheme in Nigeria was obtained from the website of the Nigerian Securities and Exchange Commission (SEC). The study period was 52 weeks of the outbreak of the pandemic in Nigeria. Although COVID-19 was first confirmed on December 2020 in the country of origin, Wuhan city, China; the birthday of the virus in Nigeria was 27th February 2020.

The population of study comprises of all mutual funds, exchange traded funds and special funds in Nigeria. The sample for study are the seven classes of mutual funds in Nigeria. These mutual funds constitute the lion's share of the collective investment scheme and are more actively traded than exchange traded funds and special funds classes of collective investment scheme in Nigeria in the study period.

On weekly basis, as at the end of the week ended 6th March 2020, there was a total of 92 mutual funds in Nigeria as against the 106 mutual funds as the week ended 26th February 2021.

$$EQTBF_t = \Psi_0 + \Psi_1 CVDNCC_t + \Psi_2 CVDNDC_t + \Psi_3 CVDNFC_t + u_{t1} \quad \langle 2 \rangle$$

$$MMKTFR_t = \Psi_0 + \Psi_1 CVDNCC_t + \Psi_2 CVDNDC_t + \Psi_3 CVDNFC_t + u_{t2} \quad \langle 3 \rangle$$

$$BNDFR_t = \Psi_0 + \Psi_1 CVDNCC_t + \Psi_2 CVDNDC_t + \Psi_3 CVDNFC_t + u_{t3} \quad (4)$$

$$FXINFR_t = \Psi_0 + \Psi_1 CVDNCC_t + \Psi_2 CVDNDC_t + \Psi_3 CVDNFC_t + u_{t4} \quad (5)$$

$$RLESTFR_t = \Psi_0 + \Psi_1 CVDNCC_t + \Psi_2 CVDNDC_t + \Psi_3 CVDNFC_t + u_{t5} \quad (6)$$

$$MXDFR_t = \Psi_0 + \Psi_1 CVDNCC_t + \Psi_2 CVDNDC_t + \Psi_3 CVDNFC_t + u_{t6} \quad (7)$$

$$ETHCFR_t = \Psi_0 + \Psi_1 CVDNCC_t + \Psi_2 CVDNDC_t + \Psi_3 CVDNFC_t + u_{t7} \quad (8)$$

Where EQTBFR represents equity based-funds returns; MMKTF denotes money market funds returns; BONDFR signifies bonds funds returns; FXINFR is fixed income fund's returns; MIXDFR represents mixed fund's returns; REALSTFR equals real estate fund's returns; ETHICFR means ethical fund's returns; CVDNCC denotes COVID-19 new

confirmed cases; CVDNDC represents COVID-19 new discharged cases; and CVDNFC signifies COVID-19 new fatal cases.

RESULTS AND DISCUSSION

Descriptive Statistics

Presented in table 3 is the result of the descriptive statistics of the variables of study

Descriptive statistics

	Mean	Minimum	Maximum	Std. Dev.	Skewness	Kurtosis	Jarque-Bera*
EQTBFR	0.0066	-0.1216	0.1753	0.0369	1.0943	12.0571	188.1157
MMKTFR	-0.0042	-0.1495	0.1446	0.0309	0.1625	20.3950	20.3950
BONDFR	0.0204	-0.3639	0.2817	0.0772	-2.1195	16.5494	436.7062
FIXINFR	0.0291	-0.4963	1.0521	0.1702	3.9097	28.3042	1519.804
REALSTFR	0.0025	-0.0582	0.1042	0.0195	2.7901	18.5207	589.4096
MIXDFR	0.0052	-0.1788	0.2219	0.0449	0.8594	16.8550	422.3216
ETHICFR	0.0490	-0.6543	1.9878	0.2931	5.4536	38.9125	3052.138
CVDNCC	2037.500	0.0000	11179.00	3121.129	1.7301	4.6715	31.9975
CVDNDC	1735.385	0.0000	9287.000	2660.830	1.6761	4.4057	28.6298
CVDNFC	17.4423	0.0000	86.0000	25.1157	1.7677	4.7143	33.4507

Source: Authors' computation, 2021 using EvIEWS 10.0.

Note: * p-value less than 0.01.

As reported in Table 3, the average returns from bond funds (BONDFR) over the 52 weeks of study, stands at 2.04 per cent. Aside money market fund with the negative returns (-0.42%) all other mutual funds return positive performance in the 52 weeks of the outbreak of COVID-19 pandemic in Nigeria. Among the seven collective investment schemes (mutual funds) examined, fixed income funds (return=4.90%) has the highest mean returns and followed by bond fund

(2.04%). The fund with the least positive average return among the seven funds is real estate fund (with return of 0.25%). Indicators from the minimum values of the funds, shows that all the funds have at least a negative returns in a particular within the 52 weeks of study. Ethical fund still has the highest maximum return (1.9878) and followed by fixed income fund (1.0521). However, with a maximum value of (0.1042), real estate fund could be regarded as the fund with the least

maximum returns. Except bond fund which is negatively skewed (-2.1195), all other funds have their returns positively skewed. The kurtosis of all the funds exceeding the standard 3, reveals the leptokurtic distribution of the seven series. Relative to the standard deviation, the returns of each fund exhibits wide dispersion from their mean values and none of the funds' returns is normally distributed.

The descriptive statistic of the average cases of confirmed, discharged and fatal cases of COVID-19 are 2038, 1736 and 17 cases per week over the first 52

weeks of the pandemic in Nigeria. Just like the fund returns, all the three indicators of COVID-19 under study are relatively volatile (widely dispersed from their mean value and in addition to exhibiting non-normality. Unlike the minimum value of zero common to all the three indicators of COVID-19, a comparison of the mean indices for the disease shows that the average number of confirmed cases still exceeds the other two (discharged and fatal cases). The least average indicator is however, the fatalities.

Unit Root Test

Reports the results of the Phillips-Perron (PP) test of unit root.

Unit root test					
	EQTBFR	MMKTFR	BONDFR	FIXINFR	REALSTFR
PP t-Stat	-6.9704	-11.1049	-8.4829	-11.2531	-5.1521
Prob	0.0000	0.0000	0.0000	0.0000	0.0001
I(d)	I(0)	I(0)	I(0)	I(0)	I(0)
	MIXDFR	ETHICFR	CVDNCC	CVDNDC	CVDNFC
PP t-Stat	-12.3945	-10.1780	-4.4770	-9.2220	-8.1851
Prob	0.0000	0.0000	0.0007	0.0000	0.0000
I(d)	I(0)	I(0)	I(1)	I(1)	I(1)

Source: Authors' computation, 2021 using Eviews 10.0.

Note: * reject null hypothesis of unit root (non-stationarity) of the variable at 1% since p-value is less than 1% level of significance.

The PP test reveals that all the returns from the seven funds are stationary in level unlike the three indicators of COVID-19 (CVBNCC, CVDNRC and CVDNFC) are contains unit root in level forms. However, when differenced for first time, the three indicators of COVID-19 became stationary. It can be inferred that the series of study are a combination of I(1)

and I(0) series, which suggests that they are integrated of order one and zero.

Correlation Analysis

In determine the nature of relationship of between COVID-19 and collective investment scheme in Nigeria, this study conducts correlation test and the results presented in form of correlation matrix are presented in Table.

Correlation matrix							
	EQTBFR	MMKTFR	BONDFR	FIXINFR	REALSTFR	MIXDFR	ETHICFR
EQTBFR	1.0000						
MMKTFR		1.0000					
BONDSR			1.0000				
FIXINFR				1.0000			

REALSTFR					1.0000		
MIXDFR						1.0000	
ETHICFR							1.0000
CVDNCC	-0.0145	-0.0690	-0.0772	0.1003	0.4087	-0.0059	0.2004
CVDNDC	-0.0284	-0.1257	-0.0140	0.1706	0.4492	0.0510	0.2624
CVDNFC	-0.0591	-0.1006	-0.0368	0.1378	0.4638	0.0138	0.2255

Source: Authors' computation, 2021 using Eviews 10.0.

According to the correlation coefficients presented in Table 5, COVID-19 fatal cases (CVDNFC), confirmed cases (CVDNCC) and discharged cases (CVDNDC) are negatively related to bonds fund's returns over the study period. This same negative correlation is found between each of the cases of COVID-19 and returns from equity based funds. In the same vein, there is a negative relationship between each of CVDNFC, CVDNCC, and CVDNDC, and money market fund's returns. These negative correlations suggest that a higher number of cases of COVID-19 is associated with a lower level of returns from the collective investment scheme.

Conversely, the study indicates the existence of a positive correlation between COVID-19 (CVDNFC, CVDNCC and CVDNDC) and returns from ethical funds, fixed income funds and real estate funds. Thus implies that even at the increase in the cases of COVID-19, the higher performance of the three funds, in terms of returns, could not be deterred. This raises an important research question for future study as why this occurrence? Is it due to chance and the sectors/schemes are immune against the vagaries of COVID-19? Further findings from mixed funds

correlation with COVID-19 reveal CVDNCC to be negatively related with the returns from mixed fund as against the positive correlations of CVDNFC and CVDNDC with the fund returns.

ARDL Model Estimation

This study evaluates the impact of COVID-19 on the performance of collective investment schemes in Nigeria in the first 52 weeks of the outbreak of the pandemic in the country using the auto-regressive distributed lag (ARDL) technique. Before the model estimation, the F-bounds test of cointegration to determine if there is long-run relationship between the variables of study. The results of the ARDL bounds (as embedded in Panel B of Table 6) shows the existence of cointegrating relationship between COVID-19 and collective investment scheme in Nigeria. This is because the null hypothesis of no levels relationship between the variables are rejected since the F-statistics exceed all the three critical values at the upper bounds of the F-Bounds test of cointegration.

Consequently, the ARDL long-run estimates of the seven models in this study are summarized in Table (Panel A).

ARDL long-run estimates							
Variable	EQTBFR	MMKTR	BONDTR	FIXINFR	REALSTFR	MXDFR	ETHICFR
EQTBFR(-1)	-0.0065 [0.9651]						
MMKTR(-1)		-0.4036 [0.0046]					
BONDTR(-1)			-0.2060				

				[0.1613]				
FXINFR(-1)					-0.4138			
					[0.0036]			
REALSFR(-1)						0.0837		
						[0.5766]		
MXDFR(-1)							-0.4483	
							[0.0012]	
ETHICFR(-1)								-0.4253
								[0.0029]
CVDNCC	1.17E-06	3.11E-06	-1.06E-05	-2.50E-05	-4.08E-06	2.29E-06	-3.28E-05	
	[0.7824]	[0.3405]	[0.2279]	[0.1632]	[0.1891]	[0.7456]	[0.2757]	
CVDNDC	8.18E-07	-3.79E-06	1.03E-05	3.45E-05	-1.12E-06	1.27E-05	5.58E-05	
	[0.8928]	[0.4130]	[0.3998]	[0.1718]	[0.7185]	[0.0873]	[0.1887]	
CVDNFC	-	-0.000152	4.45E-05	0.000781	-5.34E-05	0.000364	0.002107	
	0.000303							
	[0.5595]	[0.6984]	[0.9660]	[0.7137]	[0.8518]	[0.5802]	[0.5618]	
R-squared	0.0095	0.1846	0.0654	0.2090	0.2774	0.250857	0.2403	
F-statistic	0.1103	2.6038	0.8050	3.0385	3.4557	3.0137	3.6382	
Prob(F-statistic)	0.9783	0.0479	0.5283	0.0264	0.0099	0.0197	0.0117	
Durbin-Watson	1.8485	2.2367	2.0292	2.2314	2.0717	2.1170	2.281163	
B). F-Bounds test								
Sign	I(0)	I(1)						
10%	2.37	3.2	F-stat:	F-stat:	F-stat:	F-stat:	F-stat:	F-stat:
5%	2.79	3.67	9.2648	21.8363	14.2719	22.3249	8.35382	25.3073
1%	3.65	4.66						22.8510

Source: Authors' computation, 2021 using Eviews 10.0.

Note: Values in [] are probability values.

The coefficients of ARDL long-run show that except only COVID-19 discharged cases (CVDNDC) which is significant in its positive impact on fixed fund returns, none of the other indicators of COVID-19 significant in explaining changes in returns of the seven collective investment schemes (mutual funds) evaluated in this study. The positive significant impact of CVDNDC on mixed funds returns implies a unit increase in the number of people discharged as been COVID-19- free, the higher the level of returns obtained by unit holders of mixed funds in Nigeria in the study period.

However, though positively signed, COVID-19 confirmed and fatal cases do not have significant impact on the returns of mixed funds in Nigeria. In summary, it can be asserted that COVID-19 cases do not have significant impact returns of bond funds, equity-based funds, ethical funds, money market funds and real estate funds.

Furthermore, to ascertain the speed of adjustment of the long-run model in case of shocks/disturbance to it, this study estimated the ARDL Error Correction Regression Model and the coefficients are presented in Table.

ARDL error correction regression model							
Variable	D(EQTBF R)	D(MMKTFR)	D(BONDFR)	D(FIXINFR)	D(REALSTF R)	D(MXDFR)	D(ETHICFR)
ECT	-1.0065	-1.4036	-0.2060	-1.4138	-0.9162	-1.4483	-1.4253
	[0.0000]*	[0.0000]*	[0.1613]	[0.0000]*	[0.0000]*	[0.0000]*	[0.0000]*
R ²	0.5017	0.7035	0.6079	0.7081	0.4823	0.7384	0.7159

Source: Authors' computation, 2021 using Eviews 10.0.

Note: ECT denotes Error Correction Term

As shown in Table 6, the ECT for each model is negatively signed and except for the bond funds model which is not significant, all others ECT are attains significance at 1 per cent level. Hence, the correction rates for bonds funds, equity based funds, ethical funds, fixed income funds money market funds, mixed funds and reals estate funds.

CONCLUSION AND RECOMMENDATIONS

In this study, seven classes mutual funds belonging the collective investment schemes in Nigeria (bond funds, equity-based funds, fixed income funds, ethical funds, money market funds, mixed funds and real estate funds) were examined on individual basis, in terms COVID-19 impact on the funds' returns in the first 52 weeks of the outbreak of the pandemic in the country using the auto-regressive distributed lag (ARDL) technique. Finding suggests that there is long-run relationship between COVID-19 and returns of the each of the seven mutual funds and COVID-19 cases are negatively correlated with the returns from bonds funds, equity based funds and money market funds as against the positive correlation found between COVID-19 cases and returns from ethical, fixed income and real estate funds. Furthermore, COVID-19 confirmed cases are negatively related with returns from mixed fund as against the fund's returns' positive correlation with COVID-19 fatal and discharged cases. Moreover, except for COVID-19 discharged cases which has significant positive impact on fixed income funds' returns, none of the other indicators of COVID-19 exerts significant influence on the returns of each of the seven collective investment schemes in Nigeria. In summary, it can be asserted that COVID-19 cases do not have significant impact on returns of bond

funds, equity-based funds, fixed income funds, ethical funds, money market funds, mixed funds and real estate funds.

It can be concluded that COVID-19 cases do not have significant impact on collective investment schemes' returns in Nigeria despite the negative association established between them in this study.

It is therefore recommended that collective investment schemes in Nigeria should be accorded the popularization, incentives, boost, empowerment it deserves by the government and the organized private sector, as the schemes possess the perceived resilience in the face of the current health pandemic ravaging the world, and most especially the financial markets of the world. Government, institutional and individual investors should consider a portfolio which is pandemic-resilient such as the collective investment scheme. It is also suggested that future studies should carry out a comparative study of Nigeria with other African countries, developed and developing countries of the world. This current study adopts the disaggregated time series approach, other study could focus on the whole mutual funds, as well as use the panel data analysis methodology.

REFERENCES

- Alade, M. E., Adeusi, S. A. & Alade, F. O. (2020). Covid-19 pandemic and Nigerian stock market capitalisation. *Ilorin Journal of Economic Policy*, 7(3), 12-23.
- Alber, N. (2020). The effect of coronavirus spread on stock markets: The case of the worst 6 countries. Retrieved from: <https://ssrn.com/abstract=3578080>
- Alfaro, L., Chari, A., Greenland, A. & Schott, P.K. (2020). Aggregate and firm-level stock returns during pandemics, in real time. *Covid Economics*, 4(14), 2-24.
- Ashraf, B. N. (2020) Stock markets' reaction to COVID-19: Cases or fatalities? *Research in International Business and Finance*, 5(4), 1-14.
- Babarinde, G. F. (2020a). Bounds testing approach to the analysis of levels relationship among stock market size, stock returns and coronavirus disease using Nigeria's data. *Journal of International Money, Banking and Finance*, 1(2), 109-119
- Babarinde, G.F. (2020b, December 7-8). Covid-19 recovery and equity turnover in the Nigerian capital market. Paper presented at the First International Conference of the Centre for Research and International Linkage and Co-operation, Alhikmah University Ilorin, Nigeria.
- Babarinde, G.F., Abdulmajeed, T. I., Dibal, H. S. & Ndaghu, J.T. (2020). Analysis of the reaction of stock returns to the 2019 novel coronavirus disease: Evidence from the Nigerian banking sector. *Journal of Applied Financial Econometrics*, 1(2), 77-99.
- Babarinde, G. F., Abdulmajeed, T. I. & Ugwuanyi, N. J. (2020, December 7-8). *Coronavirus: An event study of positives, discharges and fatalities and their effects on stock market capitalisation in Nigeria*. Paper presentation at the First International Conference of the Centre for Research and International Linkage and Co-operation, Alhikmah University Ilorin, Nigeria.
- Bahrini, R. & Filfilan, A. (2020). Impact of the novel coronavirus on stock market returns: evidence from GCC countries. *Quantitative Finance and Economics*, 4(4), 640-652.
- Bellucci, A., Borisov, A., Gucciardi, G. & Zazzaro, A. (2020) (2020). *The reallocation effects of COVID-19: Evidence from venture capital investments around the world*. JRC Technical Report. Office of the European Union.
- Chaouachi, M. & Chaouachi, S. (2020). Current covid-19 impact on Saudi stock market: Evidence from an ARDL model. *International Journal of Accounting, Finance, Auditing, Management and Economics*, 1(1), 1-13.
- Funds Manager Association of Nigeria (n.d.). *Investing in collective investment scheme (CIS): A viable investment option*.
- Gurbaxani, A., & Gupte, R. (2021). A study on the impact of COVID- 19 on investor behaviour of individuals in a Small Town in the State of Madhya Pradesh, India, *Australasian Accounting, Business and Finance Journal*, 15(1), 70-92.
- Hassan, S. M. & Gavilanes, J. M. R. (2021). First to react is the last to forgive: Evidence from the stock market impact of COVID 19. *Journal of Risk and Financial Management* 14:26.
- Ikwuagwu, H. C., Efanga, U. O. & Ihemeje, J. C. (2020). Coronavirus Disease -19 (Covid-19)100th day effect on health firms' stock returns in Nigeria: An event study approach. *Journal of Money, Banking and Finance*, 6(1), 9-20.
- Iwedi, M., Gbarabe, E. L. & Uruah, N. K. (2020). Impact of COVID-19 on stock price of quoted banking firms in Nigeria. *International Journal of Innovative Finance and Economics Research*, 8(4), 33-39.

- Igbinosa, S.O. (2020). Performance of mutual funds: Evidence from Nigeria. *IIARD International Journal of Economics and Financial Management*, 5(2), 16-30.
- Ilo, B. M., Yinusa, O. G. & Elumah, L. O. (2017). Mutual funds and market timing in Nigeria: Performance of mutual funds in Nigeria. *The IEB International Journal of Finance*, 17, 8-25.
- Isiaka, M.A. & Okoh, L.E. (2019). An empirical analysis of the performance of collective investment schemes in Nigeria (2014-2018). *International Journal of Research and Scientific Innovation*, 6(2), 82-88.
- Kacperczyk, M., Nieuwerburgh, S. V. & Veldkamp, L. (2014). A rational theory of mutual funds' attention allocation. *Econometrica*, 84 (2), 1-53.
- Kotishwar A. (2020). Impact of covid-19 pandemic on stock market with reference to select countries: A study. *Academy of Accounting and Financial Studies Journal*, 24(4), 1-9.
- Lee, K. Y., Jais, M & Chan, C. (2020). Impact of COVID-19: Evidence from Malaysian stock market. *International Journal of Business and Society*, 21(2), 607-628.
- Manoj, S. & Avinash, B. (2020). Performance evaluation of mutual funds before and during the outbreak of Covid-19 pandemic in India: A case study of selected companies. *European Journal of Molecular and Clinical Medicine*, 7(8), 2286-2305.
- Nigeria Centre for Disease Control. (2020, 2021). Covid-19 situation report weekly epidemiological report. Retrieved from: www.ncdc.gov.ng
- Ngwakwe, C.C. (2020). Effect of COVID-19 pandemic on global stock market values. *Economica Journal*, 16(3), 255-269.
- Oduwole, O. (2015). The performance of Nigerian mutual funds in the period 2011 - 2014. *Mathematical Theory and Modeling*, 5(3), 85-95.
- Orok, A.B., Emori, E.G., & Ikoh, I.M. (2019). Collective investment fund: An imperative for the growth of the Nigerian capital market. *Noble International Journal of Economics and Financial Research*, 4(4), 34-46.
- Pastor, L. & Vorsatz, M. B. (2020). *Mutual fund performance and flows during the covid-19 crisis*. NBER working paper series no. 27551.
- Pfeiferová, D. & Kuchařová, I. (2020). *Risks of collective investment undertakings in the context of global capital markets*. SHS web of conferences 74, 01025 ,1-8.
- Sansa, N. A. (2020). The impact of the COVID -19 on the financial markets: Evidence from China and USA. *Electronic Research Journal of Social Sciences and Humanities*, 2(1), 29-39.
- Stanley, C. N., Nkporbu, A. K. & Stanley, P. C. (2020). Socio-economic implications of the coronavirus pandemic: Early review and projections, Nigeria in focus. *International Journal of Research Studies in Medical and Health Sciences*, 5(4), 40-49.
- Securities and Exchange Commission. (2021). *Capital market data on monthly net assets values of collective investment schemes*. Retrieved from <https://sec.gov.ng/monthly-spreadsheet-of-collective-investment-schemes/>
- Securities and Exchange Commission. (2021). *Capital market data on weekly net assets values of collective investment scheme in Nigeria (Week ended March 6 2020 - week ended 26 February 2021)*. Retrieved from <https://sec.gov.ng/weekly-spreadsheet-of-collective-investment-schemes/>
- Takyi, P.O. & Bentum-Ennin, I. (2020). The impact of COVID-19 on stock market performance in Africa: A Bayesian structural time series approach. *Journal of Economics and Business*,

<https://doi.org/10.1016/j.jeconbus.2020.105968>

Trinidad and Tobago Securities and Exchange Commission. (2020, April 29). Analysing the impact of COVID-19 on mutual funds. *The Business Express Newspaper*. Retrieved from: www.ttsec.org.tt.

Waheed, R., Sarwar, S., Sarwar, S. & Khan, M. K. (2020). The Impact of COVID-

19 on Karachi stock exchange: Quantile-on-quantile approach using secondary and predicted data. *Journal of Public Affairs*, 2020; e2290.

World Health Organisation. (2020). *COVID-19 Coronavirus symptoms*. Retrieved from:

www.who.int/emergencies/diseases/novel-coronaviru