

**Appraisal of Change in Regional and Global Financial Crisis (A Study of Investors' Behaviour during and after the Speculative Bubbles and Crash of the Nigerian Capital Market)**

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**Abstract**

*The appraisal of the aggregate market in respect to high price earnings ratio and high asset prices experienced in the equity and asset markets in the end of 1990s and the imminent fall in 2008 ascribed to the speculative bubble crash which is consistent with investors' irrational behaviour, wrong human judgement of the 2008 market decline due to bad credit lending. It is against this background that the study appraises how investors are influenced by these biases and what influenced them to change their investment portfolio during and after the speculative bubble and crash of 1998 to 2009. The use of questionnaires was adopted to get an understanding of what investors' trading pattern was like; it looked at the behavioural bias that influenced their method of stock picking in the past. The performance of the market after the crash was tested using total market capitalization as a proxy. Among the variables, stocks and equity were positive with 1.021 and 0.055 while interest rate and bonds negative at -0.033 and -0.126. Equity was insignificant. This result shows that the fundamental value of a company did not affect market overvaluation. This supports the EMH theory that investors think that they can predict and outperform the market. Conclusively, the common knowledge of the factors underlying the speculative bubble before its imminent burst and the way psychological factors influence decision-making should stand as a guide against a reoccurrence of this phenomenon and improve the efficiency of today's reviving financial market.*

**Keywords :** *Investors, Behaviour, Speculative bubbles, Crashes and Stock Market*

**Introduction**

The financial crisis of 2007–2009, also known as the Global Financial Crisis and 2008 financial crisis, is considered by many economists, the worst financial crisis since the Great Depression of the 1930s. It resulted in the threat of total collapse of large financial institutions, the bailout of banks by national governments, and downturns in stock markets around the world. In many areas, the housing market also suffered, resulting in evictions, foreclosures and prolonged unemployment. The crisis played a significant role in the failure of key businesses, declines in consumer wealth estimated in trillions of U.S. dollars, and a downturn in economic activity leading to the 2008–2012 global recession and contributing to the European sovereign-debt crisis, Asian crises, Africa and the world over. The active phase of the crisis, which manifested as a liquidity crisis, can be dated from August 9, 2007.

The Nigerian capital market is in no way exempted from the proven imperfections in financial markets throughout the world. Investors sometimes, albeit temporarily, exhibit excessive optimism and pessimism which culminate in pulling stock prices away from their long term trend levels to extreme points. The theory of efficient market posits that only fundamental factors such as profits and dividends should drive stock prices so that trade plays little or no role in stock price movements. The overvaluation of the Nigerian stock market is a notion supported by meager evidence. But common economic sense tells us that the pace of general economic growth should be in tandem with growth of the capital market. This is premised on the fact that stock market booms are an element of the business cycle, with booms typically arising during cyclical recoveries and other periods of rapid economic growth and ending when GDP growth slows. But so many things still need to be unearthed in the behaviour of the Nigerian stock market in recent times.

The occurrence of bubbles and crashes in experimental markets with inexperienced participants relates to Statma (1999) documentation of observing stock market bubble and crash pattern. The work found that participants who have no previous experience in similar asset market, would exhibit a price bubbles and crashes instead of tracking the fundamental value. When market prices surpass their fundamental values on the high volume, market crashes drop faster in price than their fundamental values often when the terminal stage of the asset is approaching. Resistance to both institutional and environmental changes eradicate price bubbles.

Camerer (2006) posits that when bubble bursts, economic crisis will follow. The Japanese financial crisis of 1990 and Southeast Asia financial crisis of 1997 are examples of financial crisis because of economic bubbles. The impact of this crisis is not limited to the origin country, but expands beyond borders. Stock is one of the main vehicles of bubble economy; according to Shiller (1989; 1990), asset pricing bubble is a major factor that triggers bubble economy.

The Dot-com bubble and crash with Asian Financial crises is a constructive experiment in the study of behaviour of the stock market under extraordinary circumstances, which explains the behaviour of investors in the stock market. Stock markets in the affected countries experience three phases of stock market cycle namely: recent history of general high returns, a spiky fall in market capitalisations after the crisis started and extent of quick but prejudiced recovery. The combination of these three phases establishes the occurrence of a positive bubble followed by a negative price bubble, i.e. the gross overvaluation of share prices before the crisis. Overvaluation of share prices gives rise to overreaction, which results in excessive discounting of share prices (negative bubble).

The Nigerian stock market in recent times, continue to witness persistent bull ride, flanked by escalating gurgles and bubbles. As banks began to give out more loans to potential investors, stock prices began to rise. Despite its miniature stature compared to its counterparts the world over; the Nigerian stock market continue to proved to be one of the most efficient in terms of profitability. The momentum for stock price movement grew very strong and investors were comparing virtually every form of investment to the stock market. Suddenly, in the first quarter of 2008, the bubble burst and the Nigeria Stock market crashed to an all-time bearish ride, with investors losing over a hundred billion naira. As a result, their perception towards investment in shares changed. The study therefore set out to determine whether Nigerian investors' decisions during and after the speculative bubbles and crashes influences their investment portfolio and to evaluate the performance of the stock market after.

## Review of Literature

Bubbles and crashes history dates back to the 17<sup>th</sup> century (Mackay, 1852). When the relations among traders becomes very strong it reaches significant values, a second -order phase transition, and significant behaviour during this phenomenon can be observed, thereby creating a bull and bear market phase. Caginalp (2001) posits that bubble rise is an initial phase characterised by a new initiative or merchandise, which causes changes in expectations about the future. When the system stays at the bull market phase, speculative bubbles occur in the stock market. Speculative bubble describes the situation where temporal high prices are maintained by investors' passion or emotion rather than by reliable evaluation of real value. This results in a feedback effect where rise in price increases investors' passion to increase demand.

A speculative bubble is not sustainable. The idea of speculative bubble is about the irrational side of investors' behaviour. The theory also necessitate that changes in past prices will create faithlessness in judgments, not that they believe that prices will continue to rise. The history of stock market event ranging from the Great crash of 1929, the Tronic boom of the 1960s, the Go-Go years of late 1960, the Nifty Fifty bubble of early 1970, the Black Monday crash of 1992, the bond market crash of 1994, the Dot com bubble of 1990 and the depression of 2008. This period -created opportunity for contrarian arbitrageurs, to force many arbitrageurs out of business, as prices already high went higher before the final market crash. During a bubble however, the propensity to speculate is high, investment bankers can join the chorus arguing for high valuations.

## Factors Underlying Speculative Bubble and Crash

Kahneman (2002) describes speculation as "*buying for resale rather than income*" and bubble means, "*predict the bursting*". According to him, speculative bubbles in the past followed the standard structural pattern, though the information differs from one event to another. According to Lux (2001) a bubble will burst if rational investors can arbitrage without risk. There are many factors that influenced speculative bubble and crash. They include, structural, cultural and psychological factors

*Structural Factors: Arrival of New Technology at a Time of Unyielding Earning Growth.* It is a known fact that most people in the 1990s never had or used cellular phones and most never heard or used the internet and global web. It was not far before these technologies became a household name making a minded speed at which technology changes. By mid 1990s, earnings rose to the peak; accredited to the birth of a new era that have less or nothing to do with the internet evolution. Introduction of new technologies will always have a great impact on the market (De Bondt & Thaler, 1994; Shiller, 2001).

*Cultural Factors: Media.* The media is an important part of market dealings because they attract viewers and readers. Activities in the stock market attract the attention of the news media because of the

persistent flow of news in form of daily price changes and company reports. They pique the interest of viewers by attaching news stories to stock price movements, thereby creating a hub of greater attention on their movements. During the period of market crisis, the media can push trading activity to the extremes. The media can set off and strengthen opinions.

*Psychological Factors: Expectation and Emotion.* Investment decisions most times are affected by contradictory emotions. As emotions increase, it increases with complication and ambiguities surrounding the decision (De bondt & Thaler, 1985). If a participant leaves the market without participating in making money that other investors had shared in, it may degenerate to a sharp feeling of regret. According to Loomes and Sugden (1982), the feeling of regret discovered by experts is the reason why people make changes in their investment decisions. Nofsinger and Baker (2002) explain this as an attachment bias, where investors become emotionally attached to a particular investment. Emotional attachment can cause investors to focus on good news and ignore bad news of an investment. This could hinder the incorporation of information into a share price.

### ***The Speculative Bubbles and Crash of the Nigerian Stock Market***

The crash of the Nigerian stock market has been unprecedented in its historic evolution since 1960 to date. Its market capitalization nose-dived from an all time high of N13.5 trillion in the first quarter of 2008 to less than N4.6 trillion towards the year's end. Besides, the All-Share Index (a measure of the magnitude and direction of the general price movement) also plummeted from about 66,000 basis points to less than 22,000 points in the same period (see figure 1). This is as a result of the speculative bubble—an indefensible rise in prices brought on by investors' buying behavior rather than by genuine, fundamental information about value. The stock prices experienced a free-for-all downward movement regime, with supply exceeding demand. Consequently, many of the quoted stocks lacked liquidity as their holders were trapped not able to convert them to cash to meet their domestic and other investment needs. Suddenly, the bubble burst and the market crashed.



**Figure 1. Historical Trend in NSE ASI**

Source: Meristem Securities Ltd (Member Nigeria Stock Exchange)

From the historical perspective, there is no doubt the Nigerian Capital market soared to extremely high levels in recent years. These results created a sense among the investing public that such high valuations, and even higher ones, will be maintained in the foreseeable future. But figure 1 above looks quite instructive. From a logarithm scale, the index appears quite higher than what it should be. If the history of high market valuations is any guide, the public may be very disappointed with the performance of the stock market in coming years.

## Materials and Methods

### Description, Justification and Sources of Data

The study used the descriptive and inferential statistics approach to analyze the data. Data were sourced from both the primary and secondary source. Secondary data were obtained from the Central Bank of Nigeria Statistical Bulletin and the Nigeria Stock Exchange Factbook and other cognate population. The Ordinary Least Square (OLS) regression was used to analyze the performance of the Nigerian stock market with time series data spanning 1998-2009. Frequency table and Percentages were used to analyze responses from respondents and Chi-square ( $\chi^2$ ) to test for the significance.

### Model Specification

The model was developed to evaluate the performance of the Nigerian stock market after the speculative bubbles and crashes (1998-2009). The total market capitalization was used as a proxy for the overall performance of stock market. To achieve this statistical analysis, other dependable variables like interest rate, equity, stocks and bonds were included in the model. The model specified was based on the liquidity preference theory, and mathematically stated as follows;

$TMC = F(\text{Interest, Equity, Stocks and Bonds})$ . This could be written in econometric form, thus,

$$Y = b_0 + b_1INT + b_2EQT + b_3STK + b_4BND + \mu$$

Where;

Y = Total market

capitalization  $b_0$  = Constant

$b_1$  to  $b_4$  = Slope

INT = Interest rate

EQT = Equity

STK = Stock

BND = Bond  $\mu$

= Error term

## Data Presentation and Analysis

### Hypothesis 1

**H<sub>0</sub>:** The change in Nigerian investors' behaviour during and after the speculative bubbles and crash has no relationship with the Global financial crises.

### Respondents Responses and Analysis

**Table 1. Percentage Method**

Questions	Total	%
Returned	180	90
Not Returned	20	10
<b>Total</b>	<b>200</b>	<b>100</b>

**Table 2. Frequency Table: Respondents Views on investors' Behaviour during and After the Bubbles and Crash**

Questions	SA	A	D	UD	Average
<b>Scale</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>	<b>2.5</b>
1	80	60	10	20	3.10
2	75	80	5	20	3.5
3	85	70	20	5	3.38
4	60	100	10	10	3.1
5	70	90	-	20	3.16
6	90	65	-	25	3.2
7	90	75	10	15	3.38
8	80	60	10	20	3.1
9	75	80	20	5	3.25
10	60	100	10	10	3.1

Source: Researcher Field Survey, 2013

From table 1, it is observed that out of the 200 questionnaires administered, 180 were returned representing 90% of the total while 20 representing 10% were not returned. Analysis was done based on the 180 returned.

From table 2, respondents view on investors' behaviour during and after the speculative bubbles and crash is presented. The questionnaire contained 10 questions, structured on a 4 point likert scale.

The decision rule was arrived at:  $\frac{4+3+2+1}{4} = 2.5$  (Average/Critical value).

$Cr > Ct = \text{Accept } H_0$ , where Cr represents critical value and Ct represents calculated value.

If  $Cr < Ct = \text{Reject } H_0$ . Ten specific questions were drawn to analyze the change in investors' behaviour during and after the speculative bubble and crash. Five (5) questions addressed the behaviour before the bubbles burst while five (5) addressed the behaviour after the crash. The result for each was greater than the average of 2.5 and significant (see appendix 1). From the results, it was observed that the speculative bubble burst and eventual crash was a chain reaction to the global financial crisis that started in the USA. Generally, before the bubbles burst in Nigeria, the stock market was the most attractive and lucrative place to invest. The continual rush to the market to raise fund abnormally by commercial banks increased investors' confidence with mixed emotions in the market, regulatory inconsistencies and pronouncements created panic selling among investors; the aspirations for wealth and status and sentiments reflecting unrealistic optimism and pessimism greeted investors' behaviours.

The second half of the five questions, addressed investors' behaviour after the crash. From the results, it was observed that since the bubble burst and the eventual crash, the market has not revived with foreign investors pulling out from the market. Investors' behaviours were greeted with regrets and biases; as a result they were compelled to diversify their investments to real estate and government bonds and stocks.

## Hypothesis 2

**H<sub>0</sub>:** The Nigerian stock market has not performed significantly well after the speculative bubbles and crashes

Model Summary										
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change in Statistics					Durbin-Watson
1	.993	.987	.979	619.4396	.987	128.525	4	7	.000	1.693
a Predictors: (Constant), BON, INT, EQT, STC b Dependent Variable: TMC										

ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	197262823.519	4	49315705.880	128.525	.000
	Residual	2685937.831	7	383705.404		
	Total	199948761.350	11			
a Predictors: (Constant), BON, INT, EQT, STC b Dependent Variable: TMC						

Coefficients								
Model	Unstandardized Coefficients	Standardized Coefficients	T	Sig.	Correlations			
1 (Constant)	B	Std. Error	Beta		Zero-order	Partial	Part	
	1732.560	1520.973		1.139	.292			
	STC	3.957	.257	1.021	15.422	.000	.985	.986
	INT	-39.747	64.371	-.033	-.617	.556	-.541	-.227
	EQT	4.123E-02	.037	.055	1.106	.305	.458	.386
	BON	-17.499	7.844	-.126	-2.231	.061	.487	-.645
a Dependent Variable: TMC								

From the results,  $R^2$  of 0.987 implies that the explanatory variables such as stocks, interest rate, equities and bonds influences the total market capitalization by 98.7% that was used as a proxy to measure the performance of the Nigerian stock market after the speculative bubbles and crash. This indicates that it is a good fit, since  $R^2$  is closed to one. The result also shows that F-test at 128.525 was

highly significant at 0.000, since it is less than 0.005 level of significance. Similarly, the Durbin Watson value of 1.693 shows that there is no presence of autocorrelation as it is strongly closer to 2, but the standard error of estimate is quite high at 619.4396.

The standard beta coefficients of explanatory variables to total market capitalization could be expressed in the regression function, thus;  $Y = 1732.560 + 1.021STC - 0.033INT + 0.055EQT - 0.126BON$

From the above regression function, it was observed that stock contribute the highest to the performance of the Nigerian stock market at 1.021, follow by equity at 0.055. However, the contributions of Interest rate and Bonds to Nigerian stock market are negative at -0.033 and -0.126 respectively. The study found that there is a positive relationship between stocks, equity and total market capitalization, but equity is insignificant at 0.305 as it is greater than 0.005 level of significance. Similarly, the zero -order correlation shows that stocks are strongly correlated with total market capitalization at 0.985 follow by bond and equity at 0.487 and 0.458. However, there is a negative correlation between interest rate and total market capitalization. In general, the work is supported with the works of Keynes (1936) that sentiment, reflecting unrealistic optimism or pessimism, leads to booms and busts. But the performance of equity and bond, thus does not suggest reality in the Nigerian economy after the bubble burst.

### Conclusion and Recommendations

Market Players for sometime relied on the theory of Efficient Market Hypothesis and the rational investors' behaviour when making financial decisions. They believed that rational investors maximise their utility and exhibit perfect self-control over the years. Result shows that despite what research says, the behaviour of market participants at some level are unpredictable during and after the speculative bubbles and crashes of the stock market movement. The results also explain the reasons that led to speculative bubble and crash. The conclusion is that investors are responsible for the market burst; most especially the institutional investors, which are considered the most, informed. The behavioural side underlying these views are numerous.

It is believed that stocks in the market reflect all the available information in the market supported by researchers and academicians (Fama, 1965; Kendall, 1953; Friedman, 2008). However, some still believe that stock markets are not efficient (Brealey & Myers, 2000; Lakonishok, Schleifer & Vishny, 1994; Olsen (1998) and with this fact, it may be concluded that if markets were not efficient, no market would exist at all. In the study, it is discovered that biases such as herd behaviour, overconfidence and representativeness did not cause the stock market volatility that led to the speculative bubbles (IT bubbles).

However, empirical literature on behavioural finance has failed to develop other theories that might explain market anomalies like EMH do and further explain the irrationality of human decision making in the stock market. From the statistical analysis, it proved that herd behaviour, overconfidence and representativeness has no influence on the stock market bubble, and eventual the crash of the market in 2008. The study however, conclude that the behavioural finance has not achieved its study of human irrationality in decision making.

From the study, it is recommended that investors should be re-educated on stock market anomalies and the use of EMH by fama should be introduced into stock market trading. Secondly, the stock market should purge herself of noise traders and the use of certified information should be disseminated in the market. Every major economies stock exchange securities commissions should employ a strict regulations to stocks being placed on IPO and asset that rises above 50% of its intrinsic valued should be pulled out of public offer. For the 2008 crash, financial institutions should be re-assessed and quarterly statement of account should be submitted to the central bank of each country and they should in return look at the companies debt/equity ratio just as Graham value screen suggests. The government should part-own this companies shares by providing enabling environment for trading so as to avoid future occurrence of the 2008 market crash.

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