Available online www.unicrossjournals.com

JOURNAL OF CONTEMPORARY RESEARCH (JOCRES)

RESEARCH ARTICLE VOL. 3 (3) ISSN:2814-2241

Date Published:
September 30, 2024
Pages 321- 334

EFFECT OF STOCK MARKET FLUCTUATIONS ON NIGERIA'S EQUITY MARKET.

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Abstract
This study examines the effect of stock market fluctuations on equity market and hence how these impact influences the economy growth in Nigeria from 2015 to 2022. Stock market development has continually been affected due to the increasing negative equity value. Relying on data from weekly stock prices of the selected four firms were collected through www.investing.com. Ordinary Least Square estimator is used. The analysis was conducted using E-views 10 statistical tool. The results for the aggregate sample period show that there is significant evidence of market fluctuations in the stock market. That is there is market volatility. The study therefore, recommends that when there is fluctuation in the market, this suggests that the market is inefficient and as such it is recommended that there should be restriction on short sales in order to raise or increase market efficiency. While Stock market volatility can also result in a greater degree of financial asset return co-movement, which lessens the advantages of portfolio diversification.
Keywords: Equity value, Stock Market, Portfolio Diversification, Volatility.

1.0 Introduction

Stock market volatility is a measure for variation of price of a financial asset over time. It is essentially, concerned with the dispersion and not the direction of price changes. Issues of volatility in stock market behaviour are of importance as they shed light on the data generating process of the returns (Hongyu and Zhichao, 2006). 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 toward financial sector reforms would be an exercise in futility if volatility of stock market is not addressed. A volatile stock market weakens consumer confidence and drives down consumer spending (Porteba, 2000). It affects business investment because it conveys a rise in risk of equity investment (Arestis et al, 2001; Mala and Reddy, 2007). This can alter investment equilibrium position of an economy as investors turn to purchase stocks 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 portfolios in order to reap the benefits of diversification (Frimpong and Oteng-Abayie, 2006). The foregoing position aligns with the positive linkage school of thought on importance of capital markets for economic growth and development. It is the view of this school of thought that a well-functioning capital market will precipitate long term economic growth (Alile, 1984; Atje and Jovanovic, 1993; Oyijide, 1994). The other opposing school of thought however, says that the alleged positive linkage between capital market development and economic growth is not proven and at best is ambiguous (Dimirguc-Kunt and Levine, 1996; Shleifer and Summer, 1988). Contributing to this discourse, Nyong (1997) found that there is bi-directionality causality between capital market development and economic growth in Nigeria. In the bi-directional relationship, economic growth dominates in the direction of causality and his evidence did not validate the expected positive relationship. Although issues of volatility are not limited to emerging economies, its effects are more devastating in such economies because of their fragile nature. Emerging economies are not insulated from internal and external perturbations and so, shocks are quickly transmitted into the macro-economy. In most of these economies, economic development has gone side by side with financial market development. Therefore, the effects of relevant economic and political events on the stock market and vice-versa can be easily experimented on. Given the recent history of financial crises in developing economies, an understanding of factors that affect financial markets becomes of extreme priority. Specifically, for Nigeria, Osaze (2000) notes that capital market ranks behind money market in terms of attractiveness to business organizations as a source of finance. He added that not less than 60% of total savings is in the money market. This situation portends danger for the economy because the money market is not designed to provide development funds for business organizations. The basic empirical question is: why this continuous stock market fluctuation on Nigeria's equities? A plethora of studies on the Nigerian capital market have attempted an investigation into this problem. This study contributes to this intellectual discourse by examining the volatility of the Nigerian stock market as a possible research avenue for understanding stock market development and economic growth.

1.2 Statement of the problem

Investors should be aware of the negative consequences of financial market fluctuations. increases market risk and, as a result, may make these markets less suitable for a variety of investors with low risk tolerance to participate. Price volatility brought on by continuous fluctuations may deter both individual and institutional investment in the financial markets as investors may seek for more secure, less turbulent areas to place their money. Financial market capital outflows have a significant impact on business values, economic development and finance. This issue has made so many researchers both in time pass and recently to focused on studying volatilities in financial markets. These authors include Nicholson (1968); Basu (1977); Christie and Huang (1995); Chang et al., (2000); Hwang and Salmon (2004); Ouarda, Bouri and Bernard (2013); Sharma et al., (2015); Lam and Qiao (2015); Gavriilidis et al., (2016); Arisanti and Oktavendi (2020); Vo and Phan (2017); Chang, Mc Aleer and Wang (2020); Gabbori, Dina (2020) and Espinosa, Christian and Arias (2020).

Ashish and Kiran (2014) documented that there were no volatility in the Indian stock market during the period of 2000 to 2012. These authors believed that the absence of fluctuations during this period was because of reforms in the Indian stock market, which rise the number of rational investors and institutional players. This enhance rational pricing model bid or application in this market. Similarly, Yousaf et al. (2018) posited that in the Pakistani stock market, there is no indication of herd behavior in the period of low and high volatility and at the time when the market was up and when it was down. Again, it was revealed from their study that there was no evidence of herding in Pakistani Stock Market during the global financial crisis of 2008.

However, in the study of Auwal and Sanusi (2018) it was revealed that there is evidence of herd behaviors' of investors in the insurance sector of the Nigerian financial system. Also, Gabbori (2020) argued that there is presence of significant herding in Saudi stock market. His findings indicate that in all GCC equity markets there is a pronounced herd behavior. In the study of Lam and Qiao (2015) it was seen that fluctuations is present in the up market and in both low and high trading volume. They authors also claimed that size in up market affect herding in their first sub-period samples. Ouarda, Bouri and Bernard (2013) found out that there is existence of herding behavior in the European market and this trigger the bearish situation which is brought by a the volume of trades and strong volatility. Other authors who found that there is evidence of herding in the financial market includes Holmes et al. (2013); Teng and Liu (2014); Fenton and Kotzin (2019); Dang and Lin's (2016) and Bui, Nguyen and Nguyen (2015).

The result of empirical studies of herding behavior of investors in Nigeria equity market are scare and empirical stance of herding in other part of the world stock market are inconclusive. In order to fill this gap in the literature, market fluctuations in the Nigerian equity market will be examined for the period 2019-2021. Many researchers has not examined the stock market fluctuations of investors in Nigerian equity market during this period yet.

2.0 Literature review

2.1 Theoretical review

The classical finance framework, which has dominated the industry for decades, employs 'rational' agent models to explain financial markets. There are two distinct interpretations of rationality. First, when agents obtain new knowledge, they accurately revise their views. And secondly, depending on these accurately updated beliefs, individuals make normatively appropriate decisions (Fama, 1970). This conventional financial paradigm appears to be too simplistic to be generally supported by the evidence. Numerous empirical studies have demonstrated that the operation of the stock market and the trading behavior of investors are not as easily explicable within this framework as one might anticipate. Under the assumption that agents are rational, asset prices match their underlying worth in the traditional framework of finance. The framework has produced the Efficient Market Hypothesis (EMH), which has been the subject of numerous empirical examinations. It asserts that markets are efficient and that prices reflect their intrinsic worth. According to the EMH, if a market is efficient, investors cannot achieve above-average risk-adjusted returns (Fama, 1991).

The well-known efficient market hypothesis (EMH) dates back to the 1960s and is considered a cornerstone of contemporary finance theory. Its significance is underlined by the sheer volume of research publications written on the subject. EMH asserts that stock markets should be considered informationally efficient, assuming that market participants cannot consistently outperform the average market return on a risk-adjusted basis given the information available at the time of investment choice. There are three types of EMH versions: the weak form, the semi-strong form, and the powerful form. Weak-form asserts that all past information is already factored into the price, implying that investors might not gain from using historical data while selecting whether to participate. The moderate form claims that all publicly available information is already incorporated into the pricing. Finally, the strong form specifies that all accessible information, including inside knowledge, is considered (Fama, 1970).

In response to the limitations of employing efficient market theory to explain financial market anomalies, individual and social psychology theories have been extensively utilized in finance research to investigate the dedicated aspects of asset price and its variations. The effects of human psychological and social behavior on financial markets have become an integral part of finance research.

Theoretically and experimentally, behavioural finance studies have focused on two questions: how asset prices deviate from their underlying values, and why the deviations cannot be eradicated as the Efficient Market Hypothesis suggests. Barberis and Thaler (2003) assert that behavioral finance has made substantial progress in two areas: restricted arbitrage and investor emotion.

Arbitrage is an investment strategy in which investors simultaneously buy and sell exactly identical or nearly identical securities in two or more marketplaces to profit from price variations and incur no risk (Sharpe and Alexander, 1990). This notion has been expanded to cover a combination of transactions executed by arbitrageurs, i.e., the purchase of underpriced securities and the sale of overpriced assets, in order to achieve costless and risk-free returns. Arbitrage causes prices to revert to their underlying values. According to the definition, the criteria for infinite arbitrage are: the availability of perfect (or close) substitutes; the absence of systematic fundamental risk; and arbitrageurs' long-term horizons. A number of theoretical and empirical articles reveal that these assumptions are violated, making arbitrage anything but risk-free.

Substitute securities are rarely flawless or even near (Campbell and Kyle, 1993). In practice, it is quite difficult to find a close alternative that can arbitrage away all basic hazards. In addition, the expenses of trading securities expose arbitrageurs to implementation risks, particularly in the context of short sales. According to Shiller (2003),'smart money,' or arbitrageurs, may be at danger when it is difficult to short a stock if the arbitrageurs no longer hold it. Even without the restriction, the costs of establishing a short position make it less desirable, as the interest on borrowing may exceed the security's price declines (Barberis & Thaler, 2003). In addition, some practical constraints on short selling may result from legislation and regulation. For instance, many pension fund and mutual fund managers are prohibited from engaging in short sales. Due to their potential exposure to hazards, arbitrageurs are hesitant to take action even when prices are out of balance.

Behavioral Finance is a relatively recent concept that has arisen in response to the challenges experienced by the Traditional Finance framework. Behavioral finance contends that agents are not totally rational, if not completely irrational. Due to the interaction of partially irrational market participants, asset prices may diverge from their underlying fundamentals (Barberis & Thaler, 2002). Opponents of this theory contend that rational agents will remove any price disruptions caused by irrational investors (Friedman, 1953). Friedman, among others, contends that a mispricing, which results from a divergence from an asset's inherent worth, creates an enticing opportunity to earn money quickly. According to him, prudent investors will seize this arbitrage chance quickly. Consequently, the incorrect pricing is adjusted. Because arbitrage opportunities are not always appealing to investors, Friedman's argument has not survived theoretical analysis. Due to the dangerous and expensive nature of these prospects, the mispricing could be left undisturbed. Fundamental risk, noisy trader risk, and implementation expenses are typically cited as unattractive arbitrage prospects (Barberis & Thaler, 2002). To provide fresh insights into the behavior of asset prices, Behavioral Finance has integrated non-financial concepts, such as biology and psychology, to better explain asset price behavior. The application of these extra-financial notions provides the financial industry with fresh techniques to maybe better explain the behavior of asset prices.

The theory of planned behavior (TPB) is an extension of the theory of reasoned action (TRA) (TRA). The theory of reasoned action (TRA) is founded on the premise that humans conduct consciously, taking available knowledge into account and also evaluating the consequences of their actions. Intention is a factor that determines the occurrence of an action, per TRA (Ajzen, 1991). Two fundamental elements influence intentions: personal factors in the form of attitudes and social influence factors in the form of subjective norms (Ajzen, 1991). According to Ajzen, the theoretical framework of planned behavior has been constructed to anticipate and explain human conduct in certain settings (Soorani & Ahmadvand, 2019). This theory is one of the social-psychological theories for understanding and predicting human behavior and is one of the most prominent today. The theory of planned conduct is predicated on the premise that humans often behave rationally. They pay attention to available information and evaluate the repercussions of their actions, either implicitly or overtly. Within the framework of the theory of planned conduct, it is assumed that a person's motivation and intentions have a significant impact on his or her behavior and decision-making.

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her behavior and decision-making. Ajzen (Ajzen, 1991) introduces a new component to TRA, namely perceived behavioral control. This concept is added in an effort to comprehend the restrictions individuals face when engaging in particular actions. The theory of planned behavior or theory of planned behavior (TPB) consists of three components, the first of which is beliefs on the potential of evaluation and the outcome of the behavior.

2.2 Empirical reviews

Ouarda, Bouri and Bernard (2013) conducted an empirical investigation on the market fluctuations of investors under different markets condition. The authors claimed that their work added to existing literatures on herding behavior of investors in developed economy and on the entire European market. They also examined herding on sectoral levels by adopting data at companies' levels and estimated herding behavior in forms of volume of transaction traded, returns and volatility. The researchers found out that there is herding behavior during the global recession in 2007-2008 and during the Asian crisis. The further argued that there is presence of herding in the market due to the bearish condition of the market. This was driven by the volume of trade and strong volatility.

Significant evidence of herding behavior is reported by Yao, Ma, and He (2014) in the Chinese stock market, especially in the B-share market. During a market downturn, herd behavior would be more noticeable. While Fu and Lin's (2010) study of investor behavior fails to establish herding, it does show the existence of an asymmetric reaction, with the herding tendency of investors being much greater in bear markets. This research partially backs the turnover effect, which states that, in extreme market conditions, low turnover stocks are more likely to converge to market return than high turnover stocks do.

Market fluctuations was first observed in the Indian stock market between 2003 and 2008, prompting research by Saumitra and Siddharth (2013). The empirical findings supported the idea that investors in the Indian stock market are influenced by herd behavior, as stock return dispersions tended to reduce rather than increase during periods of dramatic price swings. Herd behavior, according to the authors, is most prominent in the midst of catastrophic crashes.

Market behavior of four Nordic European market participants was analyzed by Lindhe (2012) using the method developed by Chiang and Zheng (2010). (Denmark, Finland, Norway, Sweden). Using daily market data from 2001 to 2012 available through Thomson Reuters Data stream, Lindhe (2012) used industry indexes that captured at least 75% of the overall market capitalization of each industry. The results showed conclusive proof of widespread herding in Finnish markets during both bull and bear cycles. In Denmark, Norway, and Sweden, we were unable to find any indication of widespread herding in the local markets. In spite of this, there was evidence to imply that the four countries tended to herd around the European market, while Finland and Sweden tended to herd around the American market. The research suggested that close proximity may have an effect on the frequency of herding across international boundaries.

Researchers Nakagawa et al. (2012) looked at the Japanese loan market for signs of herd behavior among market participants and the resulting potential damage to the economy. It was first claimed that the various Japanese financial organizations acted in a herd mentality. Furthermore, it was found that financial institutions acted in a herd, which was correlated negatively with GDP and land prices across many time periods. The authors interpreted these findings as suggesting that loans issued by herding of financial institutions could induce inefficiencies of financial markets and disrupting the real economy through a decrease in GDP and land values due to the unstable association between herding and the economy.

Five nations in Central and Eastern Europe were studied by Filip et al. (2015) to analyze market behavior. They examined market data from Romania, Poland, Bulgaria, the Czech Republic, and Hungary to look for signs of herding behavior, to see if there were any differences in herding behavior before and after crises, and to see if there were any differences in herding behavior in rising or falling markets. To account for the nonlinear link between stock return and market return, the authors employed a slightly modified version of Chang et al (2000) .'s CSAD technique, which included the addition of a regressor. They added a supplementary variable and a lag term to account for multi-collinearity and boost the robustness of the regression. In the countries of Romania, Bulgaria, the Czech Republic, and Hungary, they discovered signs of herding.

Furthermore, they discovered that market fluctuations was more evident in bear markets than bull ones, yet there was no discernible difference between herding behavior before and after a crisis and during one. Investors differ in their gender, education, age, experience, and income, all of which were taken into account by Shusha & Touny (2016) as they investigated the effects of four underlying variables of investor behavior: choice accuracy, fast decision, overconfidence, and investor mood. A total of 255 participants filled out the questionnaire used in the study. According to the estimated models, the primary drivers of attitude that explain why individual investors follow herd behavior are choice precision, fast decision, and investor mood. Nonetheless, complacency does not seem to prevent herd behavior in any of the modeled scenarios.

3.0 **Research methods**

3.1 Introduction

The methodological framework for this research is presented in this chapter. Methods of analyzing the stated hypotheses of this study is given in a distinctive way. The hypotheses were formulated in order to find if there is herding behavior in the Nigerian equity market. This chapter consist of some relevant sections, which includes research design, population, sample size/technique, model specification, variable description, estimation technique, and data source.

3.2 Research design

This study used quantitative research design to test the stock market fluctuations of investors in Nigerian equity market. A random technique was adopted to select the companies with sufficient observations that will cover the scope of this study. Data on stock prices of four companies are used in this study. The data for this study are collected from the www.investing.com for a period of 8 years, which span from 2015 to 2022. The data were used to calculate the cross-sectional absolute standard deviation.

3.3 Sample technique and size

The companies used in this study are five quoted companies. Random sampling technique was employed to select these five companies. Also, preference was given to companies that have enough data to cover the time frame of the study. The study period is for 8 years from 2015 to 2022.

3.4 Nature and source of data

The data on weekly stock prices of the selected four firms were collected through www.investing.com. These data were collected over a period of 8 years.

3.5 Model specification

This study is line with the study of Moatemri, Abdelfatteh and Olivero (2013) who measured herding behavior as once measure in the studies of Tan et al. (2008) and Zhenget al., (2010) based on the two measures that Christie and Huang (1995) and Chang and al. (2000) proposed. In order to test herding behavior distinctly from the studies cited above I use a sample set of four companies stock prices from the Nigerian equity market.

3.5.1 Basis of estimated model

To measure or calculate dispersion returns cross-sectional absolute standard deviation among individual company returns within a specific group of securities is utilized. Chang and al. (2000) suggested the return dispersion (CASDt) methodology in equation 3.1

$$CASD_t = \frac{1}{n}\sum_{i=1}^{n} | r_{i,t} - r_{m,t} | \qquad 3.1$$

To test herding behavior investors in Nigerian equity market, I adjust the specification in equation 3.1 to be:

equation 3.1 to be:

$$CASD_t = b_0 + b_1 r_{m,t} + b_2 | r_{m,t} | + b_3 r_{m,t}^2 + e \quad 3.2$$

With the specification above the asymmetric of the investor behavior during different market phases or conditions is been taken care of.

$CASD_t$ is refer to as a measure of return and $r_{m,t}$ is known as the value of an equally weighted realized return of shares. This method suggested that there will be herding once a less than or lower than proportionate rise/increase in $CASD_t$ (cross sectional absolute deviation) when there is a strong movement in the market.

3.5.2 Market fluctuations during up-ward and downward markets

Various authors have carried out studies on asymmetric characteristics of asset returns. I am concerned with in investing investors' behavior in weeks when the market is down and weeks when the market is up or increasing. In order to achieve this the method proposed by Chiang et al., (2010) is employed. In this method, I introduced a dummy variable in equation 3.2 above thus, I have:

$$CASD_{i,t} = b_0 + b_1(1-a)r_{m,t} + b_2 a r_{m,t} + b_3(1-a)r_{m,t}^2 + b_4 a r_{m,t}^2 + e \quad 3.3$$

The equation 3.3 above will be adopted separately for each firm selected in this study.

The data is separated into two parts using "a" as a dummy variable. This variable is assign one (1) when there is negative portfolio return and its takes zero when there is positive market portfolio return. There is evidence of herding if the coefficient of b_3 and b_4 are negative and statistically significant, with b_3 less than b_4 the effects are well noticed in the weeks the markets are down.

3.6 Estimation technique

In conducting a test on the stock market fluctuations in Nigerian equity market, Ordinary Least Square estimator is used. The analysis was conducted using E-view 10 statistical tool.

4. Results

4.0 Introduction

This chapter is devoted to presentation and interpretation of results. The results are presented in four sub period: the aggregate period ranges from 2015 to 2021, pre-COVID period, COVID period and post COVID period respectively. However, before the presentation of the main results, the descriptive statistics are presented and interpreted as follows.

4.1 Descriptive statistics results

The descriptive statistic results are done using line graph, mean, standard deviation, skewness, kurtosis and probability of the Jarque-Bera statistic. Figure 4.1, figure 4.2, table 4.1 and table 4.2 present these results.

Table 4.1.1: Descriptive statistics of the four company stock prices

	DANGOTE	FLOUR_MILL	GUINNESS	UBA
Mean	189.7841	23.45178	70.28005	6.738934
Median	180.0000	21.25000	72.00000	6.675000
Maximum	280.0000	38.00000	160.8900	12.95000
Minimum	117.0000	13.50000	13.00000	2.600000
Std. Dev.	38.91849	6.264917	39.18332	2.321347
Skewness	0.499288	0.339908	0.223818	0.420766
Kurtosis	2.388504	1.867995	2.008128	2.693189
Jarque-Bera	20.90897	26.58965	18.05885	12.23523
Probability	0.000029	0.000002	0.000120	0.002204
Observations	366	366	366	366

Source: E-view 10 Output

The table above shows the descriptive characteristics of all the four companies stock prices. The mean value of stock prices of Dangote cement, Flourmill, Guinness and UBA are approximately 189.78, 0.03, 23.45, 70.28 and 6.74 respectively. Their standard deviation values are approximately 38.92, 6.26, 39.18 and 2.32 for Dangote cement, Flourmill, Guinness. Guinness plc has the highest standard deviation value followed by Dangote cement. While UBA has the lowest standard deviation value. The stock prices of all the companies are positively skewed. The kurtosis values of all the variables are below 3 meaning they are platykurtic in nature, the probability values for the entire variables are approximately zeros. This is an indication that the series of the variables do not follow a normal distribution pattern.

Table 4.1.2: Descriptive statistics of the four company stock returns

	DANGOTE_RETURN	FLOUR_MILL_RETURN	GUINNESS_RETURN	UBA_RETURN
Mean	-0.000366	-0.001296	-0.004044	0.000998
Median	0.000000	0.000000	0.000000	0.000000

Maximum	0.244444	0.228464	0.275894	0.298153
Minimum	-1.000000	-1.000000	-1.000000	-1.000000
Std. Dev.	0.070203	0.078013	0.080533	0.078991
Skewness	-7.437203	-5.448839	-4.720300	-5.302352
Kurtosis	114.7251	75.36961	66.64320	72.92452
Jarque-Bera	193732.2	81680.83	63128.61	76278.95
Probability	0.000000	0.000000	0.000000	0.000000
Observations	366	366	366	366

Source: E-view 10 Output

In the above table the descriptive statistics of the stock return of Dangote cement, Flourmill, Guinness and UBA is presented the average value of Dangote cement stock return, Flourmill stock return, Guinness stock return and UBA stock return are approximately -0.0004, -0.0013, -0.004 and 0.001 respectively. Only UBA that has a positive mean value while the other companies have a negative mean return. The standard deviation of Dangote cement stock return, Flourmill stock return, Guinness stock return and UBA stock return are approximately 0.070, 0.078, 0.081 and 0.079. The skewness values for all the companies stock returns are negative with kurtosis values above three. Also, the series of the variables do not follow a normal distribution.

Table 1: Test of the level of market fluctuation for the aggregate period (2015-2021)

OLS					2SLS				
Variable	Coefficient	Std. Error	t-Statistic	Prob.	Variable	Coefficient	Std. Error	t-Statistic	Prob.
RM	0.053	0.023	2.344	0.019	RM	0.053	0.022	2.344	0.019
ABSRM	0.516	0.068	7.645	0.000	ABSRM	0.516	0.068	7.645	0.000
RMSQ	-1.547	0.556	-2.780	0.006	RMSQ	-1.547	0.556	-2.780	0.006
C	0.019	0.001	13.105	0.000	C	0.019	0.001	13.105	0.000

Source: E-view 10 output

CASD (cross-sectional absolute deviation**)** is the dependent variable which takes on a minimum value of zero when all individual stock returns move in perfect unison with the market, and increases when the returns of individual stocks deviate from the market returns.

Table 1 above shows the result of the present of market fluctuation for the aggregate period which ranges from 2015 to 2021. Two estimators were used for this purpose and they are Ordinary Least Square and Two Stage Least Square. The test of the market wide herding behavior is based on the sign of the coefficient of RMSQ (portfolio return square). If this coefficient is negative and significant it means that there is herding behavior around the market. In the table above the coefficient of return square is -1.547 with probability value of 0.006 given by both OLS and 2SLS. Since the coefficient of return square is negative and significant there is an evidence of market wide herding during the aggregate period. Alternately, the participants in this market were taken decision based on the decision of others investors.

Table 4.2.2: Test of the level of market fluctuations for the pre-COVID period (2015-2018)

OLS					2SLS				
Variable	Coeff	Std. Error	t-Stat	Prob.	Variable	Coeff	Std. Error	t-Stat	Prob.
RM	0.079	0.029	2.692	0.008	RM	0.079	0.029	2.692	0.008
ABSRM	0.474	0.085	5.560	0.000	ABSRM	0.474	0.085	5.560	0.000
RMSQ	-1.229	0.654	-1.880	0.062	RMSQ	-1.229	0.654	-1.880	0.062
C	0.021	0.002	10.386	0.000	C	0.021	0.002	10.386	0.000

Source: E-view 10 output

Note that CASD meaning cross sectional absolute deviation is the dependent variable

The output of the test on market fluctuations for pre-COVID period is reported in the above table. Two different estimation techniques were adopted for this test. These estimators are OLS and 2SLS. The results of the 2SLS are used to verify the results of the OLS. From the table above, it is seen that the coefficient of RMSQ is -1.229 with probability value of 0.062. The result given by the OLS is same as that of the 2SLS. Thus, this result reveal that there is presence of market fluctuations in the pre-COVID period. The next table gives the results of market fluctuations during the COVID period.

Table 4.2.3: Test of the level of market fluctuations during COVID period (2019-2020)

OLS					2SLS				
Variable	Coeff	Std. Error	t-Stat	Prob.	Variable	Coeff	Std. Error	t-Stat	Prob.
RM	-0.00747	0.037671	-0.19827	0.8432	RM	-0.00747	0.037671	-0.19827	0.8432
ABSRM	0.425222	0.1356	3.135853	0.0023	ABSRM	0.425222	0.1356	3.135853	0.0023
RMSQ	-1.04562	1.188928	-0.87946	0.3813	RMSQ	-1.04562	1.188928	-0.87946	0.3813
C	0.020185	0.002767	7.295276	0	C	0.020185	0.002767	7.295276	0

Source: E-view 10 output

Note that CASD is the dependent variable

The results of the current market-wide herding tendency are displayed in Table 4.2.3 above during the heat of covid19, which runs from 2019 through 2020. For this, the Ordinary Least Square and Two Stage Least Square estimation methods were utilized. The sign of the RMSQ coefficient serves as the basis for the examination of market-wide herding behavior. The market is experiencing herding behavior if this coefficient is negative and significant. The coefficient of return square RMSQ in the above table is approximately -1.045 with associated probability value of 0.381 provided by both OLS and 2SLS. There is confirmation of market-wide herding over the entire period because the coefficient of return square is negative and significant. Thus, during the covid period there is presence of cascading. The findings of a market-wide test conducted for the post COVID period are shown in the subsequent table.

Table 4.2.4: Test of the level of market fluctuations for the post COVID period (2021)

OLS					2SLS				
Variable	Coeff	Std. Error	t-Stat	Prob.	Variable	Coeff	Std. Error	t-Stat	Prob.
RM	0.120331	0.120707	0.996888	0.3238	RM	0.120331	0.120707	0.996888	0.3238
ABSRM	1.293688	0.382415	3.382942	0.0014	ABSRM	1.293688	0.382415	3.382942	0.0014

RMSQ	-9.58845	5.838091	-1.6424	0.107	RMSQ	-9.58845	5.838091	-1.6424	0.107
C	0.008388	0.004327	1.938535	0.0585	C	0.008388	0.004327	1.938535	0.0585

Source: E-view 10 output

The above table summarizes the results of the market-fluctuations conducted in the post COVID period. For this test, two alternative estimating methods were used. OLS and 2SLS are the estimators used here. The outcomes of the OLS are validated using the outcomes of the 2SLS. The coefficient of RMSQ is approximately -9.59 with a probability value of 0.107, as can be seen in the table above. The OLS and 2SLS both produce the same outcome. This is an indication that there is insignificant herding behavior of investors during this period. Thus, this finding suggests that market-wide herding existed throughout the post covid period.

5.0 Summary of findings

In this study the researcher examined the herding behavior of investors in the equity market of Nigeria from 2015 to 2021. This test was conducted for this period also four three subperiods which is grouped into the pre-covid period from 2015 to 2018, during covid period from 2019 to 2020 and post covid period in 2021. Four companies that are quoted in the Nigerian stock exchange market were used. These companies are Dangote cement, Guinness plc, Flourmill plc and UBA. Both the descriptive and inferential statistics were done. The inferential statistic was done using two estimation techniques which are Ordinary Least Square (OLS) and Two Stage Least Square (2SLS). And the results and interpretation of this test are presented in the preceding chapter. The results for the aggregate sample period show that there is significant evidence of market fluctuations in the stock market. That is there is market volatility. Also, there is significant fluctuations when the market is up but when the market is down there is no market volatility. Considering the sample before covid19, it is observed that there is market fluctuations in this period and it is statistically significant. This is same during the up market. Nevertheless, during the down-market phase there is no evidence of volatility.

6.0 Conclusion

The researcher came up with the following conclusions, which are given in the following order below, based on the key findings for the aggregate sample period outlined in this study.

1. The study concluded that there is market volatilities or fluctuations, this indicates that the market is inefficient.
2. It is concluded that when the market is up there is presence of significant fluctuations in the stock market. Investors tend to follow the same direction in their investment decision.
3. Lastly, it is concluded that there is no significant fluctuations when the market is down.

7.0 Recommendation

The following policy recommendations are made by the researcher in this report for the government and regulatory organizations of the Nigerian stock market to adopt. They are listed below.

1. When there is fluctuations in the market, this suggests that the market is inefficient and as such it is recommended that there should be restriction on short sales in order to raise or increase market efficiency. Also, the efficiency of the market will likewise increase when the cost of information declines.
2. Stock market volatility can also result in a greater degree of financial asset

return co-movement, which lessens the advantages of portfolio diversification. Investors are therefore advised to spot herding activity in the financial markets before taking any investment decision.

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