EFFECT OF STOCK MARKET CHARACTERISTICS ON MARKET RETURN IN NIGERIA

By

MOHAMMED, Rilwan Obere

NSU/ADM//M.Sc./580/12/13

BEING A DISSERTATIONSUBMITTED TO THE SCHOOL OF POSTGRADUATE STUDIES NASARAWA STATE UNIVERSITY, KEFFI IN PARTIAL FULFILMENT FOR THE REQUIREMENT OF THE AWARD OF MASTER OF SCIENCE (M.Sc)

ACCOUNTING AND FINANCE

DEPARTMENT OF ACCOUNTING

FACULTY OF ADMINISTRATION

NASARAWA STATE UNIVERSITY, KEFFI

DECLARATION

I hereby declare that this dissertation has been written by me and it is a report of my research work. It has not been presented in any previous application for Master of Science (M.Sc) in Accounting and Finance. All quotations are indicated and sources of information specifically acknowledged by means of bibliography.

MOHAMMED, Rilwan Obere Date/Sign

NSU/M.Sc/ADM/580/12/13

CERTIFICATION

The Dissertation entitled "Effect of Stock Market Characteristics on Market Return in Nigeria" meets the regulations governing the school of post graduate studies for the award of Master of Science (M.Sc.) Degree in Accounting and Finance, Faculty of Administration, Nasarawa State University Keffi, for its contribution to knowledge and literary presentation.

Dr. A.D Zubairu Date

Chairman, Supervisory Committee

Prof. A.P. Adejola

Member, Supervisory Committee Date

Dr. S. A. Alhassan Date

Head of Department

Prof. U. Uwaleke

Internal Examiner Date

Prof. M. Tanko

External Examiner Date

Prof S.A.S Aruwa Date

Dean, School of Postgraduate Studies

ACKNOWLEDGEMENTS

First and foremost, all thanks and praises goes to Almighty Allah for bestowing me with health, guidance, perseverance and seeing me through the dissertation work.

I remain grateful to my supervisor Dr.A.D Zubairu and Prof. A.P. Adejola who despite their tight schedule still created time for me to see that the work is done. Similarly, I want to use this medium to thank H.O.D in person of Dr. Hassan Ibrahim for his wonderful and elderly advice towards my dissertation.

My profound gratitude goes to my late parents Alh. Muhammad Wakili Obere and Hajiya Halima Muhammad Obere for the pains taken right from primary school to this level, May Allah forgives them and grants them Jannatul Firdausi.

I must also not forget Dr.A.A Musa for his generosity, advice and support all times I ran to him. So also, I thank my lectures, Dr. I.O Abdullahi, Dr. S.A. Alhassan, Prof. Uche Uwaleke, Dr. Musa Naburgi and Mallam Hassan Musa for your wonderful support to this research work.

I sincerely thank the staff of Nigerian stock exchange commission for helping me with the relevant materials for the purpose of this dissertation.

Furthermore, my appreciation also goes to my brothers: Col. U.M Obere, and Hon/Barr. A.O Kana and the entire Obere's family for their immense support and always being there for me. May Allah continue to guide us and unite the entire family the more.

ABSTRACT

The stock market provides a very good avenue for firms to raise funds. For the market to be able to provide the required capital, it has to be liquid, stable and have a robust capitalization. These key characteristics are crucial thus this study examine their effects on the stock return. The study focused on the oil sector which has a good present in the market and the fact that the constant fluctuation in the global oil price affects the level of stability in the stock market. The study used data collected from the seven (7) oil and gas firms listed in the market. The data which include size, volatility and liquidity were tested on the stock return using panel regression. The study observed a considerable level of volatility in the market. The study found that volatility has non-significant negative effects on stock price while liquidity and size are found to have significant positive effect on the prices of listed oil and gas firms. On a general level both liquidity, size and volatility have combined significant effects on the stock prices of the oil and gas companies in Nigeria. The study recommends that level of volatility of oil sector in the market should be minimised by the Nigerian stock exchange. The authority should stipulate the maximum period a capital introduced to the market should stay before it is pulled out by all means. This act will reduce the cause of foreign investors pull out their capital in the case of slight perception of uncertainty in the market. This also has the capacity of checking market abuse by all the market participants.

TABLE OF CONTENTS

Title page		i
Declaration		ii
Certification		iii
Dedication		iv
Acknowledgements		v
Abstract		vi
Table of contents		vii

CHAPTER ONE

INTRODUCTION

1.1	Background to the Study	1
1.2	Statement of the Problem	3
1.3	Research Questions	4
1.4	Objectives of the Study	4
1.5	Statement of Hypotheses	5

1.6 Significance of the Study 5

1.7 Scope of the Study 6

CHAPTER TWO

LITERATURE REVIEW

2.1 Concept of Stock Market Characteristics 7

2.1,1 Concept of Volatility 7

2.1.2 Measurement of Volatility 8

2.1.3 Concept of Liquidity 9

2.1.4 The Role of Liquidity 10

2.1.5 Liquidity Measure 12

2.1.6 Equity Market Return 13

2.2 Nigeria Financial Market 16

2.2.1 Structure of Nigeria Financial Market 16

2.2.2 Function Nigeria Financial Market 18

2.2.3 The Role of Central Bank of Nigeria 22

2.2.4 The Role of Securities Exchange Commission 23

2.2.5 The Role of Nigerian Stock Exchange 24

2.2.6 Overview of the Nigeria Financial Market 31

2.3 Effect of Stock Market Characteristics on Market Return 33

2.3.1 Effect of Volatility on Return 33

2.3.2 Effect of Liquidity on Return 37

2.3.3 Firm Size and Stock Market Return 40

2.4 Theoretical Framework 42

2.4.1 Efficient Market Theory 42

2.5 Summary 43

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Research Design 44

3.2 Population of the Study and Sampling Techniques 44

3.3 Method of Data Collection 44

3.4 Procedure for Data Analysis and Model Specification 45

3.5 Justification of Methods 47

3.6 Summary 47

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

4.1 Data Presentation 48

4.1 Descriptive Statistics of the Dependent and Independent Variables 48

4.2 Correlation Matrix of the Dependent and Independent Variables 50

4.3 Effect of Liquidity, Volatility and Market Size on Stock Return 52

4.4 Discussion of findings 54

4.5 Summary of Findings 55

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMNEDATION

5.1 Summary 56

5.2 Conclusion 57

5.3 Recommendations 58

References 59

Appendices 69

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

The capital market is aninvestment avenues were firms, individuals and government invest and also borrow money for business financing. The ease with which funds can be raised through the trade of financial assets is important to the firms, and the economy at large. The goal of a capital market could be defeated if funds cannot be easily sourced from the market.

As noted by Alexandre (2009), in financial markets, liquidity either refers to the ease with which financial securitiescan be bought and sold or to the ability to trade without triggeringimportant changes in asset prices. Liquidity becomes a risk factor when the magnitude of the impact of these phenomena changes randomly over time. Illiquidity affects the stability of a market, and can equally lead to a market crash. An illiquid market can scare away investor and consequently affects aggregate market return.

While liquidity crises do lead to market uncertainty, volatility refers to the amount of uncertainty or risk about the size of changes in a security's value (Alexandre, 2009). A higher volatility means that a security's value can potentially be spread out over a larger range of values. This means that the price of the security can change dramatically over a short time period in either direction. A lower volatility means that a security's value does not fluctuate dramatically, but changes in value at a steady pace over a period of time.

Excessive financial market volatility may have important effects on real economicactivity and the functioning of capital markets. Periods of extreme volatility may strainthe financial market clearing and settlement infrastructure, causing a loss of investor confidence in the solvency of listed firms, and thereby reduce market participation and liquidity at a time when it is most needed. Such a loss of confidence would intensify volatility and could potentially lead to a temporary breakdown in organised trading.

According to Brennan, J. M., and Cao, H. H. (1997), a severe loss of investor confidence would certainly have effects on the cost and availability of investment capital. The recent instability in stock markets has heightened governmental interest in the integrity of financial markets, and subsequently, measures designed to reduce the systemic risk of financial markets.Financial asset pricing models indicate that the equilibrium risk preemie on riskyasset returns are increasing functions of their non-diversifiable conditional return volatility.Higher required rates of return imply lower financial asset values. Empirical evidencesupports the theoretical predictions, finding that ex-post rates of return on financialassets are positively related to non-diversifiable return variability. Neoclassical investment theory predicts that the higher discount rates caused by excess volatility will increase corporate costs of capital, thereby leading firms to reduce their real investment spending, other things being constant.

Economic factors, such as tax and interest rate policy, contribute to the directional change of the market and thus volatility. For example, if the Central Bank sets the

short-term interest rates for overnight borrowing by banks. When they change the overnight rate, it can cause stock markets to react, sometimes violently.

Changes in inflation trends influence the long-term stock market trends and volatility. Expanding price-earnings ratios (P/E ratio) tend to correspond to economic periods when inflation is either falling or is low and stable. This is when markets experience low volatility as they trend higher. On the other hand, periods of falling P/E ratios tend to relate to rising or higher inflation periods when prices are more unstable. Thistends to cause the stock markets to decline and experience higher volatility (Alexandre, 2009).

Industry and sector factors can also cause increased stock market volatility. For example, in the oil sector, a major weather storm in an important producing area can cause prices of oil to jump up. As a result, the price of oil-related stocks will follow suit. Some benefit from the higher price of oil, others will be hurt. This increased volatility affects overall markets as well as individual stocks.

The Nigerian stock exchange has faced a number of volatility as a result of monetary policy, regulatory issues, illiquidity and volatility it will therefore be useful to examine how the market volatility, liquidity and market size affects the returns on the Nigerian Stock Exchange (NSE)

1.2 Statement of the Problem

Return in the stock market has become a major point of interest for investors. While investors want to generate high return factors such as liquidity, volatility, market size

and volume of transaction are considered as major factors that influence the return level. Empirical studies such as Omiri (2015) found the above listed factors as significant determinants of stock market return. However, Karatzouni (2010) is of the view that the level at which liquidity, volatility and market size affects stock return in the emerging market defers due to the fact that they have high level of volatility and generally are likely to have higher returns. Musa and Yusuf (2012) carried out similar study but used aggregate market data and used number of listed firms as a proxy for liquidity. This is a weakness because literatures have argued on the suitability of number of listed firms as a proxy for liquidity. Again, the study used simple regression model thus could not account for individual firm specific factors. This study therefore, examine the claim of Karatzouni (2010) to see whether the basic market characteristics will also significantly influence market return in Nigeria.

1.3 Research Questions

The following are the research questions to be addressed in this study

i. To what extent does market volatility influence the return on the Nigerian stock market?
ii. At what level does liquidity influence the return of the Nigerian stock market?
iii. What is the effect of market size on stock market return

1.4 Objectives of the Study

The objective of this study is to examine the effect of stock market characteristics on the returns in the Nigerian Stock Exchange. This broad objective is achieved with the help of the following sub objectives:

i. To examine the effect of volatility on the returns on the Nigerian stock exchange
ii. To examine the effect of liquidity on the returns of the Nigerian stock exchange
iii. Examine the effect of Market capitalisation on Stock Market Return

1.5 Statement of the Hypotheses

Ho1 Volatility has no significant effect on stock market volatility and returns on the Nigerian Stock Exchange

Ho2 Stock market liquidity has no significant effect on the return of the Nigerian Stock Exchange

Ho3 Market size has no significant effect on stock market returns of the Nigerian Stock Exchange

1.6 Significance of the Study

This study is significant in the following ways

The findings of this study will help government and other regulatory authorities like the Securities and Exchange Commission (SEC) formulate policies and institute reforms that will enhance and boost confidence in the capital market which is a major force in the development of the nation's economy.

By examining the relationship between volatility, liquidity and returns, it will assist business owners in the management of businesses and firms' opportunities to generate better returns in the market.

Finally, students and academicians willfind this study useful as it increases the body of knowledge on volatility and liquidity on return of the Nigerian stock exchange.

1.7 Scope of the Study

The scope of this study is from 2001 to 2015; this period is large enough to observe any form of volatility, illiquidity and size change in the data. Volume of transaction and standard deviation are used for liquidity and volatility as data are not available for using bid-ask spread and ask spread. Stock market characteristics areproxies using stock market volatility and liquidity. These specific variables were chosen based on the fact that they are the major factors influencing stock prices.

CHAPTER TWO

LITERATURE REVIEW

2.1 Concept of Stock Market Characteristics

2.1.1 Concept of Volatility

Volatility is simply defined as a measure of dispersion around the mean or average return of a security. It is a measure of the range of an asset price about its mean level over a fixed amount of time (Abken& Nandi, 1996). It follows that volatility is linked to the variance of an asset price. If a stock is labelled as volatile the price will vary greatly over time. Conversely, a less volatile stock will have a price that will deviate relatively little over time. Volatility is calculated as the standard deviation from a certain continuously compounded return over a given period of time. It is an important measure of quantifying risk, for example, a security with a volatility of 50% is considered very high risky because it has the potential to increase or decrease up to half its value. Volatility is a measure of risk based on the standard deviation of the asset return. It is a variable that appears in option pricing formulas, where it denotes the clustering of the underlying asset return from now to the expiration of the option (Karolyl, 2001 &Mordi, 2006).

Stock prices are characterized by volatility when significant changes occur, investors tend to panic. Different factors influence the movement in stock prices. Notable among these factors are: arrival and disclosure of new information, demand and supply forces, investor psychology, the economic strength of the market, uncertainty about the future economic outlook.

A number of recent studies have sought to characterize the nature of the financial market return process, which has always been described as a combination of drift and volatility. Volatility may impair the smooth functioning of the financial system and adversely affect economic performance (Rajni&Mahendra, 2007; Mollah, 2009). Stock price volatility is an indicator that is most often used to find changes in trends in the market place. The increase or decrease in volatility results from changes in investor emotions in the market place. Stock price volatility tends to rise when new information is released into the market.

2.1.2 Measurement of Volatility

There are several common ways of estimating volatility. In the present context, all of them produce similar results. Specifically, all of them produce evidence of a u-shaped pattern. A first approach is to compute the standard deviation of returns over successive periods of time, for example, to take end-of-month data for the 12 months of the year and calculate volatility as the standard deviation of those 12 monthly observations, and then to roll the window forward in time (drop month 1 and add month 13). An application of this method is Officer (1973). A potential problem with OfficerApproach is that the use of overlapping observations will create a correlation between standard deviations at different points in time.

An alternative is for non-overlapping observations: to compute the standard deviation using, say, months 1 through 12, 13 through 24, and so forth. The problem here is that the period segmentation is arbitrary and the result is relatively few data points. In practice, however, we obtain extremely similar results using the two approaches. An alternative is to specify a parametric model of asset returns and to use it to derive

estimates of volatility. Based on the observation of serially correlated volatility, Bollerslev (1986) suggested the Generalized Autoregressive Conditionally. However, using the non-overlapping approach for the sake of simplicity, since all approach produces nearly the same result.

2.1.3 Concept of Liquidity

A stock market is liquid when a large transaction takes place without affecting the price of securities or a stock is illiquid when “sell orders” are filled with lower price than “buy orders”. So; stock markets are trapped in a low liquidity –high risk premium equilibrium (Pagano, 1993). Investors have fewer opportunities to diversify their portfolios are at high risk. Less opportunities for diversification cause a panic amongst the investors and they start to fill lower price sell orders than stock market investors start to bear losses.

Liquidity refers to the ease by which an asset can be sold immediately after purchase without lowering the price and without incurring transaction costs. This means that whenever an investor considers a potential investment in an asset, she considers very thoroughly the ability to sell it again, what it will cost to trade it in the future and at what price it can be sold. These considerations relate to the liquidity of the asset, and the issues considered can affect the future cash flows of the asset. As future cash flows are affected by liquidity, it must be an important factor in asset pricing. Costly trading and possible future price reductions in case of forced sale are not pricing factors solely related to financial assets such as stocks - thus, liquidity affects the pricing of most asset classes. Damodaran (2005) describes the cost of illiquidity as the cost of buyer's remorse: "When you buy a stock, bond, real asset or a business, you

sometimes face buyer's remorse, where you want to reverse your decision and sell what you just bought. The cost of illiquidity is the cost of this remorse"

Hasbrouck and Schwartz (1988) point out that the concept of liquidity is widely used but not easily defined nor readily measured. They develop a method of quantifying liquidity and present three characteristics that can be used to describe the liquidity of an equity market. These are depth, breadth and resiliency. Depth describes the existence of orders on both sides of the order book near the price at which shares are currently trading. Depth is lacking when the bid-ask spread is large or when prices are rounded substantially to the nearest even number. Breadth describes the existence of orders in substantial volume. Breadth is lacking when the effective spread or the difference between the midpoints of the bid-ask spread and the execution price for large orders is large. Resiliency describes the responsiveness of new orders to price changes caused by temporary order imbalances. Resiliency is lacking when the order flow does not adjust quickly to errors in price discovery. Hasbrouck and Schwartz also conclude that execution costs depend on individual characteristics of the asset traded, the design of the trading system and on the trading strategies used by market participants. Passive traders who post limit orders and wait for the contra side to come to them may avoid execution costs or even profit from them. Active traders who seek immediate transactions generally incur transaction costs.

2.1.4 The Role of Liquidity

Some literature provides evidence that market liquidity has important effects on risk of emerging market investment and, therefore, on the future returns. As Bekaert et al. (2002) find, liquidity measure significantly predicts future returns and equity market

liberalization significantly improves the level of liquidity. As a result, the increasing investment interest in emerging markets relative to developed market yields spectacular returns, which are subject to increased risk and are significantly reduced by the increased illiquidity of trading stocks in emerging markets.

Studies such as Lesmond (2005) and Bekaert et al. (2007) suggest that liquidity has many dimensions. Lesmond (2005) indicates that liquidity varies considerably across emerging markets. He finds that price-based measures of liquidity are more correlated with transaction costs compared to those based on trading volume. Similarly, Bekaert et al. (2007) present evidence that trading volume based liquidity proxy in emerging markets does not predict future returns while some other liquidity measures do. In addition, Amihud (2002) measures market illiquidity as the daily ratio of absolute stock return to its dollar volume averaged over some period and points out that expected market illiquidity positively affects ex ante stock excess return, whereas Jun et al. (2003) document a positive correlation between returns and turnover in the markets for emerging countries, a puzzling result contrary to the existence of liquidity premium.

Literature indicates the multiple dimensions of liquidity measure: trading costs, trading frequency, trading intensity, and price impacts. While some studies on equity flows include share turnover as a control variable, there is no study that considers the possibility that one single liquidity measure might not completely capture a country's stock market liquidity.

2.1.5 Liquidity Measures

The theoretical model of Kyle (1985) indicates that liquidity is a broad concept, thus not easily measured by one variable. That is, liquidity has more than one dimension, including trading costs, trading intensity, and price impacts. In particular Korajczyk and Sadka (2008) use a combination of different liquidity measures and conclude that it is more informative than a single liquidity measure. In other words, liquidity cannot be measured by one variable alone.

There are quite a few alternative liquidity measures. Bekaert, Harvey, and Lundblad(2003) use a transformation of the proportion of zero daily firm returns, averaged over the month, as a measure of liquidity. Their liquidity measures significantly predict future returns, whereas alternative measures such as turnover do not. Amihud (2002) proposes a price impact measure, defined as the absolute value of stock returns scaled by dollar volume. The measure of stock illiquidity is the daily ratio of absolute stock return to its dollar volume, averaged over some period. It can be interpreted as the average price response associated with one dollar of trading volume, thus serving as a rough measure of price impact. Jun, Marathe, and Shawky (2003) analyse some emerging market stocks and use the turnover ratio as a proxy for liquidity.

Interestingly, they find a positive relation between returns and market turnover, a finding that is also inconsistent with risk and return trade off. Brennan and Subrahmanyam (1996) use price impact, which is the price response to signed order flow (order size), and the fixed cost of trading to measure stock illiquidity, and find that these measures of illiquidity positively affect stock returns. Datar, Naik, and

Radcliffe (1998) employ the turnover rate as a proxy for liquidity on monthly return data for NYSE stocks over the period 1962 to 1991. Chalmers and Kadlec (1998) measure liquidity by using the amortized effective spread and a document that liquidity positively affects stock returns. Chordia et al. (2001) use both dollar trading volume and stock turnover to measure liquidity.

2.1.6 Equity Market Return

Earlier studies on equity flows to emerging markets focus on the relevance of macroeconomic variables especially stock market returns. In an early study that covers both emerging and developed countries, Bohn and Tesar (1996) document no strong relation between stock returns and equity flows. Brennan and Cao (1997) theorize that, when foreign investors face an information disadvantage, they tend to chase foreign returns; that is, buy when foreign returns are high and sell when returns are low. Using data on several emerging markets in early 1990s, they found evidence supportive of their model. Using daily flow data from one investment firm, Froot, O'Connel, and Seasholes (2001) present evidence also consistent with flows being affected by past returns. Additionally, they document that flows have predictive power for future returns. More recently, Griffin, Nardari, and Stulz (2002) provide an empirical investigation using daily fund flow data, which they obtain directly from exchanges from nine emerging markets. They find that equity flows are positively correlated to past host country returns as well as home country returns. That is, the evidence suggests that equity flows are both pushed and pulled by related market returns; however, the effects are relatively short-lived—present only in daily data but not so with the use of weekly data. Overall, the evidence concerning the effects of market returns are not conclusive.

Edison and Warnock (2003) find that flows are related to the degree of capital control, as well as economic conditions proxied by interest rates. They point out that the intensity of capital control indicates the openness to foreign investment, which in turn measures a government's commitment to free market policies. Their evidence suggests that markets are more likely to be viable if they have less restriction imposed on foreign investors.

Country risk, such as political risk, exchange rate movement, economic risk, etc., affects the investment climate within a country and the allocation of foreign investment. Extant literature explores various indicators for country risk and their impacts on international trading.

Some of the risks include: political risk, exchange rate movement, stock market transparency, investor protection, and economic freedom as components of country risk. Erb, Harvey, and Viskanta (1996) find a link between cross-border investments and political risk and suggest that political stability is necessary to support free market development and attract and retain long-term sources of capital.

Blonigen (1997) states that exchange rate movements play an important role in influencing foreign direct investment. A country's exchange rate regime developed by Reinhart and Rogoff (2003) is used as an indicator of whether the exchange rate is pegged, managed float, or floating. Gelos and Wei (2005) use the Global Competitiveness Report to measure transparency and point out that fund inflows are on average greater in countries and in firms with a greater degree of transparency.

Moreover, some studies also use accounting standards a proxy for transparency. For example, Aggarwal et al. (2005) utilize both country-level and firm-level data on corporate governance including accounting standards. Based on U.S. fund holdings in 2002, they find that funds tend to invest more in countries with stronger accounting standards and shareholder protections.

Partly in response to the crisis in confidence regarding corporate governance, a few recent papers examine the role of corporate governance in equity flows across countries, La Porta, Lopez-de-Silanes, and Shleifer (1997) establishes a link between share holdings and shareholder protection. Wurgler (2000) further finds that capital is more efficiently allocated in countries with better legal protection for minority investors and more firm-specific information in domestic stock returns.

Economic freedom measures country's economic performance and the consistency of its institutions and policies. Kim (2008) points out that greater economic freedom implies fewer barriers to economic activities and tends to generate more opportunities for people and create lasting prosperity.

Both trading restrictions and liquidity are important considerations for traders that place a high value on liquidity. We consider short-selling restrictions as another important aspect for the ease of trading. Bris, Goetzmann, and Zhu (2007) present evidence that short-selling constraints affect a market's degree of efficiency. They find that prices reflect negative information faster in countries where short-selling is practiced. In that paper, they carefully collect information about short-selling practices in various countries and construct a short-selling indicator, which we utilize

here. Moreover, Ahearne, Griever, and Warnock (2004) find that the portion of a country's market that has a public U.S. listing is a major determinant of a country's weight in U.S. investors' portfolio.

2.2. Nigeria Financial Market

2.2.1 Structure of Nigerian Financial Market

According to Abudu, Bamidele, Okafor and Adamgbe (2004) Nigerian financial market structure is unique and different from those of most other countries. The structure of the Nigerian financial market is broadly divided into money market and capital market, of which money market deals with short term securities while capital market deals with long term securities (Ebajemito, Kama, Salam and Anyakoha, 2004). Capital markets made it possible to develop projects that required large capital injections for long periods before the projects ultimately yielded profits (Muhtadi and Agarwal, 1997).

According to Odoko, Adamu, Dina, Golit and Omanukwe (2004), the Nigerian capital market is structured into the stock market and commodities market. The Nigerian stock market is one of the divisions of the Nigerian capital market that provides facilities for mobilising and dealings in medium and long term funds. The commodities market is a segment of the Nigerian capital market where commodities are traded such as agricultural product, oil products, and precious metals. The Central Bank of Nigeria (CBN), which is the apex regulatory authority in the financial system, has through its monetary policies the responsibility of creating stable economic conditions in the country. The CBN has direct control and supervision over government regulatory agencies, as well as banking and non-banking financial

institutions. Banking institutions are those who obtain their funds from deposits while non-banking institutions obtain theirs from other than deposits. Regulatory agencies include the Security Exchange Commission (SEC), and the Nigerian Deposit Insurance Corporation (NDIC).

The SEC is at the apex of the capital market and its objectives are mainly the protection of investors and capital market development. In order to achieve these objectives, the commission has several powers. It regulates the market against malpractice of securities trading and assures that information flows smoothly. It encourages economic development by providing incentives for domestic savers and by attracting foreign capital for domestic investments. It determines the time, the amount and prices of new issue shares so that excess demand does not arise at any particular time. It registers the institutions and individuals involved with the market-making so that investors have the necessary assurance that the market is governed by proper standards of conduct. The SEC has the function of de-listing a firm's security for rule violations. It also has control over mergers/acquisitions and all other forms of business combinations. By organizing workshops, symposiums and international conferences, and also through cooperation with other regional and international organizations and markets, it actively searches for stimulating ideas on the basis of which it initiates policy changes that could enhance the growth of the Nigerian security market. The NDIC is the insurer of all deposit-taking institutions in the financial system. It is empowered to examine the books and affairs of insured banks and all deposit-taking financial institutions.

Yohannes (1999) observed that the availability of financial capital is a prerequisite for the development and transformation of any nation's economy. Finding and efficiently

managing this scarce resource is best facilitated by the existence and the appropriate functioning of financial institutions, also known as institutional investors. These institutional investors are of three kinds: banking institutions, specialized banking, and non-bank financial institutions. Banks mobilize financial resources from the surplus sectors of the economy and channel such funds to the deficit units of the economy through the extension of loans and credits. Specialized banks provide loans for projects with medium to long maturity periods. The specialized non-bank financial institutions are those institutions that fall into the category of non-deposit-taking financial institutions or their agents. They include insurance companies, national provident funds, stock broking firms, pension fund administrators, issuing houses, registrars, building societies, venture capital companies and the Nigerian Stock Exchange (Yohannes, 1999).

2.2.2 Functions of Nigerian Financial Market

The importance of well-functioning financial market cannot be over emphasized, for an economy to grow and develop a sound financial market is needed. Many studies showed the development of financial market is positively related to economic growth and development (Abudu, Bamidele, Okafor and Adamgbe 2004). According to Nkwanko (1991) financial market provides services that are essential to any economy by facilitating trade and offer access to a variety of financial institutions. Ojo (2007) outline the functions of the Nigerian financial market, Economic and financial development, Financing systems and economic development, and Expected role of the financial sector in economic development.

The roles of the financial market are financial intermediation, monetization and capital formation for economic improvement (Ebajemito, Kama, Salam &Anyakoha, 2004). Grill (1975) argues that financial institution performed three functions; monetary intimidations which made up of central banks and commercial bank, non-monetary intermediation which made up of various specialized institutions such as saving and loan institutions, pension funds, mutual funds, development banks, the last is securities market where stocks and bond are traded. Financial market should facilitate the achievement of the entire financial system of any country, which includes provision of efficient banking services, high mobilization of savings and channelling surplus fund to deficit unit as capital (Okigbo, 1981).

Finance is the lifebloodof any business enterprise. Funding for economic activities must be adequate and appropriate. The issue of adequacy is easily comprehended as the evidence of under-funded and consequently abandoned projects abound everywhere. What is however not clear to many is that some otherwise viable projects have also collapsed due to the use of short-term funds (money market), usually in the form of bank loans to finance projects with long gestation periods.

The need to repay such loans before the projects can generate sufficient funds to sustain them had often led to the collapse of such businesses. That is why the stock market is more appropriate since it facilitates the mobilization and allocation of medium and long-term funds through the issuance and trading of financial instruments. Such instruments, otherwise known as securities, include equities and bonds. While equities represent an ownership stake in a company which issued them, bonds are debt instruments with the principal and interest usually payable to the bondholder at specific periods.

The stock market is made up of two interrelated segments primary and secondary market. The primary market is the mechanism for raising funds through the issuance of new securities. The secondary market essentially provides facilities for trading in (transferring) already issued securities, thereby creating liquidity in the market (Olowe, 2008). Thus, quoted securities are usually more attractive as investors can more easily turn them to cash whenever they so desire. As the major source of appropriate long-term funds, the stock market is obviously crucial to any nation's economic development.

Specifically, the stock market can facilitate economic growth by, among other things, mobilizing savings from numerous economic units such as governments, individuals and institutional investors for users such as governments and the private sector. It also improves the efficiency of capital allocation through a competitive pricing mechanism. In developed financial markets, and increasingly in developing financial markets, stock markets are taking centre stage in financial markets. It has been argued that stock markets stimulate investments because as organized markets, they recognize and fund productive projects that lead to economic growth and ensure proficient allocation of capital (Caporale&Soliman, 2004).

A study conducted by Mutenheri and Green (2003), showed that the difference between pre-reform and post-reform era in the country's financial system (especially the stock market) is significant and that the reform has achieved partial success in increasing the capital mobilization and improving the development of the market.

The players on the market are the regulators and the operators who act as intermediaries between the providers of the funds and the fund users. They include the Central Bank of Nigeria, the Securities Exchanges Commission, Nigerian Stock Exchange, Brokers/Dealers, Issuing Houses, and the Registrars and Investment Advisors. In pursuance of making funds available for economic development and growth; the Securities and Exchange Commission was established in 1979 by the Securities and Exchange Commission Decree (this decree was re-enacted in 1988 as Securities and Exchange Commission Decree no. 29 of 1988, for the purpose of protecting the investors as well developing the capital market). A detailed review of the Nigerian capital market was carried out in 1996. This led to the enactment of the Investment Securities Act (ISA) No.45 of 1999 (and the regulations made there under). This Act replaced the Securities and Exchange Commission Decree No.29 of 1988. It was aimed at providing a more efficient and viable capital market positioned to meet the country's economic and developmental needs.

As most stock markets in the world, the Nigerian stock market is also divided into primary and secondary market. In Nigeria, the secondary stock market is divided into dealers market and centralized auction market. Dealers market deals with the trading of unlisted securities on the Nigerian stock exchange floor. A centralized auction market is an organized secondary market for buying and selling of securities, known as Nigerian Stock Exchange (Odoko, Adamu, Dina, Golit&Omanukwe, 2004).

The establishment of stock markets in Nigeria is expected to boost domestic savings and increase the quantity and quality of investment. More generally, stock markets are seen as enhancing the operations of the domestic financial system in general and the

capital market in particular (Kenny & Moss, 1998). Critics, however, argue that the stock market might not perform efficiently in developing countries and that it may not be feasible for all African markets to promote stock markets given the huge costs and the poor financial structures (Singh, 1999). Stock markets also provide an avenue for growing companies to raise capital at lower cost. In addition, companies in countries with developed stock markets are less dependent on bank financing, which can reduce the risk of a credit crunch (Yartey&Adjasi, 2007). Stock markets therefore are able to positively influence economic growth through encouraging savings amongst individuals and providing avenues for firm financing. The stock market is supposed to ensure through the takeover mechanism that past investments are also most efficiently used (Kumar, 1984).

The regulatory bodies of the Nigerian stock market consist of Central Bank of Nigeria, Securities and Exchange Commission, and Nigerian Stock Exchange (Odoko, Adamu, Dina, Golit&Omanukwe, 2004).

2.2.3 The Role of Central Bank of Nigeria (CBN)

As with the money market, the central bank is a major player in the Nigerian stock market. Central bank of Nigeria is the apex regulatory authority of the Nigerian financial market (money and capital markets). Also, CBN lays down terms and regulations for issuance of Federal Government stocks thereby improving stability in the market. The CBN participates actively in setting up the development financial institutions and is also at the forefront in enhancing the payment and settlement system.

2.2.4 The Role of Securities Exchange Commission (SEC)

The Securities and Exchange Commission is the apex regulatory agency in the Nigerian stock market. Originally established by SEC Decree 29 of 1988, the Commission has evolved over the years with its current enabling law being the Investment and Securities Act (ISA) 45 of 1999. The Commission is basically charged with the dual role of developing and regulating the market. Some of its specific functions as listed in section 8 of the ISA are to:

a) Register and regulate Securities Exchanges, Capital Trade Points, Futures, Options, and Derivative Exchanges, Commodity Exchanges and any other Recognized Investment Exchanges.

b) Register Securities to be offered for subscription or sale to the public.

c) Render assistance in all aspects including funding as may be deemed necessary to promoters and investors wishing to establish Securities Exchanges and Capital Trade Points.

d) Facilitate the establishment of a nationwide system for secondary trading in the capital market. In carrying out its developmental role in the market, the Commission has taken various steps and introduced some measures. For instance, in order to create more awareness of the opportunities in the market and thereby enhance participation by the populace, the SEC has engaged in public enlightenment campaigns through radio and television programmes, organizing seminars, workshops and conferences and various publications.

It has also, over the years, sponsored/promoted interactive sessions that are aimed at developing new capital market products. It has been sponsoring the introduction of capital market studies at both secondary and tertiary educational levels. The

mandate to protect investors in the market, to minimize the risk of their becoming victims of any malpractice is a major objective of the Commission.

According to SEC (2007), the Commission adopts the following tested and proven tools to achieve these objectives:

(a) Registration: Registration is the entry point to the Nigerian capital market as it ensures that only proper and fit persons are admitted to operate in the market and that only securities for which all pertinent and material information have been provided that will enable rational investment decisions are allowed to be issued and offered to investors.

(b) Surveillance: The ISA empowers the SEC to maintain surveillance over the securities market in order to ensure orderliness, fairness and equitable dealings in securities. Hence, the Commission's staffs are always present to monitor activities on the floors of the Stock Exchanges as well as to monitor the activities of other operators in the market.

(c) Investigation: The Commission is also empowered by the ISA to embark on the investigation of any capital market operator as well as any company with regards to securities issuance. Such investigations may be triggered off by petitions to the Commission, media reports etc.

(d) Enforcement: The Commission, after investigating and ascertaining the veracity of any case of malpractice by any market participant may apply sanctions against such offenders. For instance, registration certificates of erring market operators may be suspended or the Commission may institute a legal action to enforce compliance.

(e) Rule Making: Pursuant to the ISA the Commission makes rules for operating in the market. Such rules are subject to revision as the need arises.

2.2.5 The Role of the Nigerian Stock Exchange (NSE)

The NSE is a self-regulatory organization with overseeing responsibility for the professional activities of its members, such as stockbrokers who trade on its floors. The Nigerian Stock Exchange is required to provide periodic report of its activities to the Securities and Exchange Commission. Being a non-statutory body, its rules, which must be approved by the SEC, lacks the force of law. The NSE is a market where trading activities for securities takes place. Since the main interest here is to investigate the stock market, detailed examination of this important market will be done later.

The hub of Nigerian capital market is the Nigerian Stock Exchange, which was started in 1961 and was formerly called the Lagos Stock Exchange. Trading commenced in 1961 with 0.3 million shares worth N1.5 million in 334 deals and grew steadily to a value of N16.6 million in 634 deals in 1970. The implementation of the Nigerian Enterprises Promotion Decree of 1972 and 1977 enhanced public participation in the stock market. Similarly state government started patronizing the market to raise long term funds for long term projects such as Bendal state government bond in 1978. During the early 1980 to late 1980s the market witnessed some fluctuations, which was settled around 1993, due to the participation ofthe private sector (Abudu, Bamidele, Okafor and Adamgbe 2004). The number of listed companieshas risen from 9 in 1961 to more than 200 now while new issues valued at N43.7 million in 1971 increased to N150 billion (NSE 2008).

Another index of size is number of quoted securities, which rose from only 9, 3 equities and 6 government securities in 1961, to 153 in 1980 with 90 equities, 13

debentures, and 50 government securities. The number of listed securities rises in 1994, to 276 including 29 government stocks, 70 industrial bonds and 177 equities (NSE, 2003). In 2006 the number of listed companies was 202, number of listed securities 288, market capitalization N5.12 trillion (NSE 2006). The market capitalization as at the end of December 2008 was N 9.56 trillion up from N4.5 billion in 1980, the NSE All-Share Index 31,450.78, Total Turnover Value N2.4 trillion, number of Listed Companies 213, number of Listed Securities 301 (NSE 2008).

According to NSE (2009), Nigerian Stock Market indicators recorded downward movements. In addition, a significant portion of the funds that left the stock market for the Private Placement Market in 2007/8 remained locked-in, as many of the issuers have not yet applied to The Nigerian Stock Exchange for listing. Turnover on the Exchange closed the year at N685.72 billion, down by 71.2% from the N2.4 trillion recorded in 2008.

Average daily activity dropped from 775.65 million shares worth N9.55 billion in 2008 to 414.73 million shares valued at N2.8 billion in 2009.The bulk of the transactions were in equities, which accounted for N685.3 trillion or 99.94% of the turnover value compared to N2.376 trillion or 99.85% recorded in 2008. Transactions in the industrial bond sector accounted for N412.8 million or 0.06% compared to N3.53 billion or 0.15% in 2008, while transactions in the State Government bond sector were very minimal, accounting for only N119, 530. The Preference Stocks Subsector was inactive in 2009 (NSE 2009).

Furthermore, turnover of Federal Government bonds on the Exchange was idle, while a turnover of N18.51 trillion in 134,120 deals was recorded in the over-the-counter (OTC) market for Federal Government bonds, as against N10.44 billion in 78,248 deals recorded in 2008. Investors traded rights in two companies, compared to four companies in 2008. In all, 136 deals valued at N46.04 million were executed in this market segment in 2009, down by 87.1% on the N357.05 million values of transactions in the previous year. The companies whose rights were traded during the year are Cadbury Nigeria Plc and Eterna Oil & Gas Plc (NSE 2009).

The total market value of 266 securities listed on the Exchange dropped by 26.5%, from N9.563 trillion to stand at N7.03 trillion at the end year 2009. The decline in market capitalization resulted mainly from equity price losses, and the delisting of 64 securities, 11 equities and 53 fixed income securities. By the end 2009, the market capitalization of the 216 listed equities accounted for N5 trillion or 71.04% of the aggregate market capitalization. In 2008, 213 equities accounted for N7 trillion or 73.1% of market capitalization. Also, by the end of 2009, seven subsectors recorded increased market capitalization of between 6% and 69.3%, while 26 subsectors suffered a reduction in market capitalization of between 6.4% and 77.3%. Two subsectors (Machinery Marketing and Aviation) did not record any change in market capitalization (NSE 2009).

The NSE-30 All-Share Index (ASI) dropped by 33.8% or 10,623.61 points to close at 20,827.17. The NSE ASI had in 2008 dropped by 45.8% or 26,539.44 points to close at 31,450.78. The performance of the Index reflects a significant reduction in prices of equities during the year. By year end, 23 stocks recorded price appreciations and 159 stocks recorded price declines while the prices of 35 remained constant. In 2008, 78

stocks recorded price appreciations and 111 stocks recorded price declines while the prices of 24 remained constant. As expected, the new NSE-30 Index showed resilience by dropping only 25.44 points or 3% to close the year at 827.99. This is due mainly to the index‘s broad-based structure and limited exposure to any sector in particular two key requirements for products such as Exchange Traded Funds (ETFs) and derivatives. The Exchange also introduced four sectoral indices during the year. By year end, however, all the four sectoral indices had depreciated, the NSE Food/Beverage Index dropped by 32.63 points or 5.83% to close at 526.71; the NSE Banking Index dropped by 159.45 points or 32% to close at 339.32; the NSE Insurance Index dropped by 391.59 points or 61.13% to close at 249.01; and the NSE Oil/Gas Index dropped by 433.52 points or 60.1% to close at 288.06 (NSE 2009).

When compared with the preceding five years, the Primary market was less active during 2009, in terms of number of applications received and issues offered for public subscription. This can be attributed to the liquidity crisis and the overriding pessimism of investors. The Exchange considered and approved 30 applications for new issues valued at N279.25billion or 1.2% of GDP, as against 70 applications for new issues valued at N2.6 trillion or 11.3% of GDP in 2008 (NSE, 2009).

Non-bank corporate issues accounted for 71.5%, with 25 applications valued at N199.65 billion while the banking sector accounted for 3.6%, with one application valued at N10.1 billion. State Government bond issues accounted for N69.5 billion or 24.9% of the total amount approved during the year. Of the non-bank applications, the Foreign Listings and Insurance subsectors accounted for N27.5 billion and N33.22 billion or 9.84% and 11.9%, respectively, of total applications considered. No new

IPOs were approved in 2009 (compared to N1.01 trillion in 2008) while N14.7 billion was raised through supplementary issues, N31.72 billion through rights issues, and N71.74 billion through a bond issue, including four State Government Bonds (NSE 2009).

According to NSE (2009), the Exchange implemented certain initiatives in 2009 to broaden participation in our market, expand services, improve liquidity, and generally propel the market to greater heights. These initiatives are in the important areas of capacity building, investor education, international cooperation, and new product development.

(a) Market Technology

Nigerian Stock Exchange completed an upgrade of Horizon, NSE trading platform, to the latest version. The upgrade comes with improved functionalities that would impact positively on trading on the Exchange, especially equities, derivatives, bond trading and surveillance. An NSE surveillance capability currently detects any price manipulation in the market. Like a dynamic organization, NSE is already considering the transition from the current software platform to a bigger platform, in view of expanding its operations.

In this regard, NSE has commenced negotiations with the London and New York Stock Exchanges in the selection of a more suitable platform for implementation within the next two years.

b) Dissemination of Market Information

During the year 2009, the Nigerian Stock Exchange concluded arrangements with renowned global news media Powerhouses, such as Thomson Reuters and Bloomberg for dissemination of real-time market data to the global investment community. This

service is designed to complement what is provided by the NSE official Web site and the local Data Centre. Data for investors and market operators include the bid/ask prices, volumes, latest trades and market depth information on equities and indices listed on the NSE. Nigeria Stock Exchange is the second African exchange to be switched on by Reuters for real-time data, following Kenya‘s Nairobi Stock Exchange a direct acknowledgement of the development of the stock market in Nigeria (NSE, (2009).

(c) New Products

In further appreciation of the efforts by the Nigerian Stock Exchange to create products that would take our market to a global audience, the Nigerian Stock Exchange has been approached by Bloomberg to co-brand all the newly-created indices, i.e., NSE-30 and the 4 sector indices. The Bloomberg branding will further enhance the profile of these indices and thereby give institutions the confidence to create products based on these indices, knowing that they will be displayed to a global investor base via the Bloomberg screens worldwide. The arrangement will also develop a revenue stream for the Nigerian Stock Exchange in due course.

(d) Expanded Branch Network

As of December 2009 the Nigerian Stock Exchange has 13 branches across Nigeria other than its world-class trading floor in head office in Lagos. These are: Abuja, Kaduna, Port Harcourt, Kano, Onitsha, Ibadan, Yola, Benin, Uyo, Ilorin, Abeokuta, Owerri and Bauchi. The Exchange‘s 13 branches trading in real time, while plans are in the advanced stages of the opening of another branch in Oshogbo, Osun State.

(e) Inspection of Dealing Member Firms

A total of 242 (out of 254) stock brokerage firms was inspectedduring the year 2009 by the Compliance Department of the Regulation and Risk Management Directorate.

Several firms reported trading losses and negative shareholders' funds as a result of the financial crisis that followed the economic downturn. These firms have been advised to inject fresh funds and return their firms to profitability. The remaining twelve (12) firms had their inspections rescheduled.

(f) Complaints/Infractions and Violation of Rules of the Exchange

A total of 249 unresolved complaints were brought forward from 2008, mainly from inactive dealing member firms. In 2009, a total of 417 complaints were received against dealing firms. Out of this, 287 complaints were resolved while 130 are still being investigated and pending resolution. Complaints received during the period under review were observed to border mainly on the unauthorized sales of shares and failure to remit sales proceeds. This was attributed to the illiquidity suffered by the majority of dealing member firms, coupled with desperation of banks to recoup outstanding margin facilities. It was further observed that the majority of the dealing member firms could not comply with Article 102 of the Rules and Regulations Governing Dealing Members Know Your Client. This has often resulted in fraudulent sales of shares to persons who are not the real owners of the shares. During the year, six (6) Dealing Member firms were suspended for failure to submit audited accounts, contrary to Article 15 (h) of the Rules and Regulations governing dealing members.

(h) Investor Education

Though the National Essay Competition for secondary schools and tertiary institutions was suspended during 2009, The Exchange sustained its investor education initiative, as students from all levels continued to visit The Exchange during their excursion programmes. The Annual meeting of Chief Executive Officers of listed Companies, stock and management of The Exchange was held in 2009.

2.2.6 Overview of the Nigerian Financial Market

Many studies were conducted on the financial market development, most of them cross country regression. In general financial market deal with financial assets and liabilities of various maturities and consist of institutions, instruments, rules and regulations which guide the mobilization of fund from surplus units of the economy to the deficit units. In other words, it is a forum for the exchange of any kind of financial products, which may be represented by a physical location or by sharing data on prices and volume transacted where professionals are among the participants of the market process (Masha, Essien, Musa, Akpan&Abeng, 2004). Olowe (2008) viewed financial markets as a market that enables the efficient allocation of funds from surplus units of the economy to the deficit units. The role of financial market is institutional intermediation in capital flows (Subramanyam, 2007).

It was argued by King and Levine (1993) that the level of financial intermediation is a good predictor of long-run rates of economic growth, capital accumulation, and productivity improvements. According to Classens (1995) financial development of any country provides a way for growth and development of the country. A study by Demirguc-Kurt and Levine (1996) showed that, an overall growth and development in any country or region are related to, and to a large extent caused by, the development of the financial market (capital and money markets). They argued that lack of these markets will make it impossible for investors to invest. Indeed, some scholars have opined notably Stiglitz (1991) and Bhide (1993) that they contribute little to economic efficiency and may even be welfare-decreasing.

Financial Markets are defined as a network of individuals, institutions and instruments working together in the process of mobilizing and transferring funds from the surplus to the deficit units of the economy. Financial markets are made up with the money and capital and markets. The length of time money is invested or raised determines the segment of the financial market to which it belongs (SEC, 2007). Money market and capital market are the major divisions of the Nigerian financial market; they determine the volume of credits available as well as attract savings and set interest rates and securities prices. Nigerian financial markets in terms of structure are unique and different from most of the financial markets of other advanced countries.

According to Abudu, Bamidele, Okafor and Adamgbe (2004), Nigerian financial market is unique and different due to the nature of the economy, the agrarian nature of production, and communal restriction and laws that guide saving mobilization. In addition, the low level of technological transformation as well as the economy is cash kind, which has hindered the growth of the market to global challenges. Some researchers argued as shown in some works on low developing nations like Nigeria, financial sectors in developing countries do not intermediate efficiently between savers and investors (Ojo, 1986, Kitchen 1988, Fry 1988 & Bhatt 1986 as cited in Ojo 2007). Some of the reasons include financial repression, poor adaptation and orientation of the financial system, market structure and management performance of both the financial intermediaries and financial regulators (Ojo 2007).

2.3Effect of Stock Market Characteristics on Return

2.3.1 Effect of Volatility on Return

The relationship between the aggregate volatility and stock returns Poterba and summers (1986) prove that the discount factors applied to future cash flows is dramatically impacted by the increases in volatility, which are expected to persist. In other words, there is a relationship between the volatility and expected stock returns. Furthermore, Poterba and Summers (1986) state that the shocks to stock market volatility do not persist for long periods, but do have effect for a short period. Furthermore, French et al. (1987) also suggest that there is a positive relationship between the expected market risk premium and predictable volatility of stock returns. There are no conclusive results for the relationship between aggregate volatility and expected stock portfolio returns. For example, both Malkiel and Xu (1997) and Lundblad (2007) indicate a positive relationship between firm level aggregate volatility and stock returns in the US stock markets. Conversely, Bali et al. (2006) state that there is no significant relationship between the equal-weighted average stock volatility and the value-weighted portfolio returns in the US stock markets. However, Ang et al. (2006) reports that the cross-sectional price of volatility risk is approximately -1% per month in the US stock markets.

Using a GARCH-M model Poshakwale and Murinde (2001) investigated stock market volatility in the East European emerging markets of Hungary and Poland. The study covered a period from 1994 to 1996 using daily data from the Bulgarian and Warsaw stock markets. Contrary to the predictions of the CAPM, the results indicated that conditional volatility was not priced on both markets.

A similar result was obtained by Yu and Hassan (2008) using an extension to the GARCH model, the EGARCH model. The main aim of this study was to investigate regional and international integration of the Middle Eastern and North African (MENA) stock markets. Daily data were used to cover the period 1999–2005. The results indicated that there was a significant positive risk-return relationship in Bahrain, Oman and Saudi Arabia, while in Egypt, Jordan, Morocco and Turkey volatility was not priced. Using the same model Karmakar (2007) found evidence in support of a negative risk-return relationship on the Indian stock market using the S&P CNX Nifty for the period 1990–2004. Similarly, using the EGARCH-M model Saleem (2007) found that positive returns were matched with higher volatility on Pakistan's stock exchange. This study covered the period from 1997 to 2004 using the daily closing prices of the KSE-100 index.

Battilossi and Houpt (2006) investigated the relationship between risk, return and volume on the Bilbao stock exchange (1916–1936) using the augmented GARCH-M model that was modified to account for volume traded. The authors found that there was little evidence of a significantly positive risk-return trade-off. This result contradicts the CAPM and intuitively one would expect that since emerging markets are generally considered to be risky then there should be an adequate compensation for assuming more risk.

However, Salomons and Grootveld (2003) found a significant relationship between volatility and return in 20 emerging markets. They further stated that the existence of such a relationship is highly dependent on the sample period used.

Robert, Haugen and Walter (1990) examined the link between volatility changes and stock return. The study used US data for a sample period of year 1897 to 1988. The study used data from Dow Jones Industrial average and were analysed using

regression. The study revealed that there is significant link between volatility and stock return. However, it was found that there is asymmetric link when volatility increased as opposed to volatility decrease. This finding lead to the subsequent studies below.

Gregory (1994) examined the link between firm level volatility and stock returns in the US. The study was based on the arguments in Black (1976) that there is a negative relationship between returns and volatility. The study used a sample of 2494 firms covering the period of year 1977 to 1991. The data were analysed using regression analysis. The study used logarithm return and volatility measured using standard deviation of stock prices. It was found that there is a positive link between return and volatility. The relationship is strong for large firms and firms with little financial leverage. The period of this study calls for a more recent studies in this area to see whether considering the current different economic environment the scenario will still hold.

Benjamin and Solange (2007) examined the link between stock market return and firm level volatility in Brazil. The study is based on monthly data from the period of year 1990 to 2002. This study adopted most of the procedure in Gregory (1994) however, the data were analysed using Autoregressive (AR) model and the General Autoregressive and Conditional Hetroscekedasticity (GARCH) model for the hypotheses test. The results of the analysis shows that contemporaneous returns and volatilities are significantly linked with each other's positively. However, when changes in return and volatility is used the result shows a negative link. This findings might not be applicable in Nigeria thus there is a need for a re-examination of the claims.

In Nigeria, Udoka, and Anyingang (2013) examined the effect of stock volatility on stock prices in Nigeria between years 1980 to 2009. Data collected were analysed and tested using the ordinary least squares regression technique. Findings resulting from the test revealed that volatility has significant effect on the stock return in Nigeria.

2.3.2 Effect of Liquidity on Return

Amihud and Mendelson (1986) show that bid-ask spreads and returns are positively related. This is sensible in that the bid-ask spread represents a transaction cost, thus investors demand a higher return as a compensation for the cost. Brennan, Chordia, and Subrahmanyam (1998) document a negative relation between average returns and dollar trading volume, with the latter being used as a proxy for liquidity. According to Amihud (2002), liquidity also predicts future returns and liquidity shocks are positively correlated with return shocks.

The more recent empirical work indicates a systematic, market-wide component of liquidity (Chordia, Roll, and Subrahmanyam (2000) and Huberman and Halka (2001)). Securities whose returns positively correlated with market liquidity should have higher expected returns (Pastor and Stambaugh (2003) and Sadka (2006)). Moreover, Chordia, Roll, and Subrahmanyam (2001) show that recent market volatility results in a decrease in trading activity and spreads. There are strong day-of-the-week effects; Fridays accompany a significant decrease in trading activity and liquidity, while Tuesdays display the opposite pattern. Long- and short-term interest rates influence liquidity. Trading activity increases just prior to major macroeconomic announcements.

Further, Hameed, Kang, and Viswanathan (2007) find that negative lagged market return worsens stock liquidity, after controlling for the firm specific factors and market volatility effects. The theoretical modes in Gromb and Vayanos (2002) and Brunnermeier and Pederson (2007) suggest that the reduction in liquidity following a down market would be dominant in high volatility stocks.

Chordia et al. (2001) provides evidence of a negative, economically significant, and strong relation between average returns and the variability of trading activity--measured by both trading volume and share turnover, after controlling for the well-known size, book-to-market ratio, and momentum effects, as well as the price level and dividend yield. This finding of a negative liquidity risk premium is contrary to the principle of risk-return trade-off.

Interestingly, a recent study by Johnson (2008) theoretically argues that the volume is positively related to the variability of liquidity or liquidity risk. Stated differently, the volume represents liquidity risk, rather than the level of liquidity. The intuition is that trading in any typical day comes from a small subset of the investor population, this volume does not adequately capture the level of liquidity. He performs some test of his theory using Government bond data as well as the stock market data. He finds some empirical evidence supportive of his theoretical prediction. That is, he finds that volume is a good measure of liquidity risk and that volume is not correlated with proxies for liquidity level. If his theory is true, it implies that Chordia et al. (2001)'s puzzling finding may be due to the usage of an inappropriate measure of liquidity risk. In constructing empirical proxies for market volume, Johnson (2008) points out that since both expected volume and the total quantity of securities are not constant,

and volume is not independent and identically distributed (i.i.d), he scales the volumeof supply to obtain his independent variable, turnover, in the model.

Chordia et al. (2001) document that daily changes in market averages of liquidity and trading activity are highly volatile and negatively serially dependent. They also find that liquidity plummets in as a result of volatility in the markets. Watanabe and Watanabe (2007) develop a dynamic theoretical model in which investors are not equally informed about others' liquidity preference. They use trading volume as a proxy for the uncertainty about investors' liquidity preference. Extremely high volume indicates that the market is transforming from a low-liquidity-beta period to a high liquidity- beta period. Empirically, they find evidence that high-liquidity-beta occurs rather infrequently and is characterized by high volatility. They further point out that liquidity risk is priced because illiquidity shocks make investor consumptions volatility and risk-averse investors dislike volatile markets; the more volatile a market become, the more risk premium it will require. These studies justify the need to carefully examine extreme volatile markets.

Moreover, even in extreme down markets, there will be a minimum level of liquidity. The existence of a minimum level of liquidity trading implies that the value of liquidity should behave like that of the option. As such, the higher the volatility of liquidity, the higher the value of option.

Loukil, Mohamed and Abdelwahid (2010),investigates the return–liquidity relationship on one Middle East and North Africa frontier market, the Tunisian Stock Exchange (TSE). The findings provide evidence that there is a significant and positive premium for companies with high price impact and low trading frequency. However, Tunisian investors appreciate more low spread stocks. The study also found a non-

linear relation between potential delays of execution and stock returns. In addition, it was found that Tunisian investors require a premium to compensate past cumulative illiquidity risk (high price impact, low turnover and high potential delay of execution) over the prior three to 12 months and to compensate past cumulative spread over 12 months.

Akram, (2014) examine the link between liquidity and stock return. Ask-bid spread was used as a proxy for liquidity. The study used data of 10 listed companies listed on Karachi stock exchange from 2005 to 2012. Two stage regression was applied to scrutinize the data. The study found that there is negative association between liquidity and stock return.

Balasemi,,Veiseh, and Malgharani (2015),investigate the relationship between liquidity and stock returns with regard to a company's life cycle. The study used regression analysis. The study found thatliquidity has a significant effect on stock return. viz., as the liquidity increases, the stock returns grow. In all three categories, the companies were placed in periods of decline, maturation, and growth. The highest coefficient of determination was related to the companies in the growth period with 97 per cent effect.

2.3.3 Firm size and stock Market Return

Wong (1989) examined the effect of stock market size on market return. The study classified size according to large and small firms. The study was analysed using regression analysis. Market size was proxied using market capitalisation. The results show that the stocks of small firms have earned higher returns than the stocks of large firms, and that the firm size effect is still significant when risk-adjusted returns is used.

Samarakoon (1998) test the relation between stock returns and firm size among other variables, this study employed two methodologies. The first is informal tests which examine averages returns and averages of fundamental variables for portfolios formed on the basis of size alone, beta alone, and size and beta. The second is a formal asset pricing test which uses the Fama-MacBeth (1973) cross-sectional regression procedure. In the formal tests, returns are regressed on of β, size, book-to-market equity, leverage, and earnings-price ratio, both individually and jointly, in every month in the cross-section. The results show that, inconsistent with the central prediction of the Capital Asset Pricing Model, the relation between average returns and beta is strongly negative. Firm size is not related to average returns in any significant manner.

Abdullahi, Lawal and Etudaiye-Muhtar (2011) examined the effect of firm size on the stock market return in Nigeria. The study used time series that collected from the Nigerian stock exchange. The hypotheses in the study were tested using regression analysis. Market size was proxied using sectorial monthly capitalisation of the selected firms. The study found that firm size has no significant effect on stock market return in Nigeria. This study extent the period of the study to year 2015.

Rimziya and Jariya (2013) reinvestigate the behaviour of expected stock returns with respect to two popularly known firm level characteristics: firm size and book-to-market equity in Sri Lankan. The sample of the study consist of 12 companies out of total 25 companies listed on Milanka Price Index in base year of 2005 in Colombo Stock Exchange, financial year ended in December and have positive book values were only taken into consideration. The study applied the Fama-MacBeth (1973)

procedure for the period from 2005 to 2010. Empirical findings reveal that Book-to-market equity has a significant negative role in expected stock returns while firm size does not have any significant behavior in expected stock returns.

Saroj and Ashutosh (2013) examine the effect of market size on stock return of Indian firms. The present study attempts to find out if the portfolio of small stocks yields higher returns vis-a-vis the portfolio of large stocks and whether the size effect is present in the Indian stock market or not. The sample consists of the monthly returns of the stocks included in the S&P CNX 500 index from April 1, 2001 to March 31, 2010. Equal weighted portfolios of thirty smallest and largest stocks were constructed for each year for the entire period of the study based on the criteria of total assets and market capitalization. Using correlation analysis, CNX Nifty Junior was finalized as the market proxy, and the market model was applied by using the variables of excess returns on the portfolio of the stocks and the returns on the market proxy. The results indicate that the returns on the portfolio of small stocks are not significantly different from the returns on the portfolio of large stocks

2.4 Theoretical Framework

2.4.1 Efficient Market Theory

The efficient market hypothesis holds that a market is efficient if it is impossible to make economic profits by trading on available information. The theory of capital market efficiency which was first introduced by Fama (1965) provides the theoretical bases for having a developed capital market. According to Fama, an efficient market is said to exist where there are large numbers of rational investors actively competing with each other in attempting to predict future market values of individual securities and where important information is almost freely available to all participants. As

reported by Bakari (2003) in an efficient market the actual price of a security will be a good estimate of its intrinsic value, which means the possibility of getting an abnormal return is only by luck.

Operational efficiency of a market, therefore, means that prices are determined in a way that equates the marginal rates of return for all producers and savers. This means that resources are optimally allocated to productive investments at the benefit of all producers. In other words, operational efficiency deals with the cost of transferring funds, which is the focus of market efficiency theory.

The fundamental idea behind the theory of efficient capital market is that capital markets are operationally efficient if intermediaries who provide funds to borrowers do so at the minimum cost that provides them a fair return for their services. Also, asset prices are correct signals in the sense that they fully and instantaneously reflect all relevant information and are useful in directing the flow of funds from savers to investment projects that yield highest returns. According to the theory, there are three forms of efficient market; the weak form, the semi strong form, and the strong form which tends to describe different degrees of market efficiency.

2.5 Summary

In this chapter, the various concepts of volatility and liquidity were discussed. This was followed by examining the impact of liquidity and volatility of the return of the stock market. The empirical literatures show contrasting evidence of both positive and negative relationships between each of the one of the two in return. The theory that explains this study is the efficient market theory.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Research Design

The design encompasses the totality of methods that is employed to carry out this study. The study uses quantitative design, however, two quantitative designs are employed, they are the descriptive and regression designs. The descriptive design observes the behaviours of the variables and thus gives its general overview and serves as a pre-cursor to the regression design.

3.2 Population, Sample and Sampling Technique

The population of this study covers the Nigerian Stock Exchange (NSE). The NSE presently comprised of 195 listed firms which caught across twelve (12) sectors. The sectors are: Agriculture, Construction/ Real Estate, Consumer goods, Financial Services, Healthcare, Industrial goods, Information and Communications Technology, Natural Resources, Oil and Gas, Services, Utilities and Conglomerates. All the prices of the firms in the sector are reflected in all share index, and thus, the period used for this study is 2001 to 2015. As at 2015 ending there are 201 listed equities, 48 listed bonds and 1 Exchange Traded Fund (ETF) giving a total of 250 listed securities. However, the study sampled only the oil and gas sector which comprised of seven (7) firms. The whole seven firms are used in this study.

3.3 Method of Data Collection

The data used for this study are the share prices, market capitalization and volume of transactions which were sourced from the Nigerian Stock Exchange.

3.4 Procedure for Data Analysis and Model Specification

The procedure for data analysis and model specification is explained in this section. The variables used and their measurements are discussed below:

Measurement of Liquidity

Sizeis measured as lagged log scaled of market capitalization at the end of the trading year for the market.

Standard Deviation of stock returnsis computed as annualised standard deviation of monthly stock returns over an annual trading period. It is unequivocally negatively associated with liquidity due to several reasons. First, greater volatility increases the inventory component of liquidity cost, as dealers or investors will require higher compensation for providing liquidity in a riskier security. Second, it amplifies adverse selection risk – if stock returns are rather volatile, unless investors are given an explanation for why it happens, they will be reluctant to engage in trading, and thus, they will prefer to post quotes that widen the bid-ask spread.

Also,volume, the natural logarithm of average number of shares traded per day over an annual trading period is also a measure of liquidity. Higher volume associates with higher liquidity for several reasons. First, it is a proxy for free float of the shares. For example, given the two firms with the same number of shares outstanding but one having a large block of shares held privately, ceteris paribus, a closely held firm will have fewer shares available for trading in the marketplace and thus lower trading volume. High volume signals lower inventory costs, because it's easier and faster to match buy and sell orders for such stock (Lesmond, 2005). If volume is high, market makers can afford lower fixed costs per unit traded (Brockman & Chung, 2003) and

actions of a single informed trader cannot translate into a large price impact (Breen et al., 2002).

However, the measure of liquidity used in this study is the annual stock market volume of transaction.

Measure of Market Volatility

Market volatility is calculated using standard deviation of monthly share index, thus the formula is:

$$Vola = \sqrt{\sum \frac{(r_t - \mu)^2}{n}} \qquad 01$$

Where:

$Vola = volatility$

$r = monthly\ Return$

$\mu = to\ the\ poulation\ mean$

Computation of Returns

The returns of the market shall be calculated using the following formula:

$$r_t = \frac{i_t - i_{t-1}}{i_{t-1}} \qquad 02$$

Where:

r_t is the market return

i_t is the stock index at month t and

$i_{t-1}$is the stock index at preceding month to i_t

Models for the test of hypotheses

The following model is used to test the hypotheses in the study:

$$r_t = \alpha + \beta_1 LQ_{it} + \beta_2 VOL_{it} + \beta_3 CAP_{it} + \varepsilon_{it} \quad 03$$

Decision Criteria

The null hypotheses shall be accepted if the probability value is greater than 5% otherwise the alternative shall be accepted.

3.5 Justification for the Method of Data Analysis

To measure the effect of volatility, liquidity and market capitalisation on returns the Ordinary Least Square (OLS) panel model is used. The use of OLS is based on the need to establish the type of relationship that exists between the variables. Previous researches have also used the approach adopted for this study, for example Petersen (2009) and Ivan and Yarsolava (2012).

3.6 Summary

This chapter presented the methodology used for the analysis of data in chapter four. The research uses regression design. The value of liquidity adopted is the turnover ratio as used by previous studies. The value of volatility is computed using the standard deviation of the all share index. The test of hypotheses is done using OLS.

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

4.1 Data Presentation

The data collected are on Price of Share (PS), Volatility (VOL), Liquidity (LQ) and the control variable which is Market Capitalisation (CAP). The data are appended to the work due to its large volume. The data are analysed using descriptive statistics, which discusses the characteristics of the variables; the correlation analysis which discusses the relationships amongst the independent variables and between the dependent and the independent variables. The hypotheses of the study were tested using panel regression.

4.2 Descriptive Statistics of the Dependent and Independent Variables

Table 4.1 Descriptive Statistics

	RT	VOL	LQ	CAP
Mean	57.71067	0.656798	88949.27	3.20E+10
Median	38.11000	0.391273	50109.00	2.64E+10
Maximum	131.0000	2.466621	291772.0	5.84E+10
Minimum	14.69000	-0.202152	0.000000	5.04E+09
Std. Dev.	35.93541	0.747199	100622.3	1.71E+10
Skewness	0.625032	1.550917	0.947924	0.074148
Kurtosis	2.115704	4.131113	2.489727	1.614039
Jarque-Bera	10.25779	47.69095	16.86395	8.500092
Probability	0.005923	0.000000	0.000218	0.014264
Sum	6059.620	68.96377	9339673.	3.36E+12
Sum Sq. Dev.	134300.8	58.06379	1.05E+12	3.03E+22
Observations	105	105	105	105

Table 4.1 shows the descriptive statistic of the variables in the analysis and the test of hypotheses. For the returns (RT) the average value is 57 naira per share. This implies that the average share price for oil sector is 57 naira, however the rate of deviation from the share price is very high as reported by the standard deviation value of 35.9.

This implies that this is high fluctuation in the prices of oil and gas in the Nigerian Stock Exchange.

The minimum value of share traded on the stock exchange for oil sector in the period of study is 14.69, on the other hand the maximum share price is 131 naira. However, the data is skewed and Kurtotic as the Skewness value is 0.625 and a Kurtosis of 2.11. The non-normality in the data is expected since the data comes from a cross-section of firms which have different spread in prices. The value of Jarque-Bera statistic of 10.26 and its corresponding probability value of 0.0059 confirm non-normality.

The volatility of the market shows an average value of 0.657, this value is suggestive that the level of uncertainty/risk attributable to investment in oil sector is 0.657. This rate implies that the section historically move by 65% for every 100% move in the benchmark. Relatively, the volatility of the sector is not very high which is indicative of the fact that there are no significant shifts in the prices of the sector. The maximum swing in the prices of stock is 2.46, at this point; a 100% change in the benchmark will lead to a 247% change in the sector's price. The maximum level of volatility is recorded in the year 2008 when there was global financial crisis resulting in high level of uncertainty in the market. The standard deviation shows that the level of deviation from the average is at 74.7%, this implies that even though the average uncertainty in the relatively low, and the deviation from the mean is high. Like the case of PS, the data exhibits non-normality thus is skewed with fat tail.

On liquidity, the average value is 88949.27. This value indicates that the degree with which stocks of the sector can be bought and sold without affecting the prices of the share. The maximum value of liquidity is 291,772 which is considerably high. The minimum value is 0.00, this implies that the sector traded throughout the period of the

study. Market capitalisation is used as a control variable in the study. The value of market capitalisation is also not normally distributed.

4.3 Correlation Matrix of the Dependent and Independent Variables

4.2 Correlation Matrics

	RT	VOL	LQ	CAP
RT	1.000000	0.242831	0.660909	0.840521
VOL	0.242831	1.000000	0.196692	0.324922
LQ	0.660909	0.196692	1.000000	0.420498
CAP	0.840521	0.324922	0.420498	1.000000

Table 4.2 shows the correlation matrix between the dependent and independent variables. The result shows a very low correlation between VOL and LQ (19%), VOL and CAP (32%), LQ and CAP (42%), and CAP and VOL (32%) which implies that there is no case of multicolinearity amongst the independent variables.

On the other hand the relationship between the independent variables and the dependent variable is strong as expected: RT and LQ (66%), CAP and RT (84%) while RT and VOL is not that very strong with a correlation level of 24%.

Table: 4.3Multicollinearity Test

Variance Inflation Factors
Date: 09/29/17 Time: 15:28
Sample: 2001 2015
Included observations: 104

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	272.7418	1.066855	NA
VOL	25.89694	1.122551	1.078444
CAP	5.56E-21	1.122647	1.078555
LQ	2.88E-13	1.006566	1.004338

The result in table 4.3 shows the result of the test of multicollinearity using variance inflation factors. The result of the test shows that the values for both centered and the uncentered statistics are all less than 5%. This implies that there is no case of multicollinearity.

Table 4.4 Hausman Test

Correlated Random Effects - Hausman Test
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	4.801136	3	0.1870

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
VOL	10.773975	10.747492	0.034000	0.8858
CAP	0.000000	0.000000	0.000000	0.9461
LQ	-0.000001	-0.000001	0.000000	0.0559

Table 4.4 shows the result of Hausman test. The result shows the probability of 0.18 which is higher than 5%. Since the value of probability of 0.18 is higher than 5%, the random effect is used.

4.4 Effect of Liquidity, Volatility and Market Capitalisation on Stock Return

Table 4.3
Dependent Variable: RT
Method: Panel EGLS (Cross-section random effects)
Date: 03/30/17 Time: 14:50
Sample: 2001 2015
Periods included: 15
Cross-sections included: 7
Total panel (balanced) observations: 105
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.379743	3.310057	0.114724	0.9089
VOL	-2.848015	2.191437	-1.299611	0.1967
LQ	0.000135	1.70E-05	7.954968	0.0000
CAP	1.48E-09	1.04E-10	14.23371	0.0000

Effects Specification	S.D.	Rho
Cross-section random	0.000000	0.0000
Idiosyncratic random	15.75387	1.0000

Weighted Statistics			
R-squared	0.824442	Mean dependent var	57.71067
Adjusted R-squared	0.819228	S.D. dependent var	35.93541
S.E. of regression	15.27877	Sum squared resid	23577.53
F-statistic	158.1033	Durbin-Watson stat	1.674622
Prob(F-statistic)	0.000000		

Unweighted Statistics			
R-squared	0.824442	Mean dependent var	57.71067
Sum squared resid	23577.53	Durbin-Watson stat	1.674622

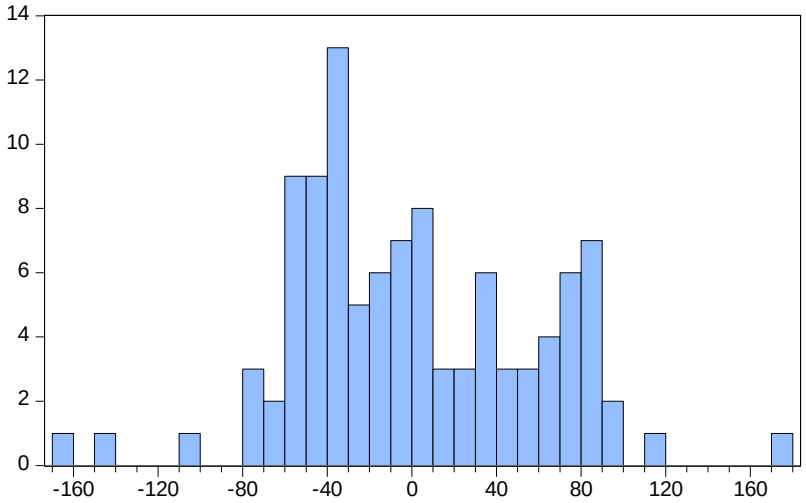
The result in table 4.3 shows regression result output. The result shows that the value of r-squared is 82% while the value of adjusted r-squared is also approximately 81%. This result implies that there is a strong relationship between liquidity, volatility and stock price of listed oil and gas firms in Nigeria. The result implies that only 19% of changes in stock price is accountable by other factors not captured in this study. With the value of adjusted r-squared and r-squared being almost at the same level, it implies that inclusion of more explanatory variables could only add little to the power of the model.

The result shows a coefficient value of 0.379 which means that when the coefficients of VOL, LQ and CAP are set to zero (0) changes in stock price is at a constant rate of 37.9%, however, the probability of the coefficient is 0.91 which is very high thus signifying that the constant change rate of 0.379 in stock price has no statistical significance.

The result has also shows that a unit increase in the value of the market volatility results in a 2.84 decrease in the value of share price of listed oil and gas firms. This implies that a high level of volatility causes panic in the market which in turn reduces the value of share price. The result however shows no statistical significance. The result of liquidity shows that when the value of liquidity is changed by 1 it will result in a 0.000135 increase in the value of stock price which also shows statistical significance. Also, a unit increase in the value of market capitalisation which is used as a control variable to capture the effect of size of the sector in the market is increased by 1 it will result in a 1.48E09 increased in the price of shares in the stock market. The result also shows evidence of statistical significance.

The value of F-statistic is very high at 158 which implies that the model is fit. The corresponding probability value of F-statistic which is 0.0000 means that the joint test of liquidity and volatility all have significant effect on the stock price of listed oil and gas in Nigeria.

Normality Test



Series: Standardized Residuals	
Sample 2001 2015	
Observations 104	
Mean	0.433190
Median	-7.644754
Maximum	177.0123
Minimum	-167.8614
Std. Dev.	57.24806
Skewness	0.200979
Kurtosis	3.267586
Jarque-Bera	1.010413
Probability	0.603381

The result in the figure above shows the test of normality of the residual. The result shows that the value of Kurtosis is 3.3 while that of Skewness is 0.2. The probability of Jarque-Bera is 0.603 which is higher than the 5% test statistics. This result implies that the residual is normally distributed.

4.5 Discussion of Findings

This study examined the effect of liquidity and volatility of oil and gas firms on their share price. The result of the analysis shows that both variables have joint significant effects on the value of share price. However, at individual level liquidity has significant positive effect on stock price while volatility has negative non-significant effect on the share price of listed oil and gas firms in the Nigerian Stock Market.

A volatile market creates high level of uncertainty in the market which usually results in aversion thus leading to low patronage which on the other hand can reduce the value of share price. This result therefore confirms the expectation of a negative relationship between volatility and stock price even though the result here indicates significant implication. The finding of negative relationship confirms the earlier study of Musa and Yusuf (2013) who also finds negative effect of volatility on the stock

price in the Nigerian stock exchange, however, their findings shows significant effect. The causes of the difference in the finding is attributable to the period of study and the design used. While this study concentrated on specific sector, Musa and Yusuf used the aggregate market data and stopped at year 2012. It is argued here that other non-volatile firm's covers volatility of firms in the oil and gas firms sector which means that specifically clear conclusion could not have been established in their study. Even, Babatunde& Mathew (2012) found negative link between volatility and stock market price. Mandimika (2009) also found a negative non-significant effect of volatility on stock price using South African data.

The study has also found a significant positive link between liquidity and stock price in the Nigerian stock market. This finding support common expectation that a liquid market will lead to high stock price. The finding in the study is supported by that of Musa and Yusuf (2013) even with the differences in the measure of liquidity used. Even Hui& Robert (2006); Tarun, Asani and Avanider (2005) found significant positive effect of liquidity on stock market price. The findings in this study confirm that of Karatzouni (2010)

4.6 Summary of Findings

This study has examined the effects of volatility and liquidity of the stock price of listed oil and gas firms in Nigeria. The study observed a considerable level of volatility in the market. The study found that volatility has non-significant negative effects on stock price while liquidity if found to have significant positive effect of the prices of listed oil and gas firms. On a general level, both liquidity and volatility have joint significant effects on the stock prices of the oil and gas companies in Nigeria.

CHAPTER FIVE

SUMMARY, CONCLUSSION AND RECOMMENDATION

5.1 Summary

This study examines the effect of liquidity and volatility on the stock prices of listed oil and gas companies listed in the Nigerian stock exchange. The study was necessitated by the fact that the Nigerian stock market has been experiencing cases of volatility which is due to uncertainty partly as a result of financial crises and macroeconomic instability. The market is also faced by the frequent pulling of capital from the market by foreign investor which also created illiquidity in the market. These two major factors are important derivers of returns in the stock market. Thus, the main objective addressed in this study is examining the effect of liquidity and volatility on the return. The basic concepts of return where discussed with empirical evidence showing divergent outcome. While some studies reported a positive link between liquidity and return, others found a negative effect. Similarly findings in the literature also exist with respect to volatility.

The study used the oil sector in the Nigerian stock exchange. The oil sector though does not contain many firms, it has substantial capitalisation in the market. The sector has also been influenced by the frequent volatility in the oil price. The sector is also considered due to the fact that few studies have considered the sector in the Nigerian stock exchange. The study considered a total of seven listed oil and gas firms listed in the market from the year 2001 to 2015. The data collected were analysed using descriptive statistics and the hypotheses of the study tested using panel regression model. The study observed a considerable level of volatility in the market. The study

found that volatility has non-significant negative effects on stock price while liquidity if found to have significant positive effect of the prices of listed oil and gas stock. On a general level, both liquidity and volatility have joint significant effects on the stock prices of the oil and gas companies in Nigeria.

5.2 Conclusion

The study has examined the effect of volatility and liquidity on the prices of shares in the Nigerian stock performance in the Nigerian stock market. The study has found a considerable level of volatility in the market. However, the level of volatility has negative but insignificant effect of stock performance. It is thus conclude that the level of volatility is not good for the market as high volatility leads to a downturn in the performance of oil and gas sector. Even though the result shows non-significant effect however, there is every tendency that further increase in the value can result in a more negative effect with statistical significance.

The study has liquidity to have positive impact on the stock performance. This implies that the more liquid a market is the higher is its performance. The conclusion with this respect is that the market is liquid contrary to apriori expectation. This is due to the fact that the oil sector has always attracted investor with hope of a rise in the oil price in the long term.

It was also found that size has a positive and significant effect on the returns of oil and gas sector firms. This finding implies that firm's capitalisation increases it attracts more investors into buying the share of the firm thus leading to a capital appreciation.

5.3 Recommendations

The findings and the conclusion in this study leads to the following recommendations:

The study recommends that level of volatility of oil sector in the market should be minimised by the Nigerian stock exchange. The authority should stipulate the maximum period a capital introduced to the market should stay before it is pulled out by any means. This act will reduce the cause of foreign investors pulling out their capital in the case of slight perception of uncertainty in the market. This also has the capacity of checking market abuse by all the market participants.

The level of liquidity of the NSE has to be increased. This can be done by attracting investors to the market through orientation, and also minimizes the listing requirement for new companies in the market thus making more funds available and facilitates efficiency in transaction process.

It is also recommended that in order to grow the wealth of the firms, managers should continue to work towards price appreciation which then leads to an improve stock return for the share holders

REFERENCES

Abdullahi, L. &Etudaiye M. (2011). The effects of firm size on risk and return in the Nigerian stock market a sectorial analysis.

Abken, P. A. & Nandi, S. (1996). Options andvolatility. *Economic Review; December,: 21-35.*

Abudu, M., Bamidele, A., Okafor, P.N &Adamgbe, E.T. (2004). An overview of financial markets in Nigeria.

Aggarwal, R., Asli D. T., & Maria, S. M. P. (2005). Do remittances promote financial development? *Journal of Development Economics.*

Ajao, M.O &Ugochukwu. W.M (2012) Volatility estimation and stock price prediction in the Nigerian stock market. *International Journal of Finance research Vol.3 No 1.*

Akram, N (2014). The effect of liquidity on stock returns: An evidence from Pakistan. *Journal of Business and Management (IOSR-JBM)Volume 16, Issue 2.*

Alaa, S., &Guglielmo, M. C. (2004). Stock market development and economic growth: the causal linkage. *Journal of Economic Development, Vol. 29, issue 1, 33-50.*

Alan, G.A, William, L.G. & Francis, E.W (2004). Information costs and home bias: an analysis of US holdings of foreign equities. *Journal of international economics. 62*

Alexander, P. H &Shoiun K. R. (2009). Inflation hedging for long-term investors.

Amihud, Y. (2002). Illiquidity and stock returns: Cross-section and time series effects. *Journal of Financial Markets 5, 31-56.*

Amihud, Y. & H. Mendelson (1986). Asset pricing and the bid-ask spread. *Journal of Financial Economics17, 223-249.*

Ang, A., Hodrick, R. J., Xing, Y., & Zhang, X. (2009). High idiosyncratic volatility and low returns: International and further U.S. evidence. *Journal of Financial Economics, 91, 1-23.*

Asli, D. K. & Ross, L. (1996). Stock markets, corporate finance, and economic growth. An overview *World Bank Economic Review* ***Volume*** *10,* ***Issue*** *2* ***Published:*** *May 1996* ***Pages:*** *223 - 239*

Balasemi, N., Veiseh, S.M &Malgharani, A.M. (2015). Relationship between liquidity and stock returns considering company's life cycle: The case study of Tehran stock exchange listed companies. *WALIA journal 31(S4): 85-91, 2015*

Bali, T. G., &Cakici, N. (2006). Aggregate idiosyncratic risk and market returns.*Journal of Investment Management,4(4.)*

Battilossi, S. &Houpt, S. (2006). Risk, return and volume in an emerging market*: TheBilbao stock exchange, 1916-1936*. Department of economic history and institutions, University of Carlos III de Madrid.

Bekaert, G., &Harrey R.C (2002). Emerging markets finance. *Journal of Empirical Finance. 3-55.*

Bekaert, G., Herrey R. C., &Lundblad C. (2007). Liquidity and expected returns lesson from emerging markets.

Bhide, A. (1993). The hindden costs of stock market liquidity.*Journal of Financial Economics. 31-51. North-Holland.*

Blonigen, B. (1997). Firm-specific assets and the link between exchange rates and foreign direct investment. *American Economic Review, Vol. 87, Issues 3, 447-65*

Bohn, H. &Tesar, L. (1996). US equity investments in foreign markets: Portfolio rebalancing or return chasing? *Journal of American Economics Review, Vol. 86, Issue 2, 77-81.*

Brennan, G. M. &Subrahmanyam A. (1996). Market microstructure and assets pricing on the compensation for the illiquidity in stock returns. *Journal of Financial Economics. Volume 41, Issue 3rd July 1996, pages 441-464.*

Brennan, J. M., & Cao, H. H. (1997). Internal portfolio investment flows. *The Journal of the American Finance Association.*

Brennan, M., Chordia, T. &Subrahmanyam, A. (1998). Alternative factor specifications, security characteristics, and the cross-section of expected stock returns.*Journal of Financial Economics. Vol. 49, issue 3, 345-373.*

Bris,W. N. &Goetzmann,N. Z. (2007). Efficiency and the bear: Short sales and markets around the world.

Brunnermeier, K. M. & Pedersen, H. L. (2007). Market liquidity and funding liquidity. *The National Bureau of Economic Research, Papers No. 129.*

Chalmer, J. M. R. &Kadlec, B. G. (1998). Local return factors and turnover in emerging stock markets.

Charles, K. A., & Charles, A. Y. (2007). Stock market development in sub-saharanafrica: Critical issues and challenges. International monetary fund.

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

Chordia, T., Roll, R., &Subrahmanyam, A. (2001). Market liquidity and trading activity.*The Journal of American Finance Association.*

Chordia, T., Roll, R., &Subrahmanyam, A. (2001). Market liquidity and trading activity.*The Journal of Financial. Volume 56, Issue 2, pages 501-530.*

Chung, Y. D. & Brockman, P. (2003). Investor protection and firm liquidity. *The Journal of Finance. Volume 58, Issue 2, page 929-937.*

Damoradan, A. (2005). Marketability and value: Measuring the illiquidity discount. Working paper, stern school of business

Datar, V. T., N. Y. Naik& R. Radcliffe (1998). Liquidity and stock returns:An alternative test. *Journal of Financial Markets1, 205-219.*

Ebajemito, J.O., Kama, U. Salam, N.G. &Anyakoha, C.U. (2004). Theoretical issues in financial intermediation, financial markets macroeconomic management and monetary policy.

Edison, H. &Warnoch, E. F. (2003). Cross-Border listings capital controls, and equity flows to emerging markets. *International Monetary Fund Journal.*

Erb, C., Harrey, R. C., &Viskanta, E. T. (1996). Expected returns and volatility in 195 countries.*Journal of Portfolio Management.*

Fama, F. E. (1965). The behavior of stock-market prices. *The Journal of Business Vol. 38. No. 1, pp 34-105.*

French, K., Schwert, G.W., &Stambaugh, R. (1987). Expected stock returns and volatility. *Journal of Financial Economics, 19, 3-30*

Frieder, R. M. (2006). On capital Structure and the liquidity of a firm's stock. Working paper, 401.

Froot, A. K., O'Connel, P. G. J. &Seasholes, S. M. (2001). The portfolio flows of international investors. *Journal of Economics 59 (2001) 151-193.*

Gelos, R. G. & Wei, Shag-Jim. (2005). Transparency and international portfolio investment.*Journal of Finance.*

Gromb, D. &Vayanos, D. (2002). Equilibrium and welfare in markets with financially constrained arbitrageurs.*Journal of Financial Economics.Volume 66, Issues 2-3, pages 361-407.*

Grootveld, H. &Salomons, R. (2003). The equity risk premium: emerging vs. developed markets. *Emerging Markets Review, Vol. 4, Issue 2, pages 121-144.*

Halka, D. &Huberman, G. (2001). Systematic liquidity. *Journal of Financial Research. Volume 24, Issue 2, pages 161-178.*

Hui, G. & Robert. S (2006) Idiosyncratic volatility, stock market volatility, and expected stock returns. *Journal of Business & Economic Statistics, Vol. 24, No. 1*

James,S.K, Babatunde, R.U. & Mathew, A.A (2012) Market capitalization volatility: Effects on the Nigerian economic growth. *British Journal of Arts and Social. Vol.4 No.2*

Jun, S. G., Marather A. &Shawky A. H. (2003). Liquidity and stock returns in emerging equity market. *Emerging Market Review 4, 1-24.*

Kang, W. & Hameed, A. (2007). Stock market declines and liquidity.*Journal of Finance, Forthcoming AFA Chicago Meeting Paper*.

Karmakar, M. (2007). Modelling conditional volatility of the Indian stock market. *SouthAsia Economic Journal,* 30 (3), 21-37.

Karolyi, G. A. (2001). Why stock return volatility really matters. Paper prepared for inaugural issue of strategicinvestor relations, *Institutional investors Journals Series, February.*

Kenny, C.J. & Moss, T.J. (1998). Stock markets in Africa: Emerging lions.

Kim, S. (2008). The effect of consumer knowledge on message processing of economicworld-of-mouth via online consumer reviews. *Electronic Consumer Research and Application 7 (2008) 399-410.*

Korajczyk, R. (2008). Pricing the commonality across alternative measures of liquidity.*Journal of Financial Economics, Vol. 87, Issue, 1, 45-72.*

Kyle, S. A (1985). Continuous auctions and insider trading.*Econometrical. Vol. 53, No.6 (November,1985).*

Laporta, R., Lopez, De-S. F., Shleefer, A. &Visheng, W. R. (1997). Legal determinant of external finance.*The Journal of Finance, Vol. I, II, No. 3, July 1997.*

Lesmond, A. D. (2005). Liquidity of emerging markets. *Journal of Finance Economics.*

Loukil, N; Mohamed, B. Z &Abdelwahid, O. (2010). Impact of liquidity on stock returns: An empirical investigation of the Tunisian stock market.

Lulseged, Y. (1999). The Nigerian capital market: The first three decades of operation, 1961–90 *African Development Review, 1999, vol. 11, issue 2, 139-168.*

Lundblad, C. (2007). The risk return tradeoff in the long run: 1836-2003. *Journal of Financial Economics, 85,123-150.*

Malkiel, B. G., &Xu, Y. (1997). Risk and return revisited.*The Journal of Portfolio Management, Spring, 9-14.*

Mandimika, N (2009).Volatility and the risk-return relationship on the South Africanequity market. *M.Sc Thesis Rhodes University, Grahamstown.*

Marco, P. (1993). Financial markets and growth. an overview. Economic review. North Holland University of Bocccount, Milan, Italy and CEPR London, UK.

Masha, I. S. M., Essien, M. I., Musa, D. A. B. &Abeng, M. O. (2004). Theoretical issues in financial intermediation, financial markets, micro economic management and monetary policy, *CBN Financial Market in Nigeria, pp. 7-27.*

Mollah, S. A. (2009). Stock return & volatility in the emerging stock market of Bangladesh.*Journal of the Academy of Business & Economics, 43 (2),29-78.*

Mordi, F. I. (2006). Behaviour of share prices in the Nigerian stock market & the rom walk hypothesis: Universityof Nigerian research publications.

Nnanna, O.J, Englama, A. &Odoko, F.O.(2016). Financial markets in Nigeria. Abuja: *Central Bank of Nigeria Publication Pp 28-41.*

Odoko, F.O., Adamu, I., Dina, K.O., Golit, P.D. &Omanukwue, P.N., (2004). The Nigerian capital market.

Officer, R. (1973), Thevariability of the market factor of the new York stock exchange.*Journal of Business46, pp.433-453.*

Ojo A. T, (1986). The international finance structure and the third world, *in Nigeria banking annual 1986, Alfa communication Ltd., Lagos, 1986, (pp.85-93).*

Okigbo P. N. C. (1981). Nigeria's financial system: Structure and growth Longman, Essex.

Olowe, R.A. (2008). Weak form efficiency of the Nigerian stock market further evidence. *Afr. Dev. Rev., 11: 54-68.*

Pastor, L. &Stambaugh, F. R. (2003). Liquidity risk and expected stock returns. *Journal of Political Economy. Volume III, Number 3.*

Peterson, A. M. (2009). Estimating standard errors in finance panel data sets: Comparing approaches. *The Review of Financial Studies, Volume 22, Issue 1, page 435-480.*

Poshakwale, S. &Murinde, V. (2001). Modelling the volatility in east European emerging stock markets: Evidence on Hungary and Poland. *Applied financial economics,* 11, 445-456.

Poterba, J.M., &Summers, L.H. (1986). The persistence of volatility and stock market fluctuations. American economic review, V76(5),1142-1151.

Rajni, M. &Mahendra, R. (2007). Measuring stock market volatility in an emerging economy. International research. *Journal of Finance & Economics 8,126-133*

Reinhart, M. G. &Rogoff, A. K. (2003). Debt intolerance. *Brookings Papers on Economic Activity, 34, 2003-1 (2003), 1-74.*

Richard, A. & Joseph, S. (1991). Moral hazard and nonmarket institutions: Dysfunctional crowding out or peer monitoring*?* *American Economic Review, Vol. 81, issue 1, 179-9.0*

Rimziya, S. &Jariya, I. (2013). Relationship between stock returns and firm size, and book-tomarket equity: Empirical evidence from selected companies listed on milanka price index in colombo stock exchange.*Journal of Emerging Trends in Economics and Management Sciences (JETEMS) 4(2):217-225.*

Robert, G. K. & Ross, L. (1993). Finance and growth: Schumpeter might be right. *The Quarterly Journal of Economics, Vol. 108, Issue 3, 717-737.*

Sadka, R. (2006). Momentum and post-earnings announcement drift anomalies: The role of liquidity risk. *Journal of Financial Economic. No. 80, Issue 2, page 309-349.*

Saleem, K. (2007). Modeling time varying volatility and asymmetry of Karachi stock exchange (KSE). *International Journal of Economic Perspectives,1 (1), 1-9.*

Salomons, R. &Grootveld, H. (2003). The equity risk premium: Emerging vsdeveloped markets. *Emerging Markets Review*, 4 (2), 121-144.

Samarakoon,. L.P. (1998). An empirical analysis of the relationship between fundamentals and stock returns in siri Lanka.

Saroj, P. &Ashutosh, V. (2013). Size and returns: A study of the Indian stock market.

Schwert, G. William (1989), Whydoes stock market volatility change over time?*Journal of Finance 44, pp.1115-1153.*

Subrahmanyam, K. R. (2007). Financial statement effects of adopting international accounting standards: the case of Germany. *Volume 12, Issue 4, pp. 623-657.*

Summers, H. L. (1986). Does the stock market rationally reflect fundamental values? The *Journal of Finance. Volume 41, Issue 3, July 1986. Pages 591-601.*

Susanne E. C. & Rebel A. C. (2011). How accurate are commercial real-estate appraisals? Evidence from 25 years of NCREIF sales data. *Journal of Portfolio Management* 35 (5) 68-88.

Tarun, C., Asani, S. &Avanidhar, S. (2005). An empirical analysis of stock and bond market liquidity. *Federal Reserve Bank of New York Staff Reports, No. 164.*

Udoka, O.C &Anyingang, R. A. (2013). Stock price volatility and its effect on the Nigerian stock market (1980-2009). *International Journal of Management, March 2013*

Watanabe, M. (2008). Price volatility and investor behavior in overlapping generation's model with information asymmetry.*The Journal of Financial. Volume 63, Issue 1, February 2008. Pages 229-272.*

White Elephants? *World Development*, Vol. 26, No. 5, pp.829-843.

Wong, K.A (1989) .The firm size effect on stock returns in a developing stock market.

Wurgler, J. (2000). Financial markets and allocation of capital. *Journal of Financial Economic 58 (2000) 187-214.*

Yu, J.M. & Hassan, K. (2008). Global and regional integration of the Middle East andNorth African (MENA) stock markets. *The Quarterly Review of Economics andFinance*, 48, 482-504.

APPENDIX A

TRADE_DATE	SYMBOL	BOARD_NAME	INDUSTRY	SECTOR	CLOSE_PRICE	VOLUME	MARKET_CAP
29/12/2000	AFROIL	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.29	NULL	31109220.46
31/12/2001	AFROIL	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.26	4000	27891025.24
31/12/2002	AFROIL	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.25	NULL	26818293.5
31/12/2003	AFROIL	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.72	216118	77236685.28
31/12/2004	AFROIL	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.64	571620	68654831.36
30/12/2005	AFROIL	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.43	82200	46127464.82
29/12/2006	AFROIL	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.34	NULL	36472879.16
31/12/2007	AFROIL	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	11.06	1186939	1387891474
31/12/2008	AFROIL	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	20.71	NULL	2598845607
31/12/2009	AFROIL	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	20.71	NULL	2598845607
31/12/2010	AFROIL	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	20.71	NULL	2598845607
30/12/2011	AFROIL	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	20.71	NULL	2598845607
31/12/2012	AFROIL	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	20.71	NULL	2598845607
31/12/2013	AFROIL	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	20.71	0	2598845607
31/10/2014	AFROIL	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	20.71	NULL	2598845607
29/12/2000	AGIP	Main Board	OIL AND GAS	Petroleum and Petroleum Products	20.5	130332	8743344833

				Distributors			
31/12/2001	AGIP	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	34.62	116730	14765590152
31/12/2002	AGIP	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	21.06	18295	8982187424
29/12/2000	ANINO	ASeM	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.22	NULL	5324000
31/12/2001	ANINO	ASeM	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.22	NULL	5324000
31/12/2002	ANINO	ASeM	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.22	NULL	5324000
31/12/2003	ANINO	ASeM	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.22	NULL	5324000
31/12/2004	ANINO	ASeM	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.22	NULL	5324000
30/12/2005	ANINO	ASeM	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.22	NULL	5324000
29/12/2006	ANINO	ASeM	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.22	NULL	5324000
31/12/2007	ANINO	ASeM	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.22	NULL	5324000
31/12/2008	ANINO	ASeM	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.22	NULL	5324000
31/12/2009	ANINO	ASeM	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.22	NULL	5324000
31/12/2010	ANINO	ASeM	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.21	NULL	5082000
30/12/2011	ANINO	ASeM	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.21	NULL	5082000
31/12/2012	ANINO	ASeM	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.21	NULL	5082000
31/12/2013	ANINO	ASeM	OIL AND GAS	Petroleum and Petroleum Products	0.21	0	5082000

				Distributors			
31/12/2014	ANINO	ASeM	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.25	NULL	6050000
31/12/2015	ANINO	ASeM	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.25	NULL	6050000
31/12/2009	BECOPETRO	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	2.53	12000	9403950747
31/12/2010	BECOPETRO	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.6	72000	2230185948
30/12/2011	BECOPETRO	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.5	NULL	1858488290
31/12/2012	BECOPETRO	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.5	NULL	1858488290
31/12/2013	BECOPETRO	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.5	0	1858488290
31/12/2014	BECOPETRO	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.5	NULL	1858488290
31/12/2015	BECOPETRO	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.5	NULL	1858488290
29/12/2000	CAPOIL	ASeM	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.3	NULL	16386714
31/12/2001	CAPOIL	ASeM	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.39	NULL	21302728.2
31/12/2002	CAPOIL	ASeM	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.39	NULL	27396478.2
31/12/2003	CAPOIL	ASeM	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.38	NULL	26694004.4
31/12/2004	CAPOIL	ASeM	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.37	NULL	25991530.6
30/12/2005	CAPOIL	ASeM	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.35	NULL	32326820.4
29/12/2006	CAPOIL	ASeM	OIL AND GAS	Petroleum and Petroleum Products	0.34	NULL	39966320

				Distributors			
31/12/2007	CAPOIL	ASeM	OIL AND GAS	Petroleum and Petroleum Products Distributors	5.42	14048000	637110160
31/12/2008	CAPOIL	ASeM	OIL AND GAS	Petroleum and Petroleum Products Distributors	13.83	1000	1625688840
31/12/2009	CAPOIL	ASeM	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.59	12880	3455953320
31/12/2010	CAPOIL	ASeM	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.5	NULL	2928774000
30/12/2011	CAPOIL	ASeM	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.5	NULL	2928774000
31/12/2012	CAPOIL	ASeM	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.5	NULL	2928774000
31/12/2013	CAPOIL	ASeM	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.5	0	2928774000
31/12/2014	CAPOIL	ASeM	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.5	NULL	2928774000
31/12/2015	CAPOIL	ASeM	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.5	NULL	2928774000
29/12/2000	CONOIL	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	24.8	6203	8506400000
31/12/2001	CONOIL	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	29.8	6556	10221400000
31/12/2002	CONOIL	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	14.69	127276	5038670000
31/12/2003	CONOIL	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	114.99	279823	39441570000
31/12/2004	CONOIL	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	131	291772	53919600000
30/12/2005	CONOIL	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	98.75	66222	40645500000
29/12/2006	CONOIL	Main Board	OIL AND GAS	Petroleum and Petroleum Products	67	25168	46494791839

				Distributors			
31/12/2007	CONOIL	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	84.18	230330	58416889209
31/12/2008	CONOIL	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	78.4	50109	54405845973
31/12/2009	CONOIL	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	27.63	104692	19173896993
31/12/2010	CONOIL	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	36.44	2245	25287615143
30/12/2011	CONOIL	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	31.5	5291	21859491686
31/12/2012	CONOIL	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	20.5	1415	14226018399
31/12/2013	CONOIL	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	67.93	0	47140167308
31/12/2014	CONOIL	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	38.11	133240	26446515179
31/12/2015	CONOIL	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	24.74	10100	17168375375
29/12/2000	ETERNA	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.92	1500	234583273.5
31/12/2001	ETERNA	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	1.3	6100	331476364.7
31/12/2002	ETERNA	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.7	NULL	178487273.3
31/12/2003	ETERNA	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	2.01	358240	549058910.4
31/12/2004	ETERNA	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	1.99	85751	543595637.6
30/12/2005	ETERNA	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	3	1337364	1527490911
29/12/2006	ETERNA	Main Board	OIL AND GAS	Petroleum and Petroleum Products	3	112600	1527490911

				Distributors			
31/12/2007	ETERNA	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	16	4719260	8146618192
31/12/2008	ETERNA	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	31.1	590	24258000000
31/12/2009	ETERNA	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	4.98	278960	6494640342
31/12/2010	ETERNA	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	5.05	87873	6585930467
30/12/2011	ETERNA	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	2.96	310176	3860268155
31/12/2012	ETERNA	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	1.99	95029	2595247848
31/12/2013	ETERNA	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	4.51	67657600	5881692358
31/12/2014	ETERNA	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	2.98	222911	3886351048
31/12/2015	ETERNA	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	2.05	62581	2673496526
29/12/2000	FO	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	19.34	134407	4177440000
31/12/2001	FO	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	19.34	615	4177440000
31/12/2002	FO	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	12.02	31100	2596320000
31/12/2003	FO	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	42.87	19543	9259920000
31/12/2004	FO	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	69	1300917	29808000000
30/12/2005	FO	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	35.82	114446	18569088000
29/12/2006	FO	Main Board	OIL AND GAS	Petroleum and Petroleum Products	46.29	282596	36512989021

				Distributors			
31/12/2007	FO	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	207	1334819	1.63279E+11
31/12/2008	FO	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	293.98	33321	2.31888E+11
31/12/2009	FO	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	33.51	68457	34685590381
31/12/2010	FO	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	21.9	242592	23658145753
30/12/2011	FO	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	11.6	14596775	12531255285
31/12/2012	FO	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	7.73	170207	8350569254
31/12/2013	FO	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	97.75	158773	1.05597E+11
31/12/2014	FO	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	227.9	311186	2.46196E+11
31/12/2015	FO	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	330	152168	4.29819E+11
29/12/2006	JAPAULOIL	Main Board	OIL AND GAS	Energy Equipment and Services	1.21	2541387	1411097378
31/12/2007	JAPAULOIL	Main Board	OIL AND GAS	Energy Equipment and Services	8	8567698	9329569440
31/12/2008	JAPAULOIL	Main Board	OIL AND GAS	Energy Equipment and Services	3.66	2938781	22921488281
31/12/2009	JAPAULOIL	Main Board	OIL AND GAS	Energy Equipment and Services	1.13	4768133	7076852939
31/12/2010	JAPAULOIL	Main Board	OIL AND GAS	Energy Equipment and Services	1.4	2204472	8767782402
30/12/2011	JAPAULOIL	Main Board	OIL AND GAS	Energy Equipment and Services	0.9	798200	5636431544
31/12/2012	JAPAULOIL	Main Board	OIL AND GAS	Energy Equipment and Services	0.55	2487541	3444485944
31/12/2013	JAPAULOIL	Main Board	OIL AND GAS	Energy Equipment and Services	0.54	2113745	3381858927
31/12/2014	JAPAULOIL	Main Board	OIL AND GAS	Energy Equipment and Services	0.5	49057	3131350858
31/12/2015	JAPAULOIL	Main Board	OIL AND GAS	Energy Equipment and Services	0.5	NULL	3131350858
29/12/2000	MOBIL	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	61	23444	11731365853

31/12/2001	MOBIL	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	64.7	35018	12442940503
31/12/2002	MOBIL	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	64.05	102122	12317934146
31/12/2003	MOBIL	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	143.95	90913	34605125262
31/12/2004	MOBIL	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	184	893803	44233018744
30/12/2005	MOBIL	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	165	115831	39665478765
29/12/2006	MOBIL	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	178.87	46882	42999782950
31/12/2007	MOBIL	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	180	59757	43271431380
31/12/2008	MOBIL	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	331.19	500	99521287131
31/12/2009	MOBIL	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	98.8	16319	29689009839
31/12/2010	MOBIL	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	141	867	42369943191
30/12/2011	MOBIL	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	133.91	9351	40239426189
31/12/2012	MOBIL	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	109.25	26321	39395032374
31/12/2013	MOBIL	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	118.6	13538	42766598073
31/12/2014	MOBIL	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	158	30532	56974051396
31/12/2015	MOBIL	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	160	90042	57695241920
29/12/2000	MRS	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	52	9430	7861554116

31/12/2001	MRS	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	67	5888	10129310111
31/12/2002	MRS	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	56.01	120166	10161361085
31/12/2003	MRS	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	160	6551	29027276800
31/12/2004	MRS	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	169	12204	42924085568
30/12/2005	MRS	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	119.98	82142	30473560867
29/12/2006	MRS	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	150	21367	38098300800
31/12/2007	MRS	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	160	21358	40638187520
31/12/2008	MRS	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	159.91	60500	40615328540
31/12/2009	MRS	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	69.79	13463	17725869419
31/12/2010	MRS	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	66.56	18008	16905486008
30/12/2011	MRS	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	59	276297	14985331648
31/12/2012	MRS	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	23.76	3700	6034770847
31/12/2013	MRS	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	54.44	0	13827143304
31/12/2014	MRS	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	53.2	80	13512197350
31/12/2015	MRS	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	49.66	300	12613077452
29/12/2000	OANDO	Main Board	OIL AND GAS	Integrated Oil and Gas Services	26.88	5213	4200000000
31/12/2001	OANDO	Main Board	OIL AND GAS	Integrated Oil and Gas Services	49.88	112940	7793750000

31/12/2002	OANDO	Main Board	OIL AND GAS	Integrated Oil and Gas Services	52	1972	10982792028
31/12/2003	OANDO	Main Board	OIL AND GAS	Integrated Oil and Gas Services	85.4	162585	27854005330
31/12/2004	OANDO	Main Board	OIL AND GAS	Integrated Oil and Gas Services	112	176657	64097702592
30/12/2005	OANDO	Main Board	OIL AND GAS	Integrated Oil and Gas Services	96	97709	54940887936
29/12/2006	OANDO	Main Board	OIL AND GAS	Integrated Oil and Gas Services	70	79617	40061064120
31/12/2007	OANDO	Main Board	OIL AND GAS	Integrated Oil and Gas Services	122.6	1440054	92449048572
31/12/2008	OANDO	Main Board	OIL AND GAS	Integrated Oil and Gas Services	79.8	72795	72209793314
31/12/2009	OANDO	Main Board	OIL AND GAS	Integrated Oil and Gas Services	93.99	1872	85068904186
31/12/2010	OANDO	Main Board	OIL AND GAS	Integrated Oil and Gas Services	66	1915078	1.19471E+11
30/12/2011	OANDO	Main Board	OIL AND GAS	Integrated Oil and Gas Services	22	3235319	50030599036
31/12/2012	OANDO	Main Board	OIL AND GAS	Integrated Oil and Gas Services	12.35	5098579	28085359004
31/12/2013	OANDO	Main Board	OIL AND GAS	Integrated Oil and Gas Services	24.25	21602005	1.65442E+11
31/12/2014	OANDO	Main Board	OIL AND GAS	Integrated Oil and Gas Services	16.11	7855914	1.46354E+11
31/12/2015	OANDO	Main Board	OIL AND GAS	Integrated Oil and Gas Services	5.9	2097123	71004251475
29/12/2000	RAKUNITY	ASeM	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.3	NULL	4072120.2
31/12/2001	RAKUNITY	ASeM	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.3	NULL	4072120.2
31/12/2002	RAKUNITY	ASeM	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.3	NULL	4072120.2
31/12/2003	RAKUNITY	ASeM	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.3	NULL	4072120.2
31/12/2004	RAKUNITY	ASeM	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.3	NULL	4072120.2
30/12/2005	RAKUNITY	ASeM	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.3	NULL	4072120.2
29/12/2006	RAKUNITY	ASeM	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.3	NULL	4072120.2
31/12/2007	RAKUNITY	ASeM	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.31	NULL	4207857.54

31/12/2008	RAKUNITY	ASeM	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.31	NULL	4207857.54
31/12/2009	RAKUNITY	ASeM	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.31	NULL	4207857.54
31/12/2010	RAKUNITY	ASeM	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.31	NULL	4207857.54
30/12/2011	RAKUNITY	ASeM	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.31	NULL	4207857.54
31/12/2012	RAKUNITY	ASeM	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.31	NULL	4207857.54
31/12/2013	RAKUNITY	ASeM	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.31	0	17553716.83
31/12/2014	RAKUNITY	ASeM	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.5	NULL	28312266.5
31/12/2015	RAKUNITY	ASeM	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.5	NULL	28312266.5
31/12/2014	SEPLAT	Main Board	OIL AND GAS	Exploration and Production	371.01	328533	2.05284E+11
31/12/2015	SEPLAT	Main Board	OIL AND GAS	Exploration and Production	203	3220	1.14379E+11
29/12/2000	TOTAL	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	61.42	44885	13758080000
31/12/2001	TOTAL	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	72.5	37464	21538416580
31/12/2002	TOTAL	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	69	195000	20498630952
31/12/2003	TOTAL	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	175	68581	51989281400
31/12/2004	TOTAL	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	182.49	148989	61959340034
30/12/2005	TOTAL	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	183.01	48970	62135891389
29/12/2006	TOTAL	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	185.02	1854	62818330282

31/12/2007	TOTAL	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	180	34738	61113930660
31/12/2008	TOTAL	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	203.69	1250	69157202979
31/12/2009	TOTAL	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	149	11727	50588753713
31/12/2010	TOTAL	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	234	27582	79448109858
30/12/2011	TOTAL	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	188.1	18371	63864057540
31/12/2012	TOTAL	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	120.57	19305	40936147887
31/12/2013	TOTAL	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	170	627	57718712290
31/12/2014	TOTAL	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	142.5	305548	48381861773
31/12/2015	TOTAL	Main Board	OIL AND GAS	Petroleum and Petroleum Products Distributors	147.01	18366	49913105257
29/12/2000	TROPICPET	ASeM	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.3	NULL	4380000
31/12/2001	TROPICPET	ASeM	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.29	NULL	4234000
31/12/2003	TROPICPET	ASeM	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.29	NULL	4234000
31/12/2004	TROPICPET	ASeM	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.29	NULL	4234000
30/12/2005	TROPICPET	ASeM	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.29	NULL	4234000
29/12/2006	TROPICPET	ASeM	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.29	NULL	4234000
31/12/2007	TROPICPET	ASeM	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.35	NULL	5110000

31/12/2008	TROPICPET	ASeM	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.44	NULL	6424000
31/12/2009	TROPICPET	ASeM	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.44	NULL	6424000
31/12/2010	TROPICPET	ASeM	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.44	NULL	6424000
28/02/2011	TROPICPET	ASeM	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.44	NULL	6424000
29/12/2000	UNIONVENT	ASeM	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.5	NULL	13780000
31/12/2001	UNIONVENT	ASeM	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.5	NULL	13780000
31/12/2002	UNIONVENT	ASeM	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.5	NULL	13780000
31/12/2003	UNIONVENT	ASeM	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.56	NULL	15433600
31/12/2004	UNIONVENT	ASeM	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.56	NULL	15433600
30/12/2005	UNIONVENT	ASeM	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.56	NULL	16016000
29/12/2006	UNIONVENT	ASeM	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.56	NULL	16016000
31/12/2007	UNIONVENT	ASeM	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.56	NULL	16016000
31/12/2008	UNIONVENT	ASeM	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.6	NULL	17160000
31/12/2009	UNIONVENT	ASeM	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.63	NULL	18018000
31/12/2010	UNIONVENT	ASeM	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.63	NULL	18018000
30/12/2011	UNIONVENT	ASeM	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.63	NULL	62118000

31/12/2012	UNIONVENT	ASeM	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.63	NULL	62118000
31/12/2013	UNIONVENT	ASeM	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.63	0	62118000
31/12/2014	UNIONVENT	ASeM	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.66	NULL	65076000
31/12/2015	UNIONVENT	ASeM	OIL AND GAS	Petroleum and Petroleum Products Distributors	0.63	NULL	62118000

APPENDIX B

Transformed Data

YEAR	ID	PS	LQ	CAP	VOL
2001	CON	1.474216	3.816639	10.00951	-0.24436
2002	CON	1.167022	5.104747	9.702316	-0.44922
2003	CON	2.06066	5.446883	10.59595	-0.28556
2004	CON	2.117271	5.465044	10.73175	0.120029
2005	CON	1.994537	4.821002	10.60901	-0.56741
2006	CON	1.826075	4.400849	10.6674	-0.63461
2007	CON	1.925209	5.362351	10.76654	-0.4749
2008	CON	1.894316	4.699916	10.73565	0.392102
2009	CON	1.441381	5.019913	10.28271	0
2010	CON	1.561578	3.351216	10.40291	-0.49963
2011	CON	1.498311	3.723538	10.33964	-0.34417
2012	CON	1.311754	3.150756	10.15308	-1.02074
2013	CON	1.832062	0	10.67339	-0.40752
2014	CON	1.581039	5.124635	10.42237	0.361705
2015	CON	1.3934	4.004321	10.23473	-0.3641
2001	ETE	0.113943	3.78533	8.520453	-0.24436
2002	ETE	-0.1549	0	8.251607	-0.44922
2003	ETE	0.303196	5.554174	8.739619	-0.28556
2004	ETE	0.298853	4.933239	8.735276	0.120029
2005	ETE	0.477121	6.12625	9.183979	-0.56741
2006	ETE	0.477121	5.051538	9.183979	-0.63461
2007	ETE	1.20412	6.673874	9.910977	-0.4749
2008	ETE	1.49276	2.770852	10.38485	0.392102
2009	ETE	0.697229	5.445542	9.812555	0
2010	ETE	0.703291	4.943855	9.818617	-0.49963
2011	ETE	0.471292	5.491608	9.586617	-0.34417
2012	ETE	0.298853	4.977856	9.414179	-1.02074
2013	ETE	0.654177	7.830317	9.769502	-0.40752
2014	ETE	0.474216	5.348132	9.589542	0.361705
2015	ETE	0.311754	4.796442	9.42708	-0.3641
2001	FO	1.286456	2.788875	9.62091	-0.24436
2002	FO	1.079904	4.49276	9.414358	-0.44922
2003	FO	1.632153	4.290991	9.966607	-0.28556
2004	FO	1.838849	6.11425	10.47433	0.120029
2005	FO	1.554126	5.058601	10.26879	-0.56741
2006	FO	1.665487	5.451166	10.56245	-0.63461
2007	FO	2.31597	6.125422	11.21293	-0.4749
2008	FO	2.468318	4.522718	11.36528	0.392102
2009	FO	1.525174	4.835418	10.54015	0
2010	FO	1.340444	5.384876	10.37398	-0.49963
2011	FO	1.064458	7.164257	10.09799	-0.34417
2012	FO	0.888179	5.230977	9.921716	-1.02074

2013	FO	1.990117	5.200777	11.02365	-0.40752
2014	FO	2.357744	5.49302	11.39128	0.361705
2015	FO	2.518514	5.182323	11.63329	-0.3641
2001	MOB	1.810904	4.544291	10.09492	-0.24436
2002	MOB	1.806519	5.009119	10.09054	-0.44922
2003	MOB	2.158212	4.958626	10.53914	-0.28556
2004	MOB	2.264818	5.951242	10.64575	0.120029
2005	MOB	2.217484	5.063825	10.59841	-0.56741
2006	MOB	2.252538	4.671006	10.63347	-0.63461
2007	MOB	2.255273	4.776389	10.6362	-0.4749
2008	MOB	2.520077	2.69897	10.99792	0.392102
2009	MOB	1.994757	4.212694	10.4726	0
2010	MOB	2.149219	2.938019	10.62706	-0.49963
2011	MOB	2.126813	3.970858	10.60465	-0.34417
2012	MOB	2.038421	4.420302	10.59544	-1.02074
2013	MOB	2.074085	4.131555	10.6311	-0.40752
2014	MOB	2.198657	4.484755	10.75568	0.361705
2015	MOB	2.20412	4.954445	10.76114	-0.3641
2001	MRS	1.826075	3.769968	10.00558	-0.24436
2002	MRS	1.748266	5.079782	10.00695	-0.44922
2003	MRS	2.20412	3.816308	10.46281	-0.28556
2004	MRS	2.227887	4.086502	10.6327	0.120029
2005	MRS	2.079109	4.914565	10.48392	-0.56741
2006	MRS	2.176091	4.329744	10.58091	-0.63461
2007	MRS	2.20412	4.329561	10.60893	-0.4749
2008	MRS	2.203876	4.781755	10.60869	0.392102
2009	MRS	1.843793	4.129142	10.24861	0
2010	MRS	1.823213	4.255465	10.22803	-0.49963
2011	MRS	1.770852	5.441376	10.17567	-0.34417
2012	MRS	1.375846	3.568202	9.780661	-1.02074
2013	MRS	1.735918	0	10.14073	-0.40752
2014	MRS	1.725912	1.90309	10.13073	0.361705
2015	MRS	1.696007	2.477121	10.10082	-0.3641
2001	ONA	1.697926	5.052848	9.891746	-0.24436
2002	ONA	1.716003	3.294907	10.04071	-0.44922
2003	ONA	1.931458	5.21108	10.44489	-0.28556
2004	ONA	2.049218	5.247131	10.80684	0.120029
2005	ONA	1.982271	4.989935	10.7399	-0.56741
2006	ONA	1.845098	4.901006	10.60272	-0.63461
2007	ONA	2.08849	6.158379	10.9659	-0.4749
2008	ONA	1.902003	4.862102	10.8586	0.392102
2009	ONA	1.973082	3.272306	10.92977	0
2010	ONA	1.819544	6.282186	11.07726	-0.49963
2011	ONA	1.342423	6.509917	10.69924	-0.34417

2012	ONA	1.091667	6.707449	10.44848	-1.02074
2013	ONA	1.384712	7.334494	11.21865	-0.40752
2014	ONA	1.207096	6.895197	11.16541	0.361705
2015	ONA	0.770852	6.321624	10.85128	-0.3641
2001	TOT	1.860338	4.573614	10.33321	-0.24436
2002	TOT	1.838849	5.290035	10.31172	-0.44922
2003	TOT	2.243038	4.836204	10.71591	-0.28556
2004	TOT	2.261239	5.173154	10.79211	0.120029
2005	TOT	2.262475	4.68993	10.79334	-0.56741
2006	TOT	2.267219	3.26811	10.79809	-0.63461
2007	TOT	2.255273	4.540805	10.78614	-0.4749
2008	TOT	2.30897	3.09691	10.83984	0.392102
2009	TOT	2.173186	4.069187	10.70405	0
2010	TOT	2.369216	4.440626	10.90008	-0.49963
2011	TOT	2.274389	4.264133	10.80526	-0.34417
2012	TOT	2.081239	4.28567	10.61211	-1.02074
2013	TOT	2.230449	2.797268	10.76132	-0.40752
2014	TOT	2.153815	5.485079	10.68468	0.361705
2015	TOT	2.167347	4.264015	10.69821	-0.3641

APPENDIX C

Correlated Random Effects - Hausman Test
Equation: RIL
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	4.801136	3	0.1870

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
VOL	10.773975	10.747492	0.034000	0.8858
CAP	0.000000	0.000000	0.000000	0.9461
LQ	-0.000001	-0.000001	0.000000	0.0559

Cross-section random effects test equation:
Dependent Variable: RT
Method: Panel Least Squares
Date: 09/29/17 Time: 15:25
Sample: 2001 2015
Periods included: 15
Cross-sections included: 7
T/MCI35.19 735.1 Tm[ )]TETQQ EMC q4 453m0 g[s)-6(