CHAPTER ONE

INTRODUCTION

1.1 Background to the study

It is useful to have in mind an idea of how economists traditionally viewed sentiment. The first approach is based on the traditional asset-pricing theories of classical finance, which argue that asset prices are rational assessments of expected future payoffs. The change in price is as a result of external news about future cash-flows and interest rates. While the alternative approach to behavioral finance suggests that investors' sentiment may significantly distort market outcomes thereby affecting asset prices in equilibrium. Specifically, the investors' model suggest that where limits to arbitrage and investor beliefs are correlated, "then noise" unrelated to fundamentals, such as sentiment, may lead asset prices to deviate from what is expected from the benchmark of market efficiency (Baker & Wurgler, 2000).

The modern financial economics, the Efficient Markets Hypothesis, (EMH) maintains that asset prices should reflect all available information about the fundamental value of the underlying security. Assuming no frictions, the price of a security should equal its fundamental value, defined as the discounted sum of future cash flows. Consistent with the market efficiency paradigm is the presumption that individuals behave rationally and fully take into account all available information in the decision-making process. Therefore, when there is new information about a security, rational investors will quickly respond, leaving no room for excess risk-adjusted returns based on the information signal. Through motivations of self-interest and the forces of arbitrage, modern finance has traditionally assumed that irrational investors will be quickly eliminated from the market, along with risk-free profit opportunities (Fama & French, 2001).

Although it is often observed that most individuals are not the hyper-rational agents postulated in classic economic models, standard theory suggests that in competitive financial markets, cognitive biases and misguided beliefs that lead to suboptimal trading decisions will immediately be arbitraged away by aggressive arbitrageurs. In particular, not only are individual investors just as prone to biases as the population at large, but in some situations they may be even more likely to display over-confidence, herding behavior, and speculation (Barberis & Thaler, 2003; Barber, Odean & Zhu, 2003). This implies that even in a highly incentivized financial market with a large number of investors interacting with one another, it might still be the case that investors with suboptimal biases are not completely eliminated from the market. In other words, there are limits to arbitrage, and behavioral finance formalizes and posits ways this might happen.

One way behavioral finance formalizes the possibility of limited arbitrage is through the noise trader model, which is arguably one of the most cited alternatives to the Efficient Markets paradigm. The model claims that because investors are risk-averse and have short horizons, real-life arbitrage must take account of the fact that arbitrageurs may not want to expose themselves too much un-diversifiable risk (Delong, Shleifer, Summers & Waldmann, 1990). In particular, an important consideration for rational arbitrageurs is the behavior of other investors who may be prone to exogenous sentiment. These so-called noise traders are not fully rational in the sense that they may trade on the basis of noisy sentiment rather than information. Although noise traders have no access to insider information, they trade on noisy sentiment as if it were valuable information that would give them an edge on the trading (Black, 1986).

Stock market prices both in developed and emerging countries are generally believed to be responsive to economic and market fundamentals or new information. The recent wide

deviations of stock prices from their fundamental value is generating questions and drawing attention to finding out if non-market and non-economic fundamentals are responsible for such deviations. The determination of equity price movement in most emerging stock markets have been discuseed by scholars and researchers from the perspective of market, economic and firm-specific fundamentals but recently, there has been some kind of shift in discussion of equity price movement favouring investors' sentiment/emotions. Investors' sentiment in general term refers to the attitude, emotions and biases that investors' exhibit in the course of their investment decision. Baek, Bandopadhaya and Du (2005) studies revealed that most short-term movements in asset prices such as equity are best explained by investors' sentiment. This is also supported by the views of Fisher and Stantunan (2000) that investors' sentiment matters to asset pricing process. In the pricing of equities and other financial assets, investors' attitude is a major concern for financial analyst and it is a key determinant of the value of most financial assets. Baker and Wurgler (2006) recognized investors' psychology as a vital component in the pricing process of financial assets. The sentiment of investors may also affect their risk profile and investor's emotions are displayed in different forms. In behavioural finance, emphasis is placed on investors' sentiment/bias such as escalation, cognitive dissonance and overconfidence bias.

It is worth mentioning the other form of sentiment, although it is considered as, **market sentiment**. This type of sentiment includes more than just news information; market conditions and amongst the other factors considered. It is dominated by the consensus of informed traders, who receive and digest extra information regarding future prices, and so contrasts with the hypothesis, and news that contain negative sentiment as opposed to positive sentiment (Chen,

2003; Tetlock, 2007; Barber & Odean, 2008). Its effect is exhibited by increased levels of volatility, traded volume and absolute order imbalance in the presence of negative news.

Investors' sentiment, otherwise known as market sentiment has been a subject of interest for many years, essentially in the finance literature. In investment context, sentiment is considered to mean fluctuations in risk tolerance or to overly optimistic or pessimistic cash flow forecasts. Sentiment is expected to have an impact on assets pricing which is different from the impact of fundamentals (Edelen, Marcus, & Tehrnian, 2010). When sentiment rises, investors seek to increase their investment allocations to risky assets, thereby bidding up valuations and, in the process, lowering the expected future return on those assets. Sentiment according to Yoshinaga and Figueiredo de Castro Junior (2012) can be defined as beliefs about future cash flows and investment risks that are not rationally justifiable considering the information available to the investor. Baker and Wurgler (2006) assert that investors sentiment is the belief about future cash flows or discount rates that are not supported by the prevailing fundamentals.

Investors' sentiment refers to the overall attitude of investors towards the financial market. It represents the feeling, mood, belief or expectation of investors and may have an influence on their decision making. Recent studies provide explanations for the influence of financial market sentiment as against two types of investors. According to De Long, Shleifer, Summers and Waldman, (1990): (a) the rational arbitrageurs are influenced by sentiment (b) irrational investors are vulnerable to exogenous sentiment. Both trade in a competitive market and set prices and expected returns for the assets. The study of market sentiment has its basis in the theories of Noise Traders Models. Black (1986) suggests that if some traders trade on noisy signals, unrelated to fundamental data, then the market prices may deviate from intrinsic value. The Noise Trader sentiment must be difficult to predict to avoid arbitrage. In same direction,

Delong, Shleifer, Summers and Waldman (1990) opine that the assets that are disproportionally exposed to Noise Trader- risk are both riskier and have to offer an extra return premium.

Sentiment could be induced by noisy information, limited trading experience, or is a response to Pseudo-signals convincing investors to contain new information. The financial gurus or stock brokers are the examples of such Pseudo-signals (Shleifer & Summers, 1990). It may stimulate investors to trade at illogical moments and either to over or to underestimate the stock performance. As a result of the complexity of the market and of investors, several biases can influence investors at once. Sentiment is also called a "top-down approach" as it is the measure that sums multiple biases into lone variable (Schaul, 2013).

Most models that investigate the effects of investor sentiment on stock market pricing adopt the important assumptions that noise traders fulfill an important role in financial markets. The noise traders who are described as investors that trade not fully on new information, but on beliefs or Pseudo-signals are called Pessimistic. Their expectations of future dividends are below the expectations of rational arbitrageurs. They have less skills and trading experience, who cannot properly judge the quality of information and therefore trade more on emotions than rational investors do.

The traditional asset pricing theory according to Yang and Copeland (2014) suggests that rational arbitrage necessarily forces price closer to fundamentals and leaves no role for Investor sentiment. The Capital Asset Pricing Model (CAPM) theoretically argues that systematic risk is measured by the exposure to the market portfolio. Prior literature has shown, however, that the standard CAPM cannot explain the returns on stock with certain firm characteristics or price histories such as the size effect, value effect, and momentum effect, which have been termed as asset-pricing anomalies in literature.

The on-going crash in equity price at stock market seems to be directed mainly towards firm specific, market and economic fundamentals. That is, most market participants relate changes in output growth, exchange rate, business earnings, inflations rate, and market rate of returns, government spending, and money supply among others to be the cause of stock market price decline. The need to find out what is actually responsible for stock market bubble and decline has generated more interest and has nessitated the need to integrate investor sentiment as a potential explanation for stock price movement. Edo (2005) pointed out that the 2002 stock market price adjustment in Nigeria were characterized by perceived irrationality. He attributed the cause of stock prices movement to the irrational behavior of market participants especially in cases when market fundamentals were not strong. The integration of investors' sentiment as a major factor that affects equity prices has been viewed from different perspective due to the problem of measuring investor sentiment. The need to measure investors' emotion and how it determined the stock price process is gaining more ground in behavioural finance. In most works on investors' sentiment, the concept is strongly related to noise trading. Guohua (2008) revealed that investor sentiment which affects financial asset prices comes from noise traders.

The classical finance theorists leave no role for investors' sentiment in explaning stock price movement rather they consider competition among rational investors to be the ultimate. Fama (1981) in his efficient market hypothsis (EMH) argued that available information in the market is all that matters and this information can be either market, economic or non-market driven. This therefore, implies that he supports the idea of investors' sentiment (non-market) as a determinant of financial asset prices. Technical analysts are another group that has also provided explanation for stock price movement. They used historical financial data, chart and price pattern index to predict stock price movement. In case of the capital asset pricing model

(CAPM) and the Arbitrager pricing Theory (APT), the CAPM focused only on stock market risk factor in explaning changes in stock prices while the APT relate stock prices to unspecified risk factors which may likely include investors' bias. The fusion theory which is a holistic approach uses market, economic and non-factors (investors' sentiment) in explaning the systematic variations in stock prices but the fusion theory lack empirical evidence in Nigeria.

The available literature has shown that noise traders, can induce stock price movements and causes excess volatility at least in the short run. The issue is whether investor sentiment affect stock price positively or negatively. It is against this among others, that this research seeks to investigate whether investor sentiment has significant effect on stock prices and also to investigate the predictive power of investor sentiment for future stock returns.

1.2 Statement of the problem

There exists a disagreement in the body of literature among researchers and scholars of what actually constitute the cause of the movement of price of financial asset in stock market. The arguement seems to be favouring investors' sentiment (and not market and economic fundamentals) which is an explanatory variable in predicting asset prices. The disagreement has created different perspective on the issue of investors' sentiment.

For a given period of time there have been expressions of concerns over the effects of investors' sentiment on stock market returns essentially in developed countries and little or few in developing countries. Some authors were of the opinion that market return is affected by investors' sentiment and sentiment has a weak impact on return (Abdel-Hameed, 2012; Yoshinaga, & Figueiredo de Castro Junior, 2012; Rehman, 2013; Schaul, 2013; Schmeling, 2008; Fernandes, Gama & Vieira, 2010; Fama & French, 2001 and Black, 1986). While others

were of the opinion that sentiment affect valuation, which positively affect stock market returns (Bennet, Amoako, Chien-Wei, 2012; Mazviona, 2015; Opera & Brad, 2014; Yang & Copeland, 2014; Baker & Wurglar, 2007; Dasgupta & Chattopadhay, 2014; Edelen,Marcus & Tehrainian, 2010; Ogunmuyiwa, 2010; Brown & Cliff, 2015, & De Long, Shleifer, Summers, & Waldman, 2004; Mazriona, Brown & Cliff, 2015; Yang & Copeland, 2014). Majorly, these disagreements are noticeably in the areas of determination of proxies, formulation of study models, methodological issue and even the outcomes (table 2.2 attest to this). Based on the divergent views, it becomes inevitable to assess the effect of investors' sentiment on stock market returns in Nigeria.

The investigation reveal that much has been studied on the impact of investors' sentiment in other foreign countries but not so common in regards to stock markets in African countries. How has investors' sentiment really driven stock markets and returns in Nigeria? What is the direction of the trend of the market returns movement? Has the market responded to investors' sentiment?

In the light of foregoing therefore, it is also to be noted that literature on investor sentiment is still in its infancy stage and much remains to be developed, discovered and learnt. As a result of the limited amount of research in this area, this research work attempts to fill the knowledge gap in the research literature by studying the effect of investor sentiment on stock returns in the Nigerian stock market.

1.3 Objectives of the study

This study broadly aims to assess the effects of investors' sentiment on stock market returns in Nigeria for the period of 27 years (1990-2016). The specific objectives are as follows:

1. To examine the effect of Consumer Confidence Index on stock market returns.
2. To determine the effect of Initial Public Offer on stock market returns.
3. To assess the effect of Dividend Premium on market returns.
4. To ascertain the effect of investors' sentiment on Stock price volatility.
5. To study the effect of turnover ratio on stock market returns.
6. To explore the effect of market and economic fundamentals on market returns.

1.4 Research questions

In the light of the foregoing, the research questions are:

1. To what extent has consumer confidence index affected stock market returns?
2. How does initial public offer relate to stock market returns?
3. How has dividend premium affected stock market returns?
4. How has stock price volatility explained stock market returns?
5. To what extent has turnover ratios related to stock market returns?
6. To what degree do market and economic fundamentals relate to stock market returns?

1.5 Research hypotheses

The following hypotheses were formulated to guide the study:

H_{o1} Consumer confidence index has no significant effect on stock market returns in Nigeria.

H_{o2} Initial public offers have no significant relationship with the stock market returns in Nigeria.

H_{o3} Dividend premium has no significant effect on stock market returns in Nigeria.

H_{o4} Stock price volatility has no significant effect on stock market returns in Nigeria.

$H_{o5.}$ Turnover ratio has no significant relationship with stock market returns in Nigeria.

H_{o6} Market and economic fundamentals have no significant relationship with stock market returns in Nigeria.

1.6 Scope of the study

The focus of the study is to establish the effect of investors' sentiment on stock market returns in Nigeria. The period chosen for the study is from 1990-2016. This period is the most current period to assess the performance of the market. It is during this period that Stock market capitalistion as a percentage of GDP increased from 52 to 82 percent, share trading volume increased even more drastically from 29.0 percent to 79.3 percent in 1990. There was dramatic increase in international capital flows despite a temporary contraction of the global crisis. Gross cross-border capital flows rose from about 5% of world GDP in the mind 1990, to about 20% in 2007.

It is the moment the market witnessed both boom and the worst heat of the economic meltdown of 1987, 1998, 2000 and 2008. This was the period most investors lost confidence in both market and economic fundamentals for choice of investment decisions. The study examined investor's sentiment variables including proxies of choice are: consumer confidence index (CCI), initial public offers (IPO), turnover ratio (TURN), dividend premium (DP), stock price (SP), and market and economic fundamentals (MEF). The study extended the study variables by considering MEF for exchange rate, interest rate, money supply, GDP, volume of shares, market capitalization, among others. Data for these variables wrere sourced from: NSE, SEC, CBN, World Bank report, amongst others.

1.7 Limitations of the Study

As common to any other study, this study also had its own impedements. Models can be developed in line with the objectives of the study, and the model developed on this work serves the purposes as defined. The investor's sentiments were derived from other researchers' model especially the following: Bandopadhayaya (2005), Fair & Kalejian (1974), Fama (2001), Mankiw (1997), Czier & Rahman (1988). Thus, the assumption of their model stand. The model estimation technique which is basically the ordinary least square techniques has shortcomings in the model estimation. These were modulated using error correction techniques and co-integration techniques. Many reviewers may have problem interpreting the results of this work, hence they added keen attention in reviewing many empirical literature to aid understanding of concepts discussed in this work. The study is primary based on secondary data. Different tools used for the study may suggest different results as the approach differs. The study considers data of only limited duration of time. It is based only on sentiment, market and economic fundamentals variables monetary information and non-monetary factors are ignored. It is only a study of interim reports of the concern. The study is based on selected schemes therefore limiting the area of research. The analysis is carried on certain assumptions hence the assumptions would be biased.

1.8. Significance of the study

The basic target of this work is to establish the effect of investors' sentiment on stock market returns on Nigerian stock Market to enable investors understand those sentiments that play major role in the volatility of stock market returns. Besides, the statistical analysis would help the market analysts and investors to know the persistence and the impact of the sentiment on price movement.

The study would also help the investors to consider the behavioral aspects that play the major role in the decision making process of the choice of securities along with the consideration of other variables like price-earnings ratio, volatility index and the efficient market hypothesis. Thus, given adequate information, investors will not be adversely affected in terms of portfolio selection, even in situation of economic meltown.

There are diverse reasons why it would be interesting to identify the movements in equity prices listed on the Nigerian stock exchange caused by investor's sentiment. The answer to this question is not only of top most interest to investors but also to financial security analysts and policy makers. The investors can reap huge and abnormal returns from the stock market if only they can predict the direction or behavior of equity prices. The mistake investors commit when investing can also be avoided if they can distinguish movement in equity prices that is caused by fundamentals or mere emotions of investors. The policy makers will also find this work useful in understanding the potential causes of stock market booms or crash and how non-market fundamentals such as investor's sentiment can drive equity market prices. This study would also be relevant to investment and professional money/asset managers, as it would provide a better explanation for short and long-run factors that are responsible for the movement in stock prices in an emerging capital market such as the Nigerian stock market. This research would also be relevant to readers and researchers who would want to understand how economic, market fundamentals and investors emotions jointly influence the behavior of stock prices in Nigeria.

The formation and use of sentiment index to redress effects of investors sentiment on stock market returns is said to be central in the sense that its originality will help in generalizing

the involvement of sentiments that mold the decisions and characters of the investors in their stock market trading.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 Conceptual Framework

2.1.1 Investors' Sentiment

Previous market crashes have mainly focused on the concept of efficient market hypothesis thus ignoring the effect and importance of investors' sentiment but now increasing number of investors do believe on noise trader's theory and Investors' Sentiments and Stock Market Volatility approaches (Li, Hsu, & Ley, 2008). Financial markets are composed of mainly three types of investors, first one are the "rational traders" whose decisions are solely based on fundamental knowledge, then second type are the "emotional investors" making decision on emotions, self perceptions and finally the "noise traders" who make random decisions without any logical basis (Kuzmina, 2010). "Noise traders" are present in almost every stock market but their impact is influenced by whether the market is emerging or stable enough to absorb such disorders or distortions caused by these "noise traders". If the effect of these "noise traders" does not cancel out in aggregate, then the risk for arbitragers increases. "Noise traders" have a major role in the disruption in regularity of the rational investors as their non-fundamental knowledge makes it more risky for the arbitrager, thus having "noise impact" on the stock market returns and vice versa. These "noise" traders have no sophisticated or specialized knowledge and their emotions play a major role in their investment decisions in stock markets (Glaser, Sehemitz, & Weber, 2009).

The sentiments of these "noise traders" are of much importance in making their decision about the stock trading as they have no sophisticated knowledge, thus earning inferior returns and are eventually driven out of the market in the long run (Schmitz et al, 2005). There are

stocks listed in different stock markets with trading in relatively different prices. This difference can be attributed to the local sentiments prevailing in the respective markets in which these shares are being operating. Also capital flow of different markets is a way to judge sentiments that are involved in difference prices of these stocks (Barber, Odean, & Zhu, 2009). Mutual funds flows have also been considered as a substitute of investor sentiments while measuring the impact of investor sentiments on the Chinese markets, however the results were slightly inconsistent with the previous researches as the Chinese markets are not considered as efficient markets therefore exhibiting stronger impact on the stock market returns (Chi *et al*, 2012).

Existing definitions of sentiment in the literature range from vague statements about investors' mistakes to specific psychological biases that are model-specific (Shefrin, 2007). Furthermore, the term itself is subject to a wide spectrum of classifications and is used in different ways by academic researchers, financial analysts, and the media (Barberis, Shleifer, & Vishny, 1998; Daniel, Hirshleifer, & Subrahmanyan, 1998; Welch & Qiu, 2004; Cliff & Brown, 2004; Shefrin, 2007; Baker & Wurgler, 2007). Some researchers may refer to investor sentiment as a propensity to trade on noise rather than information, the same term is used colloquially to refer to investor optimism or pessimism. The term sentiment also has connotations with emotions, so the media may refer to it as investor fear or risk-aversion.

In view of the attempt made by researchers, all these notions lack a set of necessary and sufficient conditions that make clear exactly what we mean when we refer to investor sentiment. This is not to say however, that previous research has been incorrect or mistaken in their approach. In fact, the exact opposite is true; it is only because of the significance of previous works that we are closer to a single, coherent theory or at the very least a definition of investor sentiment.

Zhang (2008) accords this largely to the fact that there is no commonly accepted definition, or theory of investor sentiment since the term may be used in different ways depending on the context. The term itself is used in different ways by academic researchers, financial analysts, and the media.

Uygur and Tas, (2012) mention that some researchers accredit investor sentiment as an inclination to trade on "noise", while the same term is employed to make particular reference to investor optimism or pessimism. The term sentiment is also associated with emotions, thus the media accredit it as investor fear or risk-aversion. Uygur and Tas, (2012) regarded the investor sentiment in terms of beliefs and defined it as the representation of market players' beliefs about future cash flows in connection with some objective standard which is the correct fundamental value of the stock. This is to say investors subject to sentiment develop their beliefs not only fundamental information, but also irrelevant "noisy signals". In line with this definition, but more general, is the possible definition of investor sentiment as the propensity to speculate. In other words, investor sentiment refers to set of beliefs about cash flows and investment risks that are not necessarily justified by the facts at hand (Baker & Wurgler, 2006).

One might also define investor sentiment as optimism or pessimism about stocks in general. Zhang (2008) defines sentiment as representing market participants' beliefs about future cash flows relative to some objective norm, namely the true fundamental value of the underlying asset. Zhang further asserts that a definition of sentiment along these lines captures why sentiment is important in the first place and by restricting our attention to this particular notion of sentiment, it is possible to develop a cohesive model, relying on specific assumptions and pre-existing theories of asset pricing and investor behaviour. According to Zhang (2008), sentiment can be defined as any erroneous beliefs that individuals have about an economic

variable, such as asset prices. For Smidt (1968), it is the presence of sentiment that leads to speculative bubbles. For Zweig (1973) sentiment is related to cognitive biases of investors. Lee, Shleifer and Thaler, (1991) define the market sentiment as part of their expectations about the returns of assets which are not justified by economic fundamentals. Baker & Wurgler (2006) define sentiment as the investor propensity to speculation; that is, sentiment drives the demand for speculative investments. According to Shiller (1984), investors' behaviour often leads to fluctuations in asset prices, with no justifiable rationale. Black (1986) called investors' expectations about the returns of assets that are not based on its fundamentals of value noise trader sentiment. Likewise, Baker and Wurgler (2006) argue that the main cause of price fluctuations is the difficulty in valuing companies since investors do not have homogeneous expectations as predicted by the EMH. How market sentiment affects asset prices is a question that still generates different opinions. There are two possible explanations for the existence of these disparities: individuals correctly use misinformation or individuals incorrectly use accurate information. The first alternative assumes that investors adjust their beliefs about the fundamentals of value incorporating the noise, and the second assumes that they do it while misusing statistical tools.

The measurement of sentiment can be made through a latent variable, as Hair, Anderson, Tatham and Black (1998) states: "construct or latent variables cannot be measured directly, but can be represented or measured by one or more variables". Thus, one way proposed by researchers to measure the expectation of investors about price trends in the market was by creating an index. There are several explanations for the association of a given variable to the construct of sentiment. Some of them relate to the market negotiability (turnover, IPOs,

volatility) and others try to capture investors' mood variations (weather, sunny hours in day, season of the year, soccer results).

Many studies have tried to find out if sentiment has a predictive power on stock returns. There is a variety of sentiment measures that were included in pricing models to test its relationship with stocks' price behavior. Lutz (2010) verifies the influence of three different sentiment measures on future performance of stock prices: the Baker and Wurgler's Sentiment Index (Baker & Wurgler, 2006, 2007); the smoothed earnings-price ratio and the VIX (Volatility Index) calculated by the Chicago Board Options Exchange. His dependent variable is the market weighted portfolio return, using Fama-French approach. In this study, we use individual stocks in the pricing model, since there is not a concern of stocks being continuously traded without interruption (Saito & Bueno, 2007). His findings present that those sentiment measures have very little out-of-sample predictive power, though they present significant in-sample results.

The effects of noise on the world, and on our views of the world, are profound. Just like liquidity, investor sentiment is also a slippery and elusive concept. In Smidt (1968), it leads to speculative bubbles. In Zweig (1973), it comes from investors' biased expectations on asset values. In Black (1986), it is the noise in financial markets. Generally, investor sentiment refers to investors' propensity to speculate, or investors' optimism/pessimism about stocks (Baker & Wurgler (2004)). Lee, Shleifer, Thaler (1991) define investor sentiment as the component of investors' expectations about asset returns that are not justified by fundamentals.

Baker and Stein, (2004) define investor sentiment as investors' misevaluation on an asset. Centering in these definitions is that investor sentiment reflects the difference between what an asset price *is* and what an asset price *should be*. In a market with two groups of

investors, assuming one holds rational expectations on an asset's value and the other makes biased valuations, it is equivalent to say that investor sentiment reflects the valuation difference between the two groups of investors (Zweig, 1973, Lee, Shleifer, & Thaler, 1991, Baker & Stein, 2004, Brown & Cliff, 2005).

Mclean and Zhao (2009) defined sentiment as demand for securities that is not justified by fundamentals. This definition was well in line with their research which dealt with real investment and investor sentiment as it relates to investment in stock. A definition of sentiment along the lines with efficient market hypothesis (EMH) is that sentiment is the irrational component of investor expectations (Ling, Naranjo & Scheick, 2010). Sentiment results in decisions contrary to those that would be made by a rational investor under EMH, and hence a mispricing occurs in the stock market. According to Yung-Chou, (2005) Investor sentiment refers to the enthusiasm of irrational investors on an asset, relative to that of rational investors.

One approach sentiment refers to the enthusiasm of irrational investors on an asset, relative to that of rational investors. So thinking about individual investor sentiment is to think about it in terms of beliefs. The classical notion of a rational agent is one who has well-defined preferences and forms correct beliefs through Bayesian updating. In the present context, we will assume that investors are susceptible to erroneous beliefs but are otherwise rational in the sense that their preferences satisfy standard preference axioms. This simplification allows for a simple definition of investor sentiment defined in terms of erroneous beliefs. *Investor sentiment* represents market participants' beliefs about future cash flows relative to some objective norm, namely the true fundamental value of the underlying asset. The researcher asserts that sentiment is the guiding philosophy which directs investors in the choice of their investment decisions.

Sentiment corresponds to erroneous beliefs that Investors have against some kind of objective benchmark. One possibility for this benchmark is the true fundamental value of the underlying asset, defined as the discounted sum of future cash flows and investment risks. Accordingly, there are two possibilities for why erroneous beliefs occur: individuals correctly use wrong information, or that they wrongly use correct information. In other words, sentimental investors may update their beliefs through news about fundamentals in addition to noisy signals unrelated to fundamentals, and may do so in a way that is statistically incorrect.

Sentiment can yet be expressed as the component of expectations about asset returns not warranted by fundamentals and Bayesian updating alone. For example, this could be because some investors are overconfident in their stock-picking abilities and act on their beliefs in a way different from a Bayesian updater who bases trading decisions on news about fundamental value alone. In an attempt to study the model of sentiment we assume that erroneous beliefs only reflect the first possibility that individuals correctly use wrong information.

In this framework, it is useful to think about investor sentimentas the discrepancy between two forecasts: *(i)* an individual's subjective assessment based on all available information in addition to potentially biased private information, and *(ii)* the objectively correct forecast based only on relevant information alone. Defining sentiment in this way is attractive since it allows for formal expressions consistent with intuitions. Baker and Wurgler (2006) claim that individual investor sentiment can be formalized by the following expression: *Si;t ´ Ei;t*[*Pt*+1*jI0 i;t*] *¡ Et*[*Pt*+1*jIt*]. In this formulation, *Si;t* denotes individual sentiment of investor *i*. *P*represents the stockprice, a random variable whose true value is unknown at time *t* but revealed to all at time*t* + 1. *It* denotes all public information available about fundamentals at time *t*, and *I0i; t* denotes the information actually used by individual investors to arrive at their

forecasts. *I0i;t* may be different from *It* if individuals have access to and use biased or misguided privateinformation, which is a possibility that was model more formally in this thesis. Thus we can think of sentiment as the difference between the means of two probabilitydensity functions, one representing an objective distribution and the other representing anindividual investor's subjective probability distribution.

The above definition of sentiment also allows for the possibility that beliefs are correct, in which case an individual is rational, narrowly defined. Note that whenever the two terms are exactly equal, we have $E_{i;t}[P_{t+1} j I0_{i;t}] = E_t[P_{t+1} j I_t]$ and $S_{i;t} = 0$. In this case, beliefs arerealistic and only reflect fundamental value. Thus, we refer to zero-sentiment as a necessary but not sufficient condition for a rational investor. In other words, $S_{i;t} = 0$ is necessary to infer that beliefs are formed according to standard probability axioms and only reflect relevant pricing information. In this formulation, an investor prone to sentiment therefore has $S_{i;t6} = 0$. We define abullish investor as one who is, unrealistically optimistic about next period's stock price.That is, $E_{i;t}[P_{t+1} j I0_{i;t}] > E_t[P_{t+1} j I_t]$ and $S_{i;t} > 0$. On the other hand, a \bearish" investor isunrealistically pessimistic so that $E_{i;t}[P_{t+1} j I0_{i;t}] < E_t[P_{t+1} j I_t]$. Note however that the way one use the terms \bullish" and \bearish" may differ from the colloquial usage. (Baker & Wurgler, 2006).

To explore the intuitions and implications of investor sentiment more closely, we now present a simple model of sentiment based on the definition presented. Investor sentiment arises because individuals incorporate potentially wrong information in updating their beliefs. We assume that all investors hold common priors but nonetheless arrive at different posterior beliefs because of some private pseudo-signal that varies across investors. Hence, we introduce the possibility that investors do not place correct weights on incoming information, which then

results in sentiment. We present a behavioral interpretation of the model in which sentiment results because of individual biases or systematic tendenciesto pay more attention to private information that is irrelevant from an ex ante perspective.So long as beliefs are correlated| and there is empirical evidence that supports this,| then sentiment can affect market outcomes, as suggested by the noise trader model.

In order to preface for the model of investor sentiment, some key assumptions regarding investor beliefs and how differing forecasts of the future may arise. Include:

1. Investor sentiment is defined to only reflect beliefs and not preferences or risk appetites.

2. Rational investors update beliefs in a Bayesian way that only reflect news about fundamental value. Sentimental investors form erroneous beliefs because they update their beliefs through the same news about fundamentals in addition to noisy signals unrelated to fundamentals, but otherwise use Bayes' Rule correctly.

3. All investors maximize their utility given their beliefs. In other words, both rationaland sentimental investors act in a way that is consistent with their personal forecasts and subjective beliefs.

The first assumption that sentiment pertains to beliefs, rather than preferences or risk appetites, is both a simplifying assumption and one that is motivated by how we defined sentiment in the first place. Although others may define sentiment to also include violations of preference axioms or propensity for a particular risk profile, for simplicity and parsimony, we only allow for the possibility that sentiment reflects erroneous beliefs. Hence, we hold constant investor preferences and risk profiles, focusing mainly on differences in beliefs. Next, we assume that erroneous beliefs only reflect the possibility that individuals correctly use wrong information. Another possibility for the formation of erroneous beliefs is that investors

incorrectly use Bayes' Rule and hence arrive at forecasts that are statistically incorrect. We assume instead that all investors use Bayes' Rule correctly.

The possibility of erroneous beliefs thus occurs because they may incorporate irrelevant information in their forecasts. Thus, information that is irrelevant to fundamentals from an ex ante perspective is a pseudo-signal." For example, an investor might trade based on their mood, which has no bearing on actual stock price behavior. The final assumption is that although investors may form incorrect beliefs, they still maximize their expected utility given their potentially wrong beliefs. Hence, individual forecasts are always consistent with beliefs.

2.1.2. The consumer confidence index (CCI)

Consumer confidence is said to be the expression of the degree of optimism of the consumers on the state of the economy. The consumers as a result of the state of the economy normally express their confidence in the market through their activities of saving and spending. The idea behind the consumer confidence index (CCI) is that if consumers are optimistic, they tend to purchase more goods and services. This increase in spending inevitably stimulates the whole economy.

Fisher and Statman (2003) examine whether the consumer confidence index is a good proxy for the individual investor sentiment and if the consumer confidence index predicts stock returns. Their result shows that changes in consumer confidence index were accompanied by statistically significant changes in the individual investor sentiment about the stock market. The contemporaneous relationship between changes in consumer confidence and S&P 500 returns is positive. Also, Fisher and Statman (2003) observe that high consumer confidence is in general followed by low future S&P 500, NASDAQ and small stock returns.

Brown & Cliff, (2004), using different proxies for investor sentiment, note that the sentiment level and change are positively and strongly correlated with the contemporaneous stock market return. Also, Brown and Cliff, (2004) test the causal relationship between sentiment level/change and stock return. It was suggested by them that the stock market return is a good predictor of individual and institutional investor sentiment in the short run. Charoenrook, (2005) uses the University of Michigan Consumer Sentiment Index to investigate its explanatory power for stock market return and find that the changes in consumer sentiment are positively related to the contemporaneous excess market returns and negatively related to the future excess returns at one-month and one-year horizons. Using different sentiment proxies, Wang, Keswani and Taylor, (2006) observe that their investor sentiment proxies are caused by stock returns and volatility rather than vice versa (in accordance with Brown & Cliff, 2004). Canbaş & Kandir, (2009) obtained similar results for the Turkish stock market. The past stock returns clearly predict future level of investor sentiment. Similar, Schmeling, (2009), in an international pooled analysis, suggests that there is two-way causality such that investor sentiment depends on previous returns and the returns depend on previous investor sentiment.

Black, (1986) reveals that on the market are some investors who trade on "noise" as if it is information associated with fundamentals. The individual investors are considered to be the noisy investors on the market (Lee, Shleifer, & Thaler, 1991). According to Shleifer and Summers, (1990), the investors who based their trades on "noise", are not totally rational and their demand for risky assets is influenced by their beliefs or by their sentiments which are not fully justified by fundamental values.

In the short period, there are limits to arbitrage, but in the medium and long run, the arbitrage becomes stronger. This evidence is in accordance with a theoretical point of view. As

Schmeling, (2009) claims, an opposite finding would mean that the noise trade demand shocks move the stock prices permanently away from equilibrium. The evidence above reveals three distinctive sentiment-return relationships. Firstly, the positive relationship between changes in investor sentiment and stock returns proves that the stock prices tend to be overvalued (undervalued) in a bullish (bearish) market, especially when the excessive optimism (pessimism) of investors is unjustified by fundamentals and there are limits to arbitrage. Secondly, the negative relationship between current investor sentiment and future stock returns suggests that the prices tend to revert to their fundamental values after gradual corrections. Finally, the relation between investor sentiment and return is not very clear in the sense that the noise trade approach state that the sentiment cause the stock returns, but some empirical test (Brown & Cliff, 2004; Wang, Keswani, & Taylor, 2006; Canbaş & Kandir, 2009) show that stock returns cause investor sentiment.

From another angle, some studies investigate the influence of individual investor sentiment on different categories of stocks. Baker & Wurgler, (2006), show that the stocks that are harder to arbitrage and whose valuations are highly subjective are more likely to be affected by changes in individual investor sentiment. Lee, Shleifer and Thaler, (1991) state that small stocks are owned, in principle, by individual investors, peoples which are more likely to trade on noise, as opposed to institutional investors. As such, when the sentiment of noise traders is changing, the prices of small stocks could be influenced more than the prices of large stocks. Kumar and Lee, (2006) find that the individual investors buy or sell stocks in concert (their trading strategies are systematically correlated). Brown and Cliff, (2005) observe that the investor sentiment has a stronger effect for growth than for value stocks. Baker and Wurgler, (2006) show that the investor sentiment has similar impact for both value and growth stocks.

Lemmon and Portniaguina, (2006) provide evidence that sentiment has a significant effect for value, but not for growth stocks. Schmeling, (2009) obtained similar results with Lemmon and Portniaguina, (2006).

Due to lack of specific indicators constructed to measure thesentiment of individual investors, in the international context, most empirical tests employ the consumer confidence index to proxy for investor sentiment. For instance, in Schmeling, (2009) the investor sentiment is a contrarian indicator for the future stock market return across countries, High (low) investor sentiment tends to be followed by lower (higher) stock returns. Moreover, he notes that the negative impact of investor sentiment diminish as the forecast horizon of market return is increased. In economic terms, the decline of the investor sentiment impact suggests that the noise trading effects in stock prices vanish over long time periods.

Baker and Stein, (2004), show that turnover or more generally liquidity can serve as sentiment index; thus representing measures of investor's sentiment. Investor sentiment: pessimism or optimism of the investor is the propensity to speculate. A sentiment drive the relative demand for speculative investment and so causes cross-sectional effects even if arbitrage forces are the same across stocks (Baker & Wurgler, 2006). Trading volume is one of the most widely used proxies of liquidity in asset pricing tests.First, extant models suggest that trading volume can be one aspect of liquidity (Stoll, 1978, Amihud & Mendelson, 1986a). Second, trading volume has negative relations with transaction costs, another aspect of liquidity (Chordia, Roll & Subrahmanyam, 2000). Consumer confidence index is used in this study as a sentiment variable to determine the relationship of sentiment to stock returns.

2.1.3 Turnover

Amihud and Mendelson, (1986a) provide the rationale for turnover to be a proxy of liquidity. They assume an economy with *M* types of investors and *N+ 1 capital asset* (asset *0* has zero spread and unlimited supply). Trading is made through competitive markets makers and buy (sell) transactions happen at the risk (bid) prices. The arrivals of investor's type-*1* to type-*M* follow different Poisson distributions and their expected holding periods follow exponential movemen. Researchers also developed trading volume-based liquidity risk factors. (Pastor & Stambaugh, 2003; Eckbo & Norli, 2004).

Other measures of trading volume include the number of trades andthe average trade size defined over a period of time (within a trading day) (Lo & Wang, 2000). The expected holding period for a type-*i* investor is longer than the expected holding period for a type *i+1* investor. Further, investors maximize the expected returns on their portfolios per unit of time. With these assumptions, Amihud & Mendelson, (1986a) show that "assets with higher spreads are allocated to portfolios with (the same or) longer expected holding periods" (Proposition 1, the clientele effects). Moreover, "in equilibrium, the observed (gross) return is an increasing and concave piecewise-linear function of the (relative) spread"

Since spread is one type of transaction costs and turnover is anaggregated (inverse) measure of investors' holding period, Proposition 1 implies that turnover is positively related to liquidity. Altogether Proposition 1 and Proposition 2 imply a negative relation between observed returns and turnover. Datar, Naik, and Radcliffe, (1998) address this issue and find supporting evidence. They also suggest one more reason for using trading volume as the proxy for liquidity. Trading volume data are relatively easy to obtain, especially over a long period of time.

Using turnover as the liquidity measure, Datar, Naik, and Radcliffe, (1998) document a negative and significant relation between share turnover and expected returns for NYSE non-financial stocks in the period from 1962 to 1991, after controlling for firm size, beta, and the book-to-market ratio. For NYSE and AMEX securities in the period from 1966 to 1995 and for NASDAQ securities in the period from 1984 to 1995, Chordia, Subrahmanyam, & Anshuman, (2001) also document the same negative relation after controlling for firm size, security price, the book-to-market ratio, the dividend yield, previous returns, and the volatility of turnover.

Nevertheless, Chordia, Subrahmanyam, and Anshuman, (2001) find the expected returns to be negatively related to the variability of turnover, inconsistent with the hypothesis that investors dislike the variability of liquidity, or the role of turnover as a proxy of liquidity. Rouwenhorst, (1999) also employ turnover as the proxy of liquidity. In their analyses they find no relation between share turnovers and expected returns in emerging markets. Further document that the proportion of zero returns, a measure of stock illiquidity, has a positive and significant relation with expected returns even after controlling for turnover. These findings are interesting and point out new research directions: Why does turnover, a measure of trading volume, has its explanatory power over expected security returns in the U.S. but not in emerging markets? Is it because that turnover is too noisy in emerging markets to be a valid proxy of liquidity or because liquidity is not priced in emerging markets? results on the proportion of zero returns would suggest the first explanation, but then what are the noises that render turnover but not the proportion of zero returns pale in explaining expected returns? Bekaert, Harvey and Lundblad, (2003).

2.1.4 Dividend premium

Baker and Wurgler (2004) define the dividend premium as the difference between the average market-to-book-value ratios of dividend payers and non-payers. When dividends are at a premium, firms are more likely to pay them, and are less so when they are discounted. In other words, on the margin, when the prevailing demand for the stock market dividend premium is high, the propensity to pay dividend increases whereas with a low demand, the propensity to pay dividends decreases.

The most frequently cited references for using dividend premium as a liquidity measure are Stoll (1978a, 1978b). Stoll (1978a, 1978b), a wealth-constrained market maker provides immediacy to investors and borrows at the risk-free rate to finance his inventory. The market maker maximizes his utility over his terminal wealth. The costs the market maker faces to provide immediacy include the holding cost (inventory cost), the order cost (order processing cost), and the information cost (adverse selection cost). Stoll (1978a) focuses mainly on the holding cost and shows that this component of costs decreases with the probability that the market maker can reverse his position. Since a higher dividend premium of a stock implies that its market maker can reverse his position more easily, dividend premium is negatively related to the holding cost and positively related to liquidity. Stoll (1978b) finds that the quoted spreads for a sample of NASDAQ stocks are negatively related to dividend premium, consistent with his prediction.

Stoll (1978b) uses dollar trading volume as an inverse proxy for the market maker's holding period on a stock. In his analysis for a number of NASDAQ stocks during six trading days in July 1973, the quoted spread is positively related to dividend premium, consistent with the role of dividend premium as a proxy of liquidity. In investigating the cross-sectional relations between security characteristics and expected stock returns, Brennan, Chordia, and

Subrahmanyam (1998) find that for NYSE and NASDAQ stocks in the period from 1966 to 1995, dividend premium is positively related to expected returns. They attribute this finding to the existence of a liquidity premium. Chordia, Subrahmanyam, and Anshuman (2001) employ the framework of Brennan, Chordia, and Subrahmanyam (1998) and focus on the relation between the variability of liquidity and expected returns. Dividend premium, a proxy of liquidity, has a positive effect on expected returns for NYSE and AMEX stocks in the period from 1966 to 1995 and for NASDAQ stocks in the period from 1984 to 1995. However, the variability of dividend premium also has an unexpected positive relation with expected returns, after controlling for firm size, security price, the book-to-market ratio, the dividend yield, previous returns, and the exponential level of dividend premium paid. This finding is inconsistent with the hypothesis that investors dislike the variability of liquidity, but appreciate the role of dividend premiums as a proxy of liquidity.

In Stoll's (1978b) regressions for the determinants of quoted spreads,both dollar trading volume (an inverse proxy for the market maker's holding period on a stock) and turnover (a proxy for informational trading) are included as independent variables and they have opposite signs on their coefficient estimates. Smidt (1968) suggests that liquidity can be measured by the number of units of property exchanged. In the case of stock transactions, it implies that liquidity can also be measured by share volume. Alternatively, turnover is share volume divided by the number of shares outstanding. Dollar volume is the security price times share volume. Although the uses of turnover and dollar volume as proxies of liquidity come for different reasons, underlying the two proxies is a common component – share volume. Other things being equal, a stock with a larger share volume has a higher turnover and a larger dollar volume. The use of share volume as a proxy of liquidity is therefore not unreasonable.

Empirically share trading volume is not used as frequently as turnover and dollar volume as a proxy of liquidity. This is probably due to the lack of a theoretical model justifying its role. Brennan and Subrahmanyam (1995), nevertheless, employ share volume and examine

the relations between analysts following, the adverse selection costs of transaction, and trading volume for NYSE stocks during the year 1988. In their analyses with simultaneous equations, share volume is found to be a major determinant of the adverse selection costs of transaction, consistent with the role of share volume as a proxy of liquidity.

There are still other trading volume measures that may serve as proxies of liquidity. For example, the number of trades and the average trade size defined over a period (e.g., within a trading day). Jones, Kaul, and Lipson (1994) document that the daily return volatility on NASDAQ stocks during the period from 1986 to 1991 is more closely related to the number of trades than to other volume measures. However, this volume measure as well as the average trade size requires the use of intraday data, which are not available for a long period of time.

Desmond, Ogden, and Trzcinka (1999) find that the proportion ofzero returns for NYSE and AMEX stocks in the period from 1963 to 1990 is negatively related to firm size and positively related to quoted spread and the Roll spread defined on an annual basis, consistent with the role of the proportion of zero returns as a proxy of transaction costs. Lesmond (2002) examines the characteristics of this measure in great detail for 31 emerging markets in the period from 1991 to 2000. In this sample the proportion of zero returns is found to be over 80% correlated with the quoted spread and has significant explanatory power over the proportional bid-ask spreads and spread plus commission, even after controlling for other determinants of liquidity such as price, turnover, and market capitalization. Bekaert, Harvey, and Lundblad (2003) employ the same measure defined monthly as a proxy of illiquidity and examine the relation between expected returns and liquidity in 19 emerging markets. They also find this measure to be positively correlated with bid-ask spreads and negatively correlated with turnover. Further, in their VAR framework, the monthly proportion of zero returns has

significant relations with expected returns but turnover does not. It was used as one of the predictors to assess the relationship between sentiments and stock returns.

2.1.5 Initial Public Offerings

The IPO market is often viewed to be sensitive to sentiment. Other than the closed-end funds discounts, there are still numerous sentiment measures that researchers employ in their studies with various reasons and justifications. For example, Lee, Shleifer, and Thaler (1991) relate the net withdraws from open-end funds (the mutual fund redemptions) and the volume of initial public offerings (IPO) with individual investor sentiment. Neal and Wheatley (1998) use the mutual fund redemptions and the odd-lot sales to purchases ratios, in additional to the closed-end fund discounts, as their sentiment measures. The new issues or initial public offerings (IPO) volumes index of measuring the degree of investors' emotions in the capital market is clearly supported by Baker and Wurgler (2006) and Brown and Cliff (2004). They argued that the demand for initial public offer in the new issues market is extremely sensitive to investor's sentiment. This therefore means that investors sentiment are high when the volume of shares bought through IPO in the new issues market is large while the reverses is the case when equity traded through IPO is low. The drastic fall in shares sold through IPO window in Nigeria is a clear indication that investors confidence in the market is low while the boom in the same market (i.e. animalist attitude of investors) during the Bank consolidation and economic reforms period was a clear indication that investors' confidence in the capital market was high. The impact of financial and stock market reform on new issue market indicate that often times, the growth in new issues or IPO market might be attributed to deliberate actions taken by market stakeholders and not necessarily driven by investors' impulse. This therefore forms a major drawback in the use of new issues/IPO volume index in the measuring of investors' sentiment.

In the case of the price of shares traded index being investors' sentiment measure, Baker and Stein (2004) quantified the level of investor sentiment with the use of the price of shares traded in the market

Specifically, high first day return on IPOs is considered as a measureof investor enthusiasm, and the low idiosyncratic return on IPOs is often interpreted as a symptom of market timing. The underlyingdemand for IPOs is also said to be extremely sensitive to investor sentiment. Furthermore, Average first-day returns display peaks and troughs which are highly correlated with IPO volume.Equity *Issues over Total New Issues*. Baker and Wurgler (2000) find that high values of the equity share predict low stock market returns, and suggest that this pattern reflects firms shifting successfully between equity and debt to reduce the overall cost of capital. The authors argue that this pattern need not imply that individual firms or their managers can predict prices on the market as a whole. Rather, correlated mispricings across firms may lead to correlated managerial actions, which may then forecast correlated corrections of mispricings, that is, forecast market returns.

2.1.6. The stock price

Investor's sentiment is a non-market factor that is also subject to debate as regards its impact on stock price movement. A large body of literature has provided empirical evidence about the relationship between investor sentiment and stock price. Studies that are focused on the time-series relationship between investor sentiment and stock price report that the current investor sentiment predicts lower future stock returns. Fisher and Statman (2000) find that the American Association of Individual Investors' sentiment index (proxy for individual/small investor sentiment) and Wall Street strategists' sentiment (proxy for institutional/large investor sentiment) are negatively correlated with the S&P 500 return in the following month.

Johnson, Lee, Lim and Sabger (2006) argued that investors' sentiment has no influence on stock pricing especially in a frictionless market and that even if it does generate abnormality in prices, arbitrager would estimate and eliminate the differences immediately. Delong, Shleifer, Summers and Waldman (1990); Miller (1977), Black (1986) and Shelifer and Vashny (1997) all posited that in real market situations, market frictions limit arbitrage activities and that investors sentiment causes movement in quality prices. They further identified institutional friction such as noise trader risk as a factor that limits the activities of rational investors. Baker and Wurgler (2004) argued that investors' sentiment affects asset prices and are commonly observed in investors' attitude to stock from young, small unprofitable, extreme growing or distressed stocks. The relationship between investors' sentiment and stock prices is clearly deduced from the work of Miller (1977). He argued that stock prices reflect investors' optimistic opinions. That is prices are driven upwards when investors become more optimistic (investors sentiment is high). This therefore, suggests that investors' sentiment and equity prices are positively related. This in another way shows that pessimistic investors will ginger fall in stock prices through panic selling which when unchecked, can lead to stock market price crash.

2.1.7 Market and economic fundamentals

The market fundamentals that determine stock price movement are often discussed from the perspective of rate of returns and demand and supply for securities. In explaining stock market prices, the patterns of transaction (demand and supply) are a vital factor. In the market, stock prices rises when demands for securities exceed its supply and fall when supply exceed demand. This therefore means that excess demand or supply of securities over time is a strong market fundamental that causes movement of stock prices. In using market demand/supply imbalance as a proxy for market fundamentals, there is the problem of distinguishing quantity

demand from quantity supplied (Edo, 2007). This could be taken care of by adopting percentage price changes as a measure of equity market imbalance (excess demand) (Fair & Falejian, 1974). The relationship between stock prices and interest rates has also received considerable attention in literature. The return from stock which is another market fundamental is often measured using long term interest rate. Fama (1981) identified two major form of interest rate and these were short term and long term interest rate. He pointed out that there exists a negative relationship between short-term interest rate and stock market prices while on the other hand, he also found out that the influence of long-term interest rate on stock prices originated directly from the present value model, and that the present value model, and that the long-term interest rate has a strong relationship with the discount rate. Zhou (1996) in his study examines the relationship between interest rates and stock prices using regression analysis. He found out that stock prices movement is highly sensitive to interest rate especially on long term basis but rejected the hypothesis that stock prices move one-for-one with ex-ante interest rates. In addition, his regression results revealed that long-term interest rate explain a major part of the variations in stock price input variables such as dividend ratios.

To support the relevance of long-term interest rate as a major determinant of stock prices movement, Harasy and Roulet (2000) show that stock prices are co-integrated with earnings and long term interest rate in most countries. In the case of economic fundamentals, quite a large number of macroeconomic variables have been used to explain equity price returns. Chen, Roll and Ross (1986), identified some selected key macroeconomic variables as risk factor based on the Arbitrage pricing theory (APT). These variables are inflation rate, gross domestic products, interest rate structure and industrial production. Similarly, a large number of works has been

done using the APT model; these works as identified in Table 2.1 shows economic fundamentals that are relevant in explaining stock prices.

Table 2.1: Economic Fundamentals of Previous APT test

Economic variables	Previous studies
Industrial production	Chan, Chen and Hsieh (1985), Chen, Roll and Ross (1986), Altay (2003)s
Interest rate	Burnmesiter and Macelroy (1988), Ozcam (1997), Altay (2003)
Exchange rate	Ozcam (1997)
Gross domestic product	Kryzanowski and Zhang (1992) Cheng (1995)

Source: *Author's compilation*

Fama and Gibbons, (1984) used inflation as key macroeconomic risk factor. Inflation rate as a key economic data is an input to investors' analysis. For inflation rate and how it affects stock prices, there has been two major blocks. The first block argued that equity does not hedge against inflation. Giammarino, (2000) cited studies of various time periods and for many countries and provided empirical evidences that equity price is of a perfect hedge against inflation. This means that both variables are not positively related. The other block which is generally supported by empirical studies, argued that equity prices is negatively affected by inflation rate (Domain, Gilsterr & Louton, 1996; Reilly, 1997). The work of Reilly clearly explains that inflation is most often a curse than a blessing to firms that cannot pass the increase prices of production to their final consumers. His finding also revealed that inflation negatively impact on firms and decomposed performance ratios such as returns on equity (ROE), returns on assets (ROA) and returns on capital employed (ROCE).

Real world experience has shown that investors are more concerned about expected inflation and not necessarily on current inflation. Fama and Gibbond (1984), Brandt and Wang (1976), Fama and Schwert (1977), Jaffe and Manddelker (1976) and Nelson (1976) form a wide

literature that stresses the point, that expected inflation is what matters to equity prices movement and not the rate of inflation. Expected inflation if quantified would be a major determinant of companies expected real income, expenses and cash flow which are fundamental to equity prices valuation. Niemira and Klein (1994) revealed that an inverse relationship exist between inflation expectation and the stock market prices. It was found out from their work, that leading inflation indicators were derived from inflation expectations.

2.1.8 Stock returns

In a frictionless market, there should be no role for investor sentiment on asset prices. Even if investor sentiment could cause asset prices to deviate from their fundamental values arbitrageurs would have eliminated the discrepancies immediately. In reality, there exist transaction costs and short-sales constraints. Such frictions prevent arbitrage activities (Black, (1986), Shleifer & Vishny, 1997)) and investor sentiment can affect asset prices. Miller, (1977) argues that stock prices reflect only the most optimistic opinions among investors when short-sales constraints are present. When investors become more optimistic, i.e., when investor sentiment becomes high, they drive stock prices up. It follows that there should be a contemporaneous positive relation between investor sentiment and stock returns. Smidt (1968) depicts a distinct feature of the time-series relation between investor sentiments and expected stock returns: A corrective price movement. Zweig, (1973) models two types of investors on the market: One non-professional and the other professionals. Non-professionals use unjustified information to form their expectations and affect security price accordingly. As the security prices deviate more and more and from their intrinsic values, professionals profit from the deviations and bring the security prices back to their fundaments. Similarly, Baker and Stein

(2004) and Brown and Cliff (2005) assume the two types of investors and argue that expected stock returns will be lower if the beginning investor sentiment is higher.

On the cross-sectional side, De Long, Shleifer, Summers and Waldman, (1990) model two types of investors on the market: Rational and irrational (noise) investors. Irrational investors, Barberis, Shleifer and Vishny, (1998) also provide a model of investor sentiment, but in their model there is only one representative investor. They focus on how investor sentiment is formed and corrected by new information. But not the rational investors are subject to the influence of sentiment. The trading of irrational investors creates extra risk, i.e., the noise trader risk, and deters the arbitrage activities of rational investors. Since different stocks are subject to different extents of noise trader risk, investor sentiment affects the stocks differently in the cross section. Lee, Shleifer and Thaler, (1991) investigate this prediction by examining the relation between closed-end fund discounts and small firm returns, both arguably reflect the sentiment of individual investors.

Baker and Wurgler (2004) also argue that investor sentiment affects asset prices in the cross section. Specifically, a broad sentiment wave on the market can have different effects on stocks either because sentiment-based demand shocks or arbitrage constraints differ across stocks .Therefore; the time-series relations between investor sentiment and expected stocks returns will exhibit most on stocks vulnerable to sentiment waves and/or stocks with difficulties in arbitrage. They hypothesize that those stocks are small, young, unprofitable, non-dividend-paying, distressed, or with high volatility or extreme-growth. Consistent with their predictions, they find that those stocks earn high future returns when their beginning-of-period proxies for investor sentiment are low, and the patterns attenuate or reverse when the beginning sentiment proxies are high.

In this research work all- share index was used to proxy stock mark returns. Brown and Reilly (2008), Hsu (2006), Platen and Rendek (2010), De Long, Shleifer, Summer and Waldman, (1990) used same in their research works. A stock market index measures the changes in the stock markets and it is presumed to be a reasonable representative of the market as a whole (Ohson, 2005). Brown and Riley (2005) posit that historical price movements can be a predictor of movements in the future and hence past index movements can also be used to predict how the index will move in the future and hence how the market will be like in future. The NSE All-share index is a market capitalization weighted index introduced complement and address the short comings of the NSE share index.

Brown and Riley (2008), state that a stock index has a multifunctional role in the economy. It can be used to calculate the sum of all the returns and risks for the entire stock market or a part of it for a stated period of time. Such calculated risks and gains are applied to determine the performance of individual portfolios. The stock market index reflects the market performance through the direction of share price movement. Brown and Reilly (2008) posit that a stock index performs several functions in the economy. An index computes the total returns and risk measures for the aggregate market or some component of the market over a specified period. The computed risk and returns are used to give verdict of the performance of individuals' portfolios. To judge the performance of professional money managers, the aggregate stock and bond market index can be used as a benchmark. Market technicians use the index to predict future price movements. According to Brown and Reilly (2008) past price movements can be used to predict the future and hence the past movements in the index can be used to determine what the market would be like in the future. To determine the companies to

be included in the index, a random selection or by non-random method technically designed to incorporate the desired population is used.

Stock market index movement is used to judge the performance of the stock market and an indication of the economic activities in the country. Broby (2007) asserts that when the stock market index moves upwards on a continuous basis the market is referred to as bullish and when the index moves downwards the market is referred to as bearish. According to Berger and Patti (2002), at times the markets move within a very narrow range and it is neither bullish nor bearish. The stock market index reflects the market performance through the direction of share price movement. Market performance is measured by the stock market index which indicated the direction of share price movement (Hsu, 2006). It measures quickly the overall direction of the market and is considered to be an accurate indicator of changes in the stocks. This implies that a stock market index ought to neither understate nor overstate the market position and should be not only precise, but also exact. The market index entails all listed companies which represent a significant portion of market capitalization and trade actively. According to Kibuthu (2005), experiences however, indicate that most large cap stocks do not record a high performance as compared to low cap stocks. There are times small cap counters record growth averaging at 50% while is unlikely for large cap stocks. From this perspective the share index tend to be biased towards a large cap counters and thus fails to transmit the right signals on the entire market performance. This impact negatively on the total market performance of the NSE traded shares.

The stock market movements are constantly monitored and persuaded in the global, regional and local context. Particularly the movement and fluctuations of related standard indices which represent a tool to measure performance and outcomes of the market in term of

growth are closely evaluated. The indices show registered share prices in the market. Again, they are used as comparable performance indices which investors can use to measure the performance of their portfolios compared to that of the whole market. Indices have played an important role in performance measurement as well as in investment decision making. A study by Amenc et al (2006) comparing weighted indices including the fundamental index, equal weighted index, efficient index and minimum volatility index found that all these indices showed on average returns superior to those of cap weighted equity indices. Another study by Rapach(2002), comparing the performance between the cap weighted indices that weight stocks by firm characteristics found that characteristics based portfolios produce positive excess returns over the cap weighted indices. Severin (2002), found that due to heavy weighting of the large capitalization stocks, the S&P 500 index actually consists of 86 effective stocks and Russell 1000 index has 118 effective stocks.

A study by Brown & Reilly (2008) found that S&P 500 index cannot be considered a diversified portfolio because the 10 largest companies in the index account of 25% of the market value and the top 25 companies account for 40%. Hsu (2006) compared the concentration of the top 10 firms and industries in the FTSE 100 Index in 1984 and 2002 and found that there was a dramatic increase in the concentration of the top 10 firm sector holdings. Jones & Turkey (2006) argue that cap weighted indices are in general heavily concentrated in a few large firms. Additionally, since cap weighted indices assign weights to stocks by their market capitalization, which is usually the product of the price of one share if the stock and their total amount of share, if there no new share is offered the weight of any stocks depend on the share price. Amenc *et al.* (2006), comparing alternative weighted indices including the fundamental index, equal-weighted index, efficient index, and minimum volatility index, find

that all these indices show on average, returns superior to those of cap-weighted equity indices. Platen and Rendek (2010) observe that the equal-weighted portfolios constructed from country indices in each country had higher Sharpe ratios than the corresponding Cap-weighted indices in all 53 countries tested. A study by Hubard & Obrien (2009) compared the performance between the cap-weighted indices and indices that weight stocks by firm characteristics and found that the characteristics based portfolios produced positive excess returns over the cap-weighted indices in their data sample of more than 15 years.

Literature shows that cap-weighted indices are in general very concentrated in some large stocks for instance, Simpson & Evans. (2003) find that due to heavy weighting of the large capitalization stocks, the S&P 500 index actually consists of 86 effective stocks and the Russell 1000 index of 118 effective stocks. According to Bernstein (2003), the S&P 500 index cannot be considered a diversified portfolio because the 10 largest companies in the index account for 25% of the market value, and the top 25 companies account for 40%. Tabner (2007) has compared the concentration of the top 10 firms and industries in the FTSE 100 Index in 1984 and 2005. He finds that there is a dramatic increase in the concentration of the top 10 firm/ sector holdings. According to Amenc *et al.* (2006) there is a new source of risk that should be priced into the assets when the portfolios are highly concentrated in few stocks. They show that even for economies with an ample number of securities, when the companies exhibit a fat tailed distribution of sizes, the total risk of the portfolio does not reduce relative to its market risk. Both of these arguments essentially imply that index performance is often dictated by performance of a few big stocks in the index and do not provide investors with the risk reduction through diversification, as is generally perceived to be the case. Goltz and Sahoo (2010) present simplified examples of the negative effects of concentration on performance, and

how it produces a significant drag in market portfolio returns due to relative underperformance of a single large stock in the index.

The empirical studies suggest that the broad market indices constitute specific choices of risk factors rather than a "neutral" risk exposure. This means that investors who passively hold an index or managers who select a market index as a benchmark can see their risk exposure to styles or sectors being modified through time (Amenc et al. 2006). As a possible consequence their risk exposure may no longer correspond to the initial asset allocation and their initial choice of risks.

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To be effective, an index should be accurate. This implies that the index movement must correspond to all underlying price movements at the market. Where there is no correspondence, cause may be as a result of the bias. ASI incorporates all listed companies irrespective of their performance and their time of listing. ASI is calculated based on market capitalization, meaning that it reflects the total value of all listed companies at the NSE. However, the performance of the ASI has equally been a victim of criticism. Ideally an index should be a sample of the market and not the entire population as it is with the ASI. A small percentage of the population will provide a valid indication of the behavior of the total population if the sample is properly selected. The sample should be representative of the total population otherwise it would be

meaningless. A large biased sample is no better than small biased sample (Brown and Reilly, 2008). Some counters are very illiquid with very few shares available for trading in any given day and their inclusion have not made much difference in improving the accuracy of the index.

In the past, complains have risen regarding the computation of the NSE share index. The fact that the index is equally weighed has led to the assumptions that it is not reflecting the market performance. So as to improve the performance of the NSE share index, the NSE reviewed the index and made certain fundamental changes to make it better measure what is going on in the market and the economy. Some of the major changes included, market capitalization a maximum of 50 million and liquidity of the shares became the underlying criteria for the index inclusion. This implied that a listed company would need to be quoted for at least one year and have shares available for trading at the stock market. In the new changes of the NSE 2011, tradability of the shares was tracked by the turnover, the numbers of traded shares and the number of concluded deals on each counter. Ever since these changes took place there are limited documented studies which have been done regarding the effectiveness of the NSE share index.

Prut (1986) as cited in Kidwel (2010) argue that once a stock is included in the index, the demand for such a stock increases and hence leading to an increase in both its price and volume traded. They however argue that such an increase on price is temporal as with time investors in search of stocks with superior returns on investment will substitute between shares eventually resulting in the restoration of the equilibrium price. This theory was later criticized by Woodrige and Ghosh (1986) in their liquidity theory. According to the two liquidity of the stock is the ability of the stock to be sold as quickly as possible as at when need arises. They further argue that the inclusion of a stock in an index increases its liquidity. The increase in liquid is as

a result of increased demand for the stock. The increased liquidity will eventually lead to a permanent increase in prices. In view of foregoing, the study used all-share index as a dependent variable to proxy stock returns.

2.1.9 Investor Sentiment and Expected Stock Returns

In a frictionless market, there should be no role for investor sentiment on asset prices. Even if investor sentiment could cause asset prices to deviate from their fundamental values arbitrageurs would have eliminated the discrepancies immediately. In reality, there exist transaction costs and short-sales constraints. Such frictions prevent arbitrage activities (Black, (1986), Shleifer & Vishny, 1997)) and investor sentiment can affect asset prices. Miller, (1977) argues that stock prices reflect only the most optimistic opinions among investors when short-sales constraints are present. When investors become more optimistic, i.e., when investor sentiment becomes high, they drive stock prices up. It follows that there should be a contemporaneous positive relation between investor sentiment and stock returns. Smidt (1968) depicts a distinct feature of the time-series relation between investor sentiments and expected stock returns: A corrective price movement. Zweig, (1973) models two types of investors on the market: One non-professional and the other professionals. Non-professionals use unjustified information to form their expectations and affect security price accordingly. As the security prices deviate more and more and from their intrinsic values, professionals profit from the deviations and bring the security prices back to their fundaments. Similarly, Baker and Stein (2004) and Brown and Cliff (2005) assume the two types of investors and argue that expected stock returns will be lower if the beginning investor sentiment is higher.

On the cross-sectional side, De Long, Shleifer, Summers and Waldman, (1990) model two types of investors on the market: Rational and irrational (noise) investors. Irrational

investors, Barberis, Shleifer and Vishny, (1998) also provide a model of investor sentiment, but in their model there is only one representative investor. They focus on how investor sentiment is formed and corrected by new information. But not the rational investors are subject to the influence of sentiment. The trading of irrational investors creates extra risk, i.e., the noise trader risk, and deters the arbitrage activities of rational investors. Since different stocks are subject to different extents of noise trader risk, investor sentiment affects the stocks differently in the cross section. Lee, Shleifer and Thaler, (1991) investigate this prediction by examining the relation between closed-end fund discounts and small firm returns, both arguably reflect the sentiment of individual investors.

Baker and Wurgler (2004) also argue that investor sentiment affects asset prices in the cross section. Specifically, a broad sentiment wave on the market can have different effects on stocks either because sentiment-based demand shocks or arbitrage constraints differ across stocks .Therefore; the time-series relations between investor sentiment and expected stocks returns will exhibit most on stocks vulnerable to sentiment waves and/or stocks with difficulties in arbitrage. They hypothesize that those stocks are small, young, unprofitable, non-dividend-paying, distressed, or with high volatility or extreme-growth. Consistent with their predictions, they find that those stocks earn high future returns when their beginning-of-period proxies for investor sentiment are low, and the patterns attenuate or reverse when the beginning sentiment proxies are high.

On the empirical side, Lee, Shleifer and Thaler, (1991) find a significant relation between closed-end fund discounts and small firm returns, confirming the prediction of Long, Shleifer, Summers and Waldman, (1990). Neal and Wheatley, (1998) also find that closed-end fund discounts predict the size premium. However, Swaminathan, (1996) documents that the

information contained in closed-end fund discounts is related to expectations on future earnings growth and inflation, which suggests that investor sentiment, may not be the sole reason explaining the relation between closed-end fund discounts and small firm returns. Brown and Cliff, (2004) find that investor sentiment do not predict short-term market returns at weekly and monthly intervals, but postulate that investor sentiment predicts long-term market returns at the next two to three years. They attribute these findings to limited arbitrage in the long-run but not in the short term. Nevertheless, Brown and Cliff (2004) use the Kalman filter and the principal components analysis to construct their composite sentiment measures based on survey data, IPO activities, and other technical indicators. They examine the relations between the composite sentiment measures and market returns by VAR systems. Whether their composite sentiment measures capture the underlying but unobservable investor sentiment is arguable, however. Unless investor sentiment drives the sentiment proxies at the same time or with the same time lag, their composite sentiment measures may end up noisier than a single sentiment proxy.

2.1.10 Other Measurements of investors Sentiment

Furthermore, recognizing the fact that investors sentiment exist is no longer an issue in finance, what matters is how the concept can be qualified and how it triggers movement in prices in the stock market. Many investors sentiment index have been identified in the academic literature, for instance Fisher and Statman (2003) used the ratio investors' optimism to pessimism from a survey to proxy investors' sentiment. Investors and consumer confidence index was adopted by Charoen rock (2003) and Fisher and Staman (2003) while Lashair (2003) used a specific confidence index called Barron's confidence index to measure investors sentiment/confidence in the market. Dennis and Mayhow (2002) use the ratio of put to call. This index is highly limited in emerging stock markets due to the non-existence of a recognized

optioned market. Whaley (2000) use VIX investors fear guide, which is popularly known as implied option volatility. This index is also limited due to the absence of unorganized options market in emerging countries. Brach (1976), Randhall, Suk and Tully (2003) and Neal and Wheatly (1998) measured investors sentiment using mutual fund cash reserve. They stressed that low cash holding of mutual fund managers is an indicator of aggressive buying (investor's Optimism) while large cash balance is as a result of investors pessimism or uncertainty in the market. Kein and Madhavan (2000) use bid-ask spread of quoted traded stock in NEW York Stock Exchange (NYSE) to explain investors sentiment.To them, a wide deviation between the bid and ask seat prices indicates high level of investors sentiment. The closed-end fund discount was also heavily used by researchers in capturing investors' sentiment, (Lee, Schleifer & Thaler, 1999; Neal & Wheatley, 1998; Baker & Wurgler, 2006, Chopr;, Lee, Schleifer & Thaler, 1993).

The problem of finding a best proxy for investor's sentiment was also tackled by some researchers through the use of composite/group index. The most respected and popular composite index for investors' sentiment is found in the work of Baker and Stein (2004) and Baker and Wurgler (2004). In their composite sentiment index they used measures like investors survey, retail investors trades, investors mood proxies (weather, seasonal and periodical factors which affects investors attitude to invest), mutual fund flows, dividend premium, closed end fund discounts, option implied volatility, first day returns on initial public offerings, volume of initial public offering (IPO), new equity issues and trading volume. Guohua (2008), uses four sentiment measures and these are short sell volume, turnover ratio (average turnover for 10 days divided by averaged turnover for 250 days), relative strength index, insider trading and the level of institutional ownership. The relative strength index which is popular known as RSI index is

used to determine the level of oversold and overbought attitude of investors while the insider trading and institutional ownership was seen as a good proxy for investors' sentiment because owners and executives of companies have material information. This therefore, means that insider trading patterns may indicate sentiment. Seyhun (1998) gives evidence that users of insider trading information can predict stock returns.

Baker and Wurgler (2006), the measurement of investors sentiment can also be viewed from two perspectives and these microeconomic approach (bottom-up) and macroeconomic approach (Top-bottom or Mass investors psychology). The microeconomic approach sees investors' sentiment from a specific firm, investor, stock or industry. The adoption of this method favours the use of cross sectional data. The macroeconomic approach evaluates investors' sentiment from an aggregate perspective and most often through the use if time series data. In the Nigerian stock market, there are available time series data on the volume of trading, new issues and initial public offers (IPO) volume. There are some consensuses among researchers in the use of new issues and the volume of initial public offers (IPO) as proxies for investors' animalistic behaviour (bull and bear sentiment). The use of traded volume of stock as an indicator for investors' sentiment is subjected to debate and modification. Osaze (2000) ascertained that the volume of trading in stock to some extent actually measures the degree of investors' emotions. Baker and Stein (2004) in their composite index mentioned trading volume as a measure of investors' sentiment.

Trading volume, this is generally referred to as market liquidity can also represent investors' emotion. Irrational investors are more likely to trade, and thus add to market liquidity. Karpoff (1986) and Harris and Raviv (1993) revealed that investors sentiment/emotions becomes high when trading volume increases. This shows that investors'

heterogeneity which serves as oxygen for continuous increase in stock trading. Johnson, Lei, Lin and Sanger (2006) argued that the use of trading volume at levels is not a good measure of investors' sentiment. They see trading volume trend as a better measure. They also stress that there us the need to empirically differentiate levels of trading volume from trend of trading volume. Trading volume at levels according to them is a snapshot of the investors' sentiment at a point in time while trend volume summarizes the dynamic process of investors'sentiment/emotions. Another powerful time series index for measuring investors sentiment can be derived from the all share price index (ASl) such as from the Nigerian all share price index, Dow Jones industrial average price index, Standard and Poor (S & P) 500 index amongst others as used in other countries. Bandopadhyaya (2006) utilized the S&P 500 stock price index as a sound indicator of non-market factor or investors' sentiment. This method of measuring investor sentiment is highly efficient in countries where option and investors' survey or mutual fund data are not readily available. The Bandopahyaya investors' sentiment index is time series in nature and makes it possible to summarize investors' emotions over time.

To summarize, the enormous number of sentiment measures reflect exactly the elusive nature of investor sentiment. There are some common features among those measures. First, it is usually assumed that individual investors are more likely to be affected by their sentiment. Second, most of those measures target the market-wide sentiment rather than the sentiment at the individual stock level.

2.1.11 Market Sentiment and Macroeconomic Implications

The definition and model of investor sentiment so far only pertains to individuals. In order for investor sentiment to matter in the aggregate, at least two necessary conditions must hold:

1. Sentimental investors disproportionately hold certain assets.

2. Beliefs are correlated across investors in a way that cannot be perfectly forecasted by rational arbitrageurs.

If these conditions hold simultaneously, it is possible for sentiment to affect asset prices andhence potentially distort market outcomes. The two conditions above also imply that theremay be limits to arbitrage (DeLong, Shleifer, Summers & Waldmann, 1990).

First and most obvious is that sentimental investors must make up a substantial proportion of the population of investors. In the literature, it is common to identify less-than-rational traders to be retail investors. Retail, or small, investors are defined as non-professional, non-institutional traders. If it can be shown that retail investors make up asubstantial enough impact on all trades, then their aggregate effect can matter in equilibrium. However, we hesitate to specify how big is “big enough" because that would also dependon the magnitude and correlation of investor beliefs. For example, consider the extreme casewhere the entire market is comprised of small investors subject to erroneous beliefs. Even inthis extreme case, sentiment would only matter if the aggregation of beliefs does not cancelout. Hence, another necessary condition for investor sentiment to have a market-wide effectis that their trades are not independent, which leads to the next condition.

Individual sentiment will only matter in the financial market if investor beliefs are not independently distributed so that the aggregate effect of sentiment does not cancel out in equilibrium. Intuitively, this means that not only is investor on average, optimistic together and pessimistic together, but that future changes in sentiment cannot be forecasted by arbitrageurs. Hence, beliefs must be correlated in a way that the risk of further changesin sentiment cannot be diversified away (DeLong, Shleifer, Summers & Waldmann, 1990).If the above conditions

hold, then it is possible that asset prices will reflect more thanjust fundamentals and investment risks, as postulated in the noise trader model. The factthat there is plenty of empirical support for both conditions implies that investor sentimentmay not be just a myth.

Despite the common use of "investors'sentiment" in many reknown works including Baker and Wurgler (2007); Baker and Wurgler (2006); Shefrin (2007); Qiu and Welch (2006); Brown and Cliff (2004) Qiu and Welch (2004) and Daniel, Hirshleifer, & Subrahmanyam (1998) to explain the movements in stock prices or to measure it, no general definition of investor sentiment is universally used. Among the different definitions is the propensity to speculate, which is introduced by Aghion and Stein (2004) as "a belief about future cash flows and investment risks that is not justified by the facts at hand" (Baker & Wurgler, 2007), or model-specific investor biases where bias is the tendency to make decisions based on beliefs (Shefrin, 2007). While some papers do provide definitions, other simply use the term without providing one or refer to it as investor optimism, pessimism, or the tendency to trade on market noise while disregarding fundamentals. Surprisingly, after two decades of being given importance in the financial literature, the formal definition of investor sentiment remains unclear, and thus for the sake of this thesis, the definition below is constructed to support our purpose. The traditional view suggests that a rational investor makes decisions based on fundamentals; the way investor sentiment is viewed in this thesis is that investors make investment decisions not only by considering fundamental drivers of prices, but also by unconsciously taking into account their own exogenous beliefs that arise from ignoring fundamentals and following trends and irrational beliefs instead.

Formally, our definition of investor sentiment summarizes as follows:

***"Beliefs** that are exogenous to fundamentals and that are based on irrational reasoning."* In other words, a change in investor sentiment is unrelated to changes in the present value of all future cash flows. Thus, it can be considered as a completely irrational part.

2.2 Theoretical Framework

2.2.1 Asset pricing theory

In pricing financial assets, most stock price models linked price adjustment to changes in market and economic fundamentals. These models include the Random-walk hypothesis, Capital asset pricing model (CAPM), Arbitrage pricing theory (APT) and the efficient market hypothesis (EMH). The Random-walk hypothesis as one of the fundamental equity price models attempt to explain the movement of prices around its fundamental values. Fama, (1965) pointed out that the theory relates fundamental value to potential earnings of stock and that the current prices of an equity traded are based on its fundamental value. The fundamentals value of equity in the theory was related to all forms of new information and any discrepancies between the current prices and the fundamental values would be random and short-live. The basic theme of the random walk hypothesis theory of equity prices determination is traced to the assumption that the fundamental value of equity is determined by new information and when this new information gets to the market, the current prices would adjust to them immediately.

The issue of investors' sentiment is a serious concern to the theorist of random-walk hypothesis because sometimes, new information might come in the form of noise, rumours, hearsay etc which are part of investors' sentiment. The presence of irrational investors can create a golden opportunity for traders to embark on speculative activist and panic trading which widen the discrepancy between current equity prices and their fundamental values. Fama (1970), in extension of the pattern of equity price behaviour brought into literature the concept

of efficient market hypothesis (EMH). This hypothesis stress that predicting equity prices using market fundamentals or trends and charts is a waste of time and resources. According to Fama, current stock market prices move in a random pattern and it has no memory of past prices pattern. In EMH, equity prices would always reflect their true values and any deviation is immediately restored but this restoration process might be limited by information asymmetry and investors irrationality. Stock market price correction process is attributed to the activities of arbitrageurs.

The actions of equity market price arbitrageurs if disturbed can create abnormal market prices movement such as market boom or crash. Investors' sentiment, when related to the above issue becomes a major driving force of abnormal returns and arbitrage activities. APT model as formulated by Ross (1976) rests on the assumption that equity prices are determined by some selected number of multi-risk factors. The APT model unlike the CAPM which uses beta as the single-market risk uses macroeconomic variables and non-market factors as risk factors. Brealey (2006), relates equity price returns to pervasive macroeconomic factors and partly on noise. This means that the APT model by extension can accommodate investors' sentiment which is the cause of noise trading. There is a recent approach to explaining assets price determination called the fusion approach. This approach has further become important due to the huge criticism most behavioral finance experts have mounted on the popular CAPM and APT pricing models. They argued that the assumption of investor's homogeneity and the complete neglect of investor' psychological bias in pricing assets are unacceptable (Lee, 2003). This approach supports the use of market and economic fundamentals (such as rate of return, demand and supply for securities, market risk and macroeconomic factors) and investors' sentiment in explaining assets pricing. Pindycks (1988) revealed that equity prices react more

readily and faster to macroeconomic news than they do to stock market news and exogenous factors. This implies that he recognizes exogenous factors such as investors' sentiment as a potential determinant of stock prices.

2.2.2 Sentiment models

In this section, five models involving "noise" trading or investor sentiment are presented.The purpose is to give an overview of the motivation, the structure, and the basic results of the theoretical work that shaped the behavioral finance.

2.2.2.1 Noise Trader Risk in Financial Markets

The model of Delong, Shleifer, Summers and Waldman, (1990) wasone of the first models that included "noise traders" in the calculation of market prices. They introduced the concept of the noise trader risk which has to be borne by arbitrageurs with a short time horizon.The model is a simple overlapping generation's model with twogroups of agents: On the one hand, there are risk adverse sophisticated investors with rational expectations, and on the other hand, there are "noise traders" with incorrect beliefs and irrational misperceptions. Agents have the choice between a safe asset with a fixed dividend and perfectly elastic supply, and an unsafe asset with the same fixed dividend but without elastic supply - it is in fixed and unchangeable quantity. Agents' live two time periods.They chooses their portfolios in the first period to maximize the perceived expected rate of return. The representative sophisticated investor accurately perceives the distribution of returns from holding the risky asset, and so maximizes expected utility given that distribution. The representative noise trader misperceives the expected price of the risky asset.

"Noise traders" in the model create an additional risk for all agents. Theprice of the risky asset depends on the direction and intensity of the next noise trader generation's misperception.

The time horizon for the liquidation of the assets is very short since all agents have to sell their assets to the next generation in the second period.

One of the main contributions of the Delong, Shleifer, summers and Waldman, (1990) model is the interpretation of the rational arbitrageurs' decisions as a reaction to existing noise traders. In the model, it is rational to take future noise traders' sentiment into account when deciding about the own portfolio. Eventually, rational arbitrageurs trade not only on fundamental data but also on noise.

2.2.2.2 A Model of Investor Sentiment

Barberis, Shleifer, and Vishny, (1998) present a model of investor sentiment which explains phenomena of under reaction to new information as well as overreaction to either good or bad news because people tend to see familiar patterns.The model incorporates one risk-neutral representative investor and one asset. The beliefs of this representative investor should be regarded as 'consensus beliefs' even when real investors' opinions are different. The investor's beliefs affect prices and returns. The earnings of the asset follow a random walk. However, the representative investor believes that the behavior of earnings moves between two states (or regimes): In the first state, earnings are mean-reverting. That means e.g. upward price movements are followed by price declines with a high probability. In the second state, earnings trend, i.e. earnings tend to rise further after an increase and to decline after a drop. The probabilities for the change between two states, i.e. the transition probabilities, are fixed in the investor's mind. In any given period, the investor thinks that the firm's earnings are more likely to stay in the state they are in than to change to the other state. The investor then observes earnings and updates his beliefs according to the Bayes' model.In particular; he raises the

likelihood that he is in the trending state if earnings increase in subsequent periods. On the other hand, the likelihood for the mean-reverting state is increased if good and bad earnings alternate.

The model describes an investor who does not know the true state of the world his decision only depends on the observed results of the very last period. Overreaction to information is caused by the representativeness heuristic when this information follows a series of news with the same sign.

2.2.2.3 Investor Psychology and Security Market Under- and Overreaction

The model by Daniel, Hirshleifer, and Subrahmanyam (1998) presents a theory of an under- and overreaction of securities markets. It is based on investor overconfidence about the precision of private information on the one hand, and the underestimation of public signals.In their model, each member of a continuous mass of agents is overconfident in the sense that if he receives a signal, he overestimates its precision. Not all agents, however, receive a signal in each time period. Those agents receiving a signal belong to the group of the informed whereas those who do not receive a signal belong to the group of the uninformed agents. Informed agents are risk neutral and uninformed agents are risk averse.

Each agent is endowed with a securities portfolio at the beginning of the first period (there are three periods in total). At date 0, individuals begin with their endowments and identical prior beliefs. They trade solely for the purpose of optimal risk transfer. At date 1, the group of informed agents receives a noisy private signal about the underlying security value and trades with the uninformed. The informed agents underestimate the variance of the signal. The uninformed agents know that some agents have received a signal, and estimate the variance of this signal correctly. At date 2, a noisy public signal arrives and trading continues. This time, the signal variance is estimated correctly by the informed as well as the uninformed agents.

Finally, at date 3, conclusive public information arrives, the security pays a liquidating dividend, and consumption occurs.The central aspect of the model is that overconfidence regarding the private signal leads to an overreaction of the security's price to new information. In the long run, this overreaction is partially corrected so a long term price reversal can be explained.

Furthermore, overconfidence of the agents leads to higher volatility, especially in period 1 in which the noisy private signal is perceived. In addition, price movements as a result of public information are positively correlated with future price movements. To incorporate momentum in their model, Daniel, Hirshleifer, and Subrahmanyam, (1998) expand their basic model by linking the agents' confidence to the success of their previous actions. A public signal confirms their choice if it points into the same direction. For example, if an agent buys an asset and later a positive signal confirms his choice, his confidence is strengthened. Therefore, overreaction can occur in periods 1 and 2 and a momentum effect can be observed.

2.2.2.4 A unified Theory of under reaction, Momentum Trading, and Overreaction in Asset Markets

Hong and Stein (1999) present a model in which two types of bounded rational traders – momentum traders and news watchers – interact. Effects involving under- and overreaction are not explained by phenomena from psychology but are solely a result of this interaction.In their basic model, a risky asset is traded in each time period with a fixed dividend in the final time period. News watchers are bounded rational because they can observe only a part of the available information at one point in time. In addition, it is not possible for them to conclude any price information from each other's actions.Information regarding the final dividend is

distributed in independent and no overlapping parts such that the full information is distributed over several time periods.

In contrast to the news watchers, momentum traders have a finitetime horizon. They trade with the news watchers who act as competing market makers. Momentum traders follow a positive feedback strategy and solely trade on historic price information. Due to their bounded rationality, they are not capable to obtain a better prediction of the price by more sophisticated models.

The model has the following core contributions: First, the piece-wise distribution of information to the news watchers leads to an initial under reaction to incoming information. Momentum traders who want to profit from this under reaction and follow a positive feedback strategy, thereby cause the momentum effect and as a result an overreaction of the prices. Both under- and overreaction are therefore caused by the slow information diffusion. The model explains an under reaction of market prices in the short run and an overreaction in the long run. Eventually, the overreaction is reversed by the actions of the momentum traders and a correction can be observed.

Hong and Stein (1999) enhance their model by expanding the strategies of the momentum traders to increase the degree of rationality. They are now able to act not only as momentum traders but as contrarians. In addition, they can choose a better model to predict prices and base their decision on several past periods. However, it is shown that the results from the basic model still hold. Even with the addition of a third group of traders – the smart money – Hong and Stein (1999) still explain under reaction, the momentum effect and the resulting overreaction. Only if the smart money accepts infinite risks do prices follow a random walk.

2.2.2.5 Distinguishing Between Rationales for Short-Horizon Predictability of Stock Returns

The model by Subrahmanyam (2005) is primarily concerned with short-horizon return reversals. He identifies two possible explanations in the literature: Some authors take the position that market microstructure phenomena (e.g. risk-aversion-related inventory effects or the bid-ask bounce) are the causes of these reversals.

Subrahmanyam (2005) presents an equilibrium model that incorporates both risk aversion- related inventory phenomena as well as behavioral effects. In his model, risk adverse agents absorb order flow from outside investors. A risky security is traded at dates 1 and 2, and pays off a random amount at date 3. There is a continuum of risk adverse agents who absorb liquidity shocks that appear in the market. At date 2, each agent receives a signal. Part of the agents mis-assesses the variance of the signal as too low. This captures overreaction and correction in the model. A demand shock arrives at the market on date 2, and risk adverse agents demand a premium to absorb it. Therefore, the security price has two components: The liquidity premium and the conditional expectation of the asset's value.

By capturing agents' beliefs as well as risk aversion, the model allows obtaining implications for the relation between current returns, past returns, and past order flows.The model indicates that risk-aversion-related inventory effects are accompanied by a relation between current returns and past order flows. However, no such relation can be found with respect to belief reversion. Subrahmanyam (2005) concludes – as other research indicates – that inventory effects do not appear to completely account for the return reversal usually found at a monthly horizon. His results accord with the notion that monthly reversals are caused, in substantial part, by reversals in beliefs of financial market agents.

In view of the above, the study anchored on the noise trader risk in financial markets model. The study of market sentiment has its baias in the theories of noise trader model.The model introduced the concept of noise trader risk that is borne by arbitrageurs' decisions as areaction to the existing noise traders. Moreover, it is rational to take future noise traders' sentiment into account when deciding about the own portfolio. It suggests that the arbitrageur trade not only on fundamental data but also on noise.

2.3 Empirical review

Over the last decades a large body of research shows that investor sentiment influences stock prices. Suggesting that the issue is not only how investor sentiment affects stock prices, but how to measure it, and to what extent sentiment influences the stock market. Due to the limited number of research concerning the effect of investor sentiment on market returns. Nevertheless, the most relevant works involving several researchers reviewed are presented. Extensive research is being done on the subject of investor sentiment and its effects on market returns.

Black (1986) Investigated on 'noise' using regression analysis, he used consumer confidence index as a major variable. The result of the finding was that noise makes trading in the financial market possible, it causes market to be somewhat ineffective but prevent one to make advantage of inefficiencies. Cutler, Optela and Summers, (1989) while investigating the role of the media on stock prices find that important qualitative news stories do not seem to help explain large market returns unaccompanied by quantitative macroeconomic event. Delong, shleifer, summers & waldman, (1990) suggest that noise traders can affect stock prices because the risk aversion of irrational speculators keeps them away from taking large arbitrage positions.

This assertion supports the claim of Delong, Shleifer, summers and waldman, (1990) that absolute value of pessimism will increase trading volume. Since De Long et al. (1990) have tried to measure noise trading activity and investigate its impact on market quality. Often, market sentiment plays an important role in the market. They explicitly jointly test the four behavioral effects as introduced in De Long, Shleifer, Summers and Waldman, (1990) discussed on noise trader risk in financial markets using ANOVA. They assessed the impact of dividend premium on investors' sentiment and find that the unpredictabilityof noise traders beliefs creates a risk in the price of assets that deters rationals arbitrageurs from aggressively betting against them, and shifts in sentiment are negatively correlated with market volatility.

Lee, Shliefer and Thaler, (1991) examine initial public offerings as a proxy for individual sentiment and if this explains the fluctuations of prices and returns on IPO. Their findings indicate that IPOs are negatively but significantly correlated with returns, which suggests that optimism or high sentiment leads to low returns and vice versa. The explanation they propose states that if sentiment is high in the beginning of the period, noise traders over-estimate the underlying value of a security and are more driven to buy the stock. This will drive up the trading prices and depressing realized returns.The model of Campbell Gross and Wang (1993) provides rationale why pessimism could be related to volume of trading. High pessimism indicates that a group of liquidity traders will suddenly decide to buy or sell equity. Engle and Ng (1993) find an impact of news shocks on the Japanese stock market and reported an asymmetric effect such that negative news has a substantial influence on price volatility than positive news.De Bondt (1998) draws a portrait of the individual investor and reviews prior research.

The results from Baker and Wurgler and Cliff and Brown are in line with earlier research of Neal & Wheatley (1998) that found a relationship between investor sentiment and future returns. Neal and Wheatley used an investor sentiment proxy consisting of three different variables including the dividend premium sales price, and turnover ratio.

Brown (1999) argues that if noise traders affect prices and the resulting noise can be interpreted as sentiment causing systematic risk, i.e. additional volatility, then sentiment should be correlated with price volatility. Brown finds that unusual levels of investor sentiment are in fact associated with greater volatility of stock prices.

Baker and Wurgler (2000) discussed investor sentiment on cross-section of stock returns; they adopted principal component analysis as tool of analysis. They used dividend premium;, security price and IPO as predictors. The result of the findings was that when sentiments are low, returns are relatively high on small stocks. When sentiments are high on the other hand, the result is the reverse which shows that these categories are overpriced. Fama & French (2000) discuss disappearing dividends: changing firm characteristic or lower propensity to pay, they used regression as analytical tool. It was revealed that regardless of the firms' characteristics they have become less likely to pay dividends.

Comparing sentiment of individuals with sentiment of institutional investors, Fisher and Statman's (2000) use data from the American Association of Individual Investors that conducts a monthly survey among members. They compare this direct measure of individual sentiment to the sentiment level of newsletter writers and Wall Street strategists and examine if it predicts stock returns. Their result suggests that high consumer confidence and economic fundamentals are indicators for low subsequent returns. Looking at the flow variable of sentiment, that is, changes in consumer confidence, they argue that it moves in the same direction with returns.

Another measure of sentiment proposed by Brown, Goetzmann, Hiraki & Watanabe, (2002) is based on daily mutual fund flows. Their findings support the hypothesis that the sentiment factor is persistent and should be priced. Interesting to note is that they both look at the U.S. and Japanese stock market and find that for Japan sentiment is negatively correlated with equity funds, but positively in the U.S. market. This suggests that there is foreign vs domestic sentiment factor in Japan that does not appear in the U.S. Brown & Cliff (2002) discuss investor sentiment and the near-term stock market; it was dicoverd that many commonly-cited indirect measures of sentiment are related to direct measures of investors' sentiment.

Lee, Jiang & Indro, (2002) use the Investors' Intelligence sentiment to test the impact of noise trader risk on the formation of conditional price volatility and expected returns. Studies about individual investor behavior include Griffin, Harris and Topaloglu, (2003) who explores the dynamics of institutional and individual trading by classifying trading data for NASDAQ securities as originating from individuals, institutional, and market makers. Antiweiler & Frank, (2004) find evidence of relationship between message activity and trading volume and message activity and return price volatility.Brown and Cliff (2004) explore the relation between investor sentiment and near-term stock returns in a vector auto regression framework. Although sentiment levels and changes are strongly correlated with contemporaneous market returns, they find that sentiment has little predictive power for near-term future stock returns.

Brown and Cliff (2004) and (2005) propose a sentiment index, by employing PCA to combine several sentiment proxies. In addition they employ a Vector Auto Regression (VAR) to examine the causal relation between their sentiment index and turnover, dividend premium and stock price. The findings indicate that most proxies used for their sentiment index are highly

correlated with a survey, conducted to directly measure sentiment. Furthermore, investor sentiment affects asset valuation and market pricing errors are positively related to sentiment. Next to that, over multiple years they find future returns to be negatively related to sentiment, but the predictive power of the sentiment index for future stock returns is relative weak and often insignificant.Building on the insights of Brown & Cliff (2004).

Brown and Cliff (2004) show that investor sentiment contemporaneously positively correlates with aggregated stock returns. They find limited evidence for any short-term predictability in returns. Brown and Cliff also conclude that both the direct and indirect approaches yield similar results.Beaumont et al. (2005) propose an integrated framework that jointly tests for the effects of individual as well as institutional sentiment on return and price volatility. They use weekly direct measures of sentiment and relate them to stock returns and volatility. They find that individual investor sentiment is a market wide risk factor that does not only affect small capital stocks.

Brown and Cliff (2005) use the Investors' Intelligence sentiment to test two hypotheses: First, excessive optimism leads to periods of market overvaluation. Second, high sentiment is followed by low cumulative long-run returns as prices revert to their fundamental level. Both hypotheses are supported by the results, and so Brown and Cliff (2005) – in contrast to their earlier paper – conclude that asset values are affected by investor sentiment.

Barber, Lee, Liu and Odean, (2005) draw a less positive portrait of the individual investor: Using day trading data from Taiwan they find that the profits of day traders are not sufficient to cover their transaction costs. Only a relatively small group of day traders are actually able to earn consistently strong returns. Barber, Lee, Liu, Coval, Hirshleifer and Shumway, (2005) analyze the transactions of individual investors at a large discount brokerage

and evaluate the investors' trading performance using the platform of dividend premium. They provide evidence that some individual investors are able to persistently beat the market. Dorn and Huberman, (2005) link individual investor performance to survey results and find a relation between self-reported risk-aversion and actual portfolio volatility.

Shailaja and Gajjala, (2005), identified investment biases possessed by retail investors. The study found that 90 % of the sample reported that their current and future investment decisions were dependent on their past choices. Continuing on their own work, Brown and Cliff, (2005) deepen the knowledge of investor sentiment by using a direct measure that includes published analyst newsletters. They investigate investor sentiment and its impact on deviations for the intrinsic value for the aggregated stock market. Brown and Cliff find that investor sentiment predicts deviations over the next one to three years. Their findings support the controversial conclusion that investor irrationality is a factor that impacts asset valuation. Brown and Cliff, (2005) also examine investors' sentiments and assets valuation using regression analysis the study reveals that sentiment affects assets valuation.market pricing errors implied by independent valuation model are positively related to sentiment.

One of the most renowned works is Baker and Wurgler, (2006), where they show that beginning of period investor sentiment does impact the cross-section of future stock returns. They measure investor sentiment using a direct approach where they include, among other variables, the market and economic fudamentals. They identify specific characteristics of firms that are more subject to investor sentiment. These characteristics include age, size, growth and distressed firms.Baker and Wurgler, (2006) construct a sentiment index by using a PCA to combine six proxies for sentiment. They find that if sentiment is high, there will be speculative stocks profit and vice versa. In addition they state that small stocks, growth stocks and young

stocks are most difficult to value and thus are most affected by sentiment. Kumar, Lee, and Spalt, (2006) Investigate investors' sentiment and return co-movements: Evidence from stoct splits headquarters using regression analysis. The result shows that retail investors generate excess co-movements in stock returns especially around stock splits retail trading correlation decreases with stock in the pre-split price range and increases in the post-split range.

Wang, Keswani and Taylor, (2006) investigate the relationships between sentiment, returns, and volatility. They explicitly test whether sentiment is useful for volatility forecasting purposes. By using different sentiment indicators (e.g. the put/call ratio, the ARMS index and survey measures), they find that most of these measures are caused by returns and volatility rather than vice versa.Contrary to the work of Baker and Wurgler(2006), Qiu and Welch, (2006) argue that the use of turn over ratio as a variable is not a valid proxy for investor sentiment.Albeit this argument, both Baker and Wurgler, (2006) and Qiu and Welch, (2006) papers derive similar conclusions by stating that investor sentiment does have a contemporaneous impact on stock returns.

Tetlock (2007) uses media coverage as a proxy for investor sentiment; more precisely, he uses the daily Wall Street Journal column. He finds that a relationship between future stock returns and weak media coverage does exist and that media coverage can be used as a proxy for investor sentiment.Tetlock (2007) measures investor sentiment by analyzing media content of the Wall Street Journal column. He finds that high media pessimism (low investor sentiment) predicts downward pressure on stock prices followed by a reversion to economic fundamentals. In addition he states that an extreme value of pessimism predicts high market trading volume.Continuing on their work, and using the same proxy, Baker and Wurgler, (2007) increase the understanding of investor sentiment by showing the predictability of investor

sentiment on future stock returns both for the individual stocks price and for the aggregated market. The study found the evidence of retail investment biases that lend credence to the proponents of Behavioral Finance.

Mian and Sankaraguruswamy (2008) examined whether market-wide investor sentiment influences the stock price response to firm-specific news. Berkman and Koch (2008) empirically study the influence of noise trading on market liquidity. They use the dispersion in daily net initiated order flow across brokers as a proxy for the level of noise trading in stocks traded at the Australian Stock Exchange (ASX). They find that market liquidity increases with the level of noise trading (i.e. greater trading volume, market depth, higher arrival rate of uninformed investors, lower spreads) and that the sensitivity of stock prices to net initiated order flow decreases in the level of noise trading. Finter, Niessen-Ruenzi and Ruenzi (2008) discussed the impact of investors' sentiment on the German stock market using IPO, turn over ratio, and stock price, as model and also principal component analysis as tool of analysis. It explains the return spread between sentiment stock and stock that are not sensitive to sentiment fluctuations.

Schmeling, (2008) discusses investor sentiment and stock returns: some international evidence, he adopts market and economic fundamentals as models and regression analysis as tool of analysis. The result was that sentiment negatively forecast aggregate stock market returns on average cross countries. The impact of sentiment on stock returns is higher for countries which have less market integrity. Zhang, (2008) investigages defining, modeling and measuring investor sentiment and the result of the finding is that he developed two measures of measuring sentiment, which are: direct and indirect approaches.

Related research is not restricted to stock markets but extends to the futures and options markets as well: Han (2008) uses three sentiment proxies and examines whether they affect prices of the S&P 500 options. He presents evidence that investor sentiment helps explain both the shape of the S&P 500 option volatility smile, and the risk-neutral skewness of the index return extracted from the index option prices. Kurov (2008) uses the AAII and II sentiment measures and relates them to trading in the S&P 500 and NASDAQ E-mini futures markets. They show that index futures traders use positive feedback trading strategies, and that there is a positive relation between investor sentiment and the intensity of positive feedback trading. Research on the behavior of individual investors has started in the 1990s with the importance of individual investor trading on asset prices established by the noise trader theories of Black(1986, Kyle, and De Long et al, and Odean (2008) find that virtually all individual trading losses can be traced to their use of aggressive orders.

Barber, Odean and Zhu, (2009b) investigate individual investor trading at two large brokers and measure the tendency to buy or sell the same set of stocks. They conclude that the buying and selling behavior of individual investors is systematic and individual investors therefore do have the potential to affect asset prices. There is a large body of literature that tries to relate measures of investor sentiment to volatility and returns in an attempt to analyze the impact of investor sentiment on asset prices. Most of them use direct measures of sentiment.Shu (2010) studies the influence of mood on financial market behavior. The study shows how investor mood variations affect equilibrium asset prices and expected returns. The results indicate that both equity and bill prices correlate positively with investor mood, with higher asset prices associated with better mood. The results indicate that the prevailing sentiment sways stock price response to news in the direction of the sentiment—the positive stock price

response to good news and increase with sentiment, whereas the negative stock price response to bad news and decrease with sentiment.

Edelen, Marcus, and Tehrainian (2010) discuss the relative sentiment and stock returns, using ANOVA as tool of analysis, the result suggests that fluctuations in retail sentiments are a primary driver of equity valuations for reason unrelated to fundamentals. Ogunmuyiwa (2010) investigated on investors' sentiment, stock market liquidity and economic growth in Nigeria. So with the aid of OLSE technique finds that both investors sentiment and stock market liquidity granger-cause economic growth in Nigeria. Fernandes, Gama and Vieira (2010) research on: Does sentiment matter for stock market return? Evidence from a small European market at the industry level and the result of the finding is that sentiment has a negative impact on future market returns for forecast horizons of 1 to 12. Hengelbrock, Theissen and Westeide (2010) study market response to investor sentiment using regression as statistical tool of analysis. The study reveals that the publication of sentiment indicators affects stock returns.

Hengelbrock, Theissen, and Westheide (2010), suggested that measures of investors' sentiment have predictive power for future stock returns over the intermediate and long term. The study suggested that smart investors should trade on the information conveyed by such indicators and thus triggered an immediate market response to their publication. McLean & Zhao (2010) studied the effects of systematic investor sentiment on investment and external finance over a 44-year period. Sentiment causes both investment and external finance to be more sensitive to growth opportunities and less sensitive to cash flow. The findings are broadly consistent with a sentiment-costly, external financing framework in which sentiment affects the prices of risky securities. Direct measures are used by several other researchers following Qui and Welsh's work including Schmeling, (2008), Zouaoui, Nouyrigat, and Beer (2011) and

Sayim, Morris, and Rahman (2013). Schmeling, (2008) uses CCI as a proxy and concludes, in line with earlier research, that investor sentiment negatively forecasts future aggregate stock. Schmeling also finds that countries which stock markets are more affected by herd-like behaviour and subject to less market integrity are more likely to show negative results to investor sentiment. Finter and Ruenzi (2011) examine the impact of investor sentiment on German stock market, using principal component analysis the result shows that the indicator explains the return spread between sentiment sensitive stocks and stock that are not sensitive to sentiment fluctuations. Barber and Odean (2011) study the behavior of investors and the results suggest that investors sell winning investments while holding losing investments.

Bennet and Selvam, (2011) found out that SPERTEL risks had influenced the value of equity shares in the market. The market factors had influenced the stock selection decision of retail investors in India. They carried out a study and found that most ofthe investors expect the stock prices to go up to a degree greater than most of their investments. If the market has gone down, they think it would rebound. If the market is up, they think it would go further. In either case, they make investment decision on account of the assumption that the stock market would give better returns. Zouaoui, Nouyrigat and Beer (2011) find that investor sentiment does have an explanatory power in regards to predicting stock market crises, and reiterate Schmeling's conclusions that countries are more prone to herding and are affected by investor sentiment. Alternative measures of investor sentiment also lead to similar results.They argue that these results occur due to the leverage effect. Analysis of intraday data highlights a period of 30 second intervals either side of news release as the occurrence of this phenomenon (Smales, 2012). Likewise, the release of scheduled earnings also portrays this behavior with variables increasing to above average levels more than 15 minutes beforehand.Bennet, Amoako, Chars,

Asumadu and Darkwagh (2012) examine the impact of investors' sentiment on the equity market" evidence from Ghanaian stock the result reveals that few market specific factors had a significant impact on the investors' sentiment on Ghana. Abdel-Hameed, (2012) empirically studies the impact of investors' sentiment on stock market return: the case of Egypt. The results suggest that market return is affected by investors' sentiment and sentiment has a significant weak impact return. Chien-wei, (2012) studies the role investor sentiment in assets pricing, the study reveals that investors' sentiment exhibits explanatory power for cross-section of stock return in US market. Yoshinaga, Figueiredo de Castro Junior, (2012) studies the relationship between market sentiment index and stock rates of return. The result indicates a significant and negative relationship between the market sentiment index and future rates of return.

Rehman, (2013) examines investors' sentiment and stock market volatility the results suggest the extent which sentiments influence the stock market returns in weak form efficient market. Sehaul (2013) studies the impact of a search-based major of sentiment on equity market returns. The finding reveals that the search-based msjor sentiment is correlated with the existing majors of sentiment.

The little importance accorded to industries is covered by less iconic journals where, for instance, Sayim, Morris, and Rahman, (2013) investigate the impact of investor sentiment using the American Association of Individual Investor Index as a proxy for investor sentiment on the stock returns and volatilities on a limited number of US industries. They find a significant relationship between investor sentiment and stock return and volatility. In another paper, basing their work on one of the pioneering papers in the literature, Huang, Yang, and Sheng, (2014) use the principal component analysis to indirectly proxy investor sentiment in order to establish a relationship between industry returns and investor sentiment. Findings indicate that for all

chosen industries, there is a positive contemporaneous relationship between industry returns and investor sentiment, but a negative relationship once a lag is introduced. More specifically, they find that industries closely related to the Chinese national economy, such as fishery, animal husbandry and extractive industries are less affected by investor sentiment than non-core industries. Yang and Copeland (2014) investigates the effects of sentiment on market return. The result shows that bullish sentiment leads to higher market excess. Oprea and Brad (2014) examine investors' sentiment and stock return evidence from Romania. The result of the investigation reveals thst there is a positive coroloation between changes in consumer confidence and stock market returns, which shows that individual sentiment affects prices. Dasgupta and Chattopadhyaya (2014) reveal stock market driven factors of investor sentiment using multiple regression analysis. The study finds how investors sentiment is driven from the nature of stock markets, index/stock returns to investor friendly environment. Hu, Sun, Wang and Chi (2014) discuss investor sentiment and the predictability of assets return with the aid of principal component analysis. It was found that irrational sentiment has stable positive predictability on the future returns in short terms and vice versa. Bank and Brustbauer (2014) discuss investors' sentiment in financial market. The result reveals that investors constantly have to process and interpret information which provides the basis for their actions.

Huang, Jiang, Tu and Zhou, (2014) constructed an investor sentiment measure that they refer to as "aligned sentiment index". Making use of an indirect method, they extract common components that are the most relevant to expected stock returns from several proxies by making use of (PLS), the partial least squares method. By removing the common noise part of the different proxies, they find that the "aligned sentiment index" does have a statistically greater

predictive power on the aggregated stock market than any individual approximation of investor sentiment.

Mazviona (2015) studies majoring investors' sentiment on the Zimbabwe stock exchange using ordinary linear regression. It was found that 40% of the market moved contrary to the market sentiment indicators, while 60% co-moved with the sentiment indicators with the level of effects differing in magnitude. This shows that sentiment indicator had a positive effect on the stock return.Rehman, Abidin, Rizwan, Abbas and Baig (2016) examine how investor sentiment spill from developed countries to developing countries. Result indicates a significant influence of developed market on developing market.sentiment index is good indicator regarding the return pattern of the stock exchange.

From the literature reviewed it is obvious that an ample of studies have not been carried out in Nigeria on the effects of investors' sentiment on stock market returns.This thesis will therefore contribute to the debate of the determinants of the effects of investors' sentiment in relation to stock returns in Nigeria and fill an existing lacuna in the literature.

2.4 Gap in Literature

While, earlier evidence of the sentiment-return relation is primarily focused on the U.S. stock market and other developed countries, only a limited number of studies analyze the relation for non-U.S. markets. Jansen and Nahuis (2003) used the European Commission's consumer confidence index (CCI) as a proxy for sentiment and found that it is positively correlated for nine European counties. Baker, Wurgler and Yuan (2011) construct sentiment indices for six major stock markets and find that global sentiment is a contrarian predictor of country-level returns. In addition, for both global and local sentiment it proves that when sentiment is high, future returns are low. So, fluctuation of sentiment is inversely correlated

with stock returns. Also Schmeling (2009) examines the sentiment-return relation internationally. He finds that sentiment negatively forecasts stock market returns on average across countries. Furthermore, the cross-sectional model suggest that the impact of sentiment on stock returns is higher for countries which have less market integrity and which are culturally more prone to herd-like behavior and overreaction. In Nigeria just very few of these studies have captured investigation. Careful research for best of our literature awareness can attest to this fact.The following table can prove this:

Table 2.3 Some Articles Reviewed and Outcomes

	Author	**Date**	**Title**	**Model**	**Methodology**	**Results**
	Zhang. C	April, 2008	Defining, modeling and measuring investor sentiment.	$E(R_2) = -qp + q(1-P)UE + qp\frac{1}{1+sent} + qp\frac{UE}{1+sent} + e_t$	Descriptive essay.	Developed two measures of measuring sentiment: indirect & direct approaches.
	Bennet, E; Amoako L. O. Chars, R. D. Asumadu, E; & Darkwagh, J. A.	September, 2012	The impact of investors' sentiment on the equity market: Evidence from Ghanaian stock market.	$R_t = \beta_0 + \beta_{1HB_t} + \beta_2 ILA_t + \beta_{3MEF_t} + \beta_4 RSF_t + \beta_5 PFCII_t + \beta_6 BG + \varepsilon_t$	Bootstrapping method.	Few market specific factors had a significant impact on the investors' sentiment on Ghana.
	Abdel-Hameed, N. A. R.	July, 2012.	A study of the impact of investor sentiment on stock market return: The case of Egypt.	$MC = a_0 + a_1 CEFD_t + a_{2\ IPO_t} + a_3 CCI_t + e_t$	Regression analysis	Market return is affected by investor sentiment and sentiment has a significant weak impact on return.

	Chien-wei, H.	February, 2012.	The role of investor sentiment in assets pricing.	$R_{it} - F_{ft} = \beta_0 + \beta_1 lowprcldx_{it} + \beta_2 SMB_t \beta_3 UMD_t + \varepsilon_{it}$	Regression	Investor sentiment exhibits explanatory power for cross section of stock return in U. S. market. Some countries, sentiment affects both volatility and returns while others sentiment has less influence on stock price behaviour.
	Mazviona, B. W.	2015	Measuring investor sentiment on the Zimbabwe Stock exchange.	$r_{it} = a_i + \beta_1 V_t + \beta_2 CEFD_t + \varepsilon_t$	Ordinary linear regression.	It was found that 40% of the market moved contrary to the market sentiment indicator, while 60% co-moved with the sentiment indicator with the level of effect differing in magnitude, indicating that the sentiment indicator had a positive effect on the indicator.
	Oprea, D. F & Brad, L.	April, 2014	Investor sentiment and stock returns: Evidence from Romania.	$R_{BET,t} = a_0 + a_1 ccl_{abs,t} + \varepsilon_t$	Regression analysis	It was proved that there is a positive correlation between changes in consumer confidence and stock market

						returns, demonstrating that individual investor sentiment affects prices.
	Barber, B. M. & Odean, T.	September, 2011	The behavior of Individual investors	$r_{it} = a_i + \beta_i V_t + \varepsilon_{it}$	Regression analysis	Investors sell winning investments while holding losing investments.
	Yang, Y. & Copeland, L.	July, 2014	The effects of sentiment on market return and volatility and the cross-sectional risk premium of sentiment-affected volatility.	$E_t(R^i_{t+1}) = \lambda_1 cov(R^i_{t+1} R^m_{t+1}) + \lambda_s cov(R^i_{t+1,st+1}) + \lambda_1 cov(R^i_{t+1}, l_{t+1}) + \varepsilon_t$	Principal component analysis	Bullish sentiment leads to higher market excess returns while bearish sentiment leads to lower excess return.
	Baker, M. & Wurgler J.	2007	Investor sentiment in the stock market.	$R_{et=\beta_0+\beta_1 TV_l} + \beta_2 DP_t + \beta_3 CEFD_t + \beta_4 IPO_t + \varepsilon_t$	Principal component analysis	Stocks that are difficult to arbitrage or to value are most affected by sentiment.
	Finter, P; Niessen-Ruenzi, A. N. & Ruenzi, S.	December 2008	The impact of investor sentiment on the German stock market	$R_t = a_0 + b_1 IPO + c_i CEFD_t + d_i GSI_t + e_i RMRF_t + \varepsilon_t$	Principal component analysis	It explains the return spread between sentiment stocks and stock that are not sensitive to sentiment fluctuations.
	Baker, M. & Wurgler, J.	June, 2000	Investor sentiment and cross-section of stock returns	$R_{jt} = a_0 + \beta_1 Rank(UE_{jt}) + \beta_2 \frac{1}{1 + D_c(sent_{jt})} + \beta_3 Rank(UE_{jt}) \frac{}{1 +} + \varepsilon_t$	Principal component analysis	When sentiments are low, returns are relatively high on small stocks. When sentiments are high on the other hand, the

						result is the reverse which shows that these categories are overpriced.
	Yoshinaga, C. E; Figueiredo de Castro Junior, F. H	June 2012	The relationship between market sentiment index and stock rates of return: Panel Data analysis	$R_{it} = \beta_0 + \beta_1 TURN_{t-1} + \beta_2 DIV_{t-1} + \beta_3 TRIN_{t-1} + \beta_4 NIPO_{t-1} + \beta_5 S_{T-1} + \varepsilon_t$	ANOVA	The results indicate a significant and negative relationship between the market sentiment index and future rates of return.
	Rehman, M. U.	2013	Investor sentiment and stock market volatility: An empirical evidence	$r_t + \beta_0 + \beta_1 DP_t + \beta_2 IPO_t + \beta_3 EQshare_t + \beta_4 KSET_t + \beta_5 CEFD_t + \varepsilon_t$	Regression	The extent which sentiments influence the stock market returns in weak form efficient market.
	Schaul, K.	August, 2013	The impact of a search-based measure of sentiment on equity market returns	$r_t = \beta_0 + \beta_1 CCFD_t + \beta_2 IPO_t + \beta_3 SP_t + \beta_4 CCI_t + \beta_5 DP_t + \mathcal{U}_t$		The search-based measure of sentiment is correlated with the existing measures of sentiment. In addition, an increase of pessimism today is associated with lower returns in the following two weeks.
	Schmeling, M.	November, 2008	Investor sentiment and stock returns: Some international evidence	$r_t = a_0 + a_i SENTt_t + a_2 EXD_t + a_3 INT_t + \varepsilon_t$	Regression	The result was that sentiment negatively forecast aggregate stock market returns on average cross countries. The

						impact of sentiment on stock returns is higher for countries which have less market integrity.
	Dasgupta, R. D & Chattopadhyay, S.	April, 2014	Stock market driven factors of investors' sentiment: A review of the stylized fact	$R_{t+1} = \beta_0 + \beta_1 IPO_t + \beta_2 \text{TUR}N_t + \beta_3 CCI_t + \varepsilon_t$	Multiple regression	The study find out how investors' sentiment is driven from the nature of stock markets, index/stock returns, investors-friendly environment, etc.
	Baker, M. & Wurgler, J.	August, 2006	Investor sentiment and cross-section of stock returns	$R_{\text{x}} = High_{,t} - R_{\text{x}} = low_{,t} = c + dSENTIMENT_{t-1} + \beta RNKT_t + sSMB_t + hHML_t mUMD_t + u_{it}$	Regression analysis	The study find out that a wave of investor sentiment has larger effect on securities whose valuations are highly subjective and difficult to arbitrage.
	Edelen, R .M; Marcus, A.J * Tehrainian, H.	November, 2010	Relative sentiment and stock returns.	$R_{\text{t}} = a_0 + a_1(sentimentprox + a_2 INF_t + a_3 INT_t + \varepsilon_t$	ANOVA	Result suggest that fluctuations in retail sentiment are a primary driver of equity valuations for reasons unrelated to fundamentals.
	Ogunmuyiwa, M. S.	April, 2010	Investors' sentiment, stock market liquidity and economic growth in	$McGDP = \beta_0 + \beta_1 mtr + e_i \ldots (1)$	O.L.S.E technique	Result shows that both investors sentiment and stock market

			Nigeria	$MCGDP = \beta_0 + \beta_1 TVTSGDP + e_2 \ldots (2)$ $MCGDP = \beta_0 + \beta_1 MTR + \beta_2 TVTSGDP + e_3 \ldots . (3)$		liquidity granger-cause economic growth in Nigeria.
	Fernandes, C. Gama, P. Vieira, E.	September, 2010	Does sentiment matter for stock market returns? Evidence from a small European market at the industry level.	$r_{it} = a_0 + a_1 CEFD_t + a_2 IPO_t + \varepsilon_{it}$	Regression analysis	Sentiment has negative impact on future market returns for forecast horizons of 1 to 12.
	Fama, E.F. & French, K. R.	August, 2000	Disappearing dividends: changing firm characteristic or lower propensity to pay?	$\Delta PTP_t = a + bP^{D-ND} + CNixon_t + V_t$	Regression	It was reveals that regardless of the firms characteristics, they have become less likely to pay dividends.
	Brown G. W. & Cliff M. T.	March, 2005	Investor sentiment and assets valuation	$(r_{t+i} + r_{t+k})/k = a(k) + \beta(k) S_t + \theta'(k) z_t + \varepsilon_{t+k}$	Regression	Sentiment affects assets valuation. Market pricing errors implied by independent valuation model are positively related to sentiment.
	Hengelbrock, J; Theissen, E. & Westeide, C.	December, 2010	Market response to investor sentiment	$r_{t-1,}^{DAX} = a_0 + a_1 sentiment_t + a_2 r_{t-2,\ t-1}^{DAX} + r_{t-2,t-1}^{S\&P\ 500} + a_4\ 1\ monday_t + e_t$ $\sigma_t^2 = b_0 + b_1 e_{t-1}^2 + b_2 \sigma_{t-1}^2$	Regression analysis	The study reveals that the publication of sentiment indicators affects stock returns. The sign of the immediate response is the same as that of the predictability

						over the immediate term.
	Finter, P. & Ruenzi, S.	October, 2011	The impact of investor sentiment on German stock market	$Ret_{mi-m2} = a + \beta_{\dot{s}} IPO_m + \beta_{\dot{1}} DIVP_{m1-m2} + \beta_{\dot{2}} SP_{m1-m2} + \beta_{\dot{2}} SP_{m1-m2} + \beta_{\dot{3}} CCI_{m1-m2} + \beta_{\dot{4}} TURN_{m1-m2} + \varepsilon_{m1-m2}$	Principal component analysis	The result shows that the indicator explains the return spread between sentiment sensitive stocks and stocks that are not sensitive to sentiment fluctuations.
	Black, F.	July, 1986	Noise		Regression	Noise makes trading in the financial market possible, it cause market to be somewhat ineffective but prevents one to take advantage of inefficiencies.
	De Long, J.B; Shleifer, A. Summers, L.H; Waldmam, R.J.	August, 1990	Noise trader risk in financial markets.	$E(p) = P^* = 1 - \frac{2Y\mu\sigma_p^z}{r(1-r)^2} + \frac{\mu p^*}{r}$	ANOVA	The unpredictability of noise traders beliefs creates a risk in the price of the assets that deters rational arbitrageurs from aggressively betting against them.
	Baker, M. & Wurgler, J.	June, 2004	A catering theory of dividends.	$Initiate_t = a + bp_{t-1}^{D-ND} + cA_{t-1} + dp_{t-1}^{cu} + \mu_t$	Principal component analysis	Measures developed shows that non-payers tend to initiate dividends when demand is high. On the other hand, payers

						tend to omit dividends when demand is low.
	Li, W. & Lie, E.	March, 2005	Dividends changes and catering incentives	$\{d^* > d^p\} = \left\{\frac{\delta}{\delta d} v\left(d_{;}^{p} D\right) > \frac{\partial}{\partial 2} v\ (d_{;}^{*} D)\right\} = \left\{\frac{\delta}{\delta d} v\left(d_{;}^{p} D\right) > \left[\left(1 + \frac{YA}{Y}\right)\mu + \frac{YA}{Y}\right] c\right\}$	Principal component analysis	The study reveals that stock market reaction to dividends changes depends on the dividend premium. That the market rewards managers for considering investor demand for dividend.
	Gren, T.C. & Hwange, B.H.	September, 2008	Price based return co-movement	$R_{it} = a_i(\beta_{prc,i} + \beta_{TC,i} R_{TC,it} + \beta_{SENT,i} RSENT_{,it} + \beta_{MKT,i} RMKT_{,i,t} + \varepsilon_{it}$	Regression analysis	Results suggest that investors categorize stocks based on price.
	Rehman, M.Z; Abidin, Z.; Rizwan, F. Abbas, Z. & Baig, S. A.	September, 2016	How investor 9sentiment spill from developed countries to developing countries?	$SMI_{mt} = a_0 + a_1 TURN + a_2 CCI + a_3 IPO + a_4 SP + a_5 \Delta 1 + a_6 R_{WBMJ,t-1} + a_7 R_{RBMK,t-1} Y_{mt} = a + \beta SMI_{m,t}$	ANOVA	Results indicate a significant influence of developed market on developing market. Moreover, sentiment index is good indicator regarding the return pattern of the stock exchange.

	Hu, C; Sun, W; Wang, Y & Chi, Y.	2014	Investor sentiment and the predictability of asset return: Evidence from China	$rt_t = \beta_0 + \beta_1 E_{t-1} sent_{t-1} + \beta_1 sent_{t-1} + \beta_2 E_{2,t-1} sent_{2t+1} + \beta_3 sent_{3t-1} + \beta_4 mci_{t-1} + \beta_5 cpl_{t-1} \beta_6 iavr_{t-1} + \varepsilon_t$	Principal component analysis	It was found that irrational sentiment has stable positive predictability on the future returns in short terms and vice versa.
	Bank, M. & Brustbauer, J.	January, 2014	Investor sentiment in financial markets	$R_t = \beta_0 + \beta_1 CEF_{t-1} + \beta_2 IPO_{t-1} + \beta_3 CCI_{t-1}$	Descriptive essay	The results reveal that investors constantly have to process and interpret information which provides the basis for their actions.
	Frech, J.J. & Li, W.X.	Sept, 1992	Investor sentiment foreign equity flows and equity returns in Thailand stock market.	$Y_t = A + \sum_{j=1}^{k} B_j Y_{t-1} + 1x_t + \varepsilon_t$	Structural vector auto-regression (SVAR)	It indicates differences in terms of size, liquidity and foreign participations and will allow to explore the relationship between investment, returns, and sentiment in two different market settings.
	Brown, G.W. & Cliff, M.T.	May, 2002	Investor sentiment and the near-term stock market.	$Y_t = \mu + \sum_{1=1}^{p} \phi_i Y_{t-i} = \varepsilon_t$	Regression analysis	It was discovered that many commonly-cited indirect measures of sentiment are related to direct measures of investors' sentiment.

	Kumar, A; Lee, C.M & Spalt, O.G.	June, 2006	Investor sentiment and return co-movements: Evidence from stock splits and headquarters.	$R_{it} - R_{ft} = \beta_0 + \beta_1 lowPrcldx_{it} + \beta_2 RMRF_t + \beta_3 SMB_t + \beta_4 HML_t + \beta_5 UMD_t + \varepsilon_{it}$	Regression analysis	The results show that retail investors generate excess co-movements in stock returns especially around stock splits retail trading correlation decreases with stock in the pre-split price range and increase with the post-split range.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Research Design

The study adopted a composition of descriptive and quantitative method of research for the reason that, it allows proper investigation of a contemporaneous issue like investor sentiment. It is proper to establish the variables that can measure the market sentiment and then check their relationship with expectd stock returns by Nigeria stock exchange (NSE). To estimate the sentiment index, the researcher applied the multiple regressions. Some empirical works, documented a strong link between these two variables (sentiment and returns) both in times-series and cross-sectional. This work estimate productive regressions after the order of Barber and Odean (2011), Baker and Wurgler (2000, 2004, 2006, and 2007); Brown and Cliff (2004); Delong, Shleifer, Summer and Waldmann (1990); Baker, Wurgler, and Malcolm (2004); Qui and Welch (2006), Tetlock (2007), with respect to the chosen proxies for investors' sentiment and other variables, of the form:

$$r_{t+1} = \alpha + \beta.sentiment_1 + h_t \qquad (1a)$$

Where $r_{r_{t+1}}$ is the return of the aggregate stock market or a (zero-cost) portfolio at time$_{t+1}$ and sentiment is a proxy for investor sentiment. A common finding for the stock market is a statistically and economically significant negative coefficient estimate for β.Therefore, periods of higher investor optimism tend to be followed by significantly lower returns for the aggregate market (Brown & Cliff, 2005) and even more pronouncedly for firms that are hard to price and thus difficult to arbitrage (Baker & Wurgler, 2006, Lemmon & Portniaguina, 2006).

To test for sentiment effects on future returns, the work estimate long-horizon return regression as:

$$\frac{1}{k}\sum_{k=1}^{k} r_{t+k}^{1} = \delta_0^{\frac{1}{k}} + \delta_1^{\frac{1}{k}} sent_t^{i} + \Psi_t^{1(k)} Y^{1(k)} + \varepsilon_{t+1\to t+k}^{1\,(k)} (1b)$$

With the average k-period return for variable í and several predictors on the right hand side. These predictors include consumer confidence index, all-share index, share stock price, turnover ratio, dividend premium, initial public offerings, etc, and other macro economic variables (Baker & Wurglar, 2006). To facilitate comparison of the sentiment –return relation between components, the work standardized all right-hand side variables used in the above equation.

In respect of the general predictive regression in (2) two different approaches emerged: First estimating panel fixed-effects regressions, so that all components variables enter the regressions jointly. The cross-sectional fixed-effects specification allow individual variable to have different regression constants. Secondly, in panel regressions to increase the power of the test and to investigate whether there is a significant sentiment-return relation on average cross-sectional components. This translates into:

$$\frac{1}{k}\sum_{k=1}^{k} r_{1+k}^{1} = \delta_0^{1(k)} + \delta_1^{1(k)} sent_t^{1} + \Psi_t^{(k)} Y^{1(k)} + \varepsilon_{t+1\to t+1}^{1\,(k)} (1c)$$

So that there is a component-specific intercept. However, slope coefficients are restricted to be equal across variables (Schmeling, 2008).

An important aspect to be considered during the index construction is the correct time instant of the variables, whether they will be contemporary or lagged to form the index, since some of them must reflect charges in sentiment before others (Baker & Wurgler, 2007; Brown & Chiff 2004).

3.2 Population of the Study

The population of the study consisted of 189 firms that are quoted on the Nigerian Stock Exchange (NSE. 2016). Their relevant data was also gotten from CBN bulletin, NSE, SEC amongst others. The aggregate number of these firms quoted on the NSE form the basis of the population of this study.

3.3 Nature and Source of Data

The secondary data for the study were obtained from the Central Bank of Nigeria's Statistical Bulletin (various issues), Nigeria Stock Exchange, and Securities and Exchange Commission Publications. Data for this study are the monthly and annual time series data ranging from 1990 through 2016**.** There are many proxies that can be included in the sentiment index, previous researchers used different proxies based on their understanding and also impact which these proxies have on stock market returns. This study employed six sentimental proxies. The study adopted All-Share Price Index to represent the market returns which is a dependent variable. The justification for this selection is based on the fact that the index is best for measuring capital market performance over time, and it's the best in a market like Nigeria where there is no option market and mutual fund or investors' option survey data. All –share index is used to determine the growth of the market as it captures the overall performance of the market. NSE all-share index captures all the other performance measures such as market capitalization, liquidity, and turnover ratio. All-share index is one of the major determinants of the market size of any stock exchange. The size of the All-share index and its growth rate pose a major influence on the growth and development of the economy (Akingunola, Adekunle & Ojodu, 2012; Baker & Wurglar, 2006, 2007); Brown & Cliff, 2004).

Other sentiment indices, for this study include:

- Consumer confidence index (CCI)
- Turnover ratio (TURN)
- Initial public offerings (NIPO)
- Dividend premium (DP)
- Share stock price (SP)
- Market and, economic fundamentals (MEF), (Yang & Copeland, 2014), (Chen, 2000).

3.4 Analytical framework and model specification

3.4.1 Analytical framework

In formulating the model for this study, the following variable were considered: All- share price index (dependent variable), and consumer confidence index, turnover, initial public offerings (IPO), stock price, dividend premium , market and economic fundamentals (independent variables) were used to proxy investors' sentiment. Other measurement indicators considered are: Iflation, interest rate, excess demand for equity, volume of shares traded (liquidity) index and the Bandopadhayaya investor sentiment index, which are the control variables. This approach of measuring investors' confidence is tagged Liquidity approach. They stressed that investor's madness (investors' sentiment) translate to higher volume of securities traded. Johnson, Lei, Lin and Sanger, (2006) argue that the level of trading volume of securities is not a better measure of investors' sentiment when compare to the trend in traded volume of securities. They use the following model to estimate the value of trend in the volume of securities traded;

$$Sent_{vol} = \beta_0 + \beta_1 t + \beta_2 t^2 + \psi \ldots (2a)$$

The value of $Sent_{vol}$ proxied the trend value of securities traded over time while the explanatory variables in equation (3a) are time indexed t and $t^2$and ψ represents the error term.

This specification allows time variations in trading volume, which is a better proxy for investors' sentiment. B_1 and B_2 intuitively reflect how trading volume varies with time. This approach of measuring investors' sentiment centered on the fact trend in trading volume series of shares provide information which capture the changes in investors' sentiment over time is subjected to time bias. Bandopadhayaya (2005) introduced another time series index of measuring investor's sentiment. In his method of estimating investors' sentiment, all share price index was used to capture market activity while those factors outside the price composite index were seen as non-market factors (Investors' sentiment). In obtaining the level of investors' sentiment, the lagged S & P 500 price index regressed on the current S & P price index and the error term from the estimated regression results was attributed to non-market factors which investors sentiment is a major part of. The Bandopadhayaya equation is shown below:

$$SP_{500t} = \theta_0 + \theta_1 SP_{500t-1} + \ell_t \ldots\ldots (2b)$$

Rewriting equation (2b) to derive equation (2c)

$$\ell_t = (SP_{500t}) - \theta_0 - \theta_1 (SP_{500t-1}) \ldots\ldots\ldots\ldots (2c)$$

Where SP_{500t} and SP_{500t-1} represent current and lagged composite securities price indexes. The estimated error termℓ_t is therefore the proxy for investors' sentiments i.e. $sent = \ell_t$.

Following the discussion of measuring investors' sentiment empirically, the other explanatory variables such as excess demand for securities interest rate and inflation are also subjected to measurement problems. In measuring excess demand for shares, the percentage change in the composite share price index over time is considered. This is drawn from the works of Fair and Jaffee (1972) and Fair and Kalejian (1974). In estimating or predicting movement in share prices, financial economists have argued that financial assets prices are more

sensitive to expected inflation rate and not actual inflation rate. In estimating expected inflation rate, Fama (2001) used yield to maturity on short-term Treasury bill (Rf) which is related to monetary policy forces through expected inflation;

$$RF = \hat{r} + \pi^e \ldots\ldots(2d)$$

Rewriting equation (2d) to derive equation (2e)

$$\pi^e = Rf - \hat{r} \ldots\ldots(2e)$$

Where π^e is the expected rate of inflation, Rf is the yield to maturity of treasury bills and the constant expected real rate of returns on treasury bills is represented by $\hat{r}$. Fama and Schwert (1997) and Fama and Gibbons (1984) used the estimated expected inflation rate π^e to estimate unexpected inflation rate. Following the above, a more popular and standard framework for estimating expected inflation is the fishers hypotheses, (Mankiw, 1997).

R = i π^e ..... $(2f)$

Where R = Real interest rate, i = expected inflation. The real interest rate (R) is computed by dividing nominal interest rate (i) by consumer price index. Equation (3f) can be re-written as: $\pi^e = \text{i} - \text{R}$, (Czier and Rahman, 1988.

The rate of returns on long term financial assets is a major determinant of stock price variations and it is often proxies by long term interest rate. There is also clear evidence that interest rate depresses corporate profitability and leads to an increase in the discount rate applied by equity investors, both of which have a adverse impact on stock prices. The long term interest rate or returns on capital market instruments are usually not available but are proxies by interest rate on treasury certificates, treasury bonds or interest of over 12 months (Bursar, 2009).

This work was motivated by related models as:

3.4.1.1 Consumer Confidence Index model

The specification of the model is based on the works of Fan and Wong (1998), Kuzmanovic and Sanfey (2012), Ibrahim, Bawa, Abdullahi, Didigu, and Mainasara (2015), Chopin and Darrat (2000). The consumer confidence index (CCI) measures the consumers' perception of the economy and future expections. It also measures the expected total family income, expected employement condition and also the current price of goods and services. Essentially it measures factors impacting on the lives of everybody, thereby producing a complete view of the the individuals personal well being. It provides consumers assessments of the economic situation and their intentions and expectation for the future. CCI is computed based on the average of three indices: Economic condition index, Family financial condition index and Family income index (Kuzmanovic & Sanfey, 2012).

This is specified as:

$$CCI = F(ASI, GDP\ IPO, TURN, INF)$$

The equation for the above relationtionship becomes:

$$CCI = \beta_0 + \beta_{1ASI_t} + \beta_{2GDP_t} + \beta_3 IPO_t + \beta_{4TURT_t} + \beta_{5INF} + \varepsilon_t$$

A priori expextation is than β_1, β_2, β_3 β_4 β_5, < 0, or > 0.

(CCI) is consumer confidence index represents the dependent variable,while All-share index ASI), Gross domestic index (GDP), Initial public offerings (IPO), Turnover ratio (TURN), and inflation rate (INF) which represent independent variables, whereasε_t is the Error term.

Rationally, consumers as economic agents they base their decisions on assumed expectation of the possible behavior of variables such as gross domestic product (GDP), inflation rate, interest rate, exchange rate etc. Consumer expectations, which is measured today

by the consumer confidence indicators, may cause fluctuations in output and other macroeconomic variables in an economy. For example increases in consumers' income and decreases in inflation or interest rates, all things being equal would result in improved consumer well-being and positively affect their attitudes. Therefore a negative relationship is expected between CCI and inflation rate.

3.4.1.2 Initial Public Offer Model

The specification of the model is based on the works of Ritter (2002), Yetman (2001), Loughram and Ritter (2002), Achua (2011) and Rtter (2003). The initial returns on IPO are calculated from the percentage change in the offer price to the first closing price in the aftermarket, and taking an equally-weighted average across the sample to arrive at the mean(Ritter 2002). This simplicity assume that the size of the issue is unrelated to the demand for allocations, and that the volume of sales of initial offers on the first day trading is not taken into consideration. Variety of models have been used to measure price performance of stock, and given valid assumptions and perfectly measured inputs, although not the entire model produced the same value.

Yetman, (2001) shows that IPO firm characteristics and limited information availability affect the relevance of a particular model to provide a relevant value in an IPO setting. This is because most of the studies employing adjustment techniques focus on examining the level and reason of underpricing. The study adopted the model of equally weighted averages to measure the IPO average returns to determine the impact of investors' sentiment due to investors' investment decision. This is shown as:

$AR_{IPO} = (\sum\_(i = 1)\hat{}nxi)/n$ ----------(1)

Where:

AR_{IPO} is the equally weighted average return, and $x_{i-----}x_n$ are the computed IPO returns. While, n is the number of observations.

The above can translate into:

$AR_{IPO} = f(Firm_{age}, IPO_{size}, IPO_{demand}, IPO_{marketcondition}, Issuer_{prospect}, Underwriter_{reputation}, Syndicate_{underwriting}) + E_t$

Where:

(i) IPO_{size} – This is the volume of the offer, shares offered to the public or placed privately for subscribtion.

(ii) IPO_{dd} – This is proxied by the subscription level. The percentage of the subscription of the issue to the total number of the issues t the offer.

(iii) Market Condition- the IPO based definition. Dummy variables are used as market condition proxy. Any offer whose average is more than the sample median will be assigned the value of I, while the vslue O will be assigned if otherwise.

(iv) Issue Prospect: Dummy value assigned where a firm made subsequent public offering within our reach period and be assigned if otherwise.

(v) Underwriter Reputation: it is measured by the market share of the underwriter. It is represented by the ratio (measured in percentage) of the underwriter to the total number of their competitors appearing on the same IPO in the study. Where a syndicate or underwriter is involved in a issue, the sum of their ratio is taken as the proxy of underwriters reputation for the offer.

(vi) Syndicate Underwriting: the proxy for the variable is 1 where IPO offer is underwritten by a syndicate and 0 where the offer is written by asingle issuing house (Achua 2011).

3.4.1.3. Dividend Premium Model

The specification of this model is based on the works of Bajaj and Rijh (1990), Foong, Zakaria and Tan (2007), Lazo (1999), Amidu (2007), Oyinlola, Oyinlola and Adeniron (2014).

This is specified as:

EPS = F (DPS, INV, IP)

The dividend equation becomes:

$$EPS_t = C_0 + C_{1DPS_t} + C_{2INV_t} + C_{3IP_t} + \varepsilon_t$$

A prori: It is expected that the following expression will take place:, $C_1 > 0$, $C_2 >_0$ $C_3 > 0$ or < 0. C_0 is the intercept and C_1, C_2, C_3 are the coefficient of the regression equation.

Earning per share (EPS) represent the the dependent variables, while the independent variables are: Divident per share (DPS), Firms investment (INV) which is defined as net cashflow from investing activities, then industrial production (IP). E_t is the error term.

The shareholders desire adequate returns on their investment to ensure continued loyalty to the business. The philosophy is that the investors will not want any dividend less than the expected, they have the conviction that the investment to which the retained earnings are commited would yield returns over and above what they could be opportuned to elsewhere(Oyinlola, Oyinlola, & Adeniran 2014). A positive relationship will exist between DPS, INV, IP and EPS.

3.4.1.4. Stock Price Model

The specification of the model is based on the works of Malaolu, Ogbuobor andOrji (2013), Abiodum and Elisha (2012), Inyiama (2014), Schmeling (2008), Schaul (2013), Finter and Ruenzi (2011), and Gizelis and Chowdhury (2016), Zubairu (2016). The

relationship between stock price and the independence variables is such that the stock price is a function of exchange rate, money supply, inflation, interest rate and excess demand. We specify the model as follows:

SP=f (EXR, MS, INT, INF, ExD)

The stock price equation becomes:

$$SP = \mathfrak{D}_0 + \mathfrak{D}_1 EXR_t + \mathfrak{D}_{2MS_t} + \mathfrak{D}_{3INT_t} + \mathfrak{D}_{5ExD_t} + \varepsilon_t$$

Where $\mathfrak{D}_0$ is the intercept and the $\mathfrak{D}_1$, $\mathfrak{D}_2$, $\mathfrak{D}_3$, $\mathfrak{D}_4$, and $\mathfrak{D}_5$, are the coefficient of the regression equation. A'priori expectation is that $\mathfrak{D}_2$ $\mathfrak{D}_5 > 0$ whereas $\mathfrak{D}_1$, $\mathfrak{D}_3$ and $\mathfrak{D}_4 < 0$ or > 0 . Where stock price (SP) is the dependent variable, while exchange rate (EXR), money supply (MS), interest rate (INT), inflation rate (INF), and excess demand for equity(ExD) are the independent variables, whereas Et = error term.

The equity market prices reflect the expectations ofinvestors (sentiment) and market operators regarding the performance of firms and the economy in general withrespect to economic growth, profitability, the level of interest rates and inflation among other variables. To the extent that these expectations are largely correct. Stock prices depend on the expected dividends and dividends depend on the profitability of firms, the stock prices should employ expectation held by investors' sentiment regarding the level of economic activity. This forward looking property of stock market suggests that stock prices would perform well. This is subject to the reliability of investors' sentiment forecasts of economic activities and corporate profits. Stock prices should decline if investors anticipate a slow down in economic activity and rise if they expert an acceleration of economic activity. Therefore, a negative relationship is expected between stock price and the independent variables.

3.4.1.5. Turnover Model

The specification of the turnover model equation therefore follows the works of Kehinde (2011), Charlie (2012).

The expression becomes:

Mktcap = F (V share, Qtdf, sent, GDP)

Therefore, the equation becomes:

$$Mktcap = e_0 + e_{1Vshare_t} + e_{2\mathrm{QTdf_t}} + e_{3sent_{te_{4GDP_t}}} + \varepsilon_t$$

Where, e_0 = the intercept and e_1 to e_4 are the coefficient of the regression equation.

Mktcap represent market capitalization which is in dependent variable. Whereas, Vshare = volume of shares, Qtdf= quoted firms. Sent =sentiment and GDP = Gross Domestic Product.

A priori expectation: it is expected that the following relationship will occur: $e_1, e_2, e_3, e_4 > 0. Or = 0.$

3.4.1.6 The Stock market and economic fundamentals model

The specification of the market and economic rate of return equation is based on the works of Edlen and Marcus (2010); Schmeling, (2008); Bandopadhayaya, (2006); Brealey, (2006); Bursar, (2009), cited in Zubairu, (2015), Baker and Wurgler, (2007). The specification of the model considers the following variables: Market and economic returns (MEF) the dependent variable, which is proxy by long term market and economic fundamentals of over twelve months. While sentiment (sent) is the investors' sentiment proxy by bandopadhayaya index. Excess demand (ExD) which is the equity market excess demand (percentage change in composite share price index). Inflation (INF) the expected inflation for the period, and all share index (ASI) is the Nigeria composite share price index proxy for equity prices. All are independent variables. The model is specified as follows:

$MEF = f(sent + ExD + INF + ASI)$

Therefore, the equation becomes:

$MEF = \int o + \int 1 sent_t + \int 2 ExD_t + \int 3 IN\int_t + \int 4 ASI_t + \varepsilon_t \ldots\ldots (v)$

$\int_0$ is the intercept, $\int 1, \int 2, \int 3, \int 4$ are the coefficients of the regression equation, $\epsilon\_t =$ error or disturbance term.

A priori expectation is that $\int 1, \int 2, \int 3, \int 4 > 0 \; or < 0$. In explaining equity price as it can be deduced from above model, market, economic and non-market factors (investors' aggregate sentiment) are given consideration.

The market fundamentals from these variables are excess demand for equities (EXD), and long term of stock market returns (SMR), in representing non-market factors, the investors sentiment index was used (sent), while expected inflation (INF) was used to proxy economic fundamentals.

3.4.2 Model specification

3.4.2.1. Sentiment-return model

Multiple regression analysis was employed to evaluate the effect of investors' sentiment on stock market returns in Nigeria. Stock market is proxied by All Share Index (ASI) which represents the dependent variable. The model adopts the works of Abdel-Hameed, (2012); Fernandes, Guma and Vieira,(2010); Rehman, Abidin,Rizwan, Abbas and Baig, (2016). This work is thus, specified in its functional form as well as its implicit form as follows:

ASI $= f$ (CCI, IPO, TURN, DP, SP, GDP, INF, VSHARE, SENT, MS, EXR, INT, MKTCAP). (i)

The model can be restated using the explicit form as follows:

$ASI = \partial_0 + \partial_1 CC\ I + \partial_2 IPO + \partial_3\ TURN + \partial_4 SP + \partial_5\ DP + \partial_6\ GDP + \partial_7\ INF + \partial_8\ VSHARE + \partial_9$

$SENT + \partial_{10}\ MS + \partial_{11}\ EXR + \partial_{12}\ INT + \partial_{13}\ MKTCAP + e_t$ (ii)

∂_1, to $\partial_{13} > 0$, or < 0.

The variables are defined as:

ASI = All-Share Index

CCI= Consumer Confidence Index

IPO= Initial Public Offering

DP= Dividend Premium

TURN= Turnover

SP= Share Price

Others representing MEF(Market and Economic Fundamentals) are:

SENT= Sentiment

EXR= Exchange Rate

MS= Money Supply

GDP= Gross Domestic Product

INF= Inflation

VSHARE= Volume of Share

INT= Interet

MKTCAP= Market Capitalisation.

Where: ∂_0 = intercept value of the dependent variable,

e_t = the random error term, ∂_1 to ∂_{13} = the regression coefficients of the independent variables.

The study adopted the error correction model in examining the long-run and short-run dynamic relationship in equation (iii). According to Granger (1988) and Miller and Russell

(1990) there are two potential sources of causation of dependent variables by the independent variables. This includes the error correction coefficient (β) and short coefficient (δ) which measures the long-run and short-run relationship between the dependent variable and the independent variables. This therefore necessitates the need to re-specify equation (iii) into an error correction model. This is shown in equation (iv);

$$\Delta \text{ASI} = \partial_0 + \partial_1 \sum_{i=0}^{p} \Delta CCI_{t-i} + \partial_2 \sum_{i=0}^{p} \Delta IPO_{t-i} + \partial_3 \sum_{i-0}^{p} \Delta TURN_{t-i} + \partial_4 \sum_{i=0}^{p} \Delta DP_{t-i}$$

$$+ \partial_5 \sum_{i=0}^{p} \Delta SP_{t-i} + \partial_6 \sum_{i=0}^{p} \Delta MEF_{t+i} + \varepsilon_t$$

3.5 Methods of data analysis

The secondary data for the study were collected, coded and analyzed using computer-based e-view version 9.5 for Microsoft windows. Multiple regression analysis was used to assess the nature and the degree of the relationship between the dependent variables and the set of independent predictors. Moreover, granger causality test used to test the hypotheses, at 5% level significance. The co-integration test was carried using the ARDL technique.

3.5.1. Stationarity Test (Unit Root Test)

Stationarity test ensures reliability of the data and avoids spurious result. The existence of a unit root implies non-stationarity of the given time series data. This means therefore, unit root properties of each set of time series data should be determined as a prerequisite for inclusion, hence the employment of the Augmented Dickey-Fuller (ADF) for this purpose is necessary.

It is stated thus:

$$Y_t = \alpha_0 + \beta_t + \psi Y_{t-1} + \sum_{i=1}^{p} \delta_{i \Delta Y t-1} + \varepsilon_i \text{.....(i)}$$

α =Intercept

β = coefficient on a time trend

t = the time or trend variable

Δ = First difference operator

Y_t = Variable of choice

α_i; and δ_i = (for I = 1 and 2) constant parameters

ε_i = stationary stochastic process

p = Number of lagged terms chosen by Akaike information criterion (AIC) to ensure that ε_i is white noise.

Hypothesis testing:

H_0: $\psi = 0$, i.e. There is a unit root (time series is non-stationary).

H_1: $\psi \neq 0$, i.e. there is no unit root, (time series is stationary).

Decision rule: reject Null hypothesis (H_0), if the computed Augmented Dickey Fuller test statistic is higher than the Mckinnon"s critical values in absolute terms. This implies stationarity of the time data series, as there is non-existence of a unit root; and therefore data is confirmed as suitable for use in estimation of econometric relationships. However, where the alternative holds leading to failure to reject the null hypothesis.

Others include:

- PP
- KPSS

3.5.3 Diagnostic Tests

The following diagnostic tests were used:

- Serial Correlation CM Test

- Heteroskedasticity Test
- Ramsey Test
- Multicollinearity Test
- ARDL

3.5.4 Co-integration test

This concept assumes a common stochastic non-stationary process underlying two or more processes- Y and X. According to Brooks (2008), co-integration means that, while many developments can cause permanent changes in a variable (Y), there are some long-run equilibrium relations tying Y and X, .Therefore it reflects a long-run relationship between two or more variables. It assumes the presence of common non-stationary (i.e. I(1)) processes underlying the input time series variables; and is stated thus:

$$X_{1,t} = \alpha_1 + \gamma_1 Z_{1,t} + \gamma_2 Z_{2,t} + \cdots + \gamma_p Z_{p,t} + \epsilon_{1,t} \quad \text{.....(1)}$$

$$X_{2,t} = \alpha_2 + \phi_1 Z_{1,t} + \phi_2 Z_{2,t} + \cdots + \phi_p Z_{p,t} + \epsilon_{2,t} \quad \text{.....(2)}$$

$$X_{m,t} = \alpha_m + \psi_1 Z_{1,t} + \psi_2 Z_{2,t} + \cdots + \psi_p Z_{p,t} + \epsilon_{m,t} \quad \text{.....(3)}$$

Hence three plausible outcomes:

1. K=0,P=m- Time series variables are not co-integrated.
2. $0 < k < m$, $0 < p < m$. - Time series variables are co-integrated.
3. K=0,P=m. - All time-series variables are stationary (1(0)); co-integration is not relevant here.

3.5.5 Testing Hypotheses

Granger Causality

The test for linear causality or feedback effects between the specified variables were be carried out using Granger Causality Technique. This test is necessary since the long run causation between variables do not show the direction of the relationships or a breakdown in the system which Granger Causality test takes care of in its application. The Granger causality test is a statistical hypothesis test for deermining whether one time series is useful in forecasting another. Ordinarily, regressions reflect ‘’mere’’ correlations, but Clive Granger Causality argued that causality in economics could be reflected by some sort of tests. A time series X is said to Granger cause Y if it can be shown, usually through a series of t-tests and F-tests on lagged values of X (and with lagged values of Y also included), that those X values provide statistically significant information about future values of Y. the rationale for conducting this test is that it enables one to know whether the independent variables can actually cause variations in the dependent variable or vice versa. Two variables may correlate without one causing changes in the other. Thus, Granger causality test helps in adequate specification of models. The test technique is based on the following equations:

$$(Y)_t = \alpha + \Sigma^{m}_{t=1}\beta_i\,(Y)_{t-1} + \Sigma^{m}_{t=1}\gamma_j(X)_{t-j} + U_{t} \quad \ldots\ldots(1)$$

$$(X)_t = \delta + \Sigma^{m}_{t=1}Y_i\,(X)_{t-1} + \Sigma^{m}_{t=1}\gamma_j(Y)_{t-j} + \varepsilon_{t} \quad \ldots\ldots(2)$$

Where U_t *and* ε_t are serially independent random vectors with zero mean and finite covariance matrix.Based on the estimated OLS co-efficients for the equations (1) and (2) four different hypotheses about the relationship between X and Y can be formulated:

1. Unidirectional Granger-causality from X to Y.

2. Unidirectional Granger-causality from Y to X.

3. Bidirectional (or feedback) causality.

4. Independence between X and Y. In this case there is no Granger causality in any direction.

Hence by obtaining one of these results it seems possible to detect the causality relationship between X and Y variables.

3.6.3 Statistical Criteria of model evaluation

Statistical Criteria is concerned with statistical reliability and significance of the estimated parameters of the models and testing of the hypotheses. The following statistics were used:

- R^2 test
- Correlation Coefficients (R
- F-Statistic
- T-Statistic
- Durbin Watson statistic
- Adjusted R-Square statistic

The E-views statistical software automatically determined the listed test.

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

4.1 Descriptive data presentation and analysis

The data applied in model estimation were sourced from Central Bank Nigeria (CBN) statistical bulletin 2016, Nigerian Stock Exchange (NSE) and Securities and Exchange Commission (SEC). Table 4.1 reveals the data of all share index, consumer confidence index, initial public offer, dividend premium, sentiment, turnover ratio and market capitalization spanning a period of twenty seven (27) years from 1990 to 2016, where as Table 4.2 details the corresponding data on volume of share traded, quoted firms, inflation, exchange rate, money supply, interest rate and real gross domestic product.

Table 4.1: All Share Index, Consumer Confidence Index, Initial Public Offer, Dividend Premium, Sentiment, Turnover Ratio and Market Capitalization from 1990 to 2016

Year	All Share Index (Points)	Consumer Confidence Index	Initial Public Offer	Dividend Premium	Sentiment Index	Turnover Ratio (%)	Market Capitalization (₦' Million)
1990	513.80	4	0.56	2.68	-301.746	1.38	16,300.00
1991	783.50	-6	0.84	1.24	-250.005	1.05	23,100.00
1992	1,108.00	-4	0.10	7.35	-237.355	1.58	31,200.00
1993	1,543.80	-2	0.00	0.84	-176.568	1.69	47,500.00
1994	2,205.00	-3	1.43	2.00	-19.708	1.49	66,300.00
1995	5,092.00	1	-0.04	1.55	2,102.99	1.02	180,400.00
1996	6,992.00	1	0.25	1.38	664.801	2.44	285,800.00
1997	6,440.50	4	0.11	3.50	-2,095.14	3.66	281,900.00
1998	5,672.70	3	0.11	8.10	-2,200.15	5.17	262,600.00
1999	5,266.40	2	1.34	6.10	-1,733.00	4.69	300,000.00
2000	8,111.00	1	0.00	2.78	1,582.61	5.96	472,300.00
2001	10,963.10	1	-0.17	7.52	1,145.08	8.71	662,500.00
2002	12,137.70	3	37.56	2.20	-978.15	7.77	764,900.00
2003	20,128.90	1	3.76	9.34	5,654.88	8.86	1,359,300.00
2004	23,844.50	-2	2.55	11.60	130.394	10.69	2,112,500.00
2005	24,085.80	-1	0.89	2.62	-3,924.59	9.07	2,900,100.00
2006	33,358.30	-8	3.45	17.02	4,899.90	9.18	5,120,900.00
2007	57,990.22	-6	0.65	0.95	-5,363.92	8.16	13,181,700.00
2008	31,450.78	-5	4.41	0.99	3,198.87	17.56	9,563,000.00
2009	20,827.20	-4	5.30	1.48	512.693	9.75	7,030,800.00
2010	24,770.52	2	61.09	4.92	551.340	8.07	9,918,200.00
2011	20,730.63	2	4.80	1.60	589.786	6.22	10,275,300.00
2012	28,078.81	-8	0.87	16.80	628.332	5.47	14,800,900.00
2013	41,329.19	-9	13.96	8.76	666.878	12.32	19,677,400.00
2014	34,657.15	8	6.78	2.74	623.479	7.91	16,875,100.00
2015	28,642.25	-12	6.92	4.04	645.798	5.60	17,003,400.00
2016	26,874.62	-13	6.81	4.01	634.741	6.22	16,185,700.00

Source: Central Bank Nigeria (CBN) statistical bulletin 2016, Nigerian Stock Exchange (NSE) and Securities and Exchange Commission (SEC)

Table 4.2: Volume of Share Traded, Quoted Firms, Inflation, Exchange Rate, Money Supply, Interest Rate and Real Gross Domestic Product from 1990 to 2016

Year	Volume of Share (₦' Million)	Quoted Firms	Inflation Rate (%)	Exchange Rate US $v₦	Money Supply (₦' Million)	Interest Rate (%)	Gross Domestic Product (₦' Million)
1990	248.00	295	7.50	8.0376	52,860.0	25.50	19,305.63
1991	177.00	239	13.00	9.9095	75,400.0	20.01	19,199.06
1992	262.00	251	44.50	17.2984	111,110.0	29.80	19,620.19
1993	473.00	272	57.20	22.0511	165,340.0	18.32	19,927.99
1994	524.00	276	57.00	21.8861	230,290.0	21.00	19,979.12
1995	397.00	276	72.80	21.8861	289,090.0	20.18	20,353.20
1996	882.00	276	29.30	21.8861	345,850.0	19.74	21,177.92
1997	1,300.0	264	8.50	21.8861	413,280.0	13.54	21,789.10
1998	2,100.0	264	10.00	21.8861	488,150.0	18.29	22,332.87
1999	3,900.0	268	6.60	92.6934	628,950.0	21.32	22,449.41
2000	5,000.0	260	6.90	102.1052	878,460.0	17.98	23,688.28
2001	5,900.0	261	18.90	111.9433	1,269,320.0	18.29	25,267.54
2002	6,600.0	258	12.90	120.9702	1,505,960.0	24.85	28,957.71
2003	13,200.0	265	14.00	129.3565	1,952,920.0	20.71	31,709.45
2004	19,200.0	277	15.00	133.5004	2,131,820.0	19.18	35,020.55
2005	26,700.0	288	11.60	132.1470	2,637,910.0	17.95	37,474.95
2006	36,500.0	294	8.20	128.6516	3,797,910.0	17.26	39,995.50
2007	138,100.0	310	6.60	125.8331	5,127,400.0	16.94	42,922.41
2008	193,140.0	301	15.10	118.5669	8,008,200.0	15.14	46,012.52
2009	102,900.0	266	12.10	148.8802	9,419,920.0	18.99	49,856.10
2010	93,300.0	264	11.80	150.2980	11,034,940.0	17.59	54,612.26
2011	90,700.0	250	10.40	153.8600	12,172,490.0	16.02	57,511.04
2012	104,200.0	256	12.00	157.5000	13,895,390.0	16.79	59,929.89
2013	267,300.0	254	7.90	157.3100	15,158,620.0	16.72	63,218.72
2014	108,470.0	257	8.01	158.5600	17,680,520.0	16.55	67,152.79
2015	92,900.0	257	9.60	217.7900	18,301,300.0	16.77	69,023.93
2016	95,814.79	247	15.70	304.2000	21,607,680.0	16.87	67,984.20

Source: Central Bank Nigeria (CBN) statistical bulletin 2016, Nigerian Stock Exchange (NSE) and Securities and Exchange Commission (SEC)

All Share Index

The all share index has been on the rise over the years. From 513.80 points in 1990, it rose to reach 6,440.50 points at the end of 1997. The all share index sustained it growth closing at 8,111.00 points in 2000. Between 2000 and 2016 all share index rose from 8,111.00 points to 26,874.62 points. Fig. 1 and 2 details the trend in all share index of the Nigerian Stock Exchange within the period studied.

Consumer Confidence Index

Consumer confidence index in 2006 was -8, a fall of over 100% from it value of one (1) in 1996. In 2014, consumer confidence index increased to 8 compared to -9 in 2013. With inferences from Table 4.1, Fig. 3 and Fig. 4, between 2004 and 2009, consumer confidence index witnessed a great deterioration before picking up in 2010 to stand at 2.It maintained its value of 2 in 2012, however, it started declining in 2013 which was sustained till 2016 by been valued at -13.

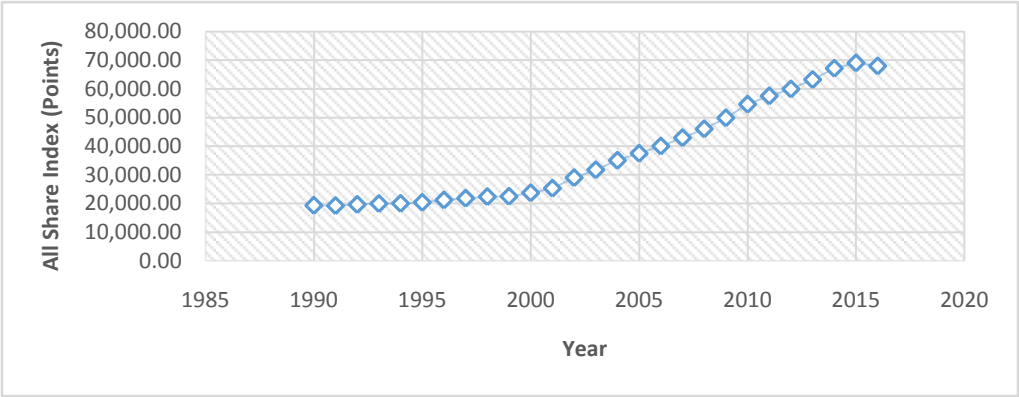


Fig. 4.1: All Share Index Graph Presentation 1990 to 2016

Source: Nigerian Stock Exchange Factbooks; and output data from Microsoft version.

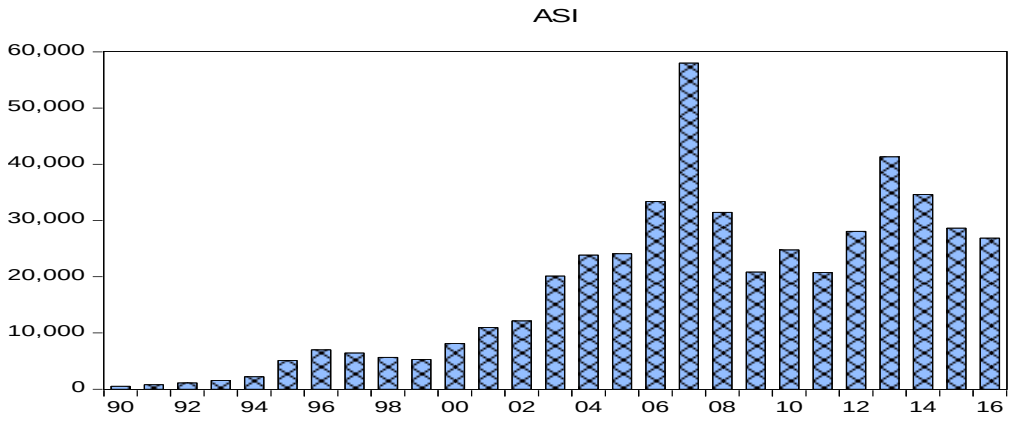


Fig.4.2: All Share Index Bar Chart Presentation 1990 to 2016

Source: Nigerian Stock Exchange Factbooks; and output data from e-views version 9.0

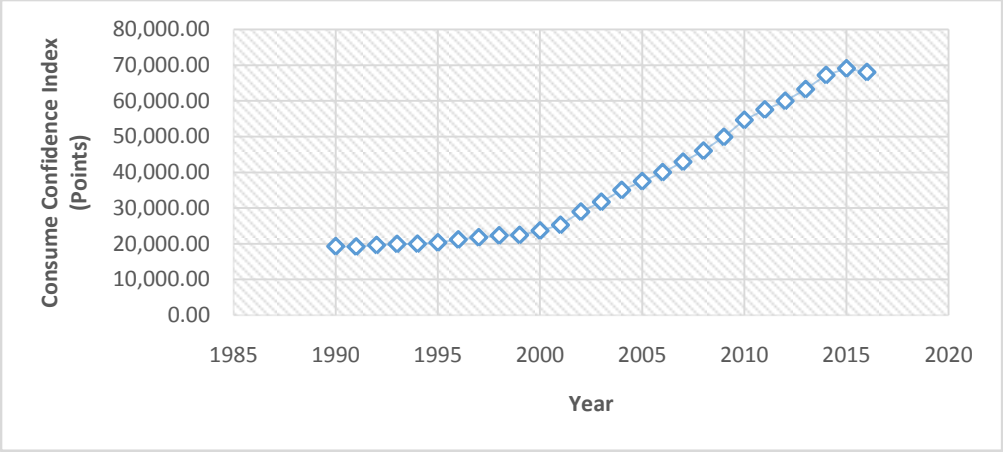
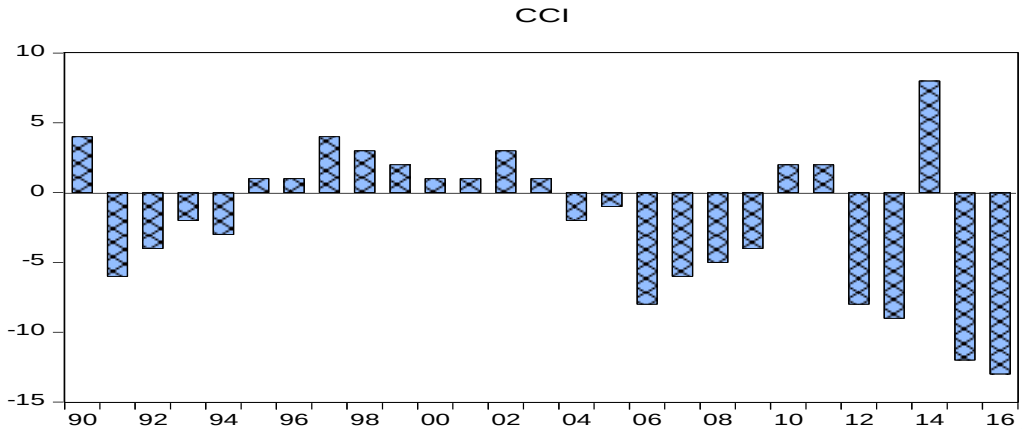


Fig. 4.3: Consumer Confidence Index Graph Presentation 1990 to 2016

Source: Nigerian Stock Exchange Factbooks; and output data from Microsoft version. 2015



Source: Nigerian

Fig. 4.4: Consumer Confidence Index Bar Chart Presentation 1990 to 2016

Stock Exchange Factbooks; and output data from e-views version 9.0

Initial Public Offer

The initial public offer was valued ₦0.56 billion in 1990, which had risen by over 1,000% but the end of 2010 to settle at ₦61.09 billion. The initial public offer experience high volatility from 2011 to 2016, declining to ₦6.81 billionin 2016 compared to ₦61.09 billion in

2010. From 2001 to 2016, as shown in Table 1, Fig. 5 and 6, initial public offer appreciated from ₦-0.17 billion in 2001 to ₦6.81 billion in 2016.

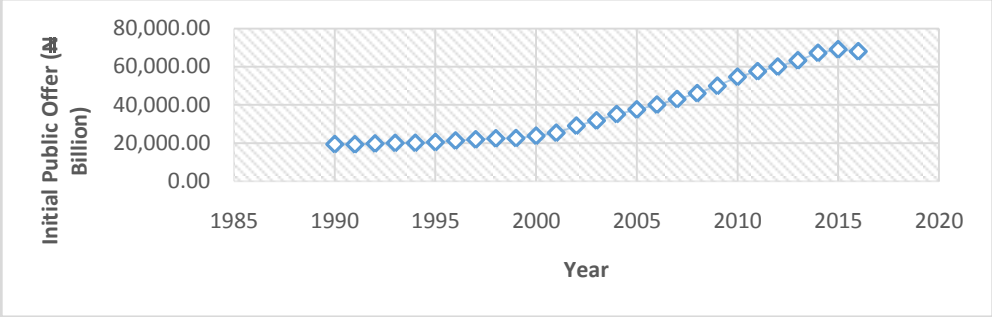


Fig. 4.5: Initial Public Offer Graph Presentation 1990 to 2016

Source: Securities and Exchange Commission; and output data from Microsoft version. 2015

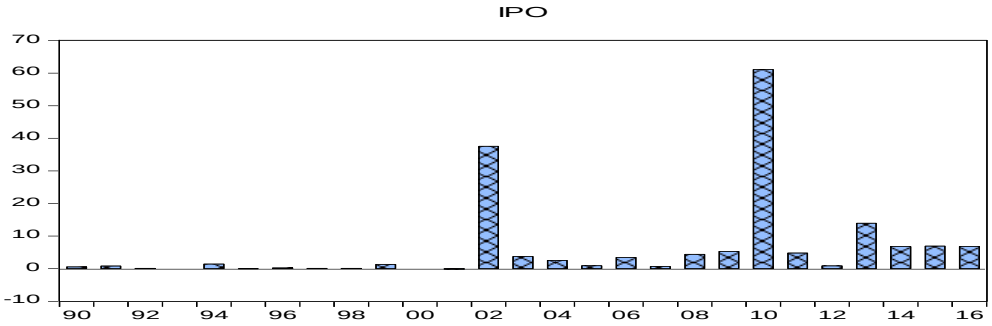


Fig. 4.6: Initial Public Offer Bar Chart Presentation 1990 to 2016

Source: Securities and Exchange Commission; and output data from e-views version 9.0

Dividend Premium

Table 1, Fig. 7 and Fig. 8 unveil the trend in dividend premium from 1990 to 2016. Dividend premium grew from ₦2.68 million in 1990 to ₦4.01 million in 2016 which is a rise of 33.17% within a period of twenty six years. From 2012 to 2016, dividend premiumwent down from ₦16.8 million in 2012 to ₦4.01 million in 2016.

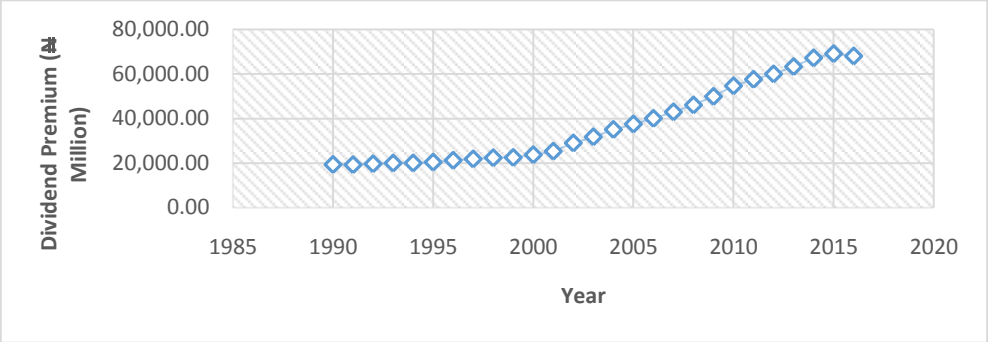


Fig. 4.7: Dividend Premium Graph Presentation 1990 to 2016

Source: Securities and Exchange Commission; and output data from Microsoft version. 2015

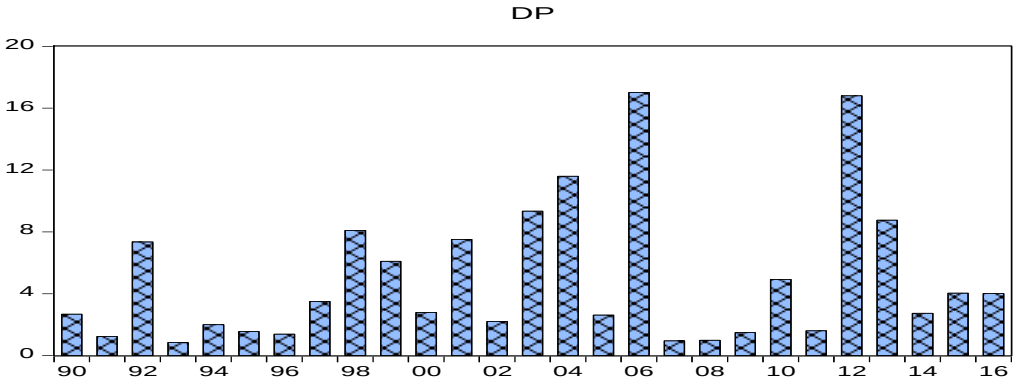


Fig. 4.8: Dividend Premium Bar Chart Presentation 1990 to 2016

Source: Securities and Exchange Commission; and output data from e-views version 9.0

Investors' Sentiment

The Bandopadhayaya investors' sentiment for Nigeria was -301.746 points in 1990, but rose by about 223% at the end of 2010 to settle at 551.340 points. From 1990 to 1994, the sentiment index was on the negative side from -301.746 points in 1990 to -19.708points. Nevertheless, it sharply increased to 2,102.99 points in 1995. From 2012 to 2016, as shown in

Table 2, Fig. 9 and 10, sentiment index was observed to be marginally increasing as it rose from 628.332 points in 2012 to 634.741 points in 2016.

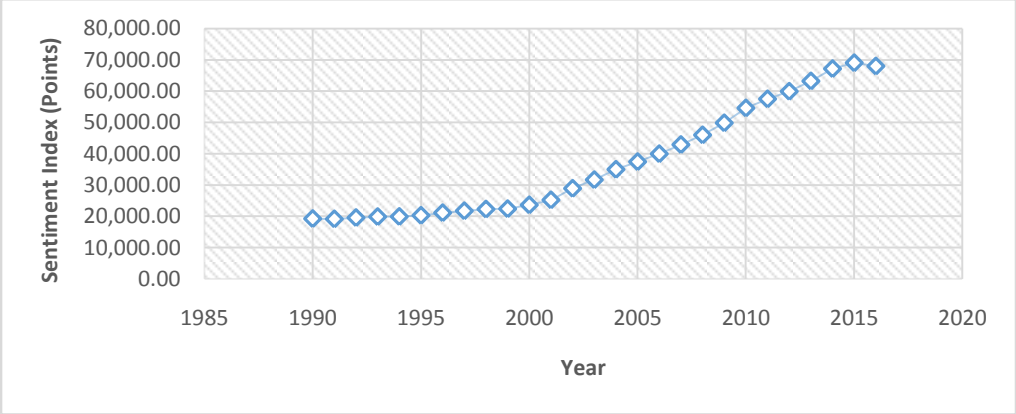


Fig. 4.9: Sentiment Index Graph Presentation 1990 to 2016

Source: Securities and Exchange Commission; and output data from Microsoft version. 2015

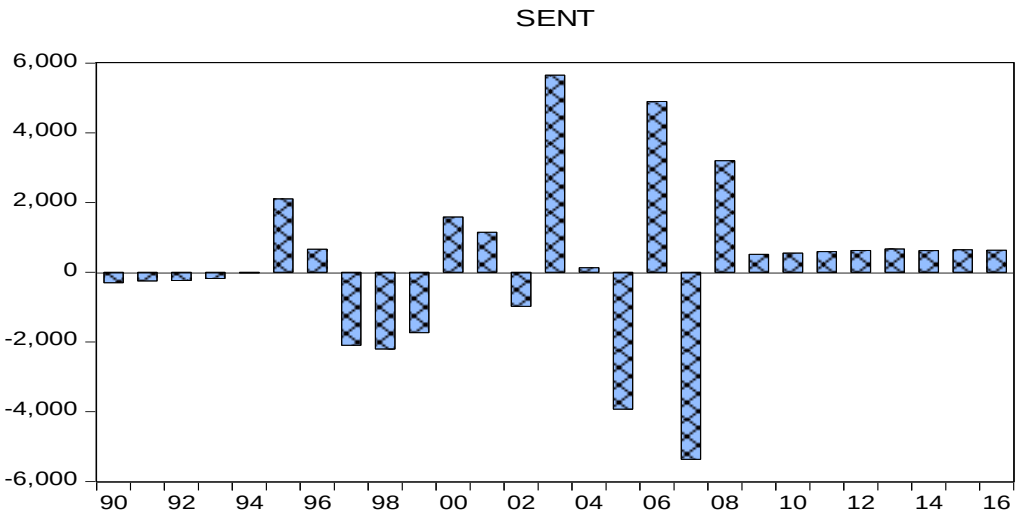


Fig. 4.10: Sentiment Index Bar Chart Presentation 1990 to 2016

Source: Securities and Exchange Commission; and output data from e-views version 9.0

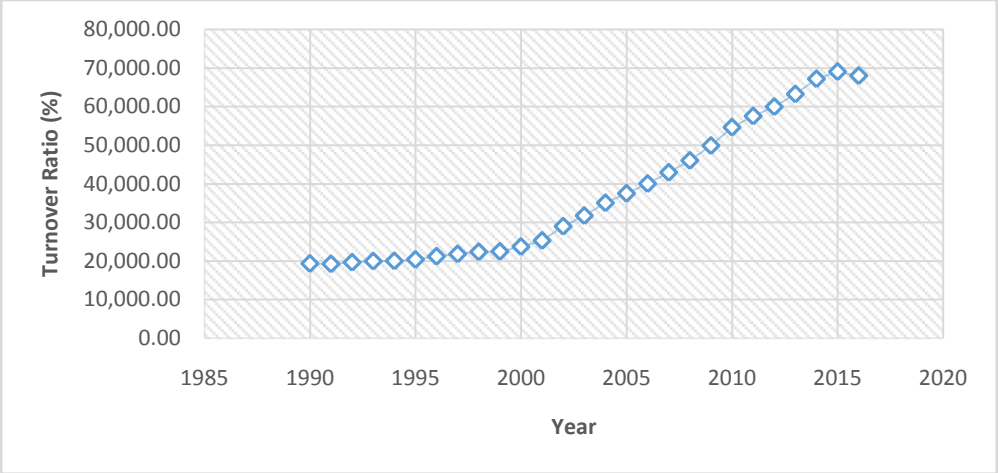


Fig. 4.11: Turnover Ratio Graph Presentation 1990 to 2016

Turnover Ratio

Source: Nigerian Stock Exchange Factbooks; and output data from Microsoft version. 2015

As can be seen in Table 2, Fig.11 and Fig. 12, from 1990 to 2016, turnover ratio of the Nigeria Stock Exchange was engulfed with distortions. The turnover ratio was 1.38% in 1990 but has rising to 6.22% at the end of 2016.1999 to 2004evidences a sustained appreciation in turnover ratio from 4.69% in 1999 to 10.69% in 2004. Due to the global financial meltdown during 2007 to 2009, turnover was affected as it depreciated from 17.56% in 2008 to 9.75% in 2009.

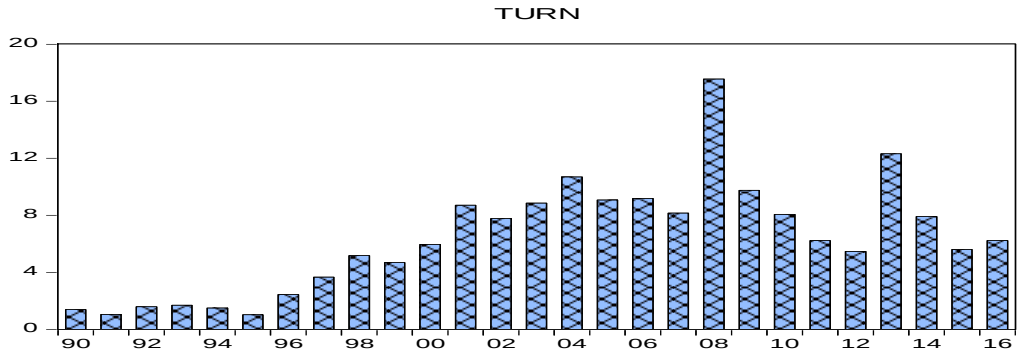


Fig. 4.12: Turnover Ratio Bar Chart Presentation 1990 to 2016

Source: Nigerian Stock Exchange Factbooks; and output data from e-views version 9.0

Market Capitalization

Market capitalization in 2006 was ₦5,120 900 million, a rise of over 1, 000% from ₦16.33 million in 1990. In 2012, market capitalization increased to ₦14, 800, 900 million. As can be seen from Table 2, Fig. 13 and Fig. 14, between 2000 and 2007, market capitalization maintained a steady increase before declining to ₦9, 563, 000 million in 2008 compared to ₦13, 181, 700 million in 2007. In 2010, market capitalization was valued ₦9, 918, 200 million as against ₦7, 030, 800 million in 2009. However, in 2016, capitalization of the Nigerian Stock Exchange deteriorated to ₦16, 185, 700 million relative to ₦17, 003, 400 million in 2015.

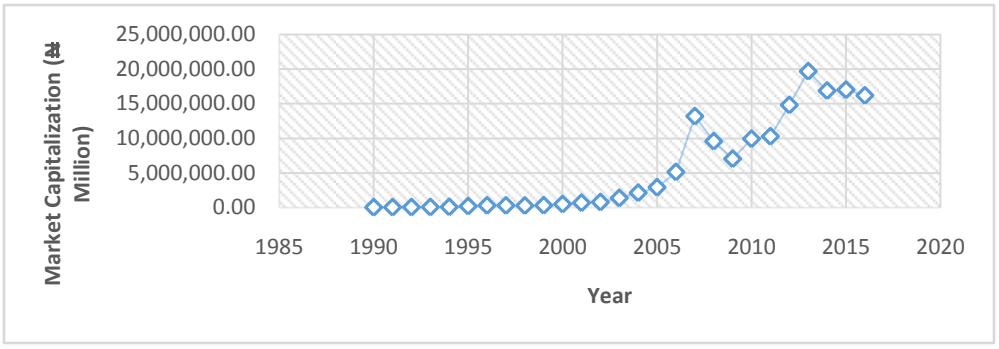


Fig. 4.13: Market Capitalization Graph Presentation 1990 to 2016

Source: Nigerian Stock Exchange Factbooks; and output data from Microsoft version. 2015

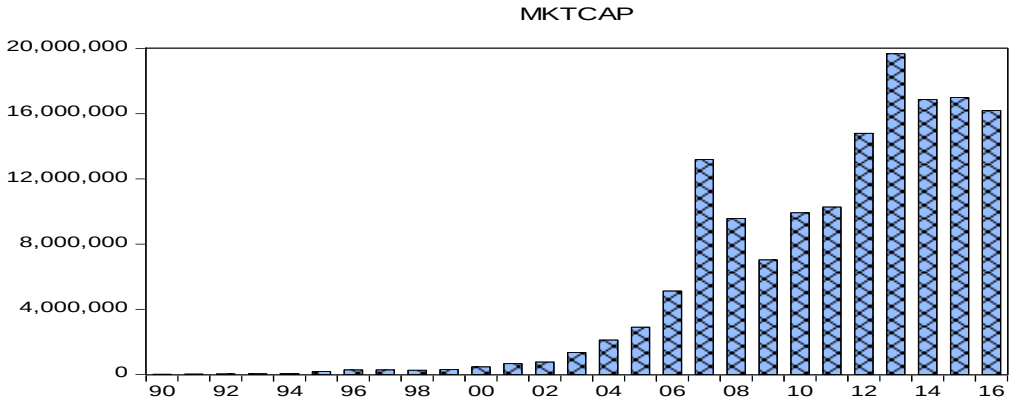


Fig. 4.14: Market Capitalization Bar Chart Presentation 1990 to 2016

Source: Nigerian Stock Exchange Factbooks; and output data from e-views version 9.

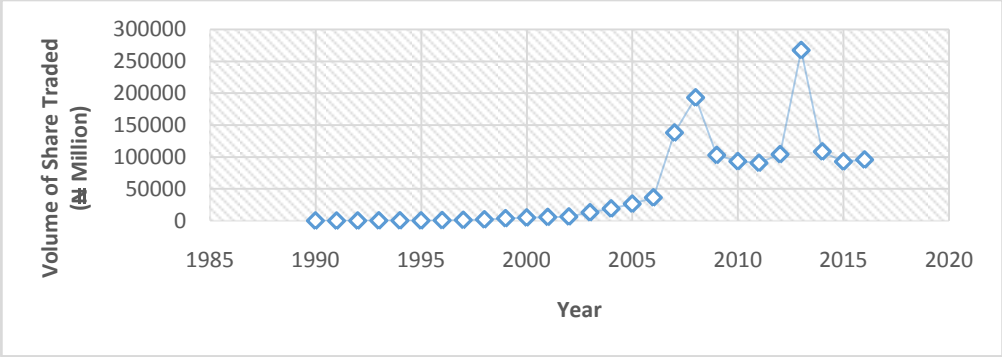


Fig. 4.15: Volume of Share Traded Graph Presentation 1990 to 2016

Source: Nigerian Stock Exchange Factbooks; and output data from Microsoft version. 2015

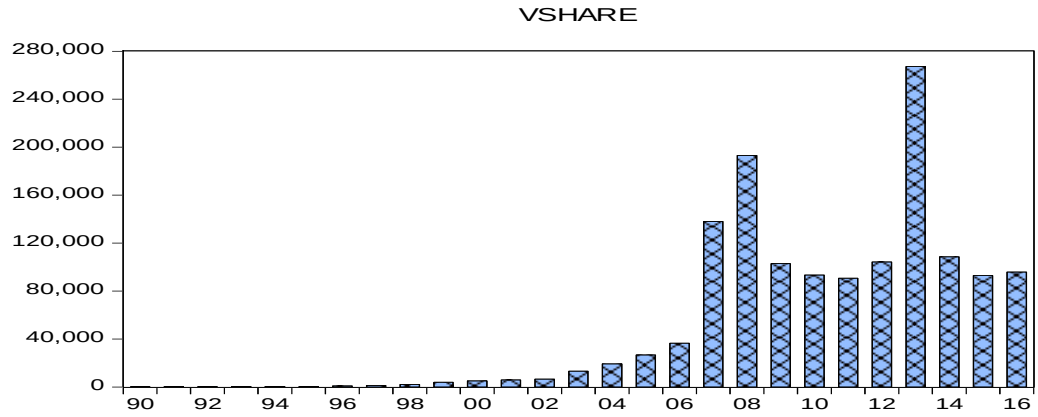


Fig. 4.16: Volume of Share Traded Bar Chart Presentation 1990 to 2016

Volume of Share Traded

Source: Nigerian Stock Exchange Factbooks; and output data from e-views version 9.0

In 1990 the volume of share traded was ₦248 million but it rose to ₦93, 300 million in 2010, which indicates more than 2, 000% increase in volume of share traded. The volume of share traded greatly increased to ₦193, 140 million in 2008 from ₦6, 600 million in 2002. With recourse to Table 3, Fig. 15 and 16, volume of share traded increased from ₦5, 900 million in 2001 to ₦95, 814.79 million in 2016.

Quoted Firms

Quoted firms in the Nigerian Stock Exchange increased from 295 in 1990 to 310 in 2007, a growth of 4.84%. The number of quoted firms decreased to 301 in 2008 relative to 310 in the previous year, and deteriorated further to 250 in 2011. Table 3, Fig. 17 and Fig. 18disclose the trend in number of quoted firms within the time frame of this study.

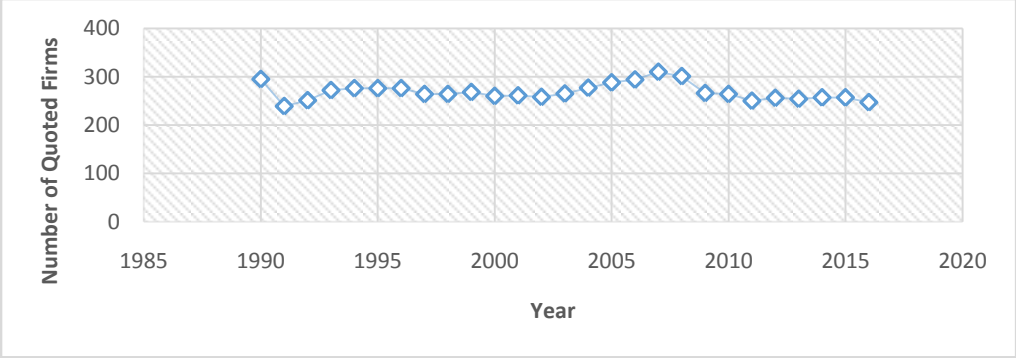


Fig. 4.17: Quoted Firms Graph Presentation 1990 to 2016

Source: Nigerian Stock Exchange Factbooks; and output data from Microsoft version. 2015

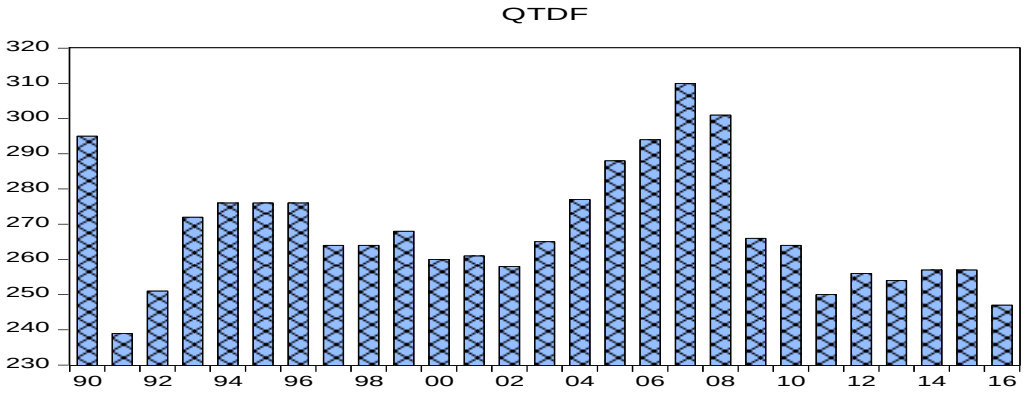


Fig. 4.18: Quoted Firms Bar Chart Presentation 1990 to 2016

Source: Nigerian Stock Exchange Factbooks; and output data from e-views version 9.0

Inflation

The inflation rate was 7.5% in 1990, which had risen by 36.44% at the end of 2010 to settle at 11.80%. The inflation fluctuated marginally from 2010 to 2016, increasing to 15.7% in 2016 compared to 7.9% in 2013. From 1990 to 2016, as shown in Table 3, Fig. 19 and 20, inflation rate gradually increased from 7.5% in 1990 to 15.7% in 2016.

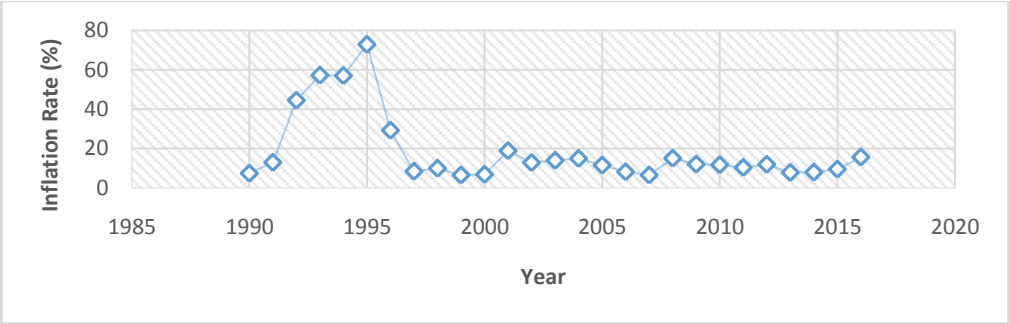


Fig. 4.19: Inflation Rate Graph Presentation 1990 to 2016

Source: Central Bank of Nigeria; and output data from Microsoft version. 2015

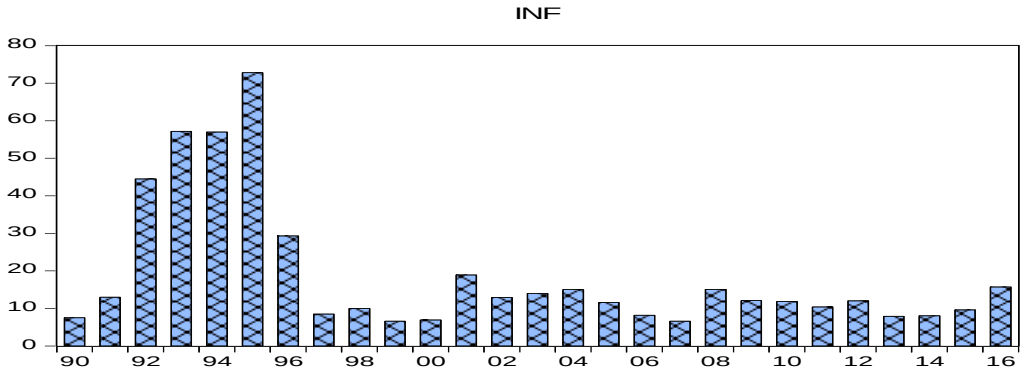


Fig. 4.20: Inflation Rate Bar Chart Presentation 1990 to 2016

Exchange Rate

Source: Central Bank of Nigeria; and output data from e-views version 9.0

Table3, Fig. 21 and Fig. 22 show that from 1990 to 2016, the exchange rate of Nigerian Naira against the US Dollar has deteriorated considerably, depreciating from 8.0376 per US

Dollar to 304.2000 per US dollar as at 2016 which saw the country in serious exchange rate crisis in contemporary times. The exchange rate at the end of the year 2009 declined to 148.8802, a depreciation of 20.36% from 2008, when it was 118.5669 against one US Dollar.

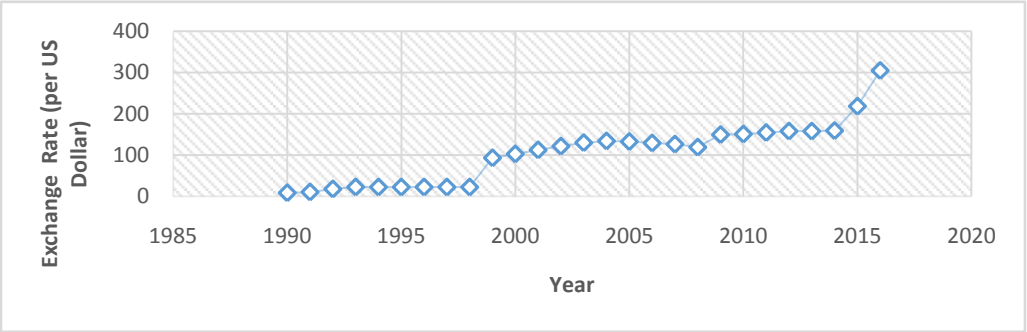


Fig. 4.21: Exchange Rate Graph Presentation 1990 to 2016

Source: Central Bank of Nigeria; and output data from Microsoft version. 2015

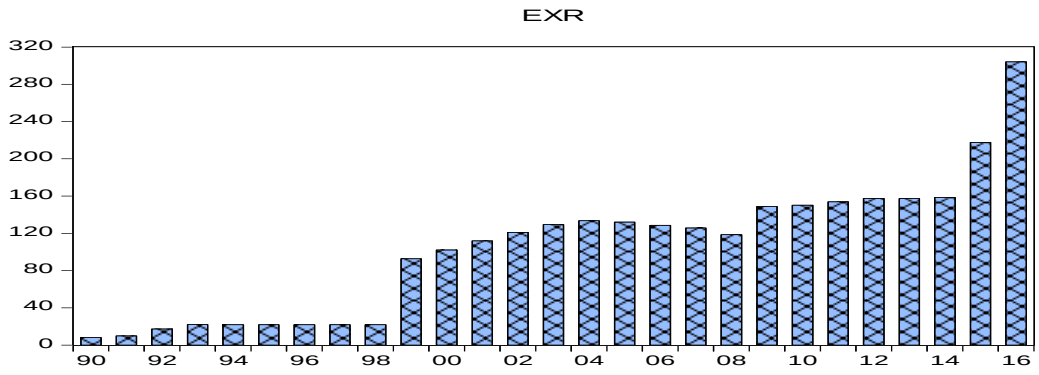


Fig. 4.22: Exchange Rate Bar Chart Presentation 1990 to 2016

Source: Central Bank of Nigeria; and output data from e-views version 9.0

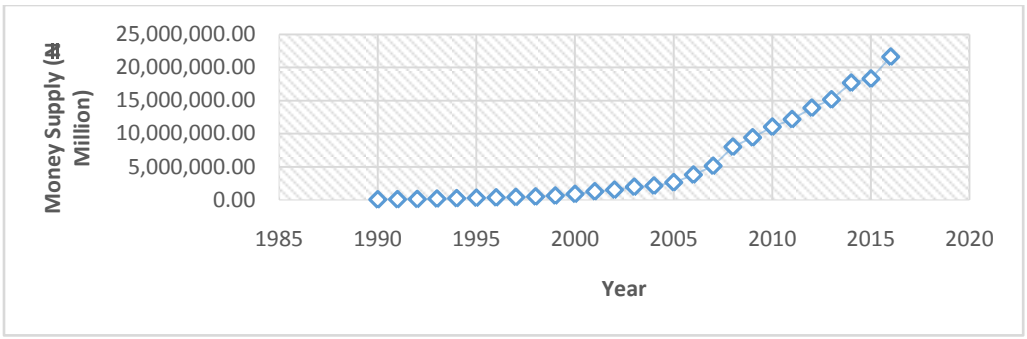


Fig. 4.23: Money Supply Graph Presentation 1990 to 2016

Source: Central Bank of Nigeria; and output data from Microsoft version. 2015

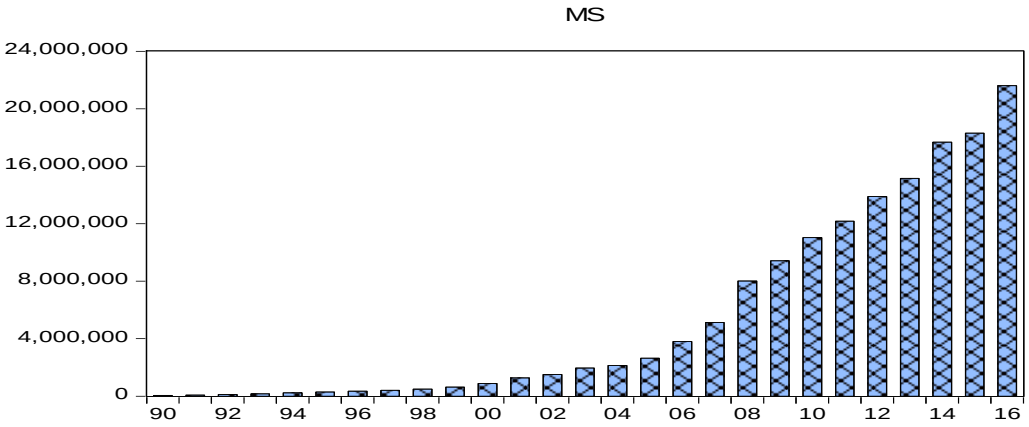


Fig. 4.24: Money Supply Bar Chart Presentation 1990 to 2016

Money Supply

Source: Central Bank of Nigeria; and output data from e-views version 9.0

The stock of currency in Nigeria has increased tremendously over the years. From ₦52, 860 million in 1990, it rose to reach ₦413,280 million at the end of 1997 then continue to appreciate closing at ₦878,460 million in 2000. Between 2000 and 2016 money supply rose from ₦878,460 millionto ₦18,579, 418 million Fig. 23 and 24 show the trend in money supply within the period.

Interest Rate

Interest rate in Nigeria from 1990 to 2016 has witnessed variations. With references from Table 3, Fig. 25 and Fig. 26 interest rate reduced from 25.50 in 1990 to 16.87 in 2016, a decline of 51.16%. Interest rate at the end of the year 2009 reached 18.99, an increase of 20.27% compared to 2008 when it was 15.14.

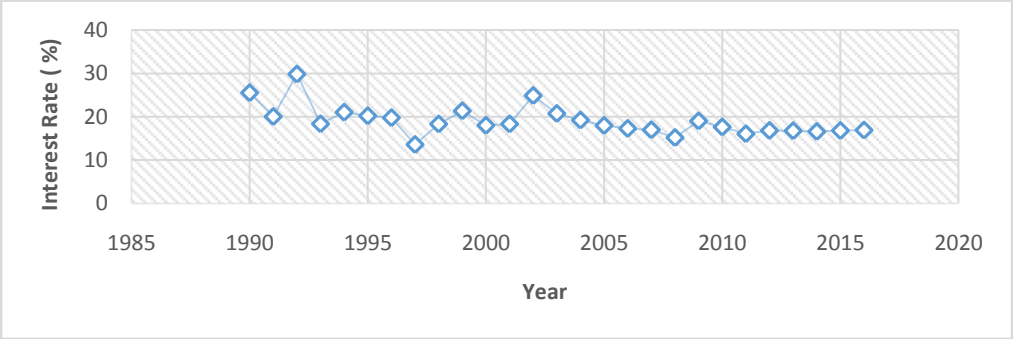


Fig. 4.25: Interest Rate Graph Presentation 1990 to 2016

Source: Central Bank of Nigeria; and output data from Microsoft version. 2015

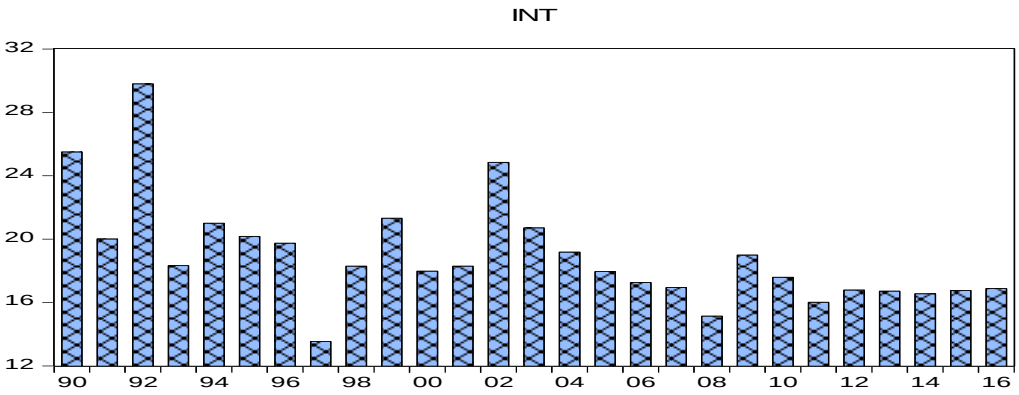


Fig. 4.26: Interest Rate Bar Chart Presentation 1990 to 2016

Real Gross Domestic Product

Source: Central Bank of Nigeria; and output data from e-views version 9.0

The real Gross Domestic Product (GDP) was ₦19, 305.63 million in 1990, but has risen by over 100% to close at ₦54,612,260 million in 2010. The real GDP has continued to rise from

2010 to 2014. From 1990 to 2000, as shown in Table 3, Fig. 27 and 28, real gross domestic product gradually rose from ₦19, 305.63 million in 1990 to ₦23,688. 28 million in 2000, an increase of 18.50%. Following the economic recession of 2016, the GDP went down by 1.53% to worth ₦67,984.20 compared to ₦69,023.93 in 2015.

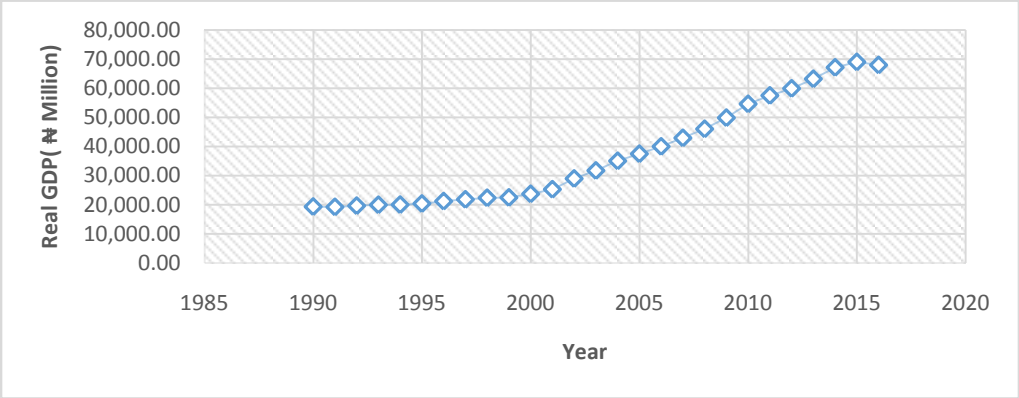


Fig. 4.27: Real Gross Domestic Product Graph Presentation 1990 to 2016

Source: Central Bank of Nigeria; and output data from Microsoft version. 2015

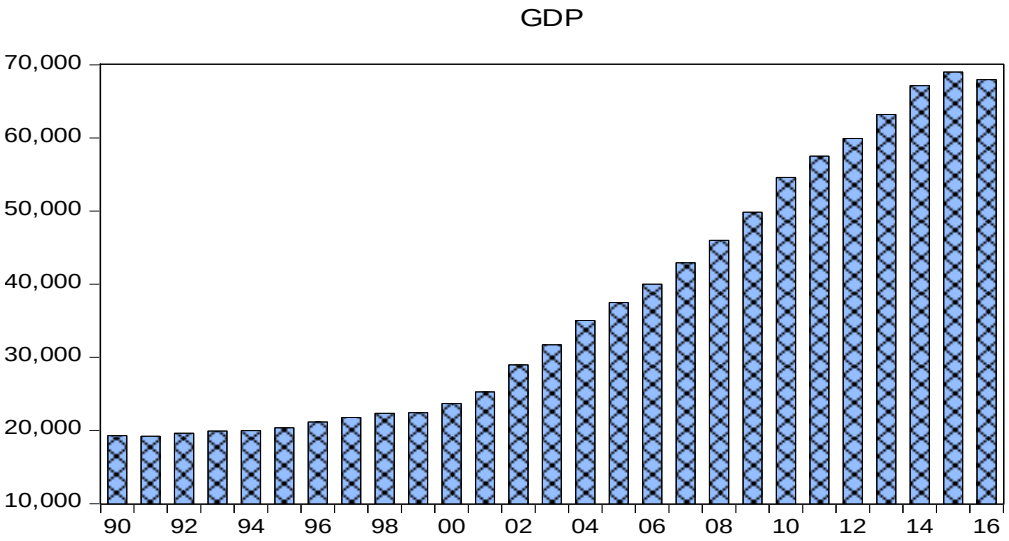


Fig. 4.28: Real Gross Domestic Product Bar Chart Presentation 1990 to 2016*Source: Central Bank of Nigeria; and output data from e-views version 9.0*

4.2 Descriptive Features of the Research Variables

The descriptive features of the data used in analysis are summarized in Table 4. The descriptive properties of the data features the mean, median, maximum, minimum, standard deviation, skewness, kurtosis, Jarque-Bera, p-value and number of observation. From Table 4, the mean for stock market and sentiment proxies are 17911.5 for ASI, -1.85 for CCI, 6.09 for IPO, 4.97 for DP, 257.49 for SENT, 6.36 for TURN, 5533300 for MKTCAP, 52229.18 for VSHARE, and 268.37 for QTDF. For the macroeconomic fundamentals, INF, EXR, MS, INT and GDP have the mean of 18.63, 104.11, 5532633, 18.97 and 37276.75 respectively. The median for the variables are 20128.90, -1.00, 1.34, 2.78, 551.34, 6.22, 1359300, 13200.00, 264.00, 12.00, 1952920, 18.29 and 31709.45. The maximum and minimum values are 57990.22 and 513.80 for ASI, 8.00 and -13.00 for CCI, 61.09 and -0.17for IPO, 17.02 and 0.84 for DP, 5654.880 and -5363.920 for SENT, 17.56 and 1.02 TURN, 19677400 and 16300.00 for MKTCAP, 267300.0 and 177.00 for VSHARE, 310.00 and 239.00 for QTDF, 72.8 and 6.60 for INF, 304.20 and 8.04 for EXR, 21607680 and 52860.00 for MS, 29.80 and 13.54 for INT and 69023.93 and 19199.06 for GDP.

Table 4.3: Descriptive Features of the Data

								Jarque-Bera	P-value	Obs
	Mean	**Median**	**Maximum**	**Minimum**	**Std. Dev.**	**Skewness**	**Kurtosis**			
ASI								6.379006	0.004373	27
	17911.05	20128.90	57990.22	513.8000	14666.99	0.725279	3.102725			
CCI								5.153964	0.041591	27
	-1.851852	-1.00000	8.000000	-13.00000	5.216127	-0.437038	2.488396			
IPO								161.0554	0.000000	27
	6.086296	1.340000	61.09000	-0.170000	13.28355	3.265125	13.02577			
DP								10.61972	0.004943	27
	4.967037	2.780000	17.02000	0.840000	4.548377	1.410084	4.219181			
SENT								7.673556	0.033104	27
	257.4904	551.3400	5654.880	-5363.920	2267.627	0.011843	4.219444			
TURN								6.091414	0.031443	27
	6.358889	6.220000	17.56000	1.020000	3.957189	0.624206	3.548179			
								5.961233	0.037984	27
MKTCAP	5533300	1359300	19677400	16300.00	6727108	0.831975	2.132612			
								12.74928	0.001704	27
VSHARE	52229.18	13200.00	267300.0	177.0000	69292.96	1.454138	4.695472			

								4.431132	0.026542	27
QTDF	268.3704	264.0000	310.0000	239.0000	17.20275	0.734871	2.970552			
								23.73038	0.000007	27
INF	18.63370	12.00000	72.80000	6.600000	17.75291	1.936381	5.468882			
								5.057035	0.049478	27
EXR	104.1071	120.9702	304.2000	8.037600	72.97135	0.468354	3.249331			
								5.941722	0.044512	27
MS	5532633.	1952920.	21607680	52860.00	6780691	1.034136	2.661036			
								16.16276	0.000309	27
INT	18.97407	18.29000	29.80000	13.54000	3.399393	1.458263	5.420904			
								6.009556	0.022067	27
GDP	37276.75	31709.45	69023.93	19199.06	17800.00	0.563674	1.814991			

Source: Output Data from E-views 9.0

The standard deviation are 14666.99, 5.22, 13.28, 4.55, 2267.63, 3.96, 6727108, 69292.96, 17.20, 17.75, 6780691, 3.39 and 17800.00 for ASI, CCI, IPO, DP, SENT, TURN, MKTCAP, VSHARE, QTDF, INF, EXR, MS, INT and GDP respectively. All the data were positively skewed toward normality except consumer confidence index. ASI, IPO, DP, SENT, TURN, MKTCAP, VSHARE, QTDF, INF, EXR, MS and INT are leptokurtic in nature, while CCI and GDP are not leptokurtic in nature. The p-value for all the variables are significant at 5% level of significance. This implies that all the variables are normally distributed and free from any outlier that may affect the result of the analysis.

4.3 Unit Root Test Result

In an attempt to avoid spurious regression result, the stationarity of the data were checked through Augmented Dickey-Fuller (ADF), Phillips Perron (PP) and Kwiatkowski-Phillips-Schmidt-Shin (KPSS). The ADF, PP and KPSS stationarity check were performed at level and first difference, and in three sets: none, intercept and trend, and intercept with the exception of KPSS that was performed at intercept and trend, and intercept. The ADF and PP results show that all the data were not stationary at level but became stationary at first difference, that is, all the variable were integrated at order 1(1). However, for KPSS, the data were all stationary at level but could not be realize for all the data at first difference. At level and first difference, Tables 5 and 6 present the ADF results, Table 7 and 8: PP results, while Table 9 and 10: KPSS results. The result of the unit root tests indicates that the variables are free from stationarity

defects that affect most time series data. With the affirmation of the stationarity of the data, the researcher is convinced beyond reasonable doubt that the regression output will be devoid of spurious allegation.

Table 4.4: Result of ADF Test at Level

Variables	Intercept	Trend & Intercept	None	Remark
ASI	-1.723316 (0.40)	-2.702106 (0.24)	-0.606813 (0.44)	Not Stationary
CCI	-3.724669 (0.00)*	-3.245045 (0.09)	-0.937385 (0.30)	Stationary
IPO	-4.906339 (0.00)*	-6.879438 (0.00)*	-4.147604 (0.00)*	Stationary
DP	-5.224084 (0.00)*	-5.365965 (0.00)*	-1.432360 (0.13)	Stationary
SENT	-7.876713 (0.00)*	-7.943069 (0.00)*	-7.844965 (0.00)*	Stationary
TURN	-2.358280 (0.16)	-2.750855 (0.22)	-0.904241 (0.31)	Not Stationary
MKTCAP	-0.354598 (0.90)	-2.296760 (0.42)	0.535325 (0.83)	Not Stationary
VSHARE	-1.047483 (0.71)	-2.014936 (0.56)	-0.564375 (0.46)	Not Stationary
QTDF	-2.687005 (0.08)	-2.627242 (0.27)	-0.750918 (0.38)	Not Stationary
INF	-1.920907 (0.31)	-2.576007 (0.29)	-5.556255 (0.00)*	Stationary
EXR	1.225431 (0.99)	-1.828448 (0.66)	2.796291 (0.99)	Not Stationary
MS	0.745831 (0.99)	-0.122697 (0.99)	0.744359 (0.86)	Not Stationary
INT	-4.300614 (0.00)*	-4.161573 (0.01)*	-1.009360 (0.27)	Stationary
GDP	-1.496795 (0.52)	-2.079138 (0.53)	-0.196956 (0.60)	Not Stationary

Source: Data output via E-views 9.0

Note: The optimal lag for ADF test is selected based on the Akaike Info Criteria (AIC), p-values are in parentheses where (*) & (**) denote significance at 1% and 5% respectively.

Table 4.5: Result of ADF Test at First Difference

Variables	Intercept	Trend & Intercept	None	Remark
ASI	-5.148450 (0.00)*	-5.064966 (0.00)*	-5.180631 (0.00)*	Stationary
CCI	-6.625381 (0.00)*	-6.564728 (0.00)*	-6.752734 (0.00)*	Stationary
IPO	-7.719665 (0.00)*	-7.506539 (0.00)*	-5.779602 (0.00)*	Stationary
DP	-4.215294 (0.00)*	-4.397232 (0.01)*	-5.026911 (0.00)*	Stationary
SENT	-8.021131 (0.00)*	-7.828720 (0.00)*	-8.200789 (0.00)*	Stationary
TURN	-7.054647 (0.00)*	-4.545871 (0.00)*	-7.163316 (0.00)*	Stationary
MKTCAP	-5.006272 (0.00)*	-4.948477 (0.00)*	-4.758008 (0.00)*	Stationary
VSHARE	-4.557483 (0.00)*	-5.240086 (0.00)*	-5.387507 (0.00)*	Stationary
QTDF	-6.550737 (0.00)*	-6.646607 (0.00)*	-6.735254 (0.00)*	Stationary
INF	-4.081192 (0.00)*	-9.661995 (0.00)*	-4.168702 (0.00)*	Stationary
EXR	-5.195036 (0.00)*	-5.388972 (0.00)*	-3.635907 (0.00)*	Stationary
MS	-5.491529 (0.00)*	-5.853598 (0.00)*	-5.590918 (0.00)*	Stationary
INT	-6.381125 (0.00)*	-6.547426 (0.00)*	-6.185135 (0.00)*	Stationary
GDP	-5.541683 (0.00)*	-5.288961 (0.00)*	-5.037456 (0.00)*	Stationary

Source: Data output via E-views 9.0

Note: The optimal lag for ADF test is selected based on the Akaike Info Criteria (AIC), p-values are in parentheses where (*) &(**) denote significance at 1% and 5% respectively.

Table 4.6: Result of PP Test at Level

Variables	Intercept	Trend & Intercept	None	Remark
ASI	-1.522587 (0.56)	-2.717457 (0.23)	-0.364947 (0.54)	Not Stationary
CCI	-3.776527 (0.00)*	-4.088679 (0.01)*	-3.312793 (0.00)*	Stationary
IPO	-4.905775 (0.00)*	-5.552407 (0.00)*	-4.139963 (0.00)*	Stationary
DP	-5.225359 (0.00)*	-5.365965 (0.00)*	-2.660067 (0.00)*	Stationary
SENT	-7.990214 (0.00)*	-8.301879 (0.00)*	-7.844965 (0.00)*	Stationary
TURN	-2.204474 (0.20)	-2.750855 (0.22)	-0.611085 (0.44)	Not Stationary
MKTCAP	0.041319 (0.95)	-2.208511 (0.46)	1.041984 (0.91)	Not Stationary
VSHARE	-1.950852 (0.31)	-3.463477 (0.06)	-1.191312 (0.21)	Not Stationary
QTDF	-2.882353 (0.06)	-2.830020 (0.19)	-0.763575 (0.37)	Not Stationary
INF	-2.173816 (0.21)	-2.699907 (0.24)	-1.312567 (0.17)	Not Stationary
EXR	0.898954 (0.99)	-1.323013 (0.85)	2.399916 (0.99)	Not Stationary
MS	4.779045 (1.00)	0.721570 (0.99)	6.574530 (1.00)	Not Stationary
INT	-4.300614 (0.00)*	-5.545618 (0.00)*	-1.145665 (0.22)	Stationary
GDP	1.685388 (0.99)	-2.320983 (0.40)	5.383494 (1.00)	Not Stationary

Source: Output Data via E-views 9.0

Note: Spectral estimation methods are Bartlett kernel and Newey-West method for Bandwidth, p-values are in parentheses where (*) &(**) denotes significance at 1% and 5% respectively.

Table 4.7: Result of PP Test at First Difference

Variables	Intercept	Trend & Intercept	None	Remark
ASI	-6.415835 (0.00)*	-6.590900 (0.00)*	-5.602250 (0.00)*	Stationary
CCI	-11.28598 (0.00)*	-18.10864 (0.00)*	-10.18281 (0.00)*	Stationary
IPO	-22.84190 (0.00)*	-22.99608 (0.00)*	-22.01438 (0.00)*	Stationary
DP	-16.04024 (0.00)*	-18.69374 (0.00)*	-16.19457 (0.00)*	Stationary
SENT	-40.42412 (0.00)*	-39.43295 (0.00)*	-39.00348 (0.00)*	Stationary
TURN	-8.141676 (0.00)*	-14.37496 (0.00)*	-7.882983 (0.00)*	Stationary
MKTCAP	-5.247579 (0.00)*	-5.673208 (0.00)*	-4.751373 (0.00)*	Stationary
VSHARE	-8.447760 (0.00)*	-8.107868 (0.00)*	-7.561312 (0.00)*	Stationary
QTDF	-6.156015 (0.00)*	-6.384664 (0.00)*	-6.309708 (0.00)*	Stationary
INF	-4.067378 (0.00)*	-3.974280 (0.02)**	-4.156056 (0.00)*	Stationary
EXR	-5.195036 (0.01)*	-5.388972 (0.00)*	-5.635907 (0.00)*	Stationary
MS	-5.635068 (0.00)*	-5.253350 (0.00)*	-5.108750 (0.00)*	Stationary
INT	-24.63797 (0.00)*	-25.99962 (0.00)*	-16.73926 (0.00)*	Stationary
GDP	-5.666890 (0.00)*	-5.313811 (0.00)*	-5.099654 (0.00)*	Stationary

Source: Output Data via E-views 9.0

Note: Spectral estimation methods are Bartlett kernel and Newey-West method for Bandwidth, p-values are in parentheses where (*) &(**) denotes significance at 1% and 5% respectively.

Table 4.8: Result of KPSS Test at Level

Variables	Intercept	Trend & Intercept	Remark
ASI	0.645418 (0.00)*	0.095183 (0.00)*	Stationary
CCI	0.505541 (0.05)**	0.114532 (0.04)**	Stationary
IPO	0.326791 (0.02)**	0.095608 (0.05)**	Stationary
DP	0.206670 (0.00)*	0.072432 (0.05)**	Stationary
SENT	0.241644 (0.05)**	0.197639 (0.05)**	Stationary
TURN	0.527194 (0.00)*	0.197137 (0.00)*	Stationary
MKTCAP	0.676031 (0.00)*	0.181281 (0.00)*	Stationary
VSHARE	0.617599 (0.00)*	0.112891 (0.00)*	Stationary
QTDF	0.121444 (0.00)*	0.112129 (0.00)*	Stationary
INF	0.327965 (0.00)*	0.077451 (0.00)*	Stationary
EXR	0.759968 (0.00)*	0.070630 (0.00)*	Stationary
MS	0.681378 (0.00)*	0.206692 (0.00)*	Stationary
INT	0.531251 (0.00)*	0.078430 (0.00)*	Stationary
GDP	0.733747 (0.00)*	0.196341 (0.00)*	Stationary

Source: Data output via E-views 9.0

Note: The optimal lag for ADF test is selected based on the Akaike Info Criteria (AIC), p-values are in parentheses where (*) & (**) denote significance at 1% and 5% respectively.

Table 4.9: Result of KPSS Test at First Difference

Variables	Intercept	Trend & Intercept	Remark
ASI	0.294994 (0.56)	0.312198 (0.74)	Not Stationary
CCI	0.302195 (0.60)	0.295161 (0.77)	Not Stationary
IPO	0.341021 (0.94)	0.337844 (0.93)	Not Stationary
DP	0.309863 (0.96)	0.337065 (0.86)	Not Stationary
SENT	0.461541 (0.96)	0.461538 (0.98)	Not Stationary
TURN	0.291272 (0.76)	0.500000 (0.58)	Not Stationary
MKTCAP	0.225662 (0.19)	0.168696 (0.45)	Not Stationary
VSHARE	0.347893 (0.73)	0.345252 (0.95)	Not Stationary
QTDF	0.078938 (0.55)	0.080332 (0.90)	Not Stationary
INF	0.087374 (0.90)	0.084754 (0.70)	Not Stationary
EXR	0.232194 (0.02)**	0.113775 (0.12)	Stationary
MS	0.685824 (0.00)*	0.094769 (0.00)*	Stationary
INT	0.500000 (0.68)	0.500000 (0.71)	Not Stationary
GDP	0.456988 (0.00)*	0.170470 (0.00)*	Stationary

Source: Data output via E-views 9.0

Note: The optimal lag for ADF test is selected based on the Akaike Info Criteria (AIC), p-values are in parentheses where (*) & (**) denote significance at 1% and 5% respectively.

4.4 Residual and Stability Diagnostics

Serial Correlation LM Test

The serial correlation LM test was performed to avoid the issue of variables in the model been serially correlated. The presence of serial correlation in a model is a brake of the classical assumptions of a linear regression model. The serial correlation output in Table 11 reveals that the variables in the model were not serially correlated owing to the insignificant (at 5% significance level) of the p-value of the f-statistic.

Table 4.10: Serial Correlation LM Test

F-statistic	0.886307	Prob. F(2,9)	0.4453
Obs*R-squared	4.278253	Prob. Chi-Square(2)	0.1178

Source: Data output via E-views 9.0

Heteroskedasticity Test

To avoid a situation where the magnitude of residuals seem to be related with magnitude of recent residual, the heteroskedasticity test was conducted. The result of the heteroskedasticity

in Table 12 entails that the model is devoid of any heteroskedasticity issue as the p-value of the f-statistic is not statistically significant at 5% level of significance.

Table 4.11: Heteroskedasticity Test

F-statistic	1.223944	Prob. F(14,11)	0.3734
Obs*R-squared	15.83480	Prob. Chi-Square(14)	0.3236

Source: Data output via E-views 9.0

Ramsey RESET Test

It is essential to ascertain how well the model developed is specified as it is expected that the non-linear combinations of the independent variables should not have any power in explaining the dependent variable. This is effectively determined through the Ramsey reset specification. The Ramsey reset specification test in Table 13 discloses that the model was well-specified having regard to the insignificant value (at 5% significance level) of the p-value of the t-statistic test.

Table 4.12: Ramsey Reset Specification

	Value	**Df**	**P-value**
f-statistic	5.276926	(6, 5)	0.0441

Source: Data output via E-views 9.0

Multicollinearity Test

High degree of correlation between the dependent and independent variable (s) in any regression model is not a problem but becomes a critical issue if it is between the independent variables specified in the model. To avoid the occurrence of this situation, that is, multicollinearity, the correlation between the variables were evaluated as presented in Table 14. From the result of the correlation matrix in Table 14, none of the independent variable was highly correlated with each other. The highest correlation between the independent variable 0.18 which existed between consumer confidence index (CCI) and interest rate (INT), hence there is no issue of multicollinearity by virtue of incorporating stock market, investors sentiment and macroeconomic fundamental in the regression model as stated in chapter three.

Table 4.13: Correlation Matrix

	ASI	CCI	IPO	DP	SENT	TURN	MKTCP	VSHARE	QTDF	INF	EXR	MS	INT	GDP
ASI	1.00	-0.42	0.18	0.22	-0.02	0.70	0.81	0.79	0.29	-0.46	0.70	0.64	-0.52	0.77
CCI	-0.42	1.00	0.12	-0.26	-0.12	-0.18	-0.50	-0.45	0.05	0.01	-0.47	-0.45	0.18	-0.44
IPO	0.18	0.12	1.00	-0.04	0.03	0.24	0.23	0.23	-0.17	-0.18	0.29	0.26	0.03	0.30
DP	0.22	-0.26	-0.04	1.00	0.35	0.22	0.13	0.05	-0.06	-0.24	0.21	0.09	-0.03	0.17
SENT	-0.02	-0.12	0.03	0.35	1.00	0.23	0.03	0.06	-0.11	0.12	0.16	0.13	-0.03	0.13
TURN	0.70	-0.18	0.24	0.22	0.23	1.00	0.46	0.67	0.27	-0.50	0.58	0.38	-0.43	0.52
MKTCAP	0.81	-0.50	0.23	0.13	0.03	0.50	1.00	0.87	-0.13	-0.38	0.77	0.94	-0.51	0.95
VSHARE	0.79	-0.45	0.23	0.05	0.06	0.67	0.87	1.00	0.05	-0.35	0.58	0.74	-0.48	0.79
QTDF	0.29	0.05	-0.17	-0.06	-0.11	0.27	-0.13	0.05	1.00	0.03	-0.19	-0.31	-0.06	-0.20
INF	-0.46	0.01	-0.18	-0.24	0.12	-0.50	-0.38	-0.35	0.03	1.00	-0.47	-0.34	0.33	-0.42
EXR	0.70	-0.47	0.23	0.21	0.16	0.58	0.77	0.58	-0.19	-0.47	1.00	0.84	-0.42	0.87
MS	0.64	-0.45	0.26	0.09	0.13	0.38	0.94	0.74	-0.31	-0.34	0.84	1.00	-0.47	0.97
INT	-0.52	0.18	0.03	-0.03	-0.03	-0.43	-0.51	-0.48	-0.07	0.33	-0.43	-0.47	1.00	-0.51
GDP	0.77	-0.44	0.30	0.17	0.13	0.52	0.95	0.79	-0.20	-0.43	0.87	0.97	-0.51	1.00

Source: Data output via E-views 9.0

4.5 Long Run Relationship

The unit root test result shows that the variable were stationary at different other of integration thus the study applied the Autoregressive Distributive Lag (ARDL) model in ascertaining the long run relationship between the investors' sentiment and stock market return amidst macroeconomic variables. The major advantage of the ARDL in ascertaining the co-integration relationship between variables is that the ARDL is structured in such a way that it eliminates the bias associated with different order of integration of time series data which is lacking in Johansen co-integration approach. In addition, owing to the dynamic nature of time series data, the ARDL is the newest methodology in determination of long run nexus between variables. The result of the co-integration relationship in Table 15 unveils that there is no long

run relationship between investors' sentiment and stock market return in Nigeria amidst the frequent fluctuation in macroeconomic fundamentals.

Table 4.14: Bound Test for Stock Market Return and Investors' Sentiment

T-Test	5% Critical Value Bound		Remark
F-Statistic	**Lower Bound**	**Upper Bound**	
2.514469	4.41	4.85	Null Hypothesis Rejected

Source: Data output via E-views 9.0

4.6 Nature/Short Run Relationship

Having confirm the absent of a long run relationship between investors' sentiment and stock market return in the Nigerian environment, it is ideal to also ascertain the nature of short run relationship/ordinary relationship between the variables of interest. The regression outcome in Table 16 via the ARDL discloses that holding consumer confidence index, initial public offer, dividend premium, investors' sentiment, turnover ratio and macroeconomic fundamental are held constant; stock market returns based on data from Nigerian Stock Exchange (NSE) would be on the negative side by a magnitude of -79229.45. Consumer confidence index has a positive insignificant relationship with stock market return. A unit rise in consumer confidence index would raise stock market return by 365.92. Initial public offer exhibited a negative and insignificant relationship with stock market return. A percentage increase in initial public offer decreases stock market return by 41.76 units.

Table 4.15: OLS Regression Result for Stock Market Return and Investors' Sentiment

Variable	Coefficient	Std. Error	t-Statistic	Prob.
ASI(-1)	-0.130116	0.431927	-0.301246	0.7701
ASI(-2)	0.098666	0.140484	0.702330	0.5002
CCI	365.9211	313.3933	1.167610	0.2730
IPO	-41.75826	87.00446	-0.479955	0.6427
DP	19.53030	391.4884	0.049887	0.9613
SENT	0.210586	0.449441	0.468552	0.6505
TURN	540.8532	1343.273	0.402638	0.6966
MKTCAP	0.003774	0.001097	3.440689	0.0074
VSHARE	-0.040550	0.069916	-0.579976	0.5762
QTDF	259.5979	195.7319	1.326294	0.2174
INF	-8.024992	100.0857	-0.080181	0.9378
EXR	76.98838	61.79668	1.245833	0.2443
MS	-0.002989	0.001325	-2.255421	0.0506
INT	228.5165	455.5616	0.501615	0.6280
GDP	0.297817	0.386584	0.770381	0.4608
C	-79229.45	59106.88	-1.340444	0.2130
R-squared	0.975727	Mean dependent var		19292.04
Adjusted R-squared	0.935271	S.D. dependent var		14360.59
S.E. of regression	3653.594	Akaike info criterion		19.50316
Sum squared resid	1.20E+08	Schwarz criterion		20.28324
Log likelihood	-227.7895	L Hannan-Quinn criter.		19.71952
F-statistic	24.11861	Durbin-Watson stat		2.003570
Prob (F-statistic)	0.000019			

Source: Data output via E-views 9.0

Dividend premium, investors' sentiment and turnover ratio have positive but insignificant relationship with stock market return of Nigerian Stock Exchange (NSE). A percentage increase in dividend premium, investors' sentiment and turnover ratio raise stock market return by 19.53, 0.21 and 540.85 respectively. In terms of stock market variables via market capitalization, volume of share traded and quoted firms, it was observe that market capitalization has a positive significant relationship with stock market return. A unit rise in stock market capitalization increase stock market return by a margin of 0.004. The number of quoted firms in Nigerian Stock Exchange has positive relationship with stock market return although this is not statistically significant. Stock market return would rise by 259.60 following a unit rise in number of quoted firms. Volume of share traded on the Nigerian Stock Exchange has negative insignificant relationship with stock market return in a situation where market return would increase by 0.04 with a unit rise in volume of share traded. From macroeconomic variables perspective, inflation and money supply have negative insignificant relationship with stock market return, while exchange rate, interest rate and gross domestic product have positive insignificant relationship

with stock market return. A percentage rise in inflation and money supply decreases stock market return by 8.02 and 0.002 respectively, while a unit increase rise in exchange rate, interest rate and gross domestic product increase stock market return by 76.99, 228.52 and 0.29 respectively.

From the adjusted R-square, it was vividly clear that 93.52% changes in stock market returns was attributed to variation in investors' sentiment, stock market and macroeconomic fundamentals. The said variation in stock market return owing to changes in investors' sentiment, stock market and macroeconomic fundamentals was statistically significant following the f-statistic of 24.12 significant at 5% level of significance as showing by the p-value of (0.00). The Durbin Watson value of 3.00 is the benchmark of no autocorrelation. This implies that the variables in the models are not serially correlated and regression out is deemed reliable in statistical angle.

4.7 Granger Causality Analysis

The granger causality analysis was evaluated to determine which of the investor's sentiment variables affect stock market return in Nigerian Stock Exchange (NSE), and result presented in Table 17. From the granger causality analysis, there is no causal relationship between consumer confidence index, initial public offer and stock market return as causality does not flow from either direction. This is an indication that consumer confidence index and initial public offer have no significant effect on stock market return. Similarly, there is a unidirectional relationship between dividend premium, sentiment, turnover ratio and stock market at 5% level of significance. For dividend premium, sentiment and stock market return relationship, causality flows from dividend premium and sentiment to stock market return at 5% significance level, while for stock market return and turnover ratio, causality runs from all share

index to turnover ratio. This result implies that dividend premium and sentiment have significant effect on stock market return, while the turnover ratio is significantly affected by stock market return as measured with the all share index of the Nigerian Stock Exchange.

Table 4.16: Granger Causality Output for Stock Market Return and Investors' Sentiment

Null Hypothesis:	Obs	F-Statistic	Prob.	Remarks
CCI does not Granger Cause ASI	26	0.72728	0.4026	No Causality
ASI does not Granger Cause CCI		1.72824	0.2016	No Causality
IPO does not Granger Cause ASI	26	0.00622	0.9378	No Causality
ASI does not Granger Cause IPO		0.48275	0.4941	No Causality
DP does not Granger Cause ASI	26	14.9100	0.0008	Causality
ASI does not Granger Cause DP		0.00033	0.9862	No Causality
SENT does not Granger Cause ASI	26	5.14631	0.0330	Causality
ASI does not Granger Cause SENT		0.26251	0.6133	No Causality
TURN does not Granger Cause ASI	26	0.33704	0.5672	No Causality
ASI does not Granger Cause TURN		12.3073	0.0019	Causality
MKTCAP does not Granger Cause ASI	26	0.04189	0.8396	No Causality
ASI does not Granger Cause MKTCAP		0.01241	0.9123	No Causality
VSHARE does not Granger Cause ASI	26	1.55128	0.2255	No Causality
ASI does not Granger Cause VSHARE		11.2899	0.0027	Causality
QTDF does not Granger Cause ASI	26	0.43219	0.5174	No Causality
ASI does not Granger Cause QTDF		0.67534	0.4196	No Causality
INF does not Granger Cause ASI	26	0.44224	0.5127	No Causality
ASI does not Granger Cause INF		1.24841	0.2754	No Causality
EXR does not Granger Cause ASI	26	5.87647	0.0236	Causality
ASI does not Granger Cause EXR		0.64112	0.4315	No Causality
MS does not Granger Cause ASI	26	0.36734	0.5504	No Causality
ASI does not Granger Cause MS		3.94618	0.0004	Causality
INT does not Granger Cause ASI	26	0.03604	0.8511	No Causality
ASI does not Granger Cause INT		7.26232	0.0129	Causality
GDP does not Granger Cause ASI	26	1.66953	0.2092	No Causality
ASI does not Granger Cause GDP		6.19119	0.0205	Causality

Source: Data output via E-views 9.0

With regard to stock market and macroeconomic fundamentals, a unidirectional relationship is seen for volume of share traded, interest rate, exchange rate, money supply, gross domestic product and stock market return at 0.5 level of significance. Causality runs from exchange rate to stock market return, suggesting that exchange rate has significant effect on stock market in Nigeria. It could be adduce that exchange rate of the Nigerian Naira against the US dollar is an important macroeconomic index that affect the over performance of the stock market and significantly determine the level of return of investments in the stock market. Causality running from all share index to money supply, interest rate and gross domestic product

at 5% significance level give an idea that it is the level of stock market return that significantly affect money supply, interest rate and gross domestic product. In other words, money supply, interest rate and gross domestic product have no significant effect on stock market return in Nigeria.

4.8 Test of Hypotheses

Decision Criteria: If the p-value of f-statistic of the granger causality test is less than 0.05, the null hypothesis is rejected. Likewise, if the p-value of f-statistic of the granger causality test is greater than 0.05, the null hypothesis is accepted.

Restatement of Hypotheses

1. H_0: Consumer confidence index has no significant effect on stock market return in Nigeria.
2. H_0: Initial public offer has no significant relationship with the stock market return in Nigeria.
3. H_0: Dividend premium has no significant effect on stock market return in Nigeria.
4. H_0: The stock price volatility has no significant effect on stock market return in Nigeria.
5. H_0: Turnover ratio has no significant effect on stock market return in Nigeria.
6. H_0: Market and economic fundamentals have no significant effect on stock market return in Nigeria.

Table 4.17: Test of Hypotheses

Hypotheses	Variables	f-statistic	P-value	Decision
Hypothesis 1	ASI → CCI	0.72728	0.4026	Accept H_0
Hypothesis 2	ASI → IPO	0.00622	0.9378	Accept H_0
Hypothesis 3	ASI → DP	14.9100	0.0008	Reject H_0
Hypothesis 4	ASI → SP	5.14631	0.0330	Reject H_0
Hypothesis 5	ASI → TURN	0.33704	0.5672	Accept H_0
Hypothesis 6	ASI → TURN, MTKCAP, VSHARE, QTDF, INF, EXR, MS, INT, GDP			
	TURN	0.33704	0.5672	Accept H_0
	MTKCAP	0.04189	0.8396	Accept H_0
	VSHARE	1.55128	0.2255	Accept H_0
	QTDF	0.43219	0.5174	Accept H_0
	INF	0.44224	0.5127	Accept H_0
	EXR	5.87647	0.0236	Reject H_0
	MS	0.36734	0.5504	Accept H_0
	INT	0.03604	0.8511	Accept H_0
	GDP	1.66953	0.2092	Accept H_0

Source: Granger Causality Output in Table 17

4.9 Discussion of Findings

The ARDL output in Table 15 reveals that there is no co-integration relationship between investors' sentiment and stock market return amidst uncertainties in macroeconomic fundamentals. This suggests that stock market return does not relate with investors' sentiment in the long run even though the business environment is characterized by instabilities in macroeconomic variables. The consumer confidence index has a positive insignificant relationship with stock market return. The implication is that consumer confidence index of individual investor affects stock market return in Nigeria and consistent with theoretical considerations of the effect of noise trader behaviour. This would be attributed to the developing nature of the Nigerian Stock Exchange where there are few listed firms and varieties of financial instruments. This finding agrees with Oprea and Brad (2014) on the positive relationship between consumer confidence index and stock market return in Romania. Nevertheless, it refutes the previous studies of Fernandes, Gama and Vieira (2010) and Schmeling (2008) on the negative relationship between consumer confidence index and stock market return in Portugal and eighteen (18) industrialized nations of Europe respectively.

Stock market return and investors' sentiment were found to have positively related though not statistically significant. This denotes the notion that when investors' sentiment is high, future returns are low but when investors' sentiment is low, stock returns in future will be high. This is in agreement with the findings of Mazviona (2015), and Hu, Sun, Wang and Chi (2014) that sentiment has positive relationship with stock market return in Zimbabwe and China respectively. Furthermore, the previous results of Shu (2010), Statman (2000), Brown and Cliff (2005), Baker and Wurgler (2006), Tetlock (2007), Berkman and Koch (2008), Barber, Odean and Zhu (2009), Wang, Keswani and Taylor (2006), Kurov (2008), Griffin, Harris and Topaloglu

(2003), Barber, Lee, Liu and Odean (2005), Wang, Li and Lin (2009), Li, Shu and Ley (2008), Lei (2011), Corredor (2013) and Delong, Sheifer, Summer and Waldmann (1990) on the positive relationship between investors' sentiment and stock market returns were affirmed. On the other hand, it could not affirm the results of Bathia and Bredin (2010), Kaniel, Saar and Titman (2004), Yang and Copeland (2011), Finter, Niessen-Ruenzi and Ruenzi (2010), Boubaker (2014), Yoshinaga and Castro (2012) and Schmeling (2008). In terms of the relationship between stock market return and stock market factors, market capitalization and quoted firms have positive relationship with stock market return, while value of stock traded depicted negative insignificant relationship. However, with regard to macroeconomic variables, exchange rate, interest rate and gross domestic product were observed to be positively but insignificant related with stock market return, while inflation has insignificant negative relationship and money supply significant negative relationship with stock market return. This point to the influence of macroeconomic fundamental of the activities of the stock market as empirically supported by Omotor (2010) that stock market return may provide an effective hedge against inflation in Nigeria.

On the analysis of the effect of investors' sentiment measurements on stock market return, consumer confidence index, initial public offer and turnover ratio have no significant effect on stock market return of quoted securities on Nigerian Stock Exchange (NSE) within the period studied. Nevertheless, the returns from stock market trading were significantly affected by dividend premium and sentiment index. This result supports the works of Abdel-Hameed (2012) and Baker and Wurgler (2014) for the case of Egyptian, twenty (20) European countries stock market returns. Conversely the inability of sentiment to predict future stock return was documented by Rehman, Abidin, Rizwan, Abbas and Baig (2016), Hengelbrock, Theissen and

Westeide (2010), Brown and Cliff (2005), Edelen, Marcus and Tehrainian (2010), Oprea and Brad (2014) and Abdel-Hameed (2012).

4.10 A Priori Expectation

The observed signs of investors' sentiment measurement were interpreted based on the principle of financial and economic theory guiding the relationship among the variables studied Table 19 discloses the observed signs of the independent variables.

Table 4.18: A Priori Expectation

Independent Variables	Expected Signs	Observed Signs	Remarks
CCI	+	+	Agreed
IPO	+	-	Disagreed
DP	-	+	Disagreed
SENT	-	+	Disagreed
TURN	+	+	Agreed
MKTCAP	+	+	Agreed
VSHARE	+	-	Disagreed
QTDF	+	+	Agreed
INF	-	-	Agreed
EXR	-	+	Disagreed
MS	+	-	Disagreed
INT	-	+	Disagreed
GDP	+	+	Agreed

Source: OLS Regression Results in Table 18.

4.11 Disaggregated Short Run Relationship and Effect Analysis among Investors' Sentiment, Stock Market Factors and Macroeconomic Fundamentals

With the confirmation of no long run relationship between stock market return, stock market indices and macroeconomic fundamentals, the short run relationship and direction of effect among measurements of investors' sentiment, stock market factors and macroeconomic variables were further assessed through Ordinary Least Square (OLS) technique and granger causality analysis. Although, this is outside the specific objectives of this study, however, it is

relevant to determine this nexus and influence relying on the assertions of Edlen and Marcus (2010), Gizelis and Chowdhury (2016), Ibrahim, Bawa, Abdullahi, Didigu & Mainasara (2015), Charlie (2012) & Oyinlola, Oyinlola & Deniron (2014).

4.11.1 Stock Market Return Rate

Table 21 depicts the nature of short run relationship between stock market return rate, stock market factors and macroeconomic index, while Table 21 reveals the effect of these independent variables on stock market return rate. As can be seen in Table 21, there is a positive insignificant relationship between stock market return rate and investors' sentiment. The relationship between excess demand for equity and stock price is negative and statistically significant, while that of inflation is also significant but positive. The performance of the stock market through the all share index has negative insignificant relationship with stock market return rate. Holding investors' sentiment, excess demand for equity, inflation and all share index constant, stock market return rate would be valued at 2.60%. A unit rise in investors' sentiment and inflation would result in 9.11% and 0.08% rise in stock market return rate respectively, whereas a percentage increase in excess demand for equity and all share index lead to 7.69% and 6.32% decline in stock market return rate respectively. The adjusted R-square indicates that 85.91% variation in stock market return is as a result of changes in investors' sentiment, excess demand for equity, inflation and all share index. This is statistically significant following the significant p-value (0.00) of the f-statistic (34.47). The Durbin Watson coefficient of 2.0 is the benchmark of no autocorrelation in the model.

Table 4.19: OLS Regression Result for Stock Market Return Rate Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.603815	1.762262	1.477542	0.1551
SENT	9.11E-07	0.000276	0.003304	0.9974
EXD	-7.686519	2.841032	-2.705538	0.0136
INF	0.085389	0.042481	2.010025	0.0581
ASI	-6.32E-05	4.76E-05	-1.326335	0.1997
R-squared	0.887246	Mean dependent var		8.061538
Adjusted R-squared	0.859057	S.D. dependent var		6.318422
S.E. of regression	2.372083	Akaike info criterion		4.764588
Sum squared resid	112.5356	Schwarz criterion		5.054918
Log likelihood	-55.93965	L Hannan-Quinn criter.		4.848193
F-statistic	31.47541	Durbin-Watson stat		2.073101
Prob (F-statistic)	0.000000			

Source: Data output via E-views 9.0

In terms of the effect of investors' sentiment, stock market and macroeconomic fundamentals on stock market return rate, it was observed in Table 22 that investors' sentiment, excess demand for equity, inflation and all share index have no significant effect on stock market return rate. However, it was observed that stock market return rate has significant effect on excess demand for equity following the presence of a unidirectional relationship between excess demand for equity and stock market return rate at 5% level of significance.

Table 4.20: Stock Market Return Rate Model Granger Analysis

Null Hypothesis:	Obs	F-Statistic	Prob.	Remarks
SENT does not Granger Cause R	26	0.88909	0.3555	No Causality
R does not Granger Cause SENT		0.99192	0.3296	No Causality
EXD does not Granger Cause R	26	0.36697	0.5506	No Causality
R does not Granger Cause EXD		4.99708	0.0354	Causality
INF does not Granger Cause R	26	0.30561	0.5857	No Causality
R does not Granger Cause INF		3.60981	0.0700	No Causality
ASI does not Granger Cause R	26	2.52418	0.1258	No Causality
R does not Granger Cause ASI		2.13206	0.1578	No Causality

Source: Data output via E-views 9.0

4.11.2 Stock Price

As can be seen in Table 23, there exist a negative significant relationship between sock price and interest rate variation in Nigeria. Similarly, stock price is negatively and insignificantly related with exchange rate, money supply, inflation and excess demand for equities. When exchange rate, money supply, interest rate, inflation and excess demand for equities are held constant, stock price would stand at 33.39. A unit upsurge in exchange rate, money supply, interest rate, inflation and excess demand for equities lead to 0.02, 2.96, 1.17, 0.04 and 6.87

decline in stock price. From the adjusted R-square coefficient, 20.82% variation in stock price was as a result of fluctuation in exchange rate, money supply, interest rate, inflation and excess demand for equities within the period studied. The joint influence of exchange rate, money supply, interest rate, inflation and excess demand for equities on stock price is insignificant following the insignificant value of the p-value (0.07 > 0.05) and f-statistic (2.37). There is no autocorrelation in the estimation result in Table 23 as revealed by the Durbin Watson value.

Table 4.21: OLS Regression Result for Stock Price Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	33.39539	9.640606	3.464034	0.0023
EXR	-0.022419	0.036564	-0.613132	0.5464
MS	-2.96E-07	3.90E-07	-0.759485	0.4560
INT	-1.170864	0.462230	-2.533079	0.0193
INF	-0.038986	0.107225	-0.363596	0.7198
EXD	-6.873201	6.103806	-1.126052	0.2728
R-squared	0.360465	Mean dependent var		4.799259
Adjusted R-squared	0.208195	S.D. dependent var		7.712208
S.E. of regression	6.862586	Akaike info criterion		6.883176
Sum squared resid	988.9968	Schwarz criterion		7.171140
Log likelihood	-86.92287	L Hannan-Quinn criter.		6.968802
F-statistic	2.367275	Durbin-Watson stat		2.733039
Prob (F-statistic)	0.074796			

Source: Data output via E-views 9.0

With inferences to the effect of macroeconomic variables and excess demand for equities on stock price, Table 24 depicts that exchange rate, money supply, interest rate, inflation and excess demand for equities have no significant effect on stock of securities listed on Nigerian Stock Exchange owing to the presence of no causal relationship between stock price and the variables concerned. Causality does not flow from either direction at 5% significance level.

Table 4.22: Stock Price Model Granger Analysis

Null Hypothesis:	Obs	F-Statistic	Prob.	Remarks
EXR does not Granger Cause SP	26	0.01112	0.9169	No Causality
SP does not Granger Cause EXR		0.66996	0.4215	No Causality
MS does not Granger Cause SP	26	0.09384	0.7621	No Causality
SP does not Granger Cause MS		0.92794	0.3454	No Causality
INT does not Granger Cause SP	26	0.44200	0.5128	No Causality
SP does not Granger Cause INT		0.13101	0.7207	No Causality
INF does not Granger Cause SP	26	0.12328	0.7287	No Causality
SP does not Granger Cause INF		0.14358	0.7082	No Causality
EXD does not Granger Cause SP	26	0.01566	0.9015	No Causality
SP does not Granger Cause EXD		1.42458	0.2448	No Causality

Source: Data output via E-views 9.0

4.11.3 Consumer Confidence Index

With regard to the regression outcome in Table 25 shows that there is positive but insignificant relationship between initial public offer, turnover ratio and consumer confidence index, while all share index, gross domestic product and inflation have negative insignificant relationship with consumer confidence index. Keeping initial public offer, turnover ratio, all share index, gross domestic product and inflation, consumer confidence index would be 4.67. A percentage increase in initial public offer and turnover ratio result in 0.09 and 0.08 appreciation in consumer confidence index respectively, while a unit rise in while all share index, gross domestic product and inflation lead to 0.0001, 0.0001 and 0.066 decline in consumer confidence index respectively. Judging from the adjusted R-square statistic, only 15.78% changes in consumer confidence index was attributed to variation in initial public offer, turnover ratio, all share index, gross domestic product and inflation, and this is insignificant consequent to the

insignificant p-value (0.12 > 0.05) and f-statistic (1.97). The consumer confidence index estimation is free from autocorrelation as depicted by the Durbin Watson coefficient of 2.2.

Table 4.23: OLS Regression Result for Consumer Confidence Index Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	4.671387	3.418107	1.366659	0.1862
ASI	-0.000102	0.000121	-0.846130	0.4070
GDP	-0.000124	8.62E-05	-1.436853	0.1655
IPO	0.096642	0.075672	1.277111	0.2155
TURN	0.088206	0.350127	0.251926	0.8035
INF	-0.065779	0.062841	-1.046750	0.3071
R-squared	0.319776	Mean dependent var		-1.851852
Adjusted R-squared	0.157818	S.D. dependent var		5.216127
S.E. of regression	4.786864	Akaike info criterion		6.162758
Sum squared resid	481.1953	Schwarz criterion		6.450722
Log likelihood	-77.19723	L Hannan-Quinn criter.		6.248385
F-statistic	1.974439	Durbin-Watson stat		2.241495
Prob (F-statistic)	0.124472			

Source: Data output via E-views 9.0

From the result in Table 26, there is unidirectional causal relationship between consumer confidence index and gross domestic product as causality flows from gross domestic product to consumer confidence index at 5% level of significance. This implies that the state or health of the economy has significant effect on consumer confidence index towards investment in the stock market. On the contrary, consumer confidence index is not affected by all share index, initial public offer, turnover ratio and inflation level in the economy as there is no unidirectional or bidirectional relationship between consumer confidence index and the variables concerned: all share index, initial public offer, turnover ratio and inflation.

Table 4.24: Consumer Confidence Index Model Granger Analysis

Null Hypothesis:	Obs	F-Statistic	Prob.	Remarks
ASI does not Granger Cause CCI	26	1.72824	0.2016	No Causality
CCI does not Granger Cause ASI		0.72728	0.4026	No Causality
GDP does not Granger Cause CCI	26	4.76114	0.0396	Causality
CCI does not Granger Cause GDP		0.01596	0.9006	No Causality
IPO does not Granger Cause CCI	26	0.66094	0.4246	No Causality
CCI does not Granger Cause IPO		0.38699	0.5400	No Causality
TURN does not Granger Cause CCI	26	0.03912	0.8450	No Causality
CCI does not Granger Cause TURN		0.72816	0.4023	No Causality
INF does not Granger Cause CCI	26	0.91690	0.3482	No Causality
CCI does not Granger Cause INF		1.46765	0.2380	No Causality

Source: Data output via E-views 9.0

4.11.4 Market Capitalization

Table 27 reveals that there is a positive significant relationship between volume of share traded on the stock exchange, gross domestic product and market capitalization, whereas number of quoted firms and investors' sentiment have insignificant negative relationship with market capitalization. When volume of share traded on the stock exchange, number of quoted firms, investors' sentiment and gross domestic product are held constant, stock market capitalization would depreciate by a magnitude of ₦3, 414, 019 million. A percentage rise in volume of share traded on the stock exchange, gross domestic product increase stock market capitalization by ₦26.88 million and ₦215.01 million respectively, while a unit rise in number of quoted firms and investors' sentiment decrease the market capitalization by ₦5, 264.36 million and ₦254.70 million respectively. The Durbin Watson statistic of 1.60 in approximation is within the acceptable range no autocorrelation. From the adjusted R-square value, volume of share traded on the stock exchange, number of quoted firms, investors' sentiment and gross domestic product significantly explained 94.61% variation in stock market capitalization (p-value of 0.00 < 0.05 with f-statistic of 88.87).

Table 4.25: OLS Regression Result for Market Capitalization Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-3414019.	5802289.	-0.588392	0.5629
VSHARE	26.88188	8.387467	3.205005	0.0044
QTDF	-5264.361	21048.08	-0.250111	0.8051
SENT	-254.7006	138.1096	-1.844193	0.0800
GDP	215.0065	53.03072	4.054376	0.0006
R-squared	0.956929	Mean dependent var		5745492.
Adjusted R-squared	0.946162	S.D. dependent var		6767557.
S.E. of regression	1570283.	Akaike info criterion		31.57058
Sum squared resid	4.93E+13	Schwarz criterion		31.86091
Log likelihood	-404.4176	L Hannan-Quinn criter.		31.65419
F-statistic	88.87054	Durbin-Watson stat		1.557353
Prob (F-statistic)	0.000000			

Source: Data output via E-views 9.0

In the effect assessment analysis in Table 28, it was clear that there is a unidirectional relationship between market capitalization and gross domestic product as causality flows from gross domestic product to market capitalization at 5% significance level. This result implies that

the health of the economy has significant effect on market capitalization of the Nigerian Stock Exchange (NSE). On the other hand, volume of share traded, number of quoted firms and investors' sentiment have no significant effect on the market capitalization of the Nigerian Stock Exchange.

Table 4.26: Market Capitalization Model Granger Analysis

Null Hypothesis:	Obs	F-Statistic	Prob.	Remarks
VSHARE does not Granger Cause MKTCAP	26	3.54155	0.0726	No Causality
MKTCAP does not Granger Cause VSHARE		10.2856	0.0039	No Causality
QTDF does not Granger Cause MKTCAP	26	0.26378	0.6124	No Causality
MKTCAP does not Granger Cause QTDF		0.66146	0.4244	No Causality
SENT does not Granger Cause MKTCAP	26	3.12358	0.0904	No Causality
MKTCAP does not Granger Cause SENT		0.63568	0.4334	No Causality
GDP does not Granger Cause MKTCAP	26	13.9464	0.0011	Causality
MKTCAP does not Granger Cause GDP		0.73725	0.3994	No Causality

Source: Data output via E-views

4.11.5 *9.0* Earnings per Share

The result in Table 29 reveals that there is a negative relationship between earnings per share and investment of firms quoted on the stock market, while a positive relationship is evidence for earnings per share, dividend per share and industrial production. Investment of firms is negatively significantly related with earnings per share, whereas industrial production is positively and significantly related with earnings per share. Holding dividend per share, investment of firms quoted on the stock market and industrial production constant results in 1.99 as earnings per share. When dividend per share and industrial production increase by a percentage, earnings per share will rise by 0.40 and 0.02 respectively, while a unit increases in investment of firms depreciates earnings per share by 0.48. From the adjusted R-square value, 45.27% changes in earnings per share was as a result of the variation in dividend per share, firms' investment and industrial production. The Durbin Watson value depicts no autocorrelation in the model as 1.92 is quite close to the bench mark of 2.0.

Table 4.27: OLS Regression Result for Earnings per Share Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.995995	2.189267	0.911719	0.3714
DPS	0.404576	0.239053	1.692414	0.1041
INV	-0.481825	0.206198	-2.336713	0.0285
IP	0.017249	0.006846	2.519630	0.0191
R-squared	0.515862	Mean dependent var		2.082222
Adjusted R-squared	0.452713	S.D. dependent var		1.874539
S.E. of regression	1.386762	Akaike info criterion		3.627773
Sum squared resid	44.23148	Schwarz criterion		3.819749
Log likelihood	-44.97494	L Hannan-Quinn criter.		3.684858
F-statistic	8.169031	Durbin-Watson stat		1.920424
Prob (F-statistic)	0.000701			

Source: Data output via E-views 9.0

In the light of the effect analysis result in Table 30, it was observe that dividend per share, firms' investment and industrial production has no significant effect on earnings per share of securities quoted on the stock market. This is based on the argument that there is no unidirectional or bidirectional relationship between dividend per share, firms' investment, industrial production and earnings per share at 5% significance level.

Table 4.28: Earnings per Share Model Granger Analysis

Null Hypothesis:	Obs	F-Statistic	Prob.	Remarks
DPS does not Granger Cause EPS	26	2.86505	0.1040	No Causality
EPS does not Granger Cause DPS		0.02599	0.8733	No Causality
INV does not Granger Cause EPS	26	0.64820	0.4290	No Causality
EPS does not Granger Cause INV		0.00013	0.9912	No Causality
IP does not Granger Cause EPS	26	0.31765	0.5785	No Causality
EPS does not Granger Cause IP		0.43353	0.5168	No Causality

Source: Data output via E-views 9.0

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Summary of Findings

This study ascertains the effect of investors' sentiment on stock market return over a period of twenty seven (27) years, that is, from 1990 to 2016. The findings revealed the following:

1. Consumer confidence index has no significant effect on stock market return amidst positive but significant relationship it has with stock market return.
2. Initial public offer has no significant effect on stock market return. However, there is negative insignificant relationship between initial public offer and stock market return.
3. Dividend per share has significant effect on stock market return. The short run relationship between dividend per share and stock market return is positive but insignificant.
4. Stock price volatility has significant effect on stock market return. Investors' sentiment and stock market return are positively but insignificantly related.
5. Turnover ratio has no significant effect on stock market return of securities quoted on Nigerian Stock Exchange. That notwithstanding, there is a positive insignificant relationship between turnover ratio and stock market return.
6. Stock market indices through market capitalization, volume of share traded and quoted firms have no significant effect on stock market, while exchange rate was the only macroeconomic fundamental that significantly affect stock market return in Nigeria.

5.2 Conclusion

The Study discussed the effect on investors' sentiment on sock market returns in Nigeria. The relevance of investors' psychologyical factors in determining stock price which fulfill an important role in financial market was also considered in the study. In Nigeria environment most of the investors invest without studying the market conditions, some trade without considering the prospect of the stock or without having an idea of the background of the assets they invest, they trade based on personal decision. One don't have the time to study the operations of the market.

From the premise of the findings, this study concludes that sentiment had a positive relationship on stock market returns in Nigeria. This is consistent with the theoretical considerations. The report on the stock market activities and publications of listed securities may have been allowed prominent considerations by many Nigerian stock traders including the institutional investors. Thus, the macroeconmic fundamentals: Inflation, interest rate, money supply but exceptions of exchange rate are not critical determinants of stock market return performance in Nigeria. The sock market participants including regulators should work towards sustainable and transparent operations in line with international best practice to guarantee improved stock market performance.

5.3 Recommendations

In view of the findings of this study, the researcher put forward the following recommendations for attention of concerned stakeholders:

- Given that hypothesis one state that consumer confidence index has no significant effect on stock market returns in Nigeria. The study recommends that hence the business environment is characterized by instabilities of macroeconomic variables, efforts should be in force to instill

more confidence in the operations of the market by introducing measures that manage and control the state of the economy

- The initial public offers have no significant relationship with stock market returns. This suggests that the regulatory authorities should create more confidence in market and moreover, reduce the cost of floatation in order to attract more listing in the market. This may come through identified automation of stock market operations.
- Given that dividend premium has no significant effect on the stock market returns in Nigeria, the Nigerian stock market should intensify efforts of operating derivative securities. This will allow room for dividend premium. When dividends are at premium, firms are more willing to pay them and less when they are discounted. Firms should enhance their performance to maintain dividends at premium.
- Hence the stock price volatilities no significant effect on stock market returns in Nigeria, The study recommends that the forces of demand and supply should continue to be allowed to determine the price of stock, given that investors are keen to invest when the expected returns are upwards and investors become more optimistic (investor sentiment is high).
- Since the turnover ratio has no significant relationship with stock market returns in Nigeria, the study recommends that the regulatory authorities should create an enabling environment that is free and fair for all to invest and highly competitive but not regulated.
- Given that market and economic fundamentals has no significant relationship with stock market returns in Nigeria, the study recommends that the market should be expanded to serve and be accessible by majority of the public. So that what happen in the market will be a true reflection of what is going on in the economy. Apart from the above, an effective hedge should be provided in respect to: inflation, exchange rate, interest rate.

5.4 Contributions to knowledge

The study made the following contributions to knowledge:

- An additional model was developed for this research work, money and economic fundamentals as one of the study variables that were extended using its control and extraneous variable. This is not common among other research work .
- The study adopted the use of co- integration test, using auto-regressive distributed lag to residual and examine the stability diagnostics. Whereas majority of other researchers used principal component analysis to analyzed the results.
- The study made use of conglomerate of models to assess the effect of investors' sentiment on stock market return, whereas other researchers used single model to assesse outcome of the relationship.
- The study used multiple regression to assess the result of the relations between investors' sentiment and stock market returns. Whereas other researchers used linear regression and other researches used linear regression and majority used principal component analysis for their analysis.
- The study found a significant relationship between investors' sentiment and market returns in the areas of dividend premium, stock price and otherwise in other areas. This is contrary to other researchers because of differences in market environment.

5.5 Suggestions for Further Studies

The following areas are here suggested for further investigation:

- Sentiment proxies like: money flow index (MFI), inter bank offer rate (IBOR) Relative Strength Index (RSI), Change in Local Market Index (ΔILM), Closed -end Fund discount (CEFD), Mutual Fund Discount (MFDIS).

- Comparism of the effect of investor's sentiment in advanced countries and developing countries.
- Sentiment and security insurance, its impact on the performance of the firms.
- Assets pricing model and sentiment: its effect on expected stock returns.

REFERENCES

Abiodun, L. N., & Elisha, O. O. (2012). Stock prices, stock market operations and Nigeria economic growth: A granger causality modeling. Global advanced research. *Journal of Management and Business Studies,* 1(10). 2315-5086.

Afolabi, I. (2008). Marketing of bank services in Nigeria. *The Nigerian Banker*, 8(1), 1027-1042.

Akingunola, R. O., Adekunle, O. A., & Ojodu, H. (2012). Impact of interest rate on capital market efficient markets. *American Economic Review, 70(1), 393-408.*

Amihud, Y., & Mendelson, H. (1986). Asset pricing and the bid-ask spread. *Journal of Financial Economics*, 1(17), 223-249.

Ang, A., Hodrick, R. J., Xing, Y. H., & Zhang, X. Y. (2006). The cross-section of volatility and expected returns. *The Journal of Finance*, 7(1), 259-299.

Antiweiler, W., & Frank, Z. (2004). Is all that talk just noise the information content of internet stock message boards. *Journal of Finance,* 59(3), 1259-1293.

Asness, C. S., Fiedman, J. A., Kail, R. J., & Liew, J. M. (2000). Style timing: Value versus growth. *Journal of PortfolioManagement*, 26(2), 50-60.

Atjc, R., & Jovanovic, B. (1993). Stock markets and developments. *European Economic Review,* 37(23), 632-640.

Easley, X.Y., & Hara, M .O. (1994). Market statistics and technical analysis: The role of volume. *Journal of Finance,* 49(4), 153-181.

Campbell, B. G., Harvey, R., & Lundblad, R. (2003). Liquidity and expected return: Lessons from emerging market. Working paper, Columbia University.

Baker, M., & Wurgler J. (2000). The equity share in new issues and aggregate stock returns. *Journal of Finance,* 55(1), 2219–2257.

Baker, M., & Wurgler, J. (2004). A catering theory of dividends. *Journal of Finance.* 59(2), 1125– 1165.

Baker, M., & Stein J. S. (2004). Market Liquidity as a Sentiment Indicator. *Journal of Financial Markets,* 7(3), 271-299.

Baker, M., & Stein, J. C. (2004). Market liquidity as a sentiment indicator. *Journal of Financial Markets*, 7(3), 271-299.

Baker, M., & Wurgler, J. (2000). The equity share in new issues and aggregate stock returns. *Journal of Finance,* 55(4), 2219-2257.

Baker, M., & Wurgler, J. (2006). Inventors sentiment and the cross-section of stock returns. *Journal of Finance,* 61(5), 1-66.

Baker, M., & Wurgler, J. (2007). Investor sentiment in the stock market. *Journal of Economic Perspectives*, 21(2), 129–151.

Baker, M., Wurgler, J. & Yuan, Y. (2011). Global, local, and contagious investor sentiment. *Journal of Financial Economics 104*. NYU working paper No. FIN-09-002. Available at http://ssrn.com/abstract=1415226

Bandopadhayaya. A., & Anne, L. J. (2005). Measuring investor sentiment in equity market, college of measurement. *Boston, working paper.*

Bandopadhyaya, A. (2006). Measures of investors' sentiment: Who wins the horse race? College of management, Boston, working paper

Barber, B. M., Odean, T., & Zhu, N. (2009a). Do retail trades move markets? *Review of Financial Studies, 22(5),* 151-186.

Barber, B .M., Odean, T., & Zhu, N. (2009b). Systematic noise. *Journal of Financial Markets, 12(1), 547-469*.

Barber, B. M., Lee, N., Liu, Y., & Odean, T. (2009). Just how much do individua investors need to operate in the capital market .*Journal of Financial Studies, 22(1), 15 1-186*.

Barberis, N., & Xiong, W. (2009). What drives the disposition effect: An analysis of a long-standing preference-based explanations. *Journal of Finance 64(5), 751-784.*

Barberis, N., & Xiong, W. (2011), Realization utility. *International Journal of Academic Research in Accounting, Finance and Management Sciences, 4 (2), 19–25*

Barberis, N. Shleifer, A. & Vishny, R. (1998). A model of investor sentiment. *Journal of Financial Economics,* 49(7), 307-343.

Berry, T. D., & Keith M. H. (1994). Public information arrival. *Journal of Finance , 49(5), 1331- 1346*.

Black, F. (1986). Noise. *Journal of Finance,* 41(3), 529-543.

Brennan, M. J., & Subrahmanyam, A. (1995). Investment analysis and price formation in securities markets. *Journal of Financial Economics ,* 38(7), 361-381.

Brennan, M .J., Chordia, T., & Subrahmanyam, A. (1998). Alternative factor specifications, security characteristics, and the cross-section of expected stock returns. *Journal of Financial Economics, 49*(4), 345-373.

Brown G .W., & Cliff M. T. (2005). Investor sentiment and asset valuation, *Journal of Business,*78(2), 405-440.

Brown, G. W., & Cliff, M. T. (2004). Investor sentiment and the near-term stock market. *Journal of Empirical Finance, 11*(1), 1-27.

Brown, P. N., Chappel, R. R., & Walter T. (2006). The reach of the nine-eleven, tell us about closed-end fund discounts and investor sentiment? *Financial Review* 38(8), 515-529.

Bursar, G. (2009). Long term interest rate and stock price returns, *Journal of Nigerian securities* 1(2) 2010-2049.

Caballe, J., & Sakovics, J. (2003). Speculating against an overconfident market. *Journal of Financial Markets, 6(1), 199-225.*

Calvet, L.E., Campbell, J., & Sodini P. (2009). Fight or flight? Portfolio rebalancing by individual investors. *Quarterly Journal of Economics, 124(6), 301-348.*

Shanken, J. (1992). On the estimation of beta-pricing models. *The Review of Financial Studies*, 5(1), 1-33.

Campbell, J.Y. (1996). Understanding Risk and Return. *Journal of Political Economy*, 104, 298-345.

Campbell, J.Y., Sandsford, E. J., & Jiang, W. (1993). Trading volume and serial correlation in stock returns. *Quarterly Journal of Economics*, 108(1), 905-924.

Canbaş, S., & Kandır, S. Y. (2009). Investor sentiment and stock returns: Evidence from Turkey. *emerging markets. Finance and Trade*, 45(4), 36-52.

Chalmers, M. R., & Kadlec, G .B. (1998). An empirical examination of the amortized spread. *Journal of Financial Economics,* 48(1), 159-188.

Chen N. F., Kan R., & Miller, M .H. (1993). Are the discounts on closed-end funds a sentiment index? *Journal of Finance* 48(2), 795-800.

Chen, G. K., Kim, J. N., & Rui, O. (2007). Trading performance disposition effect overconfidence representativeness' bias, and experience of emerging market investors. *Journal of Behavioral Decision Making, 20(2), 425-451.*

*Cho*e, H., & Eom, B. Y. (2009). The Disposition effect and investment performance in the futures market. *Journal of Futures Markets, 29(3), 496-522.*

Chopin, M. C., & Darrat, S. (2000). Can consumer attitudes forecast the macroeconomy? *The American economist, 44(1), 67-87.*

Chordia, T., Roll, R., & Subrahmanyam, A. (2000). Commonality in liquidity. *Journal of Financial Economics,* 56(1), 3-28.

Cozier, B., & Rahman, A. (1988). Stock returns, inflation and real activity in Canada.*Canadian journal of economics,* 2(3) 759-774.

Cuttler D., Optela M. I., & Summers, L.H. (1989). What moves stock prices? *Journal of Portfolio Management,* 15(1), 4-12.

Da, Z., & Schaumburg, E. (2011). Relative valuation and analyst target price forecasts. *Journal of Financial Markets,* l 14(5), 161-192

Daniel, K., Hirshleife, D. & Subrahmanyam, A. (1998). Investor psychology and security market under- and overreactions. *Journal of Finance, 53(6), 1893-1885.*

Dasgupta, R. (2014). Stock market-driven factors of investors' sentiment: A review of stylized facts. *European journal of business and management, 6(17), 35-56.*

Datar, V N. Y., Nai, Y. , & Radcliffe, R. (1998). Liquidity and stock returns: An alternative test. *Journal of Financial Markets* 1(1), , 203-219.

DeLong J. B., Shleifer, A., Summers, L.H., & Waldmann, R .J. (1990b). Positive feedback investment strategies and destabilzing rational speculation. *Journal of Finance,* 45(2), 379-395.

DeLong, B., Shleifer, A., Summers, L.H., & Waldmann, R. J. (1990a). Noise trader risk in financial markets. *Journal of Political economy,* 98(4), 703-738.

Demirguc-Kunt, L., Ross L., & Zervos, S. (1993). Stock market development and financial intermediary growth. *World Bank Policy Research Working Paper*, Washington DC: World Bank.

Desmond, D. A., (2002). Liquidity of Emerging Markets, Working paper, Tulane University.

Desmond, D.A., Joseph P., Ogden, H., & Charles A. T. (1999). A new estimste of transaction costs. *Review of Financial Studies,* 12(3), 1113-1141.

Dhar, R., & N. Zhu (2006). Up Close and Personal: Investor sophistication and the dispositon effect. *Journal of Management Sciences, 52(6), 726-740.*

Diamond, D. W., & Verrecchia, R. E.(1981). Information Seggregation in a Noisy rational expectations Economy. *Journal of Financial Economics 9(7), 221-235*.

Dorn, A .J., Dorn, D., & Sengmueller, P. (2007). Trading as gambling: Evidence from the U.S.,Working paper, University of Amsterdam Business School.

Dorn, D., & Huberman , G. (2005). Talk and action: what individual investors say and what they do. *Review of Finance, 9(6), 437-481*.

Døskeland, T. & Hvide, H. (2011). Do individual investors have asymmetric drivers. *Act psycholology, 47(1), 143-148.*

Eckbo, B. E., & Oyvind, N. (2004). Liquidity risk, leverage and rong-Run IPO Returns. *Journal of Corporate Finance, 11*(1), 1-35.

Elton, E. J., Gruber, M .J., & Busse, J .A. (1998). Do investors care about sentiment? *Journal of Business* 71(4) , 477-500.

Ezeabasili, V. N. (2009). The effects of fiscal deficits on selected macroeconomic variables in Nigeria (1970-2006). An unpublished Ph.D thesis in thedepartment of Banking and Finance, faculty of management sciences, Nnamdi Azikiwe University, Awka.

Fair R. C., & Jaffee, J .H. (1972). Methods of estimation for markets in disequilibrium. *Econometrica*, 9(3) ,716-787.

Fair, R. C., & Kalejian, H. (1974). Methods of estimation for markets in disequilibrum. *Econometrica*, 22(4), 76-94.

Fair. R. C., & Kalejian, H. (1974). Methods of estimation for Markets in disequilibrium: A further study. *Econometrica, 22(4), 112-134.*

Fama E. F. (1981). Stock returns, real activity, inflation and money, *American economic review. 71(4), 654-673.*

Fama, E., & G. Schwert, J. (1997). Asset returns and inflation. *Journal of financial economics, 8(5), 115-146*

Fama, E., & Gibbons, M. (1984). A comparison of inflation forecasts, *Journal of monetary economics. Journal of Financial Economics, 4(3),76-95.*

Fama, E., & Schwert, J. (1997). Asset return and inflation. A *journal of financial economics* ,1(6), 115-146.

Fama, F., & French, R. (2001). Disappearing dividends: Changing firm characteristics or lower propensity to pay? *Journal of Financial Economics* 60(6), 3–44.

Fan, C. S., & Wong, P. (1998). Does consumer sentiment forecast household spending? The HongKong case. *Economic letters,* 58(1), 77-84.

Feng, L., & Seasholes, M. (2005). Do investor sophistication and trading experience eliminate behavioral biases in financial markets? *Review of Finance, 9(1), 305-351.*

Finter, P., Niessen-Ruenzi, A., & Ruenzi, S. (2011). The impact of investor sentiment on the German stock market. *CFR-Working Paper No. 10-03,*

Fisher, K. L., & Statman, M. (2000). Investor sentiment and stock returns. *Financial Analysts Journal*, 56(2), 16-23.

Fisher, K. L., & Statman, M. (2003). Consumer confidence and stock returns. *Journal of Portfolio Management*, 30, 115-127.

Frazzini, A. (2006). The disposition effect and underreaction to news. *Journal of Finance 61(5), 2017-2046.*

Frydman, C. C., Camerer, N., Barberis, P., Bossaerts, A., Gao, X., & Lin, T. (2010). Do behavioral needs Influence the trading activity of individual investors? Evidence from India. Repeated Natural Experiments, AvailableSSRN: http://ssrn.comabstract=1622184.

Gemmill G., & Thomas D .C. (2002). Noise trading, costly arbitrage, and asset prices: Evidence from closed- end funds. *Journal of Finance*, *57*(6), 2571-2594.

Gervais, S. & Odean, T. (2001). Learning to be overconfident. *Review of Financial Studies 14(1), 1-27.*

Glaser, M., & Weber, M. (2007). Overconfidence and trading volume. Geneva risk and Insurance review, 32(3), 1-36.

Glaser, M., Schmitz, P. & Weber, M. (2009). Individual investor sentiment and stock returns - What do we learn from warrant traders? [Available at SSRN:http://ssrn.com/abstract=923526].

Graham, J. R., Harvey, C. R., & Huang, H. (2009). Investor competence, trading Investment choices of Individual Investors," Management Science.54:1052-1064.

Granger, C. W. J. (1988). Some recent developments in the concept of causality. *Journal of Econometrics, 39(4), 45-71.*

Grossman, S .J., &. Stiglitz, J.E. (1980). On the impossibility of informationally growth (A case of Nigeria). *Universal Journal of management and social sciences, 2(11), 88-109.*

Harri., M., & Raviv, A. (1993). Differences of opinion make a horse race. *Review of Financial Studies* 6(3), 473-506.

Heath, C., Huddart, S., & Lang, M. (1999). Psychological Factors and Stock Option Exercise, Quarterly. *Journal of Economics 114(2), 601-627*.

Henderson, V. (2009). Prospect theory, liquidation and the disposition effect. EFA2009 Bergen Meetings Paper, Available at SSRN: http://ssrn.com/abstract=1343761.

Horn, J. L. (1965). A rationale and test for the number of factors in factor analysis. *Psychometrica, 30*(2), 179-185.

Huerta, D., & Liston, D. P. (2011). The role of investor sentiment on Mexican stockmarket returns and volatility. Discussion Paper. South Finance Association.

Ibbotson, R. & Jeffrey F. J, (1975). Hot issue, markets. *Journal of Finance,* 30(1), 76-97.

Ibrahim, A., Bawa, S., Abdullahi, S. I., Didigu, C. E., & Mainasara, S. S. (2015). Consumer confidence indicators and economic fluctuations in Nigeria. *CBN Journal of applied statistics, 6(1), 261-285*

Inyiama, O. I. (2014). Macroeconomic variables and share price movements in Nigeria brewery industry: Evidence from Guinness breweries PLC. *International journal of developing & emerging economies* , 2(2) 28-40.

Ivkovic, Z., & Weisbenner, S. (2005). Local does as local Is: Information content of the geography of individual investors' common stock. *Journal of Finance 60(1), 267-306.*

Jagannathan, R., & Wang. Z.Y. (1998). An asymptotic theory for estimating beta- pricing models using cross-sectional regression. *Journal of Finance, (53)1285-1309.*

Jansen, W. J., & Niek, J. N. (2003). The Stock Market and Consumer Confidence: European Evidence. *Economics Letters* 79(1), 89-98.

Johnson, R. A., & Wichern, D. W. (2002). Applied multivariate statistical analysis (5th ed.). New Jersey: Prentice Hall.

Johnson, S. A., Lei, A., Lin J., & Sanger, C. G. (2006). Trading volume trend, investors sentiment and stock returns. *Journal of Financial Markets, 7(1), 207-235*.

Jolliffe, I. T. (2002). Principal component analysis (2nd ed.). New York: Springer.

Jones, C. (2001). A century of stock market liquidity and trading costs, Workingpaper, Columbia University.

Jones, C. M., Kaul, G., & Lipson, M. L. (1994). Transactions, volume, and volatility. *Review of Financial Studies* 7(1), 631-651.

Lynch, K.J., & Michaely, R. (2000) . Prices, liquidity, and *quantitative* analysis. *Journal of Finance, 33*(4), 523–547

Kaiser, H. F. (1960). The application of electronic computers to factor analysis. *Educatitnal and Psychological Measurement, 20*(1), 141-151.

Karpoff, J. M. (1986). A theory of trading volume. *Journal of Finance,* 41, 1069-10087.

Kaustia, M. (2004). Market-wide impact of the disposition effect: Evidence from IPO trading Volume. *Journal of Financial Markets, 7(1), 207-235*.

Kumar, A., & Lee, C.M.C. (2006). Retail investor sentiment and return co-movements. *Journal of Finance*, 61(1), 2451-2486.

Kumar, A. (2009a). Hard-to-value stocks, behavioral biases, and informed trading. *Journal of Financial and Quantitative Analysis, 44(5), 1375-1401*.

Kumar, A. (2009b). Who gambles in the stock market? *Journal of Finance 54(5), 1889-1933.*

Kumar, A., & Lim, S. (2008). "How do decision frames influence the stock? *Journal of Political Economy 111(1), 1183-1219*.

Kuzmanovic, M., & Sanfey, P. (2012). Can consumer confidence data predict real variable / evidence from Croatia. *A publication of the European bank for construction and development, 2(1), 38-57.*

Kuzmina, J. (2010). Emotion's component of expectations in financial decision making. *Baltic Journal of Management*, 5(3), 295-306.

Kyle, A. S., & Wang, F .A. (1997). Speculation duopoly with agreement to disagree: Can overconfidence survive the market test? *Journal of Finance 5(1), 2073-2090*.

Lahmiri, S. (2011). Neural networks and investor sentiment measures for stock market. *Trend Prediction*, 27(1), 1-10.

Lakonishok, J., & Lee, I. (2001). Are insider trades informative? *Journal of Financial Studies*, 14(1), 79–111.

Lee, C.M.C., & Swaminathan, B. (2000). Price momentum and trading volume. *Journal of Finance* 55(5), 2017-2069.

Lee, C. M., Shleifer, A., & Thaler, R. H. (1991). Investor sentiment and the closed-end fund puzzle. *The Journal of Finance, 46*(1), 75-109.

Lee, C.M.C., Belinda M., & Mark J. R. (1993). Spreads, depths, and the impact of earnings information: An intraday analysis. *Review of Financial Studies*, 6(1), 345-374.

Lemmon, M., & Portniaguina, E. (2006). Consumer confidence and asset prices: some empirical evidence. *Review of Financial Studies*, 19(4), 1499–1529

Lervine, R. (1997). Financial development and economic growth: Views and agenda economic growth: Views and agenda. *Journal of Economic studies, 3(6), 65-87.*

Levine R., & Sara, Z. (1996). Stock markets development and long run growth. *The World Bank economic review*, 10(2), 323-339

Li, C. A., Hsu, A. C., & Ley, H. J. (2008). Market crashes and investor sentiment: The case of Taiwan. *Journal of International Management Studies*, 3(1), 275-283.

Liang, W. J. C., & Ouyang, Y. (2010). The impact of investor sentiment on excess returns: a Taiwan stock market case. *International Journal of Information and Management Sciences*, 21(1), 13- 28.

Ling, D., Naranjo, A., & Scheick, B. (2010). Investor sentiment and asset pricing in public and private markets. Real estate Warrington College of Business Administration University. *Literature,* 35(1), 688 – 726.

Llorente, G., Roni, M., Sarr, G., & Wang, J. (2002). Dynamic volume-return relation of individual stocks. *Review of Financial Studies*, 15(2), 1005-1047.

Lo, A. W., & Jiang Wang, (2000). Trading volume: Definition, data analysis, and implications of portfolio theory. *Review of Financial Studies,* 13(1), 257-300.

Lowry k., & Schwert, G. (2002). IPO market cycles: Bubbles or sequential learning? *Journal of Finance,* 57(1), 1171–1200.

Lux, T. (2010). Sentiment dynamics and stock returns: The case of the German stock market. *Empirical Economics*, 41(3), 663-679.

Malaodu, V. A., Ogbuabor, I. E., & Orji, A. (2013). Determinants of stock price movements in Nig: Evidence from monetary variables. *Journal of economics and sustainable development, 4(14) 61-76.*

Mankiw, S. (1997). Infationary expectation, *Journal of Economics and Finance. 1(43), 241-301*.

Massa, M., & Simonov, A. (2006). Hedging, familiarity, and portfolio choice. *Journal of Financial and Quantitative Analysis*, *33*(4), 523–547.

Mckinnon, R. (1973). *Money and capital in economic development*, Washington DC: Brookings institution. Information based on work experience? *Journal of Finance, 66(1), 1011-1041*.

Mclean, D., & Zhao, M. (2009). Investor sentiment and real investment.University of Alberta.Availablefromhttp://home.business.utah.edu/finmh/MZSentiment October26..pdf.

Michelfelder, R. A., & Pandya, S. (2005). Volatility of stock returns: emerging and mature markets. *Managerial Finance*, 31(2), 66-86.

Miller, E. M. (1977). Risk, uncertainty, and divergence of opinio Premium. *Journal of Finance*, 28(1), 67-78.

Miller. S., & Russell, C.(1990) Investigating casual relations by econometric models. *Econometrica, 49(6), 879-912*.

Mitton, T., & Vorkink, C. (2007). Equilibrium underdiversification and the preference for skewness. *Review of Financial Studies, 20(3), 1255-1288*.

Moore, D., & Healy, P. J. (2008). The trouble with overconfidence, psychological Review, 115(4), 502- 517.

Muermann, A., & Volkman, J. (2006). Regret, pride and the disposition effects.Working Paper. The Wharton School.

Musa, A. (2006). The Nigerian capital market and socio-economic development in Nigeria: An empirical analysis. *Nigeria Journal of Banking and Economic Issues*, 5(1), 55-67.

Neal, R., & Wheatley, S.M. (1998). Do Measures of investor sentiment predict returns?.*Journal of Financial & Quantitative Analysis*, 33(4), 523-548.

Neal, R., & Simon, W. (1998). Do measures of investor sentiment predict returns in Stock Markets. *Journal of Finance,* 4 (2), 1439-1464.

Newey, W. K., & West, K. D. (1987). A simple, positive-definite, heteroskedasticity and autocorrelation consistent covariance matrix. *Econometrica*, 55(1), 703-708.

Nzotta, M. S. (2002). The Nigeria capital market challenges and opportunities. *Journal of Professional Administration*, 5(2), 6-22

Odean, T. (1998). Volume, volatility, price, and profit when all traders are above average. *Journal of Finance ,53(1), 1887-1934.*

Odean, T. (1999). Do investors trade too much? American economic review information content of trades. *Review of Financial Studies* 13(5), 659-696.

Ofek, G., & Richardson, K. (2002). Dotcom mania: the risk and fall of internet stocks. *Journal of Finance*, 58(3), 1113-1138.

Oke, B. O., & Mokuolu, J. O. (2004). Stock market development and economic growth in Nigeria: An empirical analysis. *Nigeria Journals of Banking and Finance,* 2(1), 34-56.

Palomino, F. (1996). Noise trading in small markets. *Journal of Finance*, 51(1), 1537-1550.

Pastor, L., & Stambaugh, R. F. (2003). Liquidity risk and expected stock returns. *Journal of Political Economy*, 111(5), 642-685.

Patrick, H. T. (1966). Financial development and economic growth in under development economies. *Economic development and cultural change*, 9(2),14-32.

Peng, L., & Xiong, W. (2006). Investor attention, overconfidence, category and learning. *Journal of Financial Economics, 60(4), 563-602*.

Petkova, R. (2006). Do the fama-french factors proxy for innovations in predictive variables? *The Journal of Financ*, 61(2), 581-612.

Poterba, J.M. (2003). Employer stock and 401(k) Plans. *American Economic Review, 93(1), 398-404*.

Qiu, L., & Welch, I. (2004). Investor sentiment measures. *Working Paper*, 1–39.

Rehman, M. U. (2013). Investor's sentiments and stock market volatility: An empirical evidence from emerging stock market. *Pakistan Journal of Commerce and Social Sciences*, 7(1), 80-90.

Ritter, J. (1991). The long-run performance of initial public offerings. *Journal of Finance* 46, 3–27.

Ross, S. (1989). Information and Volatility: The No-Arbitrage Martingale approach to timing and resolution irrelevancy. *Journal of Finance* 4(1), 1-17.

Rouwenhorst, K. G. (1999). Local return factors and turnover in emerging stock markets. *Journal of Finance,* 54(3), 1439-1464.

Schaul, K. (2013). Investor sentiment: the impact of a search-based measure of sentiment on equity market returns. A master thesis in finance submitted to Tilburg University Faculty of economics and business administration department of finance.

Scheinkman, J., & Xiong, W. (2003). Overconfidence and speculative bubbles in stock markets. *Journal of Finance* 5(4), 1439-1464.

Schmeling, M. (2008). Investor sentiment and stock returns: some international evidence. A discussion paper, no 407 November .

Schmeling, M. (2009). Investor sentiment and stock returns: some international evidence. *Journal of Empirical Finance,* 16(3), 394-408.

Schmeling, M. (2009). Investor sentiment and stock returns: Some international evidence. *Journal of Empirical Finance, 16, 394-408.*

Seasholes, M. S., & Zhu, N. (2010). Individual investors and local bias. *Journal of Finance 65(4),1987-2010.*

Seru, A., Shumway, T., & Stoffman, N. (2010). Learning by trading. *Review of Financial Studies, 23(1), 705-839.*

Seyhun, H. N. (1998). Investment Intelligence from Insider trading . *Journal of Finance, 5(2), 46-67.*

Shapira, Z., & Venezia, I. (2001). Patterns of behavior of professionally managed and independent investors. *Journal of Banking and Finance, 25(1), 1573-1587.*

Shaw, E.S. (1973). Economic deepening in economic development. Time Sense with a Unit Root. Forward of the American StatisticalInformation Content of Trades. *Review of Financial Studies* 13(1), 659-696.

Shefrin, H.M., & Statman, M. S. (1985). The disposition to sell winners too early and ride losers too long: Theory and e*vidence. Journal of Finance, 40(1), 777-790.*

Shiller, R. J. (1981). Do stock prices move too much to be justified by subsequent changes in dividends? *The American Economic Review, 71*(3), 421-436.

Shiller, R. J. (1984). Stock prices and social dynamics. *Brookings Papers on Economic Activity, 1*(2), 457-510.

Shiller, R .J. (1981). Do stock prices move too much to be justified by subsequent movements In dividends? *American Economic Review*, 71(3), 421-436.

Shleifer, A., & Summers, L.H. (1990). The noise trader approach to finance. *Journal of Economic Perspectives*, 4(2), 19-33.

Shleifer, A., & Summers, L. H. (1990). The noise trader approach to finance. *Journal of Economic Perspectives 4, 19-33*.

Shleifer, A., & Vishny, R. (1997). The limits of arbitrage. *The Journal of Finance, 52*(1), 35–55.

Shu, H. (2010). Investor mood and financial markets. *Journal of* Economic Behavior *and Organization, 76*(2), 267-282.

Sias, R. W., Laura T. S., & Seha ,M. T. (2001). *Journal of Financial management Research*, 24(4), 311-329.

Smidt, S. (1968). A new look at the random walk hypothesis. *Journal of Financial and Quantitative Analysis, 3*(3), 235-261.

Stigler, G. J. (1964). Public regulation of the securities markets. *Journal of Business,* 37(1), 117–142.

Strahilevitz, M., Odean, T., & Barber, B. (2011). Once Burned, Twice Shy: HowNaïve Learning, Counterfactuals, and Regret Affect the Repurchase of Stocks Previously Sold. *Journal Marketing Research, Trend Prediction*, 27(1), 1-10.

Summers, B., & Duxbury, D. (2007). Unraveling the disposition effect: The role of prospect theory and emotions. Working paper, Leeds University Business School,US.

Swaminathan, B. (1996). Time-varying expected small firm returns and closed-end fund discounts. *Review of Financial Studies*, 9(3), 845-887.

Tetlock, P. (2007). Giving content to investor sentiment: The role of media in the stock market. The Journal of Finance, 62(1), 1139-1168 .

Uygur, U., & Tas, O. (2012). Modeling the effects of investor sentiment and conditional volatility in international stock markets. *Journal of Applied Finance & Banking, 2(5), 239-260.*

Wang, F.A. (2001). Overconfidence, investor sentiment, and evolution. *Journal of Financial Intermediation, 10(1), 138-170.*

Wang, Y. H., Keswani, A., & Taylor, S. J. (2006). The relationships between sentiment, returns and volatility. *International Journal of Forecasting*, 22(1), 109-123.

Wang, Y. M., Li, C. A., & Lin, C. F. (2009). The impact of investor sentiment on the futures market: evidence from the Taiwan futures Exchange. *International Research Journal of Finance and Economics*, 29(6), 134-151.

Wang, Y., Keswani, A., & Taylor, S. J. (2006). The relationships between sentiments, returns volatility. *International Journal of Forecasting, 22*(1), 109-123.

Weber, M., & Camerer, C .F. (1998). The disposition effect in securities trading: An experimental analysis. *Journal of Economic Behavior and Organization, 33(1), 167-184.*

Yang, Y., & Copeland, L. (2014). The effects of sentiment on market return and volatility and the cross-section risk premium of sentiment-affected volatility Cardiff Economics Working paper

Yao, J. D., & Li, J. (2011). Prospect theory and trading patterns: Large sample evidence across investors classes. *International Review of Finance*, 6(1), 42-78.

Yoshinaga, C. E., & Figueiredo, F .H. (2012). The relationship between market sentiment index and stock rates of return: a panel data analysis. Available online at http://www.anpad.org.br/bar

Yung-Chou, L. (2005). The trading volume trend, investor sentiment, and stock returns.Ph.D. Louisiana State University.

Zhang, C. (2008). *Defining, modelling, and measuring investor sentiment* (Doctoral thesis). University of California, Berkeley, USA.

Zubairu, M. (2016). The influence of investors' sentiment on stock market returns in Nigeria. Collections of the seminar papers of the faculty of Administration Ahmadu Bello University, Zaria.

Zweig, M. E. (1973). An investor expectations stock price predictive model closed-endfund premiums. *Journal of Finance*, 28(1), 67-78.