BUBBLES AND SUNSPOTS: INVESTORS'PERCEPTION OF THE NIGERIAN CAPITAL MARKET

Adepoju Adeoba Asaolu[1]
Osmond Chigozie Agu[2]

ABSTRACT

This paper examined the investors' perception of bubbles and sunspots. It attempted to find the degree of sensitivity of investors to the dual phenomenon because extrinsically determined shock (sunspot) could influence the psychology of investors through intrinsically determined shocks (bubbles). On this note, a primary research design was engaged using the report of a hundred and twenty-two (122) respondents. Data were analyzed using frequency distribution, percentages, mean, T-Test, and analysis of variance (ANOVA). Our findings revealed the depth of the relationship between some demographic factors (gender, age, and educational background) and investors' sensitivity to risk and returns (outcome). The results brought to the fore and reinforced the fact that information deficit was a major factor causing investors to plunge into the short circuit opportunities of bubbles or sunspots. Recommendations were thus made to address areas of marked information gap to enable investors or potential investors to head off possible future avoidable plunges.

***Keywords**: Bubbles, Sunspots, Risk, Return, Nigerian Capital Market*

INTRODUCTION

The concept of bubbles and sunspots in a way further confirms the vastness of the field of finance and economics because the two terms

[1]Adepoju Adeoba Asaolu is with the Department of Finance, Federal University, Oye-Ekiti, Ekiti-State, Nigeria. *E-mail: adepoju.asaolu@fuoye.edu.ng*, Orcid Details: https://orcid.org/0000-0001-5404-0604

[2] Osmond Chigozie Agu is with the Department of Economics, Federal University, Oye Ekiti, Ekiti State, Nigeria *E-mail: osmond.agu@fuoye.edu.ng*, Orcid Details: https://orcid.org/0000-0002-8290-1106

emanated from the sciences or better still borrowed words from science. While core scientists utilize the word bubble extensively, space scientists and physicists use sunspots regularly. It thus goes to lend credence to the research on 'econophysics'. If a bubble represents an artificial inflation of a 'fragile thing' and fizzles out when stifled of oxygen, then we can connect it to what happens in the case of bubbles in economics and finance. Similarly, in scientific terms, sunspots represent darker, cooler areas on the surface of the sun. (Ho & Zhu, 2019; Yuan, et al, 2020).

Moving away from the scientific foundation of bubbles and sunspotS, a bubble involves a non-sustainable and unusual pattern of price changes or cash flow. A bubble is a situation in which the prices of financial investments (such as securities or assets) rise far above the core values. This may be occasioned by trading in high volumes at prices that are considerably different from the fundamental values of underlying assets.

Sunspot on the other hand is an imaginative reference of William Stanley Jevons, a 19th-century economist, who attempted to correlate business cycle patterns with sunspot counts (apparently on the actual sun) on the grounds that they might cause variations in weather and thus agricultural output. Although studies that followed it did not support the hypothesis that the sun influences the business cycle, whereas, sunny weather could have a small but significant positive impact on stock returns, probably due to its impact on traders' moods. Meanwhile, Garcia-Mata and Shaffner (1934) extended Jevon's theory and concluded that there was a clear statistical correlation between the major cycles of non-agricultural business activity in the United States and the solar cycle.

The economic concept of sunspot equilibrium was introduced by Cass and Shell (1983) with the term 'sunspot' being something of a skit with reference to Jevon's earlier work. In light of this, Carl and Shell (1982, 1983) developed the sunspot equilibrium and they used it to analyze bank runs and related financial system weaknesses.

It thus goes to say that the 2008/2009 global financial meltdown could be viewed as partly sunspot-driven. In a bubble situation, the

investors witness uncommonly rising prices of securities and they expect the prospects to deliver profit in the short run. The trend persists until the investors realize how much prices have risen and the decline might follow through a process called 'market correction'. Sunspots in a similar vein naturally occur where expectations are significant when markets are incomplete; restricted participation is the period of the finite horizon while preferences and /or technologies are non-convex.

Our findings just like contemporary realities discovered that daily effects, monthly effects, seasonal, calendar effects, and changes of government among others are considered to have some effects on stock returns. The study of Ho and Zhu (2019 on bubbles, growth, and sunspots with credit market friction explored the roles of these three components in an overlapping generations economy when some agents were more productive than others. The agents were unable to trade financial assets due to the absence of credit markets. In this instance, introducing bubbles mobs out some productive resources and may also divert resources away from the unproductive agents to the productive ones. They found that bubbles are growth-enhancing when the unproductive agents' level exists within an interval.

We believe that the acts and the interval created culminating diversion of resources away from the unproductive agents could not have been unrelated to information asymmetry; this gap is what this paper is intended to close. The catch for this paper is the discovery of information deficit as the major cause of miscalculations or mistakes investors or their agents make in their investment decisions, behaviour, or expectations in Nigeria where they are drawn into capital market investments by bubbles (artificial surge in the value of stocks) in returns with limited or no background information, even where information is made available the level of understanding of the workings among many existing and potential investors appears to be very much at infancy.

This study, therefore, attempts to investigate various behavioural patterns investors exhibit in their investment decisions irrespective of the fundamentals and why nothing seems to have been learned over the years.

HISTORIOGRAPHY OF BUBBLES AND SUNSPOTS

The history of bubbles dates back to the 1630s with Tulip Bulb Mania; this was followed by South Sea Bubbles and Mississippi Bubbles of the 1710s. The Tulip Bulb Mania of Holland was simulated by a non-harmful plant virus referred to as mosaic which gives tulip petals beautiful colors and mosaic designs which increased the value of the Tulip Bulb which was already a scarce commodity. This was viewed as a status symbol and novelty for the affluent. A form of herd behaviour was displayed that made speculators to trade in their land, livestock, lifesaving, and other treasures just to acquire a single tulip bulb. As of 1636, tulip was traded on some stock exchanges including Rotterdam and Harlem, among others in Europe. With the following regulations by the Dutch government to control the tulip, investors and speculators suddenly realized that the tulip was not worth the prices they were paying (for example, while the price of tulip at the peak of the mania was $76,000, it fell to less than $1 after the crash).

South Sea bubbles, on the other hand, were used to finance war-induced debts in Britain from 1711. The government exclusively conceded the trading rights in the South Sea to a financial institution known as South Sea Company which planned on developing a monopoly in the slave trade. Share prices were quickly boosted by the perception of investors who perceived the value of the South Sea company in the monopoly of the South Sea. However, the undoing of the South Sea company was massive corruption among directors, company officials, and their political friends. With the panic mode already on the realization that South Sea Company had become not profitable, the issuing of shares was outlawed for about 100 years to recover from the crash.

Incidentally, the Mississippi Bubble happened simultaneously in France the same time the South Sea bubble was a rave in Britain. To stabilize the economy, Banque Generate was established to accept deposits of gold and silver and to issue paper money. Banque Generate was merged with the Mississippi Company. The shares of this company could be bought and paid for with bank notes or with government debt. When this company expanded to monopolize all French trades outside

Europe, its share price rose rapidly by about 190% within one year. However, hyperinflation caused by the massively increased amount of bank notes devalued the bank notes which were no longer backed by precious metals. Shares collapsed 90% in 6 months. The fall of the Mississippi bubbles culminated in acute economic depression in France and Europe.

Other bubbles in history are the late 1920s stock price bubbles (1927-1929), the surge in bank loans to Mexico and other developing countries in the 1970s, the bubble in real estate and stocks in Japan, the bubble in real estate and stocks in Finland, Norway, and Sweden (all between 1985 and1989), the bubble in real estate and stocks in Thailand, Malaysia, Indonesia, and several Asian countries (all between 1927-1997), the surge of foreign investments in Mexico (1990-1993) and the bubble in over-the-counter stock in the United States (White, 1995).

The housing bubble is the most modern in the current millennium, just like many other bubbles in history are often accompanied by financial crises; price-income ratios and price-rental ratios for the United States, Japan, Spain, and Greece attest to the assertion. The fluctuations in housing prices may not have been driven entirely by the known fundamentals. It is widely believed that the credit crises resulting from the burst of the housing bubble laid the foundation for the 2008/2009 financial crises (White, 1995).

The association between natural phenomena and the financial markets and the macroeconomic indicators are largely ignored by the financial and business media. However, there are evidence that several financial and macroeconomic indicators are caused by solar phenomena (see Hampson, 1912; **Hampson, 2012;** Hickey, 2009; Hirshleifer, 2001; Shiller, 2002 and Shleifer, 2000). Hence, deserving of a more central role in trading stocks and commodities. However, despite the lack of scientific consensus over causality and paucity of data, solar phenomena remain niche disciplines in trading and economics. These are largely ignored by financial and business experts. In Nigeria, although it is known to all that weather affects the production of some items (especially agricultural products), however, all remain at the level of observation and no deep/ serious empirical work has been carried

out yet on the relationship between solar, other natural phenomenon and financial market.

The objective of the study is to ascertain investors' perception on bubbles and sunspots on the financial investment.

Investors over the years witness varying investment weathers, which are either favourable or unfavorable; one of the downsides experienced as the aftermath of bubbles and sunspots. This important issue culminates in the following research questions:

a. Is there any positive relationship between the selected chosen demographic factors and investors' sensitivity to risks and returns?
b. Is the relationship between the selected chosen demographic factors and investors' sensitivity to risks and returns significant?

Hypothesis: The hypotheses are stated in null as:

$H_0$1: There is no positive relationship between the selected chosen demographic factors and investors' sensitivity to risks and returns.

$H_0$2: There is no significant relationship between the selected chosen demographic factors and investors' sensitivity to risks and returns.

The subsequent sections are structured thus: section two presents the literature review, section three presents the methodology coupled with data presentation and analyses, while section four shows the conclusion and recommendations.

LITERATURE REVIEW

Bubbles and sunspots are products of economic or financial shocks resulting from price escalation of assets trailed by a contraction/ shrinkage. They are created by surge in the asset prices unwarranted by the fundamentals of the asset and driven by exuberant market decisions. While bubbles in equities markets and economies cause resources to be transferred to areas of rapid growth/interest, the same resources are moved again, causing prices to deflate. Sunspots are extrinsic random events (they could be tamed or accommodated), they influence the ways investors coordinate their investment activities and decisions (Osamwonyi, 2011).

CONCEPTUAL REVIEW:

Concept of Bubbles in the Nigerian Capital Market

A good example of a market bubble in the Nigerian capital market is the event that greeted the recapitalization of banks in Nigeria in 2005 and many successful Initial Public Officer (IPO) of a 'green horn' companies that had no performance history whatsoever (such as Transcorp Plc). So strange was the trend (stock prices obviously rose above the intrinsic values) that it was sustained for about two years, fueled further by margin loans extended by banks to stockbrokers and individuals to trade in Transcorp's and other high-yielding securities.

The 2008/2009 global financial crisis which culminated in a significant loss in the stock index confirmed that the supposed boom was, in fact, a bubble and one would wonder why Nigerians and other investors in the country expected the 'bubble' to continue. Between earliest part of the millennium and part of 2008, the total returns on most stocks were over 1000%, this catapulted Nigeria's stock market to the enviable height of being called the world's best performing stock in 2007 in terms of growth with a return of 74.73%. However, as at 31/12/2008, the highly rated stock market was reputed as the world's worst-performing stock market after a loss of over ₦5.7 trillion in the market and a dip of 46% in its all share index.

From the authors' perspectives, stock exchange bubble or crash is attributable to massive influx of public offers and private placements, sudden capital flight and overvalued stocks. The attendant consequences of the crash are loss of confidence in the Nigerian economy, credit crunch in the economy, loss of confidence in shares as collateral, loss of depositor's funds in banks, depletion of Pension Fund assets, financial incapacity of stockbrokers, loss of confidence in the regulatory bodies and unstable macro-economic environment. (Tella, 2009)

In the post-financial crisis responses to the Nigerian stock market crash some measures were deployed to stabilize the exchange such as the introduction of a circuit breaker (that is, daily upward price movement of 5% and 1% downward movement), review of the volume required to move price to 50,000 units, delisting of 30 securities badly

hit by the crisis, reduction in Monetary policy rate (MPR), Liquidity rate and cash reserve ratio (CRR) from 10.25% to 9.75%, 40% to 30% and 4% to 2% respectively, among others (Amedu, 2010). The question here is, to what extent will the remedial provisions above help the bubbles in the future? Time would likely attend to this.

Concept of Sunspots and Capital Market

Hampson (1912) established correlations between natural phenomena and the financial markets and the macro economy, largely ignored by the financial and business media. He provide evidence that solar phenomena are the underlying cause of several financial and macroeconomic phenomena, and therefore deserving of a more central role in trading stocks and commodities. Psychological and behavioural research link geogmagnetism and lunar phasing with human mood, and sunspots with human excitability. Studies Yuan et al (2002) also link altered moods to more cautious behaviour, including financial decisions. There have been several papers published demonstrating correlations between these natural phenomena and the financial markets and the macro economy among whom are **Hampson (2012);** Hickey (2009); Hirshleifer (2001); Shiller (2002) and Shleifer (2000). However, perhaps due to a lack of scientific consensus over causality, solar phenomena remain niche disciplines in trading and economics, largely ignored by the financial and business experts. In Nigeria, although it is known to all that weather affects the production of some items (especially agricultural products), however, all remain at the level of observation and no deep/ serious empirical work has been carried out yet on the relationship between solar, other natural phenomenon and financial market. This is due largely to paucity of data to use.

THEORETICAL REVIEW

Bubble presents a picture of a risen trading price far above that the intrinsic (fundamental) value of the underlying assets or securities. The idea that bubbles in stock market might exist is often traced to Keynes' description of an equity market as an environment in which speculators anticipate 'what average opinion expects what average

opinion to be' rather than focusing on things fundamental to the market. He described forecasting stock market as conjectures about the winner of a beauty contest. The candidate's beauty is not the basis of prediction. What is crucial is how one thinks the other judges' perception of beauty would be reflected in their voting patterns, although the scene reflected here might not have a proof, but strikes a chord in understanding the genesis of bubbles Keynes (1936). The intuition that bubbles may exist is getting progressively stronger due to the development of the real world economy.

Some examples of market bubbles include the dot.com bubble of the 1990s when investment in internet companies was the order of the day which resulted in a very high price for which the company's initial public offer (IPO) was sold, the NASDAQ on which most of them traded temporarily shot to great heights until the bubble burst in 2000 resulting in a cut of over 50% of its value. Obviously, the rise was driven by sentiments and beliefs and obviously not market fundamentals.

A bubble occurs when investors put so much demand on a stock that they drive the price beyond any accurate or rational reflection of its actual worth which should be determined by the performance of underlying companies. Andrew (2010) explained that a crash is a significant drop in the total value of the market, almost certainly attributable to the bursting of a bubble creating a situation where in the majority of investors are trying to flee the market at the same time and consequently incurring massive losses.

In Nigeria the bubble that greeted the banking industry occasioned by the regulatory requirements for banks to raise their capitalization from initial N2 billion to N25 billion (1,150% increase) early in the century left many banks with no choice other than to launch their initial public offers (IPOs) which were largely successful, but the smokescreen vanished after the primary reason for the IPOs was realized. This is a clear case of bubble. As earlier mentioned in this paper, the incident of Transcorp Plc in Nigeria was another classic one, although a company with no performance history, the bubble persisted for about twenty-four months, in fact it fueled margin loans in the banking industry with banks competing to have a greater share of

Transcorp business, they doled out loans to stockbrokers and individuals. The huge market correction of 2008/2009 opened the lid and confirmed that the boom was mere bubble.

The causes of bubbles appear rational, intrinsic and contagious. The broad factors are first liquidity, that is, excess monetary liquidity accompanied by low level interest rates resulting in asset price bubbles, an example here is the real estate and equities via short-term leveraged speculation (credit bubbles) measured by financial leverage, burst meanwhile will result in reversal of monetary accommodation policy. Secondly, psychological factors such as the greater fool's theory; perennial optimistic market participants (in this case, the fools) who sell to greater fools (new participants) until the bubble burst when the greater fools thin out. Another psychological factor is that of extrapolation, that is, projecting historical data into the future on the same basis resulting in overbidding.

Also, there is the herding factor, this has to do with those following the trend in the market in self-fulfilling prophesy (supported by the fundamental analysis).

Furthermore, moral hazard courting riskier behaviors is also identified, this includes bail out for failed banks resulting in speculating in high-risk synthetic instruments. Inflation and shallow market analyses could also misguide investors in their investment decisions.

Sunspot on the other hand refers to an extrinsic random variable (a random variable that does not affect economic fundamentals such as endowments, preferences and technology, among others). Osamwonyi (2013) defines sunspots as extrinsic random variables upon which participants coordinate their decisions, and are not transmitted through fundamentals but via expectations to impact equilibrium. Sunspot equilibria stem from the fact that sunspot variable affects agents' beliefs or expectations, and in turn the choices and/ or equilibrium outcome. Sunspots are now viewed in economic models as route to capturing extrinsic fluctuations, in fields like asset pricing, financial crises, business cycles and economic growth, among others.

Duby & Fisher (2005) consider a market game with two equilibria (featuring different equilibrium prices) that cannot be Pareto

ranked; some subjects are better off in certain equilibrium, whereas others are better off in the other equilibrium. They found that subjects can coordinate on a sunspot equilibrium based on a public announcement that forecasts the level of the market price.

Fehr et al., (2012) study a two-player coordination game with a continuum of Nash equilibria, all of which has the same pay off. They found that sunspot equilibria emerge if there are salient public signals. Arifovic et al., (2013) study coordination in a production economy with a positive externality that gives rise to multiple steady states with different levels of employment and productivity. They observe coordination on extrinsic announcement on the level of productivity in most of their sessions, some of the sessions converge to stable steady state as well.

Empirical Review

Empirical studies have been trying to develop new econometric techniques to find evidence for verifying the bubbles hypothesis, while others stressed on a well specified model for fundamental values. However, the development of techniques is still limited in helping to sufficiently prove bubble theories.

On sunspots and bubbles in capital markets, Aigbovo & Ezuem (2018) empirically investigated if rational bubbles exist in the Nigerian capital market between Q1 of 2008 and Q4 of 2009 using stationarity and cointegration tests). The result of the Augmented Dickey-Fuller (ADF) and Philips-Perron stationarity tests rejected the presence of rational asset bubbles while the cointegration test in the sense of Engle & Granger (1987), validate earlier views that there were no rational asset price bubbles, that is, there was no serious deviation from fundamentals for the period under review.

Austin (2016) applied a price-to-earnings ratio test adapted from the model of Malte Von Maravic (2010) to test the existence of a bubble. The model utilized the relationship between the risk and price-to-earnings ratios of equities to econometrically test for bubbles. A rolling regression was applied to the econometric model, and four bubbles were detected. The Dot com bubble was detected with complete

confidence, and three other bubbles were detected with slightly less confidence.

Osamwonyi (2011) opined that the existence of bubbles is embedded in the investors' belief that demand for the securities would continue to rise or that the stocks would become profitable in the short term. Similarly, Yahaya et al., (2011) described investment bubbles as soap bubble that a child blows which appears to rise forever but soon disappears into the thin air' because they are not formed from any substantial basis resulting in loss of investments.

The cause of this is not farfetched because investors are often optimistic that demand for securities will continue to rise or that the stock will become profitable in the short term. The trend according to behavioral finance, the rise in price will persist until the investors realize how far it has risen and the following event could be a sharp decline (market correction).

Njiforti & Akaolisa (2010) investigated whether the Nigerian stock market had experienced a speculative bubble using unit root test, cointegration and GARCH on a time series data for banks and insurance companies listed in the Nigerian stock market for the period 2008 to 2009. The result revealed speculative bubbles in most of the banks and insurance companies.

Olowe (2009) examined the relationship between stock returns and volatility in Nigeria using the E-GARCH-in-model in the light of banking reforms, insurance reforms, stock market crash, and the global financial crisis. He studied daily returns between 2004 and 2009 to evaluate the volatility persistence, asymmetric properties and risk-return relationship for the Nigerian stock market. The result of his empirical findings indicate that banking reform of July 2004 and stock market crash since April 2008 negatively impact on stock returns while insurance reform and the global financial crisis have no significant effect on stock returns.

Leon (2007) investigated the relationship between expected stock market returns and volatility in the regional stock market of the West African economic and monetary Union called BRVM, he used the data of six year period from January 1999 to July 2005 and discovered

that expected stock return has a positive, but not the statistically significant relationship with expected volatility. He also discovered that volatility is higher during market booms than when market declines (the boom here could be a flash of bubble).

In addition, Yuan et al., (2006) investigated the correlation between lunar phases and stock market returns for 48 countries and found that returns are lower around full moons and higher around new moons by 3% - 5% per annum, factoring out volatility, volume, and other calendar related phenomena. Hickey (2009) found positive correlation between five United States' stock indices and returns around new moons, and the inverse for the bond for the same number of years.

Walsh (1993) in an article tested Dewey's claims in Cycles magazine; he computed the geomagnetic field rate of change over the years in addition to the annual rates for several measures of economic and financial performance (stock prices, gold price and bonds, among others), he discovered that economic performance led financial performance by six to twelve months with correlation averaging 65%.

On sun's illumination of the moon and its correlation with stock market returns, Illia & Troy (1986) demonstrated using one hundred years data that stock returns in the 15 days around a new moon were around double those in the 15 days around full moons, for all major United States' stock indices and almost all stock indices using 30 years data of 24 other countries studied.

In an attempt to test excessive price volatility, Shiller (1981) was the first researcher to develop the Standard and Poor's series data that were used by most of the subsequent researchers. He defined separately' perfect foresight rational price (P*) and its optimal forecast value- actual price (P). He proposed that if markets are efficient, P which is the expected discounted value of future dividends should have less variance than P* since the expected value of a set of numbers must be more stable than the numbers themselves from which the variance bound inequality V(P) –V(P*) is deduced. The result of this statistical test and the plot analysis gives a positive answer to the question of whether stock prices move too much to be justified by changes in dividends.

Le Roy & Porter (1981) raised a similar test by employing the earning variables into the model; they reached the same result as Shiller (1981) which is that stock prices are too volatile to be explained by the efficient capital market model. Collins (1965) using data of 93 years discovered that a major stock market top is due when the average yearly number of sunspots increases above 50. In a similar vein, Edward Dewey in 1968 established 43 activities that varied with the sun's 11-year cycle which includes banking activity, agricultural productivity, stock prices, commodity prices, industrial production and business activity.

METHODOLOGY

The ex-post design was used in this study due to the fact that primary data were used. In line with Agbanifo & Yomere (1999), ex-post facto research is a design for measuring or ascertaining the impact of one variable on another or more correctly, the relationship between one variable and another. To ascertain the minimum sample size, study used the following Slovin's finite population formula (Almeda et al., 2010).

$$\frac{z^2 * \sigma * (1 - \sigma)}{MOE} \; n \geq 2 \ldots\ldots\ldots (1)$$

where n is a sample size, z is the z-score needed to get the margin of error (1.96), MOE is the margin of error (0.05), and σ is the population of investors' standard deviation. The standard deviation was not known and was expected to be 0.12 based on the pilot study. Plugging the values in equation (1) gives the sample size of:

$$n \geq \frac{1.96^2 * 0.12 * (1 - 0.12)}{(0.05)^2} \ldots\ldots\ldots (2)$$

The sample size is thus approximately 122. However, a total of 148 structured questionnaires were distributed, knowing fully that the enumerators may not retrieve all the questionnaires distributed. Therefore, out of the questionnaires distributed, 130 were retrieved and after data cleaning, only 122 were analyzed accordingly. The questionnaire was designed in a 5-Point Likert Rating Scale (PLRS)

showing Strongly Agreed (SA) = 5, Agreed (A) = 4, Neutral (N) = 3, Disagreed (D) = 2 and Strongly Disagreed (SD) = 1.

DATA PRESENTATION AND ANALYSES

This study makes use of gender, age-range and educational level as its demographic variables in analyzing the respondents/ Investors. The variables are measured as thus: Gender (male = 1; female = 2); Educational level (Primary school =1; Secondary/ Technical school =2; College of education =3; Polytechnic & Monotechnics = 4 and the University =5) and Age range (18-29years =1; 30-39years =2; 40-49years = 3; and 50years and above = 4);. To simplify the analyses, educational levels were captured using 1 and 2 for College/Polytechnic/ Monotechnic and University respectively. In addition, the age ranges were widely divided into middle age and old adults =2 (that is ages 49 years - 50 years and above 50 years); then younger adults, that is, ages 18 years to 29 years and 30 years – 39 years = 1. Attempts were thereafter made to apply t-test in establishing the nexus between the chosen demographic factors and the investment behavior of respondents.

Table 1. The analysis of risk perception of respondents

S/N	Statement	Strongly Disagree	Disagree	Not Sure	Agree	Strong Agree	Mean
1	I am guided by my sensitivity or instincts on investment belief issues.	9 (3.41%)	13 (4.90%)	19 (8.70 %)	35 (33.3 %)	46 (49.69 %)	3.98

2	I speculate with my securities until the prices are right to sell off.	2 (12.3%)	15 (6.70%)	19 (15.6 %)	32 (26.2 %)	54 (44.3%)	4.09
3	I made loses in some of my past investme nts due to poor judgment from informati on received from other investors.	1 (0.86%)	7 (5.74%)	25 (20.5 %)	52 (42.6 %)	37 (30.3%)	2.97
4	Gain of about 75% are expected within the year from my investme nts and the future is bright as well.	6 (6.70%)	5 (5.60%)	7 (7.90 %)	56 (62.9 %)	15 (16.9%)	3.78

5	My utmost investment destinations are the US and UK due to the stability of their capital market based on information from foreign news.	5 (4.0%)	3 (2.5%)	13 (10.7%)	39 (32%)	62 (50.8%)	3.39
Overall mean							**3.642**

Table 1 above shows a moderately high risk-influencing perception at an average of 3.642.

Table 2. Description of return perception of respondents

S/N	Statement	Strongly Disagree	Disagree	Not Sure	Agree	Strong Agree	Mean
1	The available information and personal experience guide my investment decisions.	3 (2.46%)	12 (9.84%)	10 (8.20%)	39 (31.96%)	58 (47.54%)	4.00
2	I am fulfilled when I juxtapose other investors' productive inputs on investment with mine.	18 (14.8%)	12 (9.8%)	15 (12.3%)	40 (32.8%)	37 (30.3%)	3.37
3	Available information through audited financials of companies influence my investment decisions, especially when the	8 (9%)	17 (19.1%)	11 (12.4%)	39 (43.8%)	14 (15.7%)	3.11

	return on investment is consistently positive.						
4	Trading off my securities happen mainly when there is upwards of 30% appreciation.	1 (0.08%)	5 (0.41%)	13 (1.07%)	51 (41.8%)	30 (24.6%)	4.23
5	I am attracted to assets with minimum returns of Investment(ROI) of 30%	2 (1.64%)	5 (4.1%)	11 (9.02%)	59 (48.36%)	45 (36.88%)	4.21
Overall mean							**3.784**

Authors' Computation (2022)

From table 2 above, with a mean returns perception index of 3.784 that is moderately high, it is evident that respondents / investors have huge appetites for high returns on their investments (ROI) in respect of their securities.

Therefore, tables 1 and 2 lend credence to the desire of investors to optimize investment in assets, in other words, they are cautious and calculative about inherent risks and minimize such in consideration of high returns on investment made possible by timely, adequate and accurate information.

Table 3 (T-Test)

Variables	Categories	Frequency	%	Mean		Test Statistic	
				Risk	Return	Risk	Return
Gender	Male	60	49.18	3.773	3.5074	(121)=0.12; ϱ = 681}	{t(121) = -0.798; ϱ = 0.219}
	Female	62	50.82	3.963	3.551		
	Total	122	100.0	3.868	3.529		
Age Range	Younger adults (18-39 years)	42	34.4	3.121	2.911	{t(121) = -9.82; ϱ = 0.000}	{t(121) = -10.11; ϱ = 0.000}
	Mid-age/Older adults (40years & above)	80	65.6	4.687	3.998		
	Total	122	100.0	3.904	3.455		
Educational Level	College of Education /Polytechnic/Monotechnic	56	45.9	2.995	2.711	{t(121) = -4.159; ϱ = 0.000}	{t(121) = -6.112; ϱ = 0.000}
	University	66	54.1	3.999	3.869		
	Total	122	100.0	3.497	3.290		

Authors' Computation (2022).

Above table 3 summarises the breakdown of the count of respondents, that is 60 and 62 females respectively leaving us with a margin of 2.

T-test conducted

The T-test was conducted to find out whether significant differences exist between our chosen demographic variable (gender, age and educational qualification) and responses to risks and returns. T-test was used because the variables involve two categories each. The result shows that:

a. Gender -{ **Risk:** t(121) = 0.122; ϱ = 0.681. **Returns:** {t(121) = -0.798; ϱ = 0.219}
b. Age -{ **Risk:** t(121) = -9.82; ϱ = 0.000} **Returns:** {t(121) = -10.11; ϱ = 0.000}
c. Education - { **Risk:** t(121) = -4.159; ϱ = 0.000} **Returns:** {t(121) = -6.112; ϱ = 0.000}

Arising from the t-test result, the demographic variables used do not influence the returns and risks behaviours of the respondents/ investors at 0.05 level of significance. Also, in order to test the significance of the difference between our selected demographic factors and respondent/ investors behavior, the analysis of variance (ANOVA) used and it shows a non-significant relationship. Therefore our 2 variables (risk and returns) tested against the demographic metrics do not show any significant influence on investors' choice; these are in tandem with our hypotheses.

CONCLUSION AND RECOMMENDATIONS

In line with our objective, the review of some existing works coupled with our findings revealed some links between bubbles/ sunspots and investor's perception due to the fact that certain of their behaviours defy the fundamentals irrespective of the demographic factors. In other words views from behavioral finance reveals that emotive responses to risky circumstances most times deviate from perceptive valuations of risks. When such deviations occurs, responsive feedbacks often drive behavior. It thus goes to say that emotional

response that culminate in investors' erratic plunge into temporary opportunities offered by bubbles or sunspots is primarily attributable to information deficit.

We recommend that capital market umpires or coordinators minimize the present level of information asymmetry by raising the level of awareness of investors or potential investors, if possible, communicate in local languages for better understanding of the ways the market functions to reduce or possibly eliminate the impact of any potential shock or better still, save people from trauma that accompany economic shocks. Investors are also advised to be more positively disposed towards information as guide to their decision making. On the other hand, investors should develop greater interest in studying directly or by proxy the market trajectory or routes to be able to make informed decisions rather than to be driven only by momentary/ transitory gains or some heuristic behaviors.

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