

**IMPACT OF CAPITAL MARKET DEVELOPMENT ON  
ECONOMIC GROWTH IN NIGERIA**

**BY**

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M.SC/SOC-SCI/5620/2009-2010**

**BEING A THESIS SUBMITTED TO THE POSTGRADUATE SCHOOL,  
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THE REQUIREMENTS FOR THE AWARD OF MASTER DEGREE OF  
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## **DECLARATION**

I solemnly declare that the work in this thesis titled “*IMPACT OF CAPITAL MARKET DEVELOPMENT ON ECONOMIC GROWTH IN NIGERIA*” was written by me in the Department of Economics under the supervision of Prof. G.D Olowononi and Dr. Aliyu Rafindadi Sanusi. The information gleaned from the literature has been duly acknowledged in the text and a list of references provided. No part of this thesis was previously presented for another degree or diploma at any university.

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## CERTIFICATION

This thesis titled ***“IMPACT OF CAPITAL MARKET DEVELOPMENT ON ECONOMIC GROWTH IN NIGERIA”*** by Maryam Ubale Dankawu meets the regulation governing the award of the degree of Master of Science (M.Sc) in Economics, Ahmadu Bello University, and is approved for its contribution to knowledge and literary presentation.

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## ABSTRACT

*The Nigerian financial system experienced series of reforms and amidst these reforms an important component of the sector, the capital market has demonstrated an impressive performance evidenced from its growth especially in the last decade. Coupled with this development, the Nigerian economy has also experienced growth which did not significantly translate into positive improvements in employment, and poverty reduction. This study examined the relationship between capital market development and economic growth in Nigeria. It tests the competing finance-growth nexus hypotheses using Granger causality tests in a Vector Auto regression framework over the period 1981-2012. The study also examined the impact of capital market development on economic growth in Nigeria and tested for the evidence of long run relationships. Annual data on some capital market development indicators and real growth domestic product were collected and used for the study. The empirical results from causality test at lags 7 show that value of transaction and turnover ratio each drives real GDP with no reverse or feedback effect. Thus, this supports the evidence of unidirectional causal link from these two indicators to real gross domestic product. In essence, the general causality results reveal some evidence that capital market development causes economic growth in Nigeria as shown by some of the capital market development used in this study. The co-integration results imply that there exists a significant long-run relationship between capital market and economic growth. There exist four significant co integrating vectors or four different linear combinations of the capital market indicators that can drift together roughly at the same time with the RGDP. The study recommends among others the need for availability of more investment instruments such as derivatives, convertibles, future, and swaps options in the Nigerian capital market in order to boost the value of transactions. Also, it is recommended that all the tiers of government should be encouraged to fund their realistic developmental programmes through the capital market. This will help in boosting the activities of the capital market, as well as the financial sector. Hence, it will redirect the resources that may be used in other spheres of the economy.*

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## **CHAPTER ONE:**

### **GENERAL INTRODUCTION**

#### **1.1 Background of the study**

In every Country Nigeria inclusive, there is a financial system which is responsible for regulating the financial environment of the economy, determining the types and amounts of funds to be issued, cost of funds and the uses to which these funds are to be put. The role of financial intermediation to economic growth and development is being increasingly recognized, especially in developing economies (Sanusi, 2011). Financial intermediation involves the process in which financial market transfer funds from the surplus economic units to deficit ones. The financial market is made up of two majors markets which are institutional arrangements that facilitate the intermediation of funds in an economy, they are: the money market and the capital market. The basis of distinction between the money market and the capital market lies in the degree of liquidity of instruments bought and sold in each of the market (Osamwonyi, 2005).

Therefore, the money market is simply the market for short-term funds and securities including treasury bills, one-year treasury certificates, Central Bank notes, negotiable certificates, commercial papers, commercial and merchant bank savings and other funds of less than one year duration. The capital market on the other hand is the market for longer-term funds and securities whose tenor exceeds beyond one year. These include long-term loans, mortgage bonds, preference stocks, ordinary shares, Federal Government bonds and industrial loans and debentures. This market is the source from which companies and industries obtain capital for expansion and modernization and also from which government borrows on a long-term basis for development purposes.

The capital market is generally regarded as an engine of economic growth and development. It mobilizes savings and allocates same to the real sector just in order to achieve economic growth and development. Therefore, the money lent and borrowed in the capital market is used to finance capital projects. Also, it has been posited that industry and commerce utilize the capital provided in the capital market to set up new businesses and to finance/expand existing ones. Given the strategic role of the capital market in fostering growth in an economy, it remains alongside the banking sector one of the most regulated component of the financial sector in most economies. The Nigerian capital market was not an exception from such a development. The capital market reforms has been an integral component of most economic reforms programme embarked in Nigeria over the last three decades. Such programmes include among others; Structural Adjustment Programme (SAP) 1986, National Economic Empowerment Development Strategy (NEEDS), Vision 2010, Vision 2020, Millennium Development Goal (MDGs), and other development plans (Odetayo and Sajuyigbe, 2012). The recent unprecedented growth witnessed in the Nigerian capital market was largely attributed to the banking sector reform of 2004-2005 which was part of the NEEDS programme. This could be linked to the view that an easier way to stimulate capital market development is through financial sector reforms.

In a more general sense, a number of studies believed that there exists a positive and significant relationship between capital market development and economic growth and development. That is capital market development translates to economic growth without hindrance (See for instance, Rajan and Zingales, 2001 and Abiola and Babatunde, 2011). However, the challenge therein lies on how to attain a sustainable capital market development in an emerging economy like Nigeria that work as gate way to a sustainable economic growth and development. This has generated controversies on the nature of the effect and causal relationship between the capital market development and economic growth in Nigeria as

found in other Countries. Previous empirical studies usually document conflicting results. The results exhibit a different pattern for developed and developing countries which suggest that institutional considerations and policies of countries do play a role in the relationship between capital market development and growth. Generally, empirical studies provide three way evidences on the nature of the linkage between capital market development and economic growth. First, a unidirectional (one-way) causality from capital market development to economic growth. Second, there is a unidirectional causality from growth to capital market development. Such finding confirms Shan, et al (2001) conclusion that economic growth causes China's financial development. The third alternative is the co-evolution (bidirectional causality) between economic growth and capital market development hypothesized in both early and some recent literature (Odeniran, and Udejaja, 2010).

Studies in Nigeria seem to offer unclear conclusions. Also, the problem of endogeneity has not been properly addressed. This study therefore, aims to fill such a gap. Therefore, this study generally aimed at empirically examining the nature of the effect and as well the causal link between the capital market and economic growth in Nigeria over a wider scope.

## **1.2 Statement of Research Problem**

The period 1986 to 2009 witnessed the implementation of far-reaching financial reform policies usually as part of wider macroeconomic reform programmes. The Nigerian financial system experienced series of reforms and amidst these reforms an important component of the sector, the capital market has demonstrated an impressive performance evidenced from its growth especially in the last decade. Coupled with this development, the Nigerian economy has also experienced growth which did not significantly translate into positive improvements in employment, productivity and poverty reduction. Also, the financial sector in Nigeria still exhibits elements of fragmentation characterized by predominance of informal finance. The

informal finance does not possess the potential to trigger growth in the economy as it is only those in the informal sector can harness it. These kinds of scenarios may tempt one to be skeptic about the potentials of financial sector/markets in predicting economic growth and vice versa. The Nigerian policy makers tend to emphasize more on the benefits of capital market development and mostly in support of the view that capital market development lead to economic growth. The problem is that the nature of the relationship between the capital market development and economic growth is still contentious, especially in developing Countries like Nigeria. It is against this background that the study seeks to examine the causality between the capital market and economic growth. Also, to evaluate the impact of the capital market developments on growth in Nigeria and as well see if there is evidence of long run relationship between the variables in question. We therefore set to address the following research questions.

### **1.3 Research Questions**

1. What is the causal link between the capital market development and economic growth in Nigeria (which one come first)?
2. What is the performance of the Nigerian capital market in relation to economic growth?
3. Is there a long – run relationship between the capital market and economic growth in Nigeria?

### **1.4 Objectives of the Study**

1. To ascertain the causal relationship between the capital market and economic growth in Nigeria.
2. To assess the performance of the Nigerian capital market in relation to economic growth.

3. To examine the existence of a long – run relationship between the capital market and economic growth in Nigeria.

### **1.5 Research Hypotheses**

This study test four set of hypotheses. The null forms of these hypotheses are stated as follows:

1. **H<sub>01</sub>**: The Nigerian Capital Market does not Granger cause Economic growth in Nigeria.
2. **H<sub>02</sub>**: Economic growth does not Granger cause the growth of the Nigerian Capital Market.
3. **H<sub>03</sub>**: There is no feedback (bi-directional relationship) effect between Economic Growth and Nigerian Capital Market.
4. **H<sub>04</sub>**: The Nigerian Capital Market has no significant impact on Economic Growth in Nigeria.
5. **H<sub>05</sub>**: There is no long-run relationship between the Nigerian Capital Market and Economic Growth.

If the causality test indicates a Uni-directional effect from economic growth to capital market development, it would be in support of the demand-following hypothesis and if it is vice versa, it would support the supply-leading hypothesis. If the causality test indicates a bi-directional effect between economic growth and capital market it would simultaneously be supporting supply-leading and demand-following hypothesis.

### **1.6 Significance of the Study**

The findings of this study would be relevant for policy making and as well contribute to the finance - growth nexus debate. It will contribute to the existing literature on the subject matter by investigating empirically the role, which the capital market plays in the economic growth of Nigeria, using an alternative approach. The main importance of this study is that it will

provide information to policy-makers on the relevance of their reforms programmes in the economy and whether there is need for review.

### **1.7 Scope of the Study**

The financial system is a large component of the economy with lot of diverse and sometimes complex parts; this research work only looks at a particular part of the financial sector. That is the work would not cover all the facets that make up the financial sector, but focus only on the capital market and its activities as it impacts on the Nigerian economic growth. The empirical investigation of the nature of the impact of the capital market on the economic growth in Nigeria was restricted to the period between 1981 and 2012. This is because most of the reforms that contributed immensely to the development of the Nigerian capital market were undertaken within that period.



## **CHAPTER TWO: LITERATURE REVIEW**

### **2.1 Introduction**

This chapter is organized under three broad sub – sections; the conceptual, theoretical and empirical components. It majorly provides the developments in our area of study, as found in previous related studies. A theoretical framework that relates the study to relevant economic theory (ies) is provided.

### **2.2 An Overview of the Nigerian Capital Market**

According to Anyanwu (1993) the key players on the Nigerian capital market include the Securities and Exchange Commission (SEC), which is the overall supervisory and regulatory body for the market, the Nigerian Stock Exchange (NSE), issuing houses, stock-brokers, unit trusts as well as company registrars. As the apex institution in the financial system, CBN closely monitors activities development in the capital market. The SEC was established in 1979 to replace the Capital Issues Commission (established 1973) with the overall objective of promoting an orderly, active and transparent capital market. Its major functions include: i) registering all security dealers and approving security issues; ii) maintaining surveillance over the securities market to prevent fraudulent and unfair trade practices; iii) ensuring protection for the investing public; and iv) regulating mergers and acquisitions and authorizing the establishment of unit trusts.

The instruments traded in the capital market are:-

1. Debt securities
2. Equity shares

Debt securities are debentures or bonds that may have specified maturity or may be redeemed on a series of dates. There are even some without any fixed redemption dates while some may

be redeemed by pre arranged sinking fund or by lottery. These securities usually attract interest since they are strictly speaking loans. Most have fixed interest rates but the current trend is to make it attract floating rates of interest. (Anyanwu 1993).

Equity on the other hands is securities method by which companies raise funds by issuing share. Hence the buyer becomes part owner of the firm.

Alile (1985) provided the definition of several concept which include;

1. **The Primary Market** - where company shares are issued for the first time before being quoted on the stock exchange.
2. **The Secondary Market** - this is for trading in existing stocks.

Shares can be; *ordinary shares* or *preference shares*. The later are shares of companies on which contractually fixed dividends must be paid before those on other shares. There are convertible shares, participating preference shares and redeemable preference shares. Other instruments include the federal government development loan stock and state government bonds.

Operators or participants in the capital market include:-

- Provider of fund (investors – individual, unit trust and other corporate bodies)
- User of funds (companies and government)
- Intermediary's facilitators like Stockbroker's firm, Issuing houses and Registrars
- Regulators (SEC & the NSE)

As could be seen, while the providers of funds essentially comprise individual and companies the use of funds (Issues of Securities) include company and government. In other words, individuals are not able to raise money from the capital market as they do in money market.

In this network of relationship the Stock Exchange plays a central and indispensable role for which it has been variously described as the '*hallmark*' or '*heart*' of the capital market (Alile 1985). In its strict definition, the Stock Exchange is a market for trading on outstanding issues. Yet opportunity which it offers for subsequent trading in existing securities has made it a decisive factors in the success or otherwise of many corporate issues and, by extension, the efficiency of capital formation in the economy. Thus the availability of a secondary market engenders capital formation and socio-economic development.

The market for government's long term debt securities is referred to as *Gilts edged Securities*. This is so because Gilt's are often considered risk free investment since it is highly unlikely that the government would ever default on the payment of its debt when they fall due.

It can be seen based on the foregoing discussion that the capital market and money market are indeed so closely interrelated that the activities is one of them is quite often affect those of the other. The relationship between the two market is somehow symbiotic, as most of the institutional participant simultaneously play in both markets and thus have to deal across the markets. In order for any player to actively take advantage of both markets, its managers must not only be very familiar with the trade and patterns in the general operating environment, but also be well grounded in the peculiarities of both markets. Whichever of the market the player is dealing in, every fund-based transaction has obvious implications for a player's financial operations, considering that the ultimate objective of financial management is to strike a variable balance between liquidity and profitability, Thus, every fund-based transaction in both markets must be appraised or assessed on the ground of the mix of value,

rate and tenure to properly identify the threats or advantages of a player's immediate and future profitability and liquidity (Sani, 2003).

### **2.2.1 The Primary Market**

As stated earlier, the primary market is concerned with the initial issuance of securities (i.e. equities debentures Government stocks and preference shares). Such issues can take any of the following forms:

*Offer for Subscription* – These are direct issues to the public by floating of shares or debentures stocks. The proceeds go to the issuer, a company, or government usually to finance expansion or modernization.

*Right Issue* – Offer to buy more shares generally made to existing shareholders and sometimes at concessionary prices.

*Offer for Sale* – A public offer of shares in a company by existing shareholders, the proceeds of which go to the sellers of such shares. Most of public offers under Nigeria's Government Privatization fall under this category.

*List by Introduction* – Where a company seeking quotation already has enough shares held in public hands, the council of the Exchange may permit its security to be introduced into and listed on the market. No new or existing shares need to be sold.

*Private Placement* – securities are sold to the clients of the Issuing House or Stock Broker handling the issue instead of being offered directly to the general public.

Nnanna (2005), show that the Nigerian capital market did not play a significant role in the mobilization of fresh long term-term capital. The *number of new issues* on the market has been low and has shown a mixed trend over the 1986-2005 periods. 28 new issues were

floated in 1994, and there was a sharp rise to 40 new issues in 1996 as the inflow of foreign portfolio investment increased and two new issues in 1996 as the inflow of foreign portfolio investment increased and two new Unit Trust schemes were launched. Since 1996, the number of new issues have fallen sharply to stand at only 17 in 1998. It is notable that most recent new issues represent capital increases by firms already quoted on the exchange and there is relatively little activity in terms of initial Public Offerings (IPOs). However, with the recent consolidation exercise in the banking sector there is improvement in the number of the new issues in the capital market especially by the banks that issues IPOs to meet the recapitalization requirement.

Although the numbers of new issues have been small, the values of new issues have grown over the years, increasing from a mere N0.63 billion in 1986 to N7.1 billion In 1995, and from N22 billion in 1996 to N227.4 billion in 2004. (NSE Annual Report & Account, 2004). While there has been a recent increase in foreign portfolio investments, the sharp increase in value recorded in the past two years was due mainly to new issues from several banks and insurance companies trying to comply with higher minimum capital requirements. In terms of the *mode of issue*, the Nigerian capital market lacks diversification as new issues have been dominated by direct sales of new equities to the public (offers for subscription). The value of new offers for subscription has grown from only N22.3 million in 1996 to N13.9 billion in 1998 with direct sales representing 90% of new issues in 1998 and stood at N120.8 billion in 2004 Rights issues are next in popularity due perhaps to the low cost associated with this mode of issue.

According to Aderibigbe (2004), the primary market for debt instruments has been dull and inactive compared to the market for equities. New debenture issues have been small and are little used as sources of corporate finance. Recently new issues are improved on through foreign listing and merger & acquisition.

### **2.2.2 Secondary Market: The Nigerian Stock Exchange**

In a study by Akabueze (2004), the Nigerian Stock Exchange (NSE) has being in existence for over four decades, incorporated in 1960 as the Lagos Stock Exchange. In December, 1977, it became the Nigerian Stock Exchange, with branches established in some of the major commercial cities of the country. The Exchange has the mission *“to promote, increased capital formation in Nigeria by providing issuers and investor with a responsive, fair and efficient stock market through competent and dedicated professionals, using the latest technology, thus assuring local and foreign investors to the Nigerian Stock Market with confidence both in the regulatory framework and in the reliability of trading and settlement system”* (NSE Facts Book 2004).

He showed that, the objectives of the Exchange as contained in the Memorandum of Association include:

- The creation of an appropriate mechanism for capital formation and efficient allocation of savings among competing productive investment projects.
- Machinery for mobilizing long-term financial resources for industrial projects with long-term gestation periods.
- Maintenance of discipline and confidence in the capital market
- Broadening the share ownerships based on enterprises.
- Providing the necessary liquidity mechanism for investors through a formal market for debt and equity securities.
- Maintenance of fair and equitable prices for securities and
- Act as a leading indicator of economic activity in the aggregate economy.

An in-depth analysis of the above stated objectives of the Nigerian Stock Exchange will clearly show the prominent role the Exchange ought to play in the structure and development of the Nigeria economy. This prominent role leads to some misconceptions on the Exchange. For example, several people believe that the Exchange is a government owned institution. According to Alile (1977), the Exchange is not a government owned institution but a non-profit organization, limited by Guarantee, incorporated via the inspiration and support of businessmen and the Federal government, but owned by the Members of the Exchange which includes presently 318 members which are ordinary members, dealing members and non-dealing members.

Having been in operation for more than four decades the Nigerian Stock Exchange can be said to have existed long enough to permit an assessment of its performance. This task has been undertaken by various scholars in the past. However, this section will attempt to update the past works by presenting some of the recent changes in the Exchange, and see to what extent the Exchange is performing its primary role of contributing to the development of the Nigerian Economy.

The ebb and flow of the stock exchange market affects every aspect of our daily lives, yet too many of us do not understand how the stock market really works! This may largely be due to the fact that at inception, the operation of the Nigerian Stock Exchange was novel in the commercial life of the Nation. In the first few years of its operation, the preparation of all the offer documentation took place in London with a team of Issuing House Officials and the Nigerian Solicitors. The whole exercise was cloaked with an air of mystique. According to Ogunbanjo (1981), "It was all shrouded in mystery". Very few people outside the Exchange knew what the Exchange was all about. In addition, the high poverty level among Nigerians

make them believe that they have nothing to do with the Exchange but it is for the elite and rich people.

According to McArthur and Loveridge (1972), a stock exchange market is a highly organized market where existing securities are bought and sold. Securities include; shares debenture bonds, which have been issued by companies, government, and public corporation, local authorities as a means of raising necessary finance for their operation. Despite a stock exchange has been termed a market place, it is not possible for persons other than members to work on the floor of the exchange. Consequently if one desires to buy or sell shares, then business must be transacted through a broker belonging to the particular exchange.

According to Alile, and Anao (1986), the stock exchange in Nigeria is also an organ within the capital market and the capital market is an organ within the financial system. The Nigerian Stock Exchange is the prime operation institution in the nation's capital market. It is the hallmark of the capital market and often referred to as the barometer of an economy. Just like any other institution of the capital market the Nigerian Stock Exchange performs several vital functions which affect the level of income, prices and employment within the economy. By their special role in creating money and liquidity the capital markets (especially the NSE) are indispensable to the nation's economic system. In fact, economic growth and capital market development go hand in hand and the growth phenomenon and the stock exchange market are not naturally exclusive at any stage in the development process. This evidently can be shown by the major effect of stock market activities on various economies. For example, the 'Famous First Bubbles', '*The South Sea Bubble*', the name given to the first great stock market crash in England in 1720. Another example is the '*Wall Street Crash*' of 1929 in America. The experiences of the indigenization exercise of the Nigerian Enterprises



Promotion Acts 1972 and 1977 and the recent bank recapitalization exercise in Nigeria banking system come readily in mind.

## **2.3 Conceptual Literature**

### **2.3.1: Financial Markets**

Financial markets simply entail those markets where money and near money instruments are exchanged between lenders (Suplus Spending Units) and borrowers (Deficit Spending Units). They generally provide opportunities for financial institutions to make facilities available for borrowers and lenders (Anyaele, 2003). Financial market is broadly categorized into two: money and capital market. The money market is mainly for the lending and borrowing of short-term loans. The capital market on the other hand, deals in the lending and borrowing of medium to long-term loans. According to Al-Faki (2006), the capital market is a network of specialized financial institutions, series of mechanisms, processes and infrastructure that, in various ways, facilitate the bringing together of suppliers and users of medium to long term capital for investment in socio-economic developmental projects”.

The capital market is divided into the primary and the secondary market. The primary market or the new issues market provides the avenue through which government and corporate bodies raise fresh funds through the issuance of securities which is subscribed to by the general public or a selected group of investors. Long term finance is usually raised in this market. One can simply describes the capital market as a market for dealing in long-term loanable funds. Financial markets are generally believed to foster growth and development in the economy. Based on the relevance of the capital market in accelerating economic growth and development, government of most nations tends to have keen interest in the performance of its capital market. This therefore, instigates most economies to regularly embark upon reforms in

their capital markets. This is believed to enhance the efficiency in the markets and boost investors' confidence.

Capital market reforms could simply mean government efforts or actions to review or provide incentives that would enhance the performance of the market. It is government programmes, policies or strategies aimed at revamping the financial system. Therefore, this work is only concern on the capital market reforms as segment of the financial market reforms. This is because the study intends to analyze the impact of the development in the capital market on economic growth in the phase of series of reforms.

Capital market has become a veritable source of finance for investment in the last two decades. Capital market liberalization has been another key component of reforms in the financial system. It provides a mechanism for equity financing of the productive sectors thereby minimizing self-financing by enterprises. The determination of asset prices by market forces as well as enhanced participation in private placement of new issues and secondary market, the provision of credit facilities to enable purchase of equities of privatized public enterprises (where some quotas of the equities are preserved for employees of privatized public enterprises), and the internationalization of domestic equity by quotation via Reuters, and debt conversion, put together, characterizes the liberalization of the capital market (Alege and Ogunrinola, 2005)

### **2.3.2 Economic Growth**

Economic growth entails an increase in the capacity of an economy to produce goods and services, compared from one period of time to another. Also, it can be defined as a process by which a nation's wealth increases over time. The most widely used measures of economic growth is the rate of growth in a country's total output of goods and services gauged by the gross domestic product (GDP). Economic growth can also be referred to as the increase in per

capita gross domestic product (GDP) or other measures of aggregate income, typically reported as the annual rate of change in the real GDP. Economic growth is primarily driven by improvement in productivity, which involves producing more goods and services with the same inputs of labour, capital, energy and materials.

According to Anyanwuocha (2008), Economic growth enables improvements or positive changes to take place in various areas of economic activity due to the increased production of goods and services. Economic growth will inevitably lead to economic development provided the following conditions are fulfilled:

- i. Increased production of goods and services is not frustrated by rapid increase in population size.
- ii. There is an equitable distribution of the goods and services among individuals and areas.
- iii. The increasing level of production does not lead to mass unemployment as a result of using just a few labour-saving devices.

### **2.3.3: Financial Reform Policy**

Financial reforms and attendant policy prescriptions are aged long phenomena. They represent the various transformations and policies adjustments and overhaul that are directed at the art, practice and activities of financial institutions and market overtime in response to nominal need for operational improvement and growth of both the institutions and economy as a whole. They could be internal or external in nature, reflecting critical comprehensive amendment, restructuring and/or additions to the existing body of laws, guidelines and policies (Chinedu and Muoghalu, 2004).

In Nigeria, the ability of the financial sub-sector to play its role has been periodically punctured by its vulnerability to systematic distress and macro-economic volatility and policy fine tuning inevitability (Kama, 2006). Consequently, the financial reforms were focused on

further liberalization of banking business; ensuring competition and safety of the system and proactively positioning their interrelation with the capital market to boost financial intermediation with the hope to serve as a catalyst to economic growth and development. Starting in 1986, Nigeria's financial system began to be deregulated and by 1992, substantial changes had taken place.

Capital market reforms are predicted upon the need for reorientation and repositioning of existing status quo in order to attain an effective and efficient state. Okeke (2009) posits that reforms are deliberate actions by the government to fast track, jump start and consolidate specified sector of the economy to achieve desired objectives.

Also, financial reforms, according to Ebong (2006) are deliberate policy response to correct perceived or impending financial crises and subsequent failure. Reforms in the capital market are aimed at addressing issues such as government, risk management and operational inefficiencies. Like other emerging economies, Nigeria has been involved in financial reforms on a regular basis aimed at responding to the challenges posed by some factors and developments such as system crises, deregulation, globalization and technological innovations (2005).

Following the prolonged use of direct controls, the pervasive government intervention in the financial system and the resultant stifling of competition and resource misallocation, a comprehensive economic restructuring programme was embarked upon beginning 1986 with reliance on the market forces. As part of economic-wide reform programme, reforms in the financial sector were initiated in order to enhance competition, reduce distortion in investment decisions and evolve a sound and more efficient financial system (CBN, 2000). The reform policies which focused on structural changes, monetary management, interest rate administration and foreign exchange management, encompasses both financial market liberalization and institutional building in the financial sector.

Broadly speaking, the objectives of financial reforms include:

- i. Removal of control on interest rates to increase the level of savings and improve allocative efficiency;
- ii. Elimination of non-price rationing of credit to reduce mis-directed credit and increase competition;
- iii. Adoption of indirect monetary management in place of imposition of credit ceiling on individual banks;
- iv. Enhancing institutional structure and supervision;
- v. Strengthening the money and capital markets through policy changes and distress resolution measures; and
- vi. Improving the linkage between formal and informal sectors (Odusola, 1992 and CBN, 2000).

#### **2.3.4: Review of Recent Economic/Financial Sector Reforms in Nigeria (2000 – 2009)**

The policy environment beginning from 2000 marked a new political environment of a civilian administration platform - formed on three-tier structure of governance from May 29<sup>th</sup> 1999. Bearing in mind the poor institutional quality and unhealthy rent seeking activities that collectively led to low economic responses to the Structural Adjustment Programme, the 1999-2003 economic framework was less comprehensive but designed to produce the Interim Poverty Reduction Strategic Paper (I-PRSP). A more comprehensive framework of economic policy built on earlier attempts called National Economic Empowerment and Development Strategy (NEEDS) came on board in 2003. NEEDS is a medium term strategy (2003 - 07), sharing the country's long-term goals of poverty reduction, wealth creation, employment generation and value re-orientation (NPC, 2004). NEEDS is a nationally coordinated framework of action in close collaboration with the State and Local governments (with their

State Economic Empowerment and Development Strategy, SEEDS) and other stakeholders. The vision is to consolidate on the achievements in 1999- 2003 and build a solid foundation for the attainment of Nigeria as the largest and strongest African economy in certain years in future.

The NEEDS rests on four key strategies:

- i. Reforming the way government works and its institutions;
- ii. Growing the private sector;
- iii. Implementing a social charter for the people and
- iv. Re-orientation of the people with an enduring African value system.

Specific economic policies (e.g. monetary policy) pursued by the administration and supported by the CBN, have provided the much-needed catalyst for both a robust economic performance in general and improved banking sector environment in particular. Beside the overall emphasis at monetary stability and direct inflation targeting it has been a policy of government to seek sustainable economic growth and development through increased credit availability to the preferred sectors of the economy.

Notwithstanding the progressive deregulation of the banking industry, the conduct of monetary policy in the country was still very much constrained by the absence of fiscal discipline, problem of policy reversals, lack of instrument autonomy and monetization of oil proceeds, among others. This was further compounded by the changed role of banks from the traditional financial intermediation role of mobilizing savings and inculcating banking habits amongst the people to that of public sector deposits and government revenue collectors. This changed role had the contemporaneous impact of denying small savers access to credit as well as discouraging them from using banking services. The Government from mid- 2004 carried out an unprecedented banking sector reforms, following a surveillance report which indicated that 62 banks out of 89 were classified as sound and satisfactory, 14 as marginal while 13

were considered unsound. The report further indicated that the industry was dominated by the top 20 – 30 banks; about 60 – 70 percent of total deposits were short term (30 – 90 days); barely 3 – 5 percent of total banks' credit was given to agriculture and manufacturing sectors; the 89 banks had a total assets of US\$18.0 billion (compared with 58 banks in South Africa having a total assets valued at U\$146.0 billion); over N373.1 billion was outside the banking system due to the failure of banks to mobilize saving through offering of reasonable interest rate to small depositors; and about 10 banks accounting for over 50 percent of the industry's total assets and liabilities. It was obvious, at the beginning of 2004 that the banking industry has shied away from the catalytic role it was meant to play in the growth process of the economy.

Informed with this state of development in the banking industry and considering the changing structure and increasing needs of the economy, further reforms and improvements in the financial sector became imperative and inevitable. The Central Bank of Nigeria, in line with keeping with the vision of enthroning a strong, virile and competitive banking industry that would fully meet the international best practices requirements, embarked on an extensive and phased reform programme designed to ensure a diversified, strong and reliable banking industry (Abeng, 2006). It was believed that the reformed industry will ensure the safety of depositors' money, play active developmental roles in the Nigerian economy as well as becoming competent and competitive both in Africa and the global financial system (Okagbue and Aliko, 2004). To achieve this, the Central Bank of Nigeria rolled out its 13 points agenda on 6<sup>th</sup> July, 2004, envisaged to facilitate greater mobilization of resources and improvements in financial intermediation, deepen and widen the money and capital markets and ultimately stimulate development of the private sector. The major thrust of the reform included requirement for banks to re-capitalize to the tune of N25 billion, with full compliance by 31st December, 2005; phased withdrawal of public sector funds from banks, starting from July,

2004; consolidation of banks through mergers and acquisitions; adoption of risk-focused and rule-based regulatory framework, automation process for reporting of returns, establishment of assets management company, promotion and enforcement of dormant laws, revision and updating of relevant laws, close collaboration with Economic and Financial Crime Commission (EFCC) in the establishment of Financial Intelligence Unit, and the acquisition, rehabilitation and effective management of the Nigerian Security Printing and Minting (NSPM) Plc, to meet the security printing needs of Nigeria. The outcome of the re-capitalization exercise showed that the banking sector capital base which was less than US\$3.0 billion increased by 67 per cent to over US\$5.0 billion, while new investment was about N350.2 billion (US\$3.0 billion) the largest non-oil sector investment in one year. Foreign Direct Investment flows through the exercise was put at US\$500 million in 2005 as the stock shares doubled from 24 per cent to almost 50 per cent. Depositors' confidence had been restored and 25 relatively large banks emerged as against 89 banks pre-consolidation. Worthy of note is the fact that all four foreign banks re-capitalized fully despite their initial hesitation, reaffirming investors' confidence on the economy.

Another development over the period and relatively recent is the pension reform. The Act setting the reform establishes a uniform contributory pension system for both the public and the private sectors. It requires that each employee covered by the scheme must open a Retirement Savings Account (RSA) in which his/her monthly pension contributions would be credited. Each employee is to contribute 7.5 percent of his/her monthly emolument and the employer contributes an equivalent amount. This means 15 percent of the monthly emolument is credit into the RSA of the employee. The funds are managed by licensed Pension Fund Administrators (PFAs) while the custody of the pension fund assets is provided by the licensed Pension Fund Custodians (PFCs).



One potential link in literature between demography, finance and economic growth runs through reform of pension systems. Many countries have recently reformed, or are in the process of reforming, their pension systems from a pay-as-you-go system (sometimes referred to as Pillar 1) to a decentralised system where contributions are mandatory and defined but managed by private fund managers (sometimes referred to as Pillar 2). The relative merits of a pay-as-you-go system versus decentralised systems are beyond the scope of this paper. However, there is empirical evidence that suggests that introducing private pension forms improves financial depth and, through this mechanism, economic growth.

Most recent regulatory reform in the Nigerian banking industry is the “Project Alfa” of the Central Bank of Nigeria. As a result of adverse effects of the global financial crisis on the Nigerian capital market and the oil and gas sectors, it was observed that some banks had huge concentration of exposure to these two sectors in addition to general weakness in risk management practices, poor corporate governance practices and signs of illiquidity. A diagnostic assessment of the crisis implications on the banking industry showed that some of the banks had persistently manifested signs of distress through their frequent resort to the interbank market and the Expanded Discount Window (EDW) at the CBN for financial accommodation. Therefore, in order to forestall further crisis in the financial system, the CBN took a number of measures among which are;

- i. Replacement of executive management and, in some cases, boards of the banks with new ones, and the auditing findings of some of the banks and the impropriety, thereof, referred to the law enforcement and prosecution authorities for further investigation and prosecution.
- ii. Injection of the sum of N620 billion into the rescued banks in the form of Tier 2 Capital to be repaid from the proceeds of recapitalization. This is to enable banks to remain stable and restore confidence in the banking system.

- iii. Reaffirmed the guarantee of the local inter-bank market to ensure continued liquidity for all banks.

The Project Alfa was anchored on four pillars, namely;

- i. Enhancing the quality of banks through regulatory framework reform, risk based supervision, consumer protection, corporate governance, and disclosure and transparency.
- ii. Establishing financial stability through financial stability committee, macro prudential framework, capital market development (as alternative to bank funding) and counter-cyclical fiscal policies.
- iii. Enabling a healthy financial sector evolution through competitive banking industry structure, improved cost structure of banks through cost control and business process outsourcing, reliable and secure payment systems, greater financial inclusion, improve financial infrastructure and credit bureaus.
- iv. Ensuring that the financial sector contributes to the real economy via effectiveness of existing development finance institutions, examination of critical issues of development (e. power, ports, railways), leveraging the role of CBN as adviser to the government on economic matters and greater engagement with the banking industry.

A number of policy measures and initiatives have been taken by the CBN in order to promote the safety, soundness and stability of the financial system. Some of the measures include;

- i. The scrupulous enforcement of corporate governance for banks in Nigeria, placing high premium on enhanced transparency and disclosures
- ii. Policy of limiting the tenure of Chief Executive Officers of the banks and that of the external auditors of the banks to 10 years. This is aimed at forestalling corporate abuses from the CEOs, and on the part of the auditors, safeguarding their independence as well as enhancing the integrity and credibility of their audited financial statements.

- iii. The review and implementation of the new prudential guidelines based on forward-looking capital provisioning, driven by stress tests.
- iv. The issuance, in conjunction with the Securities and Exchange Commission, of the Margin Lending Guidelines, which amongst others, placed a limit on a bank's capital market exposure to a percentage of a bank's balance sheet. The earlier absence of this guideline saw margin lending undertaken recklessly leaving a number banks in a daze.
- v. The landmark establishment of the Asset Management Company of Nigeria (AMCON) following the promulgation of its enabling Act in 2010. AMCON as part of a broad resolution strategy to address the problem of non-performing loans in the banking industry and in line with its mandate acquired the non-performing risk assets of some banks worth over N1 trillion which is hoped to boost the banks' liquidity as well as enhance their safety and soundness; and
- vi. The reversal of the Universal Banking Policy and the introduction of the New Banking Model aimed at, amongst others, making banks focus on core banking businesses.

From the review, it is clear that the banking sector, in particular, and the financial system, in general, has undergone a number of reforms with incidences of policy reversal, implementation sequencing problems, and absence of full implementation of policy actions. It is also obvious from the review that a number of policies were not legislated upon and regime-tied, thus, making their changes an easy exercise but with grave consequence on business and public confidence in the system. One salient feature of the Nigeria's growth drive is a conscious development of the financial sector, this is evidenced not only in the recent economic reforms but earlier reforms, and for instance, the liberalization of the banking industry was a major component of SAP put in place in 1986. All recent efforts made by the CBN in conjunction with the fiscal authorities to avert a collapse in the financial system, was with a view to maintaining economic growth.

## **2.4 Theoretical Literature**

### **2.4.1 Causality between the Capital Market and Economic Growth**

A number of theoretical underpinnings contribute to the debate as regard to the nexus between the capital market and economic growth. Majority of theoretical evidences are of the view that capital market development foster/enhances growth, therefore, in support of the claim arguing that capital market causes economic growth. This argument fall in line with the Supply-Leading Hypothesis of the Finance-Growth Nexus. The less dominant views believed that economic growth can lead to capital market development; in that case, it is growth that causes capital market development. This argument is in line with the Demand –Following Hypothesis. Another group, although less dominant, proposes a reverse causation. To these proponents, a bi-directional relationship exists between the capital market and economic growth. In a nutshell, literature document three categories of evidences, they are: First, a unidirectional (one-way) causality from capital market development to economic growth. Second, there is a unidirectional causality from growth to capital market development. The third alternative is the co-evolution (bidirectional causality) between economic growth and capital market development hypothesized in both early and some recent literature. For instance, a number of models argued that the process of growth has a feedback effect on financial markets by creating incentives for further financial development, which means that the two variables are endogenously determined.

#### **Supply – Leading Hypothesis School**

A substantial academic literature and government strategies support the finance – led growth hypothesis, this was based on Schumpeter’s observation made over a century ago (1912). He argued that the financial markets enhance economic growth and development significantly. The belief in the vital role of the development of the financial sector could be linked to the theory of financial repression which posits that efficient utilization of resources via a highly

organized, developed and liberal financial system enhances economic growth (McKinnon, 1973 and Shaw, 1973). This thesis, more or less, confirmed the conclusions of earlier works on the importance of the financial system which could be traced back to the works of Bagehot (1873), Schumpeter (1912) and Hicks (1969). Further advancements to this hypothesis were explored in the works of Galbis (1997); Mathieson (1980); Fry (1988); Roubini and Sala-i-Marti (1992); Kwan, Wu and Zhang (1998) and King and Levine (1993) (Odeniran and Udejaja, 2010). This school of thought can be classified as supply-led theory of capital market – growth nexus. Also, the arguments by Bencinvenga and Smith (1991), Levine (1997) and Saint-Paul (1992) support the view of supply-leading hypothesis. Furthermore, Harrison *et al* (1999) and Blackburn and Hung (1998) argue that financial intermediation encourages economic growth because the cost of project appraisal. As the number of projects increase in a growing economy, more banks enter the markets as banks' activity and profit increases. This entry reduces the average distance between banks and borrowers, promotes regional specialization and reduces the cost of intermediation.

### **Demand – Following Hypothesis School**

Despite the fact that a well-functioning financial sector is considered a necessary condition for the efficient allocation of resources and the exploitation of an economy's growth potential, the economic literature is less convergent on how and to what extent finance affects economic growth. This, results in the emergence of demand-led theory of finance-growth nexus. For instance, Robinson (1952) argues that where enterprise leads, finance simply follows, suggesting that it is economic development which creates the demand for financial services and not vice versa. Providing more evidence to this line of argument, Gurley and Shaw (1955) posited that if income grows at a warranted pace, then the demand for financial assets also grows at a specifiable pace. Moreover, Lucas (1988) has argued that economists over emphasized the importance of the financial system on economic growth. It is simply a

“sideshow” for economic activity. The recent developments in some Asian economies around the world seem to provide further support for this school of thought. For instance, the rapid growth witnessed in China was accomplished despite a domestic financial sector that could not be regarded as developed (Lardy, 1998). With an average real GDP growth of 13.5 percent between 2005 and 2007, China’s economic performance is extremely difficult to reconcile with the widespread view that its repressive financial system (in the McKinnon-Shaw sense) grossly distorts the optimal allocation of loanable funds and is, therefore, inefficient.

#### **2.4.2 The Impact of the Capital Market on Economic Growth and Development**

The roles of the capital market in the development of the economy according to Aremu et al (2011) include provision of opportunities for companies to borrow funds needed for long-term investment purposes, provision of avenue for the marketing of shares and other securities in order to raise fresh funds for expansion of operations leading to increase in output/production, provision of a means of allocating the nations real and financial resources between various industries and companies. Through the capital formation and allocation mechanism the capital market ensures an efficient and effective distribution of the scarce resources for the optimal benefit to the economy, reduction in the over reliance of the corporate sector on short term financing for long term projects and also provision of opportunities for government to finance projects aimed at providing essential amenities for local investors. They said further that capital market can aid the government in its privatization programme by offering her shares in the public enterprises to members of the public through the stock exchange. Capital market offers access to a variety of financial instruments that enable economic agents to pool, price and exchange risk. It encourages savings in financial form.

The capital market also encourages the inflow of foreign capital when foreign companies or investors invest in domestic securities, provides needed money for creative capital

development and acts as a reliable medium for broadening the ownership base of family-owned and dominated firms. In addition, the development of the capital market, and apparently the stock market, provides opportunities for greater funds mobilization, improved efficiency in resource allocation and provision of relevant information for appraisal (Inanga and Emenuga, 1997).

Also, Development of a country's capital markets is related closely to its overall development. Functional financial systems provide good and easily accessible information which according to the World Bank (2010), lower capital market transaction costs, improving resource allocation and economic growth. Increased economic growth would in the long run lead to economic development. Although economic growth does not by itself guarantee economic development, it makes economic development possible. Economic growth enables improvements or positive changes to take place in various areas of economic activity due to the increased production of goods and services. Growth in financial market could be attributed to openness of the economy with the implementation of some macroeconomic policies, good legal system and shareholders protection. Integration of modern technology into capital market activities has resulted in cross-border capital flows and the migration of stock exchange activities to international exchanges (Usman and Adejare, 2012).

## **2.5 Theoretical Framework**

This component discusses the basic framework for analysis. The work is anchored on two theoretical models: finance model (the financial repression hypothesis) and growth model (the Harrod – Domar growth model).

### **2.5.1 The Financial Repression Hypothesis**

Most theories of finance have been mainly concerned with advance economies where the capital markets are well developed. In the case of under developed capital markets, the

McKinnon- Shaw frame work has explicitly sought to relate capital market developments to long – term economic growth in the developing countries (McKinnon,1973;shaw,1973). The McKinnon – Shaw proposition is that a repressed financial sector interferes with development in several ways: savings vehicles are not well developed; financial intermediaries that collect savings do not allocate them efficiently among competing use; and firms are discouraged from investing because of financial policies repression that reduce the returns to investment or make them uncertain; as a result growth is retarded. Thus, financial liberalization theory argues for improved growth through financial deepening and financial sector reform. The key relations of financial liberalization paradigm are: positive real deposit rates raise the saving rate; a positive correlation between the degree of financial deepening and the growth rate; increased real rates raise the level of investment and increased real deposit rates promote economic growth (Njiforti, 2008).

The McKinnon – Shaw proposition is based on the underlying classical assumption that savings determine investment and that a full utilization of resources is always guaranteed. This is contrary to the fundamental Keynesian framework which suggests that it is investment that determines savings and that the supply of loans is endogeneous through the money multiplier process by which the banking system could create additional credit without increasing the deposit base. The structuralist models developed by Taylor (1983) and Van Wijnbergen (1983) also point out that the financial liberalization framework ignores the several channels through which high real interest rates could adversely affect costs, investment and the level of demand in the economy. An increase on nominal interest rates will raise financing costs to the firms which may lead to rising prices, a fall in real wages and a reduction in aggregate demand and capacity utilization. High interest rates will reduce capital accumulation and growth as investment demand is related to capacity utilization.



Although, the Mc kinnon- Shaw framework focuses on the financial repression in developing Countries. It does not examine the role of the stock market. The framework also ignores the institutional aspects of the financial system as Chandavarkar (1991) has pointed out: eliminating financial repression through positive real interest rates may not be sufficient in mobilizing and allocating domestic resources efficiently. The institutional aspects of the liberalization process, restructuring of financial institutions, effective regulation and supervision of the banking system are important factors to be considered. The appropriate sequencing of the overall stabilization and structural reforms including financial liberalization need to be considered. For example, the likely impact of simultaneous liberalization of interest rates and the exchange rates and deregulation of capital controls on external capital mobility, exports and imports, the domestic goods and services market should be taken into consideration. Thus, this study seeks or attempts to take into consideration the role of the stock/capital market in stimulating economic growth and development.

### **2.5.2 The Harrod – Domar Growth Model**

The Harrod- Domar growth model shows the mechanism through which finance is mobilized from the surplus sector (savings) to the deficit sector (lending) by means of investment activities which in turn influence economic growth. A key objective of the Harrod – Domar model is to overcome the limitation of the Keynesian model. This model takes cognizance of one of the dual roles of investment in the economy, its role as a component of aggregate demand and as addition to the stock of productive resources.

Harrod – Domar analysis proceeds by assuming that an economy is in an equilibrium stage given an initial level of investment, which equals savings. However, the dual nature of investment ensures that investment over the time becomes an addition to the capital stock. The increase in capital stock in turn increases the economy's potential output thereby leading

to growth (Anyanwu, 1975). It is paramount to note that investment is seen as the basic engine of growth. And experience shows that financial factor is important in stimulating investment. Most studies of the role of credit in Nigeria have always suggested that borrowing where private capital flows were inadequate would normally bring about economic growth. They observed that credit is helpful, productive and without it, a number of projects in Nigeria would not be carried out. Ashinze and Onwotoduo (1996) findings indicated that credit contributed to growth only in the years it was deployed productively.

## **2.6 Empirical Literature Review**

The finance – growth debate appears to have extensively attracted the attention of scholars both in advanced and emerging economies. Therefore, a number of empirical studies have been conducted at both cross-country and country-specific levels and in both developed and developing countries.

### **2.6.1 Empirical Review on Other Countries**

Owing to the fact that, evidences cut across cross-country and country – specific dimensions, we reports empirical studies in this component on the basis of cross- country and country – specific levels.

#### **(i) Cross Country Studies**

Ogun (1986) employ data for 19 selected African countries and tested the propositions that emerged from literature on financial development: i) growth of real balances stimulates economic growth; and ii) the growth of an economy depends, in part, on its degree of financial development. He specified and estimated three equations with each accounting for a separate definition of real money balances (M1, M2 and M3), Where; M1 is currency plus demand deposits; M2 is M1 plus savings and time deposits; while M3 is M2 plus deposit liabilities of non-bank financial intermediaries. The other variable used as indicator of financial development is the ratio of monetary liabilities to nominal GDP. Result found

shows that the parameters of the variable of real money balances had correct signs and found to be significant. On the other hand, coefficients of financial growth in all the equations had wrong signs and were insignificant. Again, in order to eliminate the possibility that the relationship between economic growth and financial deepening is reciprocal but causal, the Spearman rank correlation coefficients were computed between each pair of the variables. The result of that equally indicates that while variable of economic growth positively correlates with all the variables of real money balances, it negatively correlates with all the three measures of financial development.

Demetriades and Hussein (1996), employing annual data from 1965 to 1992 for a number of Asian countries. Their findings suggest that only in the case of Sri Lanka did the evidence support the financial – led growth hypothesis. In the case of Pakistan, the result indicates that economic growth causes financial development. Further evidence from the study indicates a bi-directional causal relationship for India, South Korea and Thailand. Arestis and Demetriades (1996) further support the evidence that the relationship between financial development and economic growth for India and South Korea are bi-directional. Also, Levine and Zervos (1996) examined whether there is a strong empirical association between stock market development and long-run economic growth. The study used pooled cross-country time-series regression of forty-one countries from 1976 to 1993 to evaluate this association. The growth rate of Gross Domestic Product (GDP) per capita was regressed on a variety of variables designed to control for initial conditions, political stability, investment in human capital, and macroeconomic conditions; and then include the conglomerated index of stock market development. The finding was that a strong correlation between overall stock market development and long-run economic growth exist. This means that the result is consistent with the theories that imply a positive relationship between stock market development and economic growth.

In addition, Habibullah (1999), used data from seven (7) Asian developing countries, his results suggest that the case of Philippines' data is the only supporter of the finance-led growth hypothesis. The cases of demand-following growth hypothesis are supported by Malaysia, Myanmar (Burma) and Nepal. On the other hand, a bi-directional causality between finance and growth are evident for Indonesia, Sri Lanka and Thailand. Further support for the growth enhancing hypothesis of financial development using a sample of 74 developed and developing countries over the period 1960 – 1995 can be found in Levine *et al* (2000).

Also, Demetriades, et al (2001) using time series data from five developed countries, examine the relationship between stock market and economic growth, controlling for other effect of the banking system and stock market volatility. Their findings suggest that, even though banks and stock market may promote economic growth, the effect of bank is more. They indicated that the contribution of stock market to economic growth may have been exaggerated by studies that uses cross country regression. Christopoulos and Tsionas (2004) on 10 developing countries equally produced evidence in support of supply-leading hypothesis. Both studies conclude that the dominant force is from finance to economic growth. In particular, financial depth contributes more to the causal relationship in developing countries. Also, Mohtadi and Agarwal (2004) examined the capital market and economic growth in developing countries using a panel data approach that covers 21 emerging markets over 21 years (1977 - 1997), they found that turnover ratio is an important and statistically insignificant determinant of investment by firms and that these investment in turn are significant determinant of aggregate growth. Foreign direct investment is also found to have a strong positive influence on aggregate growth. The result of their study indicates that both turnover ratio and market capitalization are important variables as determinants of economic growth.

Furthermore, Adopting the model of Levine (1997) and using panel data for eleven (11) Arab countries over the period 1980 - 2001, Al-Zubi (2006) obtained result indicating all financial

indicators variables used are insignificant and do not affect economic growth. The modified model shows that only the ratio of public credit to total domestic credit indicator has a significant and positive effect on economic growth. This result was, thus, an indication of the dominance of the public sector in the economic activities, the underdeveloped state of the financial sector and the need for a concerted effort in developing the sector so that it can exert its function effectively in these economies.

On the other hand, the result found by Apergis *et al* (2007) in assessing the causal link between financial development and economic growth using a sample of 65 countries (15 OECD and 50 non-OECD) over the period 1975 – 2000, shows a positive and statistically significant equilibrium relationship for all the different financial indicators tested for and in all group of countries. In nutshell, the results found in most cross country studies provide mixed evidences.

#### **(ii) Country Specific Studies**

At the county-specific level, some of the empirical works include Laumas (1990) who examined the role of financial liberalization in the context of a developing economy with a declining barter sector. Using the Indian economy as a case, he observed that most underdeveloped countries have a significant barter sector and a reduction of the share of this sector can help to further accelerate the accumulation of capital. In a barter system, a good share of the factors of production is tied up in distribution away from production to achieve the double coincidence required in such a system. The introduction of money can increase the productive efficiency of the system as the factors of production are released and channeled toward the production process. He used the Two-stage least squares estimation procedure to estimate the demand for money and investment equations. The result obtained supported the Mckinnon complementary hypothesis in both the money demand and investment functions.

However, clear empirical evidence could not be provided in terms of economic growth effect of the functions.

Another contribution to the debate at country specific level can be found in the work of Demetriades and Luintel (1996). They examine the effects of various types of banking sector control on the process of financial deepening in India for the period 1961 – 1991. The underlying proposition of their work is that interest rate restrictions and other banking system controls may have effects on financial development which are independent of the orthodox interest rate of McKinnon and Shaw. A novel contribution in this work is that the banking sector controls were measured directly by collecting information on the various types of controls – reserve and liquidity requirements and directed credit programmes. This approach allowed them to incorporate several measures of ‘repression’ policies in a financial deepening equation and the quantification of their impact independent of interest rate effects. The model was specified to examine the effects of banking sector controls on financial development and economic growth. The results of the estimation suggest that banking sector controls, on the whole, had negative influence on financial development in India. These results are broadly consistent with some endogenous growth models that suggest new channels of influence of financial sector policies on economic growth. For example, King and Levine (1993) present a model in which financial sector taxes – which may include deposit rate ceilings or high reserve requirements – have a negative effect on financial intermediation and, consequently, on innovative activity and economic growth. However, the authors also found evidence suggesting that the imposition of lending rate ceiling has had a small positive effect on financial deepening. This supports the World Bank observation that mild repression of lending rates may actually enhance economic development (World Bank, 1993). Similarly, in testing the financial-led growth hypothesis on Singapore, Murinde (1994), using an array of financial indicators for the period 1979 - 1990, found that the result strongly support the hypothesis.

Also, Unalmis (2002), used Turkish data for the period 1970 – 2001 and by employing the Johansen co integration technique, found that in the long-run the test result in the context of error correction model for the coefficients of all cointegrated series show a two-way causality between deepening and economic growth. However, the work of Acaravci *et al* (2007) using Turkish data but for the period 1986:1 – 2006:4 to test for both the long-run and short-run relationship between financial development and economic growth, using VECM and VAR, provide no evidence of a long-run relationship between the two variables. The short-run relationship, on the other hand, did indicate a one-way causal relationship from change in domestic credit of the banking system to real GDP growth up to three years lags. Maimbo and Mavrotas (2003) analysed the impact of financial reforms on savings mobilization in Zambia. The work considers the characteristics of bank and non-bank financial institutions, especially microfinance institutions, and savings level and identified problems associated with the relatively unsatisfactory performance of savings in the years following the reforms. Their submission is that the observed low level of savings could be attributed to high levels of poverty and unemployment, increased investment in property for private and commercial purposes, absence of rural financial savings institutions and HIV/AIDS epidemic that has the twin effect of reducing labour productivity and the consumption of surplus in form of Medicare. Nieuwerburgh, et al (2005) investigated the long term relationship between capital (stock) market development and economic growth in Belgium. Their result shows that the market causes economic growth in Belgium.

In addition, the causality test of Guryay *et al* (2007) on Northern Cyprus for the period 1986 – 2004 indicates that while financial development does not cause economic growth, there was some evidence of causality running from economic growth to growth in financial intermediation. The work of Mishra, et al (2010) using time series data on market capitalization, total market turnover and stock price index over the period spanning from the

first quarter of 1991 to the first quarter of 2010, examined the impact of capital market efficiency on economic growth of India. Their study suggests that there exist a linkage between capital market efficiency and economic growth in India. This linkage is established through high rate of market capitalization and total market turnover. The large size of capital market as measured by greater market capitalization is positively correlated with the ability to mobilize capital and diversify risk on an economy wide basis. The increasing trend of market capitalization in India would certainly bring capital market efficiency and thereby contribute to the economic growth of the country.

### **2.6.2 Empirical Review on Nigeria**

As in other countries, a considerable effort was also made in Nigeria, to empirically examine the relationship between capital market development and economic growth in the Country. That is a large body of empirical evidences are available at country specific level with reference to data from Nigeria. Some of these studies could be reported as follows:

One of the earliest empirical studies in Nigeria is that of Ikhide (1987). He used data spanning the period 1959 -1986 and had two objectives viz; firstly, to find out if growth in the number of financial institutions and financial instruments in the economy has been accompanied by growth in the real sector (i.e. whether it is true that financial growth is spurs economic growth in the country), and secondly, to examine the determinants of this growth for the same period. In trying to address these objectives, the study specified and estimated equations for two ratios that proxy financial development; the Financial Interrelation Ratio (FIR) or ratio of total assets of financial institutions to GDP, and the New Issue Ratio (NIR), which is simply the first difference of FIR. He observed consistency in growth, as result indicate, in FIR over the period under study. The regression result show some FIR and NIR equations performing well. In general, while FIR was found to have grown steadily over the period covered by the study,



the trend in NIR was unpredictable to warrant any definite conclusion. Thus, while the estimates of Ikhide (1987) were able to establish the significance of variables such as real income, population, the rate of interest and the level of prices in determining the behaviour of the financial ratios (FIR and NIR), the study fall short of estimating a growth equation that captures the effect of financial development.

Aigbokhan (1996) estimate the relationship between financial development and economic growth by testing the hypothesis on supply-leading and demand-following finance in Nigeria. Quarterly data for the period 1978:1 to 1993:4 and Granger causality modeling was employed to test the two contending hypothesis. Results obtained were consistent with the supply-leading argument, giving rise to a conclusion in the work that financial development resulting from increases in financial institutions and financial resources, following financial liberalization, has stimulated growth in the real sector. Effort was also made by Nyong (1997) to develop an aggregate index of capital market development and use it to determine its relationship with long-run economic growth in Nigeria. The study employed a time series data from 1970 to 1994. For measures of capital market development the ratio of market capitalization to GDP (in percentage), the ratio of total value of transactions on the main stock exchange to GDP (in percentage), the value of equities transaction relative to GDP and listings were used. The four measures were combined into one overall composite index of capital market development using principal component analysis. A measure of financial market depth (which is the ratio of broad money to stock of money to GDP) was also included as control. The result of the study was that capital market development is negatively and significantly correlated with long-run growth in Nigeria. The result also showed that there exists bi-directional causality between capital market development and economic growth.

Also, Agbawn (1998) conducted a similar study and also employed the Granger-Sims test of causality but using annual data. His results supported the demand-following hypothesis

positing that financial deepening in Nigeria is greatly influenced by growth in the real sector/output and not the other way round as argued by Aigbokhan (1996). The explanation is that the insignificance of influence of financial development on real output growth in Nigeria may not be unconnected with the fact that there is the absence of the enabling financial superstructure and /or absence of some level of development either/or all of which must be put in place/attained before the real economy can be significantly responsive to liberalization of the financial sector. Furthermore, Osinubi and Amaghionyeodiwe (2003) examined the relationship between the Nigerian stock market and economic growth during the period 1980-2000 by employing the granger causality test. However, their results did not support the claim that stock market development promotes economic growth. Adam and Sanni (2005) examined the role of stock market in Nigeria's economic growth using Granger-Causality test and regression analysis. The study discovered a one-way causality between GDP growth and market capitalization and a two-way causality between GDP growth and market turnover. They also observed a positive and significant relationship between GDP growth and turnover ratios. Adeoye (2007) assessed Nigeria's experience in financial sector development and economic growth produce evidence suggesting that the developments of the financial markets and institutions are strongly and significantly but negatively related to economic growth. A case of insufficient virility needed in the sector to produce the growth that would propel the economy. Furthermore, the GDP growth – finance development causality test result equally showed no relationship, and indication of a weak link between the financial and real sectors of the economy.

Ewah, *et al* (2009) appraised the impact of the Nigeria capital market efficiency on the economic growth of the nation using time series data from 1961 to 2004. They found that the capital market in Nigeria has potential of growth inducing but it has not contribute meaningfully to the economic growth of Nigeria because of low market capitalization,

illiquidity, misappropriation of funds among others. Ezeoha, et al (2009) investigated the nature of the relationship that exists between stock market development and the level of investment (domestic private investment and foreign private investment) flows in Nigeria. The study discovered that stock market development promotes domestic private investment flows, thus suggesting the enhancement of the economy's production capacity as well as promotion of the growth of national output. However, the results show that stock development has not been able to encourage the flow of foreign private investment in Nigeria.

Afees and Kazeem (2010) also examined the causal linkage between stock market and economic growth in Nigeria between 1970 and 2004. The indicator of the stock market development used are market capitalization ratio, total value traded ratio and turnover ratio while the growth rate of gross domestic product is used as proxy for economic growth, using the Granger causality test, the empirical evidence obtained from the estimation process suggests a bidirectional causality between turnover ratio and economic growth, a unidirectional relationship from market capitalization to economic growth and no causal linkage between total value traded. The result of the causality test is sensitive to the choice of variable used as proxy for stock (capital) market. Overall result suggested that capital market drive economic growth. Adelokun (2010) examined the relationship between financial development and economic growth. Using the Ordinary Least Square Estimation Method (OLSEM) the result showed that there is a substantial positive effect of financial development on economic growth in Nigeria. The Granger causality test showed that financial development promotes economic growth, but there is evidence of causality from economic growth to the development of financial intermediaries.

Odeniran and Udejaja (2010) examined the relationship between financial sector development and economic growth in Nigeria. It tests the competing finance-growth nexus hypothesis using Granger causality tests in a VAR framework over the period 1960-2009. Four variables,

namely; ratios of broad money stock to GDP, growth in net domestic credit to GDP, growth in private sector credit to GDP and growth in banks deposit liability to GDP were used to proxy financial sector development. The empirical results suggest bidirectional causality between some of the proxies of financial development and economic growth variable. Specifically, they find that the various measures of financial development granger cause output even at 1 per cent level of significance with the exception of ratio of broad money to GDP. Also, they find that net domestic credit is equally driven by growth in output, thus indicating bidirectional causality. The variance decomposition shows that the share of deposit liability in the total variations of net domestic credit is negligible, indicating that shock to deposit does not significantly affect net domestic credit. The findings from the paper indicate that the current reforms in the Nigerian banking sector should not be emphasized unilaterally. Rather, attention should be given to the complimentary and coordinated development of financial reforms and changes in the real sector of the economy.

Okpara (2010) investigated the impact of the capital market performance on the growth of the Nigeria economy. He used the real gross domestic product (as a proxy for development indicator) and the market capitalization, new issues, value of shares traded and turnover ratio as capital market indicators. The co integration approach was used for the analysis of data. The results show that there exist a long run relationship between the growth of GDP and the capital market indicators. The gross domestic product is positively and significantly related to the one period lag of the capital market indicators. The lagged error correction term is significant and has the expected negative sign confirming the existence of long run relationship between the dependent and explanatory variables. The causality test shows that capital market development granger causes the growth of GDP.

Ogege and Ezike (2012) critically appraised the role of the Nigerian capital market on economic development. Using time series data from 1971-2010 and applying the Engle-

Granger and Johansen method of co-integration in a VECM setting estimation technique, their results revealed that in the long run, the Nigerian capital market positively and significantly influence economic development. Also, Kolapo and Adaramola (2012) examined the impact of the Nigerian capital market on its economic growth from the period of 1990-2010. The economic growth was proxied by Gross Domestic Product while the capital market variables are; Market Capitalization, Total New Issues, Value of Transactions, and Total Listed Equities and Government Stocks. Applying Johansen co-integration and Granger causality tests, results show that the Nigerian capital market and economic growth are co-integrated. This implies that a long run relationship exists between capital market and economic growth in Nigeria. The causality test results suggest bidirectional causation between the GDP and the value of transactions and a unidirectional causality from Market capitalization to the GDP and not vice versa. On the other hand, there is no “reverse causation” from GDP to market capitalization. Furthermore, there is “no causation” between the GDP and total new issues. This is a clear indication of the relative positive impact the capital market plays on the economic growth of the country. In summary, the foregoing reviews have shown that approaches, experiences and conclusions vary across economies or regions and period. Important in explaining the divergence is the differences inherent in our worldviews usually reflected in the analytical and methodological framework.

## **2.7 Gap Identified in the Literature**

Most studies that examined the relationship between capital market development and economic growth in Nigeria focused on few key variables, namely; all share index, market capitalization and turnover ratio. This study used additional set of variables such as value of transaction, number of listed companies and openness. Also, existing studies focused more on examining the causal link between capital market development and economic growth using

granger causality test. But in this study a VAR framework was used to examine such a relationship.

## CHAPTER THREE:

### METHODOLOGY

#### 3.1 Introduction

This chapter generally discusses the techniques employed for data analysis. The methods used in achieving all our objectives are provided here. The methodology employed was based on the improvement suggested by Demirguc-Kunt and Levine (1996), Levine and Zervos (1996), and Ewah et al (2009) adopted by Kolapo and Daramola (2012) to investigate the impact of the Nigerian capital market on economic growth from 1990 to 2012.

#### 3.2 Method of Data Analysis

This sub-section presents the techniques used in analyzing the data for the study. It shows the methods adopted in order to achieve the objectives of this study. The unit root test procedures, the specifications of the causality as well as the co integration models are discussed.

##### 3.2.1 The Unit Root Tests

It is required that before the application of most standard econometric techniques, the stochastic properties of variables should be examined. This involves subjecting the series to a unit root test. Because, most time series are usually non-stationary and using non stationary variables in the model might lead to spurious regression (Granger and Newbold, 1977). The first or second difference terms of most variables will usually be stationary (Ramathan, 1992). Therefore, all the series in this study would be subjected to a unit root test using both Augmented Dickey-Fuller (ADF) and Phillips-Perron tests. The model for the unit root test is specified as:

$$\Delta Y_t = \alpha + \delta_t + \beta X_{t-1} + \sum_{i=1}^n \lambda \Delta Y_{t-i} + \mu_t \text{-----} 3.1$$

Where:

$Y_t$  = Relevant time series

$\Delta$  = First Difference operator

$\mu_t$  = Stochastic error term

The null hypothesis of the existence of a unit root is  $H_0: \omega = 0$ . The rejection of the  $H_0$ , results in further differencing until stationary is attained and the  $H_0$  is therefore rejected. From the views results, the null hypothesis of non-stationarity is rejected if the statistics are greater than the critical t - values.

### 3.3 Models Specification

#### 3.3.1 The Causality Model

To ascertain the causal link between the Nigerian capital market and economic growth, we used the granger causality test. Based on the example of causality modeling, the pair-wise bivariate causality model is now presented as follows:

$$Y_t = \sum_{i=1}^n \alpha_{1i} Y_{t-1} + \sum_{i=1}^n \beta_{1i} X_{t-1} + \mu_t \text{-----} 3.2$$

$$X_t = \sum_{i=1}^n \alpha_{2i} X_{t-1} + \sum_{i=1}^n \beta_{2i} Y_{t-1} + V_t \text{-----} 3.3$$

Where:

$Y_t$  and  $X_t$  = Relevant time series, say  $Y_t$  could stand for  $RGDP_t$  and  $X_t$  for  $ASI_t$ . Considering these two variables, the model can presented as follows:

$$RGDP_t = \alpha_0 + \alpha_1 RGDP_{t-1} + \dots + \alpha_k RGDP_{t-k} + \beta_1 ASI_{t-1} \text{-----} 3.4$$

$$ASI_t = \alpha_0 + \alpha_1 ASI_{t-1} + \dots + \alpha_k ASI_{t-k} + \beta_1 RGDP_{t-1} + \dots + \beta_k RGDP_{t-k} \text{-----} 3.5$$

This can be express in summation form as below:

$$RGDP_t = \sum_{i=1}^n \alpha_1 RGDP_{t-1} + \sum_{i=1}^n \beta_1 ASI_{t-1} + \varepsilon_t \text{-----} 3.6$$

$$ASI_t = \sum_{i=1}^n \alpha_1 ASI_{t-1} + \sum_{i=1}^n \beta_1 RGDP_{t-1} + \varepsilon_t \text{-----} 3.7$$

The other series are to also be specified in similar forms as above.

$\alpha_0, \alpha_1, \alpha_{2i}, \beta_1$  and  $\beta_{2i}$  are parameters to be estimated.

$\mu_t, V_t$  and  $\varepsilon_t$  are stochastic error terms.

$RGDP$  = Real growth domestic product which stands for economic growth and is the dependent variable.



**3.3.2 Cointegration and Vector Error Correction (VECM) Model**

To assess the performance of the Nigerian capital market in relation to economic growth and also to examine the existence of a long – run relationship between the capital market and economic growth in Nigeria, we used the Johansen Co - integration technique.

The existence of co integration between, say two time series signifies “a true long-run economic relationship” which prevents the residuals becoming larger and larger in the long-run. Co integration becomes the most widely used method for estimating the long-run equation and the Vector Error Correction Method (VECM) is used in estimating the short- run adjustment. Such models currently represent the most attracted approach to cases where researchers seek to incorporate both the economic theory and relating to the long-run (equilibrium) relationship between variables, and short-run adjustment (disequilibrium) behavior (Utkulu, 2010).

The functional form of the model upon which the econometric model is built is as follows:

**RGDP= f (ASI, MCAP, VTR, TOR, NLC, NI, OPEN) ----- (3.8)**

**Where:**

- RGDP = Real Gross Domestic Product
- ASI = NSE All - Share Index
- MCAP = Market Capitalization
- VT = Value of Transaction
- TR = Turnover Ratio
- NLC = Number of Listed Companies
- NI = New Issues
- OPEN = Openness and proxied by the sum of export and imports as a ratio of GDP;
- F represents the functional notation.

Therefore, this study would collect secondary data on economic growth indicator (RGDP) and as well the capital market indicators stated above.

The long run equation to be estimated using the Johansen co integration frame work is presented in the form below:

$$X_t = C + A_1 X_{t-1} + E_t \text{ ----- (3.9)}$$

Equation 3.9 describes the dynamics of the vector  $X_t$  [vector of All Share index (ASI), Market capitalization (MCAP), Value of transaction (VT) and Turn Over Ratio (TOR)].

Hence the general framework of the model to be estimated can be specified as follows:

For brevity, we assume a VAR (1) model of the form:

$$X_t = C + A_1 X_{t-1} + E_t$$

Where the vector  $X_t = (ASI, MCAP, VT, TOR)$

The relationship can be presented as in equation 3.10 as follows:

$$\begin{pmatrix} ASI_t \\ MCAP_t \\ VT_t \\ TOR_t \end{pmatrix} = \begin{pmatrix} C_1 \\ C_2 \\ C_3 \\ C_4 \end{pmatrix} + \begin{pmatrix} \alpha_{11} & \alpha_{12} & \alpha_{13} & \alpha_{14} \\ \alpha_{21} & \alpha_{22} & \alpha_{23} & \alpha_{24} \\ \alpha_{31} & \alpha_{32} & \alpha_{33} & \alpha_{34} \\ \alpha_{41} & \alpha_{42} & \alpha_{43} & \alpha_{44} \end{pmatrix} \begin{pmatrix} ASI_{t-1} \\ MCAP_{t-1} \\ VT_{t-1} \\ TOR_{t-1} \end{pmatrix} + \begin{pmatrix} E_{1t} \\ E_{2t} \\ E_{3t} \\ E_{4t} \end{pmatrix}$$

$X_t \qquad C \qquad A \qquad X_{t-1} \qquad E$

By stating the error correction model (ECM), the model becomes;

$$\Delta \log(RGDP) = \beta_0 + \sum_{i=0}^n \beta_1 \log(ASI)_{t-1} + \beta_0 + \sum_{i=0}^n \beta_2 \log(MCAP)_{t-1} + \beta_0 + \sum_{i=0}^n \beta_3 \log(VT)_{t-1} + \beta_0 + \sum_{i=0}^n \beta_4 \log(TOR)_{t-1} + \beta_0 + \sum_{i=0}^n \beta_1 \log(ECM)_{t-1} + \beta_0 + \varepsilon_t \text{ -----3.11}$$

**Where:**

$$\sum_{i=0}^n (ECM)_{t-1} = \text{Error Correction term}$$

**t-1** = implies that the variables were lagged by one period

To test for the existence of long run equilibrium relationship, the error correction model i.e. Equation (3.11) can be conducted by placing some restrictions on estimated long run coefficient of the variables.

Therefore, the hypothesis for the test is formulated as follows:

**H<sub>0</sub>:**  $\beta_1 = \beta_2 = \beta_3 = \beta_4 = 0$  (No long run relationship i.e. no co-integration)

**H<sub>1</sub>:**  $\beta_1 \neq \beta_2 \neq \beta_3 \neq \beta_4 \neq 0$  (Presence of long run relationship i.e. co integration exists).

It should be noted that it is only four out of the seven indicators would be considered for the Co-integration test and Vector Error Correction model. These variables are RGDP, ASI, MCAP, VT and TOR.

### **3.5 Nature and Source of Data**

The study employed annual data on selected variables from 1981 - 2012. As in most of the empirical literature reviewed, this study would make use of real GDP per capita as a measure of real growth rates (economic growth). Empirical studies are usually constrained by absence of a single measure of capital market development. Therefore, for the capital market development indicators, we employed a wider range of indicators that comprises; ASI, MCAP, VT, TOR, NLC, NI, and OPEN. These data are obtainable from the Nigerian Stock Exchange Publications, which include; the NSE FACTS Books, NSE Annual Report and Statement of Accounts, Daily Official List, The GREEN Book, and E-Business Portal ([www.nigerianstockexchange.com](http://www.nigerianstockexchange.com)). Data for GDP are easily sourced from CBN statistical bulletin. Other sources include; Securities and Exchange Commission (SEC) bulletin, Federal Office of Statistics, textbooks and Paper Presentations and internet.

## CHAPTER FOUR:

### PRESENTATION, ANALYSIS AND INTERPRETATION OF RESULTS

#### 4.1 Introduction

Here, we present, analyze and interpret the results and findings of our study. We present and interpret the results of the line graphs on the different series. Unit root test results, the granger causality tests, co-integration test and the vector error correction model are also presented.

#### 4.2 Stochastic Properties of the Data

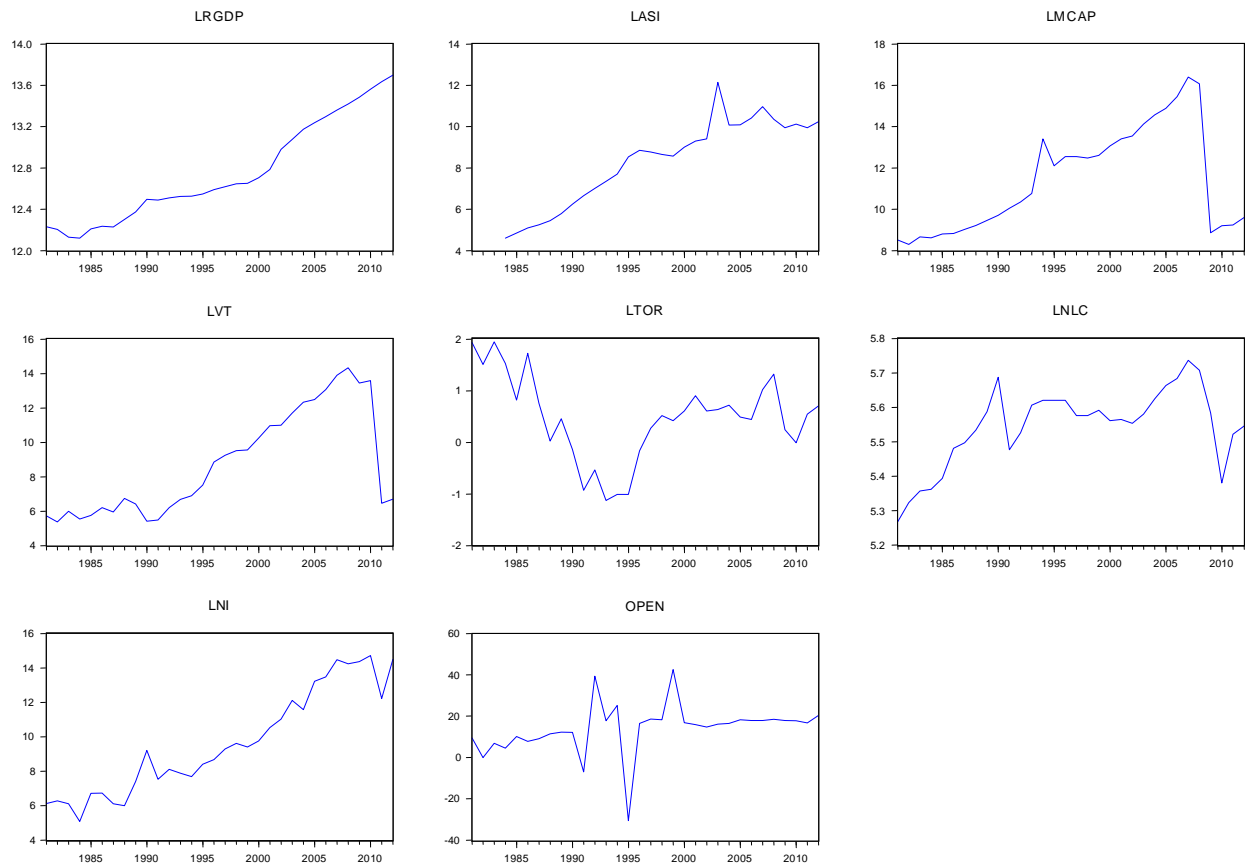
To proceed with the test, we examined the plot of each series to see whether there is a trend or not as shown in figure 4.1. A trend variable is necessary in the ADF and PP regression if trends are present in the series. In the absence of a trend in a series, only an intercept is included in testing for unit roots.

#### 4.3 Trend Analysis of the Series

At the onset, trend analysis is employed here to show the interplay between the RGDP and capital market development indicators used in this study. Fig. 4.1 shows the plot of RGDP and the indicators (ASI, MCAP, VT, TOR, NLC, NI, and OPEN) from 1981-2012. This was also used to comment on the performance of capital market in Nigeria.

**Note:** RGDP stands for Real Gross Domestic Product; ASI stands for All Share Index; MCAP stands for Market Capitalization; VT stands for Value of Transaction; TOR stands for Turnover Ratio; NLC stands for number of listed companies; NI stands for New Issues; OPEN stands for OPENNES.

**Figure 4.1: Line Graph of the Series Used in the Study**



From figure 4.1, it is clear that all the series with the exception of only openness (OPEN) exhibit trend. Some completely trended upward i.e. RGDP and ASI, while some exhibit both upward and downward trend i.e. MCAP and TOR.

Also, key indicators such as All Share index, market capitalization, value of transaction and new issues show that Nigerian capital market performs well over time especially during the period 2005 to 2008. This is clear from the data and line graphs which indicate an upward rise over time. These series fall from 2008 to 2010 and is attributed to the global financial crisis experienced in that period. However, increased in these series was experienced from 2010 up to 2012.

### 4.3 Unit Root Tests

Before the application of a standard econometric technique, it is required that variables should be stationary. As a result, we carry out the stationary test on the variables of interest using both the Augmented Dickey Fuller Test (ADF) and the Phillips-Perron (PP) tests. Non-stationary series usually result to the phenomenon of spurious regression results. The results of the ADF and PP tests are reported in Table 4.1 below:

**Table 4.1: Unit Root Results**

	Level		First Difference		Comment
	ADF	PP	ADF	PP	
<b>LRGDP</b>	<b>-1.9233</b>	<b>-1.9673</b>	<b>-3.7073**</b>	<b>-3.5395*</b>	<b>I(1)</b>
	{-3.5683}	{3.5875}	{-3.5683}	{-2.9810}	
<b>LASI</b>	<b>-2.2769</b>	<b>-2.1268</b>	<b>-7.4424***</b>	<b>-11.9307***</b>	<b>I(1)</b>
	{-3.5806}	{-3.5875}	{-3.5875}	{-2.9810}	
<b>LMCAP</b>	<b>-1.3722</b>	<b>-1.3722</b>	<b>-5.5687***</b>	<b>-5.9758***</b>	<b>I(1)</b>
	{-3.5628}	{-3.5875}	{-3.5683}	{-2.9810}	
<b>LTOR</b>	<b>-2.1199</b>	<b>-2.0303</b>	<b>-6.2617***</b>	<b>-6.3579***</b>	<b>I(1)</b>
	{-3.5628}	{-3.5875}	{-3.5683}	{-2.9810}	
<b>LVT</b>	<b>-0.7682</b>	<b>-1.0693</b>	<b>0.0976</b>	<b>-5.5146***</b>	<b>I(1)</b>
	{-3.5628}	{-3.5875}	{-3.5742}	{-2.9810}	
<b>LNI</b>	<b>-0.3160</b>	<b>-2.2885</b>	<b>0.0976</b>	<b>-8.4537***</b>	<b>I(1)</b>
	{-3.5683}	{-3.5628}	{-3.5628}	{-3.5628}	
<b>LNLC</b>	<b>-2.0303</b>	<b>-2.3320</b>	<b>-7.5243***</b>	<b>-11.7818***</b>	<b>I(1)</b>
	{-3.5628}	{-3.5628}	{-3.5683}	{-3.5683}	

*The bold figures are the tests statistics. Those enclosed in parenthesis-{} are the critical values at 5% level, (\*\*\*),(\*\*),(\*) indicates significance at 1%, 5% and 10% level.*

It is important to note that in conducting the unit root test, we included trend and intercept, as the graphical plots of the series suggest. The result of the ADF and PP test indicates that all the variables are non - stationary at levels. We therefore, accept the null hypothesis and conclude that there is the presence of unit root at levels. As a result, we differenced all the series once after which the variables became stationary. We therefore, conclude that the variables are integrated of order one, I(1) at 5% level of significance. The results of the PP tests also indicate that all the variables are non - stationary at levels. We therefore, accept the

null hypothesis and conclude that there is the presence of unit root in the variables at levels. The series were differenced once and found to be integrated of order one, I(1).

#### **4.4 Granger Causality Tests**

It is important to note that the Granger causality test is very sensitive to the number of lags used in the analysis. On this note, Davidson and Mackinnon (1975) suggest using more rather than fewer lags. This would enable us to have more confidence in our conclusions. By using lags of 2, 4, and 7, we obtain the results as presented in Table 4.2 below.

Starting with lags 2, we accept the null hypotheses that ASI does not Granger cause RGDP; and RGDP does not Granger causes ASI, Similarly, other indicators show that there is no causal relationship between capital market development and economic growth proxied by RGDP. The only exception is in the case of New Issues (NI) which suggests a one way causal link between RGDP and NI. It is found to be significant at 5% levels indicated by double asterisk (\*\*).

Using lags 4, we also found the absence of causal link between all the indicators and RGDP. When lags 7 are used, however, two causal links in some indicators are found. That is a one way causal relationship running from value of transaction (VT) and turnover ratio (TOR) to RGDP is found. VT is significant at 1% level, while TOR at 10% level. We therefore, conclude that there is some evidence of causal relationships between capital market development and economic growth in Nigeria. The complete causality results at lags 2, 4 and 7 are shown in appendix 6.1, appendix 6.2 and appendix 6.3 respectively.

Table 4.2 Pairwise Granger Causality Tests

	Result			Decision	
	Null hypothesis	Obs	F-statistics		Probability
2	LASI does not Granger cause LRGDP LRGDP does not Granger cause LASI	27	0.51678 1.91345	0.6035 0.1713	Accept Accept
	LMCAP does not Granger cause LRGDP LRGDP does not Granger cause LMCAP	30	0.26888 0.32222	0.7664 0.7275	Accept Accept
	LVT does not Granger cause LRGDP LRGDP does not Granger cause LVT	30	2.40196 0.48503	0.1111 0.6214	Accept Accept
	LTOR does not Granger cause LRGDP LRGDP does not Granger cause LTOR	30	0.19094 0.21309	0.8274 0.8095	Accept Accept
	LNLC does not Granger cause LRGDP LRGDP does not Granger cause LNLC	30	0.49709 0.14951	0.6142 0.8619	Accept Accept
	LNI does not Granger cause LRGDP LRGDP does not Granger cause LNI	30	0.16564 4.17266	0.8483 0.0273**	Accept Reject
	LOPEN does not Granger cause LRGDP LRGDP does not Granger cause OPEN	30	0.12448 1.21724	0.8835 0.3130	Accept Accept
4	LASI does not Granger cause LRGDP LRGDP does not Granger cause LASI	25	0.20124 2.05029	0.9340 0.1354	Accept Accept
	LMCAP does not Granger cause LRGDP LRGDP does not Granger cause LMCAP	28	0.21022 0.31697	0.9295 0.8631	Accept Accept
	LVT does not Granger cause LRGDP LRGDP does not Granger cause LVT	28	3.28448 0.49141	0.0331 0.7421	Accept Accept
	LTOR does not Granger cause LRGDP LRGDP does not Granger cause LTOR	28	0.64074 1.11136	0.6399 0.3802	Accept Accept
	LNLC does not Granger cause LRGDP LRGDP does not Granger cause LNLC	28	0.43115 0.31051	0.7844 0.8674	Accept Accept
	LNI does not Granger cause LRGDP LRGDP does not Granger cause LNI	28	0.91878 1.12073	0.4734 0.3761	Accept Accept
	LOPEN does not Granger cause LRGDP LRGDP does not Granger cause OPEN	28	1.20593 1.02606	0.3408 0.4192	Accept Accept
7	LASI does not Granger cause LRGDP LRGDP does not Granger cause LASI	22	1.18961 0.98899	0.4123 0.5056	Accept Accept
	LMCAP does not Granger cause LRGDP LRGDP does not Granger cause LMCAP	25	0.76268 0.87160	0.6302 0.5592	Accept Accept
	LVT does not Granger cause LRGDP LRGDP does not Granger cause LVT	25	4.87597 0.99027	0.0125*** 0.4888	Reject Accept
	LTOR does not Granger cause LRGDP LRGDP does not Granger cause LTOR	25	2.94253 0.43981	0.0597* 0.8560	Reject Accept
	LNLC does not Granger cause LRGDP LRGDP does not Granger cause LNLC	25	0.96212 1.45965	0.5048 0.2834	Accept Accept
	LNI does not Granger cause LRGDP LRGDP does not Granger cause LNI	25	2.27492 1.37245	0.1154 0.3136	Accept Accept
	LOPEN does not Granger cause LRGDP LRGDP does not Granger cause OPEN	25	2.00222 0.67691	0.1541 0.6894	Accept Accept



## 4.5 Cointegration Results

**Table 4.3 Johansen Co-Integration Test Result**

Hypothesized No. of CE(s)	Trace Statistic	Max-Eigen Statistic	Critical Values (5%)	
			Trace	Max Eigen
$r = 0$	<b>270.759</b>	<b>89.132</b>	<b>125.615***</b>	<b>46.231***</b>
$r \leq 1$	<b>181.627</b>	<b>81.457</b>	<b>95.753***</b>	<b>40.080***</b>
$r \leq 2$	<b>100.169</b>	<b>42.054</b>	<b>69.819***</b>	<b>33.877***</b>
$r \leq 3$	<b>58.115</b>	<b>28.649</b>	<b>47.856***</b>	<b>27.584</b>
$r \leq 4$	<b>29.465</b>	<b>15.126</b>	<b>29.797</b>	<b>21.132</b>
$r \leq 5$	<b>14.339</b>	<b>11.205</b>	<b>15.494</b>	<b>14.264</b>

*Note: \*\*\* indicate significance at 1% level of significance*

Co-integration test is undertaken to verify whether there exists a long-run relationship between capital market development indicators and economic growth variable. This is undertaken using the Johansen co-integration test. The result is provided in **Table 4.3** above.

Table 4.3 reports the estimates of Johansen procedure and standard statistics. In order to determine the number of co-integrating vectors, degrees of freedom adjusted version of the maximum Eigen value and trace statistics was used, since the existence of small samples with too many variables or lag Johansen procedure tends to overestimate the number of co-integrating vectors (See Bulus, 2004). The Johansen co-integration test suggests that there are four (4) co-integrating equations at 5% level of significance. Alternatively, the results show that co-integration test for the RGDP series indicate four (4) co-integrating equations at 5% level of significance implying that there are four significant vectors, or only four (4) different linear combinations of the variables that can be stationary and can therefore drift together roughly at the same time with the RGDP. In all, the co-integration result implies that there exists a long-run significant relationship between capital market and economic growth variables. In other words, we reject the null hypothesis of no co-integration vector and

interpret this as evidence of four co integrating vectors. Co-integration was developed to make the concept of long-run equilibrium operational and the presence of co-integration forms the basis for error correction model. The complete co integration result is shown in appendix 3.1.

By normalizing the co integrating vector (CV) on LMCAP, the CV is then identified as the long run relationship between LMCAP and its determinants. This is because it is only the adjustment coefficient (-) in the  $\Delta$ LMCAP equation that is negatively signed and at the same time statistically significant. This identifies the model that the co integrating equations captured. Therefore, the long run model is identified as the long run relationship between the market capitalization and the other variables.

#### **4.6 Vector Error Correction (VECM) Results**

Following the confirmation of co-integration among the variables, we proceed to specify and estimate the short-run dynamic equation. The equation is specified as an error correction model (ECM) incorporating the previous period lagged residual from the static regression. The short run and long run estimates are reported in Table 4.4 below.

The adjustment mechanism – the lagged error correction term **ECM (-1)** has the expected negative sign (**-0.71**) and statistically significant. The coefficient of the error term indicates the speed of adjustment of 71%. This suggests that following short-run disequilibrium/deviation, about 71 percent of the adjustment to the long-run takes place within one period. Also, the multivariate test for VEC residuals auto correlation accepts the hypothesis of no auto correlation at lags between 1 and 12. The result is shown in appendix 5.1.

**Table 4.4: VECTOR ERROR CORRECTION RESULT**

Long -run Effects				Short- run Effects			
Variable	Coefficient	SE	t-Statistic	Variable	Coefficient	SE	t-Statistic
				ECM <sub>(t-1)</sub>	-0.710812	0.26829	-2.64941
<b>C</b>	-0.247720	0.82622	-0.129982	<b>D(LMCAP(-1))</b>	-0.038883	0.37011	-0.10506
<b>LRGDP(-1)</b>	4.419096	1.419096	2.96393	<b>D(LMCAP(-2))</b>	-0.051830	0.042475	0.07305
<b>LASI(-1)</b>	0.669120	0.33738	1.98326	<b>D(LRGDP(-1))</b>	-0.792507	10.8493	-0.05287
<b>LTOR (-1)</b>	2.118348	0.28487	7.43616	<b>D(LRGDP(-2))</b>	-0.552033	10.4407	-0.05287
<b>LVT(-1)</b>	-2.383310	0.033448	-7.12543	<b>D(LASI(-1))</b>	0.458217	0.68493	0.66900
				<b>D(LASI(-2))</b>	0.077535	0.65539	0.11830
				<b>D(LTOR(-1))</b>	- 0.659417	0.55639	-1.18518
				<b>D(LTOR(-2))</b>	-0.55284	0.48197	-1.18518
				<b>D(LVT(-1))</b>	-0.055373	0.42265	-0.13101
				<b>DL(VT(-2))</b>	0.513402	1.13873	0.45086
<b>R Squared = 0.85</b>							
<b>Adj. R Squared = - 0.45</b>							
<b>SE = 1.93</b>							
<b>F-stat = 0.288</b>							

## **CHAPTER FIVE:**

### **SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS**

#### **5.1 Summary of Findings**

The study examined the causal relationship and impact of capital market development on economic growth in Nigeria using alternative sets of Capital market development indicators. The findings of the study reveal the following: Theoretical and empirical literature reviewed in this study document three categories of evidences, they are: First, a unidirectional (one-way) causality from capital market development to economic growth. Second, there is a unidirectional causality from growth to capital market development. The third alternative is the co-evolution (bidirectional causality) between economic growth and capital market development hypothesized in both early and some recent literature. For instance, a number of models argued that the process of growth has a feedback effect on financial markets by creating incentives for further financial development, which means that the two variables are endogenously determined. Our causality result is expected to confirm at least one of these arguments. It should provide evidence that indicate the argument our finding is consistent with.

The granger causality results at lags 7 reveals some evidence of causal links between capital market development indicators and economic growth in Nigeria in the period under review. Specifically, the results from causality test at lags 7 show that value of transaction and turnover ratio each drives real GDP with no reverse or feedback effect. Thus, this supports the evidence of unidirectional causal link from these two indicators to real gross domestic product. In essence, the general causality results imply that capital market development do cause economic growth in Nigeria. This result is consistent with the dominant view and is in line with those theories that support the finance – led growth hypotheses. That is it is in support of supply leading hypothesis, financial repression hypothesis and Harrod – Domar

growth theory argument. This thesis, more or less, confirmed the conclusions of earlier works on the importance of the financial system which could be traced back to the works of Bagehot (1873), Schumpeter (1912), Hicks (1969), (McKinnon and Shaw, 1973), Fry (1988), Roubini and Sala-i-Marti (1992), Harrison *et al* (1999), Christopoulos and Tsionas (2004), Nieuwerburgh, *et. al.*, (2005), Mishra, *et. al.*, (2010), Odeniran and Udejaja, (2010) and Usman and Adejare, (2012). Results obtained from empirical studies conducted using data from Nigeria that were consistent with the supply-leading argument, include Aigbokhan (1996), Adam and Sanni (2005), Okpara (2010), Adedokun (2010) Afees and Kazeem (2010) and Kolapo and Adaramola (2012).

The co-integration result implies that there exists a significant long-run relationship between capital market and economic growth variables. There exist four vectors or four different linear combinations of the capital market indicators that can drift together roughly at the same time with the RGDP. The significant long run relationship is identified to be between market capitalization and RGDP as well as other variables. This suggests that in the Long-run, economic growth determines capital market development. This is in agreement with the demand following hypothesis, ie this result supports the demand led theory of finance – growth nexus. Empirical studies reviewed in this study confirming the existence of long run relationships between capital market development and economic growth comprises; Levine and Zervos (1996), Agbawn (1998), Nieuwerburgh, *et. al.*, (2005), Apergis *et. al.*, (2007), Okpara (2010), Afees and Kazeem, (2010), Mishra, *et. al.*, (2010), Ogege and Ezike (2012) and Kolapo and Adaramola (2012).

## 5.2 Conclusion

This study investigated the impact of the capital market development on the growth of Nigerian economy. Empirically, we have been able to investigate the causal link between the capital performance indicators, with a number of the variables/indicators of financial reforms not generating the expected impact even though their direction of movement and pattern of effectiveness can be said to be shaped by some fundamental characteristics of the economy. At a more robust lag; ie lags 7, a one way causal relationship running from value of transaction (VT) and turnover ratio (TOR) to RGDP is found. VT is significant at 1% level, while TOR at 10% level. We therefore, conclude that there is some evidence of causal relationships between capital market development and economic growth in Nigeria as indicated by these indicators during our sample period. Results obtained were consistent with the supply-leading argument, giving rise to a conclusion in the work that financial development resulting from increases in financial institutions and financial resources, following financial liberalization, has stimulated growth in the real sector.

The co-integration result obtained shows the existence of a long run relationship between the growth of the economy proxied by real gross domestic product and the capital market indicators. The one period lag of the market all share index, capitalization, value of shares traded and turnover ratio, does not impact significantly on the growth of the RGDP. The study therefore, reached a conclusion that capital market development and growth in Nigeria have a significant long run relationship; the variables are co - integrated. The economic implication of the finding suggests a need for more focus on the enhancement of the capital market so as to engender greater growth of the economy. This could be achieved through enlightenment campaign on the importance of the capital market to the industrialists/small scale investors and more relaxation of the stringent entry requirements of the companies into the Nigerian Stock Exchange.

### **5.3 Policy Recommendations**

In order for the Nigerian capital market to be pivotal force in the growth and development, of the Nigerian economy the following suggestions or recommendations are put forward.

- i. The government is therefore advised to put up measures to stem up investors' confidence and activities in the market and more foreign investors should be encouraged to participate in the market for improvement in the declining market capitalization so that it could contribute significantly to the Nigerian economic growth.
- ii. Maintain state of the art technology like automated trading and settlement practice, electronic fund clearance and eliminate physical transfer of shares.
- iii. There is also need to restore confidence to the market by regulatory authorities through ensuring transparency and fair trading transaction and dealing in the stock exchange. It must also address the reported case of abuse and sharp practices by some companies in the market.
- iv. To boost the value of transactions in the Nigerian capital market, there is need for availability of more investment instruments such as derivatives, convertibles, future, and swaps options in the market.
- v. Given the present political dispensation, all the tiers of government should be encourage to fund their realistic developmental programme through the capital market. This will help in boosting the activities of the capital market, as well as the financial sector. Also, it will redirect the resources that may be used in other spheres of the economy.

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**APPENDIX**  
**APPENDIX 1.1 DATA ON SELECTED VARIABLES USED IN THE STUDY**

<b>Year</b>	<b>Real Gross Domestic Product (RGDP)</b>	<b>All Share Index (ASI)</b>	<b>Market Capitalization (MCAP)</b>	<b>Value of Transactions (VT)</b>	<b>Turnover Ratio(TOR)</b>	<b>Number of Listed Companies (NLC)</b>	<b>New Issues (NI)</b>	<b>Openness (OPEN)</b>
1981	205222.1	-	4979.8	304.8	6.82	194	455.2	9.761759
1982	199685.3	-	4025.7	215	4.47	205	533.4	0.195418
1983	185598.1	-	5768	397.9	6.90	212	448.5	7.122155
1984	183563	100	5514.9	256.5	4.55	213	159.8	4.723603
1985	201036.3	127.3	6670.7	316.6	2.24	220	817.2	10.43395
1986	205971.4	163.8	6794.8	497.9	5.53	240	833	8.102655
1987	204806.5	190.9	8297.6	382.4	2.1	244	450.7	9.410334
1988	219875.6	233.6	10020.8	850.3	1.01	253	400	11.67013
1989	236729.6	325.3	12848.6	610.3	1.56	267	1629.9	12.56616
1990	267550	513.8	16358.4	225.4	0.86	295	9964.5	12.44773
1991	265379.1	783.0	23125	242.1	0.39	239	1870	-6.74165
1992	271365.5	1107.6	31272.6	491.7	0.58	251	3306.3	39.58779
1993	274833.3	1548.8	47436.1	804.4	0.32	272	2636.9	18.04578
1994	275450.6	2205.0	663680	985.9	0.36	276	2161.7	25.42296
1995	281407.4	5092.2	180305.1	1838.8	0.36	276	4425.6	-30.3219
1996	293745.4	6992.1	281815.8	6979.6	0.84	276	5858.2	16.73644
1997	302022.5	6440.5	281887.2	10330.5	1.3	264	10875.7	18.90275
1998	310890.1	5716.0	262517.3	13571.1	1.66	264	15018.1	18.55169
1999	312183.5	5266.4	300041.1	14072	1.5	268	12038.5	42.82322
2000	329178.7	8116.60	472290	28153.1	1.81	260	17207.8	17.07618
2001	356994.3	10968.00	662561.3	57683.8	2.44	261	37198.8	16.1701
2002	433203.5	12137.70	764975.8	59406.7	1.81	258	61284	15.04372
2003	477533	186718.7	1359274.2	120402.6	1.86	265	180079.9	16.35064
2004	527576	23844.5	2112549.6	225820	2.03	277	105418.4	16.71224
2005	561931.4	24085.8	2900062.1	262935.8	1.61	288	552782	18.54876
2006	595821.6	33358.3	5120000	470253.4	1.54	294	707400	18.21372
2007	634251.1	57990.22	13294059	1076020.4	2.74	310	1935080	18.11016
2008	672202.6	31450.78	9562970	1679143.7	3.7	301	1509230	18.71804
2009	718977.3	20827.2	7030.8	685716.2	1.26	266	1724214	18.15768
2010	775525.7	24770.52	9918.2	797614.1	0.98	217	2440000	18.03871
2011	834000.83	20730.63	10275.3	638.9	1.7	250	203000	16.95671
2012	888893.00	28078.80	14800.94	809.0	2.0	256	1953612	20.67917

Sources: CBN & SEC Statistical Bulletins, Annual Economic Reports and NSE Annual Reports and Account, (Various issues)

### APPENDIX 2.1: VAR Lag Order Selection Criteria

Endogenous variables: LRGDP LASI LMCAP LTOR LVT

Exogenous variables: C

Date: 06/30/14 Time: 09:39

Sample: 1981 2012

Included observations: 26

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-170.9609	NA	0.520095	13.53545	13.77739	13.60512
1	-64.47819	163.8195	0.001029	7.267553	8.719203	7.685576
2	-18.05032	53.57062*	0.000252	5.619256	8.280614*	6.385630
3	21.77384	30.63397	0.000168*	4.478936*	8.350002	5.593663*

\* indicates lag order selected by the criterion

LR: sequential modified LR test statistic (each test at 5% level)

FPE: Final prediction error

AIC: Akaike information criterion

SC: Schwarz information criterion

HQ: Hannan-Quinn information criterion

### APPENDIX 2.2: VAR Lag Order Selection Criteria using first difference

Endogenous variables: D(LRGDP) D(LASI) D(LMCAP) D(LTOR) D(LVT)

Exogenous variables: C

Date: 06/30/14 Time: 09:51

Sample: 1981 2012

Included observations: 25

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-90.14146	NA	0.001391	7.611317	7.855092*	7.678929
1	-78.24138	18.08811	0.004160	8.659311	10.12196	9.064988
2	-43.13386	39.32042*	0.002439	7.850709	10.53224	8.594451
3	0.563931	31.46241	0.001290*	6.354885*	10.25529	7.436691*

\* indicates lag order selected by the criterion

LR: sequential modified LR test statistic (each test at 5% level)

FPE: Final prediction error

AIC: Akaike information criterion

SC: Schwarz information criterion

HQ: Hannan-Quinn information criterion



### APPENDIX 3.1: Cointegration Results

Date: 06/20/14 Time: 21:47  
 Sample (adjusted): 1986 2012  
 Included observations: 27 after adjustments  
 Trend assumption: Linear deterministic trend  
 Series: LRGDP LASI LMCAP LNI LNLC LTOR LVT  
 Lags interval (in first differences): 1 to 1

#### Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.963161	270.7599	125.6154	0.0000
At most 1 *	0.951050	181.6276	95.75366	0.0000
At most 2 *	0.789352	100.1697	69.81889	0.0000
At most 3 *	0.653926	58.11536	47.85613	0.0041
At most 4	0.428926	29.46561	29.79707	0.0546
At most 5	0.339680	14.33924	15.49471	0.0741
At most 6	0.109571	3.133415	3.841466	0.0767

Trace test indicates 4 cointegratingeqn(s) at the 0.05 level

\* denotes rejection of the hypothesis at the 0.05 level

\*\*MacKinnon-Haug-Michelis (1999) p-values

#### Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.963161	89.13225	46.23142	0.0000
At most 1 *	0.951050	81.45794	40.07757	0.0000
At most 2 *	0.789352	42.05433	33.87687	0.0043
At most 3 *	0.653926	28.64975	27.58434	0.0364
At most 4	0.428926	15.12637	21.13162	0.2801
At most 5	0.339680	11.20583	14.26460	0.1442
At most 6	0.109571	3.133415	3.841466	0.0767

Max-eigenvalue test indicates 4 cointegratingeqn(s) at the 0.05 level

\* denotes rejection of the hypothesis at the 0.05 level

\*\*MacKinnon-Haug-Michelis (1999) p-values

#### Unrestricted Cointegrating Coefficients (normalized by b\*S11\*b=I):

LRGDP	LASI	LMCAP	LNI	LNLC	LTOR	LVT
5.308804	0.250159	1.041669	-0.434593	-5.156289	1.448915	-1.221868
0.419051	2.084632	-0.800030	0.795566	4.619727	2.503933	-1.744498
7.328429	-0.684845	0.687631	-0.804356	-21.17182	-0.261444	0.103193
23.01872	0.982264	-0.671558	-3.787403	24.34230	2.949036	-0.465630
-12.78009	0.038241	-0.019441	0.796518	-6.327195	-1.642070	1.595474
3.556569	1.349443	-0.249789	-1.021166	-0.176671	-0.174706	-0.395497
9.391262	-0.537305	0.400451	-0.251549	-1.882207	-0.350702	-0.726511

#### Unrestricted Adjustment Coefficients (alpha):

	D(LRGDP)	D(LASI)	D(LMCAP)	D(LNI)	D(LNLC)	D(LTOR)	D(LVT)
D(LRGDP)	0.001434	-0.007562	0.006081	0.015317	0.014324	-0.003441	-0.006895
D(LASI)	0.018049	-0.427176	-0.013801	-0.297694	-0.062879	0.045475	-0.065091
D(LMCAP)	-0.401817	0.208096	0.140965	-0.322219	0.061647	0.674345	-0.171320
D(LNI)	0.317688	-0.468392	0.040870	0.293005	0.028825	0.199965	-0.049868
D(LNLC)	-0.011655	-0.002901	0.048980	0.008455	-0.007261	0.012892	-0.005009
D(LTOR)	0.014856	-0.095823	0.135267	-0.034033	0.120652	0.188276	0.074716
D(LVT)	1.015395	-0.225079	-0.263061	-0.107415	0.023777	0.209788	-0.038773

1 Cointegrating Equation(s):            Log likelihood        -5.404403

Normalized cointegrating coefficients (standard error in parentheses)

LRGDP	LASI	LMCAP	LNI	LNLC	LTOR	LVT
1.000000	0.047122 (0.02384)	0.196215 (0.01470)	-0.081863 (0.01609)	-0.971271 (0.26180)	0.272927 (0.02796)	-0.230159 (0.02055)

Adjustment coefficients (standard error in parentheses)

D(LRGDP)	0.007613 (0.04703)
D(LASI)	0.095819 (0.77299)
D(LMCAP)	-2.133169 (1.70246)
D(LNI)	1.686543 (0.89386)
D(LNLC)	-0.061873 (0.07918)
D(LTOR)	0.078870 (0.59203)
D(LVT)	5.390533 (0.73243)

2 Cointegrating Equation(s):            Log likelihood        35.32457

Normalized cointegrating coefficients (standard error in parentheses)

LRGDP	LASI	LMCAP	LNI	LNLC	LTOR	LVT
1.000000	0.000000	0.216349 (0.01132)	-0.100801 (0.01635)	-1.085984 (0.23764)	0.218396 (0.01914)	-0.192550 (0.01753)
0.000000	1.000000	-0.427265 (0.03321)	0.401897 (0.04794)	2.434392 (0.69692)	1.157238 (0.05613)	-0.798131 (0.05140)

Adjustment coefficients (standard error in parentheses)

D(LRGDP)	0.004444 (0.04622)	-0.015405 (0.01822)
D(LASI)	-0.083189 (0.56013)	-0.885989 (0.22084)
D(LMCAP)	-2.045966 (1.68766)	0.333286 (0.66539)
D(LNI)	1.490263 (0.67699)	-0.896952 (0.26691)
D(LNLC)	-0.063089 (0.07934)	-0.008964 (0.03128)
D(LTOR)	0.038715 (0.58157)	-0.196039 (0.22929)
D(LVT)	5.296213 (0.67822)	-0.215197 (0.26740)

3 Cointegrating Equation(s):            Log likelihood        56.35173

Normalized cointegrating coefficients (standard error in parentheses)

LRGDP	LASI	LMCAP	LNI	LNLC	LTOR	LVT
1.000000	0.000000	0.000000	-0.062711 (0.04041)	-3.184287 (0.42995)	0.024048 (0.04889)	-0.016690 (0.03887)
0.000000	1.000000	0.000000	0.326674 (0.09186)	6.578312 (0.97726)	1.541053 (0.11112)	-1.145435 (0.08834)
0.000000	0.000000	1.000000	-0.176057 (0.21110)	9.698704 (2.24583)	0.898307 (0.25536)	-0.812853 (0.20302)

## Adjustment coefficients (standard error in parentheses)

D(LRGDP)	0.049009 (0.07754)	-0.019570 (0.01890)	0.011725 (0.01269)
D(LASI)	-0.184325 (0.95239)	-0.876538 (0.23218)	0.351065 (0.15586)
D(LMCAP)	-1.012914 (2.85508)	0.236746 (0.69603)	-0.488112 (0.46725)
D(LNI)	1.789772 (1.14833)	-0.924942 (0.27995)	0.733756 (0.18793)
D(LNLC)	0.295858 (0.08531)	-0.042508 (0.02080)	0.023861 (0.01396)
D(LTOR)	1.030012 (0.94621)	-0.288676 (0.23067)	0.185151 (0.15485)
D(LVT)	3.368389 (1.00776)	-0.035040 (0.24568)	1.056887 (0.16493)

4 Cointegrating Equation(s):      Log likelihood      70.67660

## Normalized cointegrating coefficients (standard error in parentheses)

LRGDP	LASI	LMCAP	LNI	LNLC	LTOR	LVT
1.000000	0.000000	0.000000	0.000000	-5.385652 (0.65876)	-0.009415 (0.07169)	-0.027907 (0.02178)
0.000000	1.000000	0.000000	0.000000	18.04565 (2.10815)	1.715368 (0.22943)	-1.087003 (0.06969)
0.000000	0.000000	1.000000	0.000000	3.518537 (1.61194)	0.804362 (0.17543)	-0.844344 (0.05329)
0.000000	0.000000	0.000000	1.000000	-35.10331 (3.88688)	-0.533606 (0.42301)	-0.178870 (0.12849)

## Adjustment coefficients (standard error in parentheses)

D(LRGDP)	0.401575 (0.19198)	-0.004525 (0.01876)	0.001439 (0.01263)	-0.069540 (0.03086)
D(LASI)	-7.036848 (1.93668)	-1.168952 (0.18923)	0.550983 (0.12742)	0.790895 (0.31133)
D(LMCAP)	-8.429981 (7.56657)	-0.079758 (0.73932)	-0.271723 (0.49784)	1.447168 (1.21635)
D(LNI)	8.534362 (2.62948)	-0.637134 (0.25692)	0.536987 (0.17300)	-1.653302 (0.42270)
D(LNLC)	0.490485 (0.22768)	-0.034203 (0.02225)	0.018183 (0.01498)	-0.068664 (0.03660)
D(LTOR)	0.246608 (2.57617)	-0.322106 (0.25172)	0.208006 (0.16950)	-0.062595 (0.41413)
D(LVT)	0.895837 (2.67967)	-0.140550 (0.26183)	1.129022 (0.17631)	-0.001930 (0.43077)

5 Cointegrating Equation(s):      Log likelihood      78.23979

## Normalized cointegrating coefficients (standard error in parentheses)

LRGDP	LASI	LMCAP	LNI	LNLC	LTOR	LVT
1.000000	0.000000	0.000000	0.000000	0.000000	0.146838 (0.05496)	-0.186314 (0.01437)
0.000000	1.000000	0.000000	0.000000	0.000000	1.191813 (0.19148)	-0.556231 (0.05007)
0.000000	0.000000	1.000000	0.000000	0.000000	0.702279 (0.12637)	-0.740854 (0.03304)
0.000000	0.000000	0.000000	1.000000	0.000000	0.484841 (0.37235)	-1.211355 (0.09736)
0.000000	0.000000	0.000000	0.000000	1.000000	0.029013 (0.01485)	-0.029413 (0.00388)

Adjustment coefficients (standard error in parentheses)

D(LRGDP)	0.218518 (0.19457)	-0.003977 (0.01689)	0.001161 (0.01137)	-0.058131 (0.02834)	0.111135 (0.23477)
D(LASI)	-6.233255 (2.14046)	-1.171356 (0.18583)	0.552206 (0.12513)	0.740811 (0.31177)	-8.623021 (2.58276)
D(LMCAP)	-9.217830 (8.50711)	-0.077400 (0.73858)	-0.272922 (0.49731)	1.496271 (1.23911)	-8.184852 (10.2650)
D(LNI)	8.165977 (2.95361)	-0.636031 (0.25643)	0.536427 (0.17266)	-1.630342 (0.43021)	2.282808 (3.56394)
D(LNLC)	0.583275 (0.25181)	-0.034480 (0.02186)	0.018324 (0.01472)	-0.074447 (0.03668)	-0.738547 (0.30384)
D(LTOR)	-1.295340 (2.78946)	-0.317492 (0.24218)	0.205660 (0.16307)	0.033507 (0.40630)	-4.974978 (3.36587)
D(LVT)	0.591968 (3.01212)	-0.139641 (0.26151)	1.128560 (0.17608)	0.017008 (0.43873)	-3.471155 (3.63454)

6 Cointegrating Equation(s):            Log likelihood            83.84270

Normalized cointegrating coefficients (standard error in parentheses)

LRGDP	LASI	LMCAP	LNI	LNLC	LTOR	LVT
1.000000	0.000000	0.000000	0.000000	0.000000	0.000000	-0.223213 (0.02665)
0.000000	1.000000	0.000000	0.000000	0.000000	0.000000	-0.855727 (0.11212)
0.000000	0.000000	1.000000	0.000000	0.000000	0.000000	-0.917333 (0.08244)
0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	-1.333193 (0.13217)
0.000000	0.000000	0.000000	0.000000	1.000000	0.000000	-0.036704 (0.00592)
0.000000	0.000000	0.000000	0.000000	0.000000	1.000000	0.251295 (0.11163)

Adjustment coefficients (standard error in parentheses)

D(LRGDP)	0.206280 (0.19482)	-0.008620 (0.01922)	0.002020 (0.01143)	-0.054618 (0.02903)	0.111743 (0.23319)	0.003803 (0.03093)
D(LASI)	-6.071521 (2.13677)	-1.109991 (0.21075)	0.540847 (0.12536)	0.694374 (0.31836)	-8.631055 (2.55757)	-1.822463 (0.33925)
D(LMCAP)	-6.819476 (7.32438)	0.832590 (0.72240)	-0.441366 (0.42969)	0.807653 (1.09127)	-8.303990 (8.76677)	-1.267269 (1.16288)
D(LNI)	8.877164 (2.66756)	-0.366191 (0.26310)	0.486478 (0.15649)	-1.834539 (0.39745)	2.247480 (3.19288)	0.058609 (0.42352)
D(LNLC)	0.629128 (0.23909)	-0.017083 (0.02358)	0.015104 (0.01403)	-0.087612 (0.03562)	-0.740825 (0.28618)	-0.002353 (0.03796)
D(LTOR)	-0.625724 (2.52119)	-0.063424 (0.24866)	0.158631 (0.14791)	-0.158754 (0.37564)	-5.008241 (3.01769)	-0.585152 (0.40029)
D(LVT)	1.338093 (2.70082)	0.143456 (0.26638)	1.076157 (0.15845)	-0.197220 (0.40240)	-3.508219 (3.23269)	0.583949 (0.42880)

## APPENDIX 4.1: VECM RESULTS

Vector Error Correction Estimates

Date: : 06/30/14 Time: 09:07

Sample (adjusted): 1987 2012

Included observations: 26 after adjustments

Standard errors in ( ) & t-statistics in [ ]

Cointegrating Eq:	CointEq1				
LMCAP(-1)	1.000000				
LRGDP(-1)	4.419098 (1.49096) [ 2.96393]				
LASI(-1)	0.669120 (0.33738) [ 1.98326]				
TOR(-1)	2.118348 (0.28487) [ 7.43616]				
LLVT(-1)	-2.383310 (0.33448) [-7.12543]				
C	-55.40613				
Error Correction:	D(LMCAP)	D(LRGDP)	D(LASI)	D(TOR)	D(LLVT)
CointEq1	-0.710812 (0.26829) [-2.64941]	-0.008092 (0.00658) [-1.22956]	0.126281 (0.09425) [ 1.33984]	-0.458212 (0.09319) [-4.91684]	0.050730 (0.11206) [ 0.45270]
D(LMCAP(-1))	-0.038883 (0.37011) [-0.10506]	0.006872 (0.00908) [ 0.75699]	0.001775 (0.13002) [ 0.01365]	0.538547 (0.12856) [ 4.18897]	-0.001961 (0.15459) [-0.01269]
D(LMCAP(-2))	-0.051830 (0.42475) [-0.12202]	0.006396 (0.01042) [ 0.61388]	-0.012702 (0.14922) [-0.08512]	0.478238 (0.14754) [ 3.24139]	0.780098 (0.17741) [ 4.39704]
D(LRGDP(-1))	-0.792507 (10.8493) [-0.07305]	0.228446 (0.26612) [ 0.85842]	9.834022 (3.81143) [ 2.58014]	-2.874658 (3.76861) [-0.76279]	-1.182382 (4.53165) [-0.26092]
D(LRGDP(-2))	-0.552033 (10.4407) [-0.05287]	0.114205 (0.25610) [ 0.44594]	-7.422952 (3.66789) [-2.02377]	-4.301336 (3.62668) [-1.18603]	0.272336 (4.36099) [ 0.06245]
D(LASI(-1))	0.458217 (0.68493) [ 0.66900]	0.015260 (0.01680) [ 0.90831]	-0.514223 (0.24062) [-2.13708]	0.636197 (0.23792) [ 2.67404]	0.173353 (0.28609) [ 0.60594]
D(LASI(-2))	0.077535 (0.65539) [ 0.11830]	0.006886 (0.01608) [ 0.42831]	-0.375558 (0.23024) [-1.63112]	0.338466 (0.22766) [ 1.48673]	-0.024492 (0.27375) [-0.08947]

D(TOR(-1))	-0.659417 (0.55638) [-1.18518]	-0.000897 (0.01365) [-0.06571]	-0.218020 (0.19546) [-1.11541]	0.138993 (0.19327) [ 0.71918]	-0.202608 (0.23240) [-0.87182]
D(TOR(-2))	-0.555284 (0.48197) [-1.15212]	-0.002802 (0.01182) [-0.23702]	-0.035485 (0.16932) [-0.20958]	-0.012511 (0.16742) [-0.07473]	0.125894 (0.20131) [ 0.62536]
D(LLVT(-1))	-0.055373 (0.42265) [-0.13101]	-0.010327 (0.01037) [-0.99611]	0.135397 (0.14848) [ 0.91188]	-0.619101 (0.14681) [-4.21693]	0.069331 (0.17654) [ 0.39272]
D(LLVT(-2))	0.513402 (1.13873) [ 0.45086]	0.024565 (0.02793) [ 0.87944]	-0.169776 (0.40004) [-0.42439]	-0.339676 (0.39555) [-0.85875]	-0.004738 (0.47564) [-0.00996]
C	-0.247720 (0.82622) [-0.29982]	0.024979 (0.02027) [ 1.23254]	0.291182 (0.29026) [ 1.00319]	0.166762 (0.28700) [ 0.58106]	0.034608 (0.34511) [ 0.10028]
R-squared	0.851023	0.351993	0.534208	0.740703	0.847776
Adj. R-squared	-0.455316	-0.157156	0.168229	0.536970	0.728172
Sum sq. resids	52.20841	0.031413	6.443394	6.299411	9.108608
S.E. equation	1.931106	0.047368	0.678412	0.670789	0.806607
F-statistic	0.288946	0.691336	1.459668	3.635658	7.088161
Log likelihood	-45.95531	50.44988	-18.75687	-18.46308	-23.25701
Akaike AIC	4.458101	-2.957683	2.365913	2.343314	2.712077
Schwarz SC	5.038761	-2.377023	2.946573	2.923973	3.292737
Mean dependent	0.029944	0.056240	0.197851	-0.135769	0.018669
S.D. dependent	1.600765	0.044035	0.743860	0.985784	1.547086
Determinant resid covariance (dof adj.)		0.000161			
Determinant resid covariance		7.30E-06			
Log likelihood		-30.70402			
Akaike information criterion		7.361848			
Schwarz criterion		10.50709			

### APPENDIX 5.1: LM Test

VEC Residual Serial Correlation LM Tests  
 Null Hypothesis: no serial correlation at lag order h  
 Date: 06/30/14 Time: 10:10  
 Sample: 1981 2012  
 Included observations: 26

Lags	LM-Stat	Prob
1	17.95650	0.8442
2	28.40246	0.2897
3	20.18445	0.7371
4	30.56050	0.2040
5	19.12840	0.7909
6	27.09983	0.3509
7	23.95573	0.5219
8	33.82831	0.1116
9	27.17399	0.3472
10	18.10018	0.8381
11	35.95175	0.0723
12	33.23009	0.1254

Probs from chi-square with 25 df.

### APPENDIX 6.1: CAUSALITY TEST AT LAGS 2

Pairwise Granger Causality Tests  
 Date: 06/30/14 Time: 00:04  
 Sample: 1981 2012  
 Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
LASI does not Granger Cause LRGDP	27	0.51678	0.6035
LRGDP does not Granger Cause LASI		1.91345	0.1713
LMCAP does not Granger Cause LRGDP	30	0.26888	0.7664
LRGDP does not Granger Cause LMCAP		0.32222	0.7275
LTOR does not Granger Cause LRGDP	30	0.19094	0.8274
LRGDP does not Granger Cause LTOR		0.21309	0.8095
LVT does not Granger Cause LRGDP	30	2.40196	0.1111
LRGDP does not Granger Cause LVT		0.48503	0.6214
LNLC does not Granger Cause LRGDP	30	0.49709	0.6142
LRGDP does not Granger Cause LNLC		0.14951	0.8619
LNI does not Granger Cause LRGDP	30	0.16564	0.8483
LRGDP does not Granger Cause LNI		4.17266	0.0273
OPEN does not Granger Cause LRGDP	30	0.12448	0.8835
LRGDP does not Granger Cause OPEN		1.21724	0.3130
LMCAP does not Granger Cause LASI	27	0.11092	0.8955
LASI does not Granger Cause LMCAP		0.69204	0.5111
LTOR does not Granger Cause LASI	27	0.73527	0.4908
LASI does not Granger Cause LTOR		1.29467	0.2941

LVT does not Granger Cause LASI	27	0.13759	0.8722
LASI does not Granger Cause LVT		1.71091	0.2039
LNLC does not Granger Cause LASI	27	0.02544	0.9749
LASI does not Granger Cause LNLC		0.62256	0.5458
LNI does not Granger Cause LASI	27	0.01318	0.9869
LASI does not Granger Cause LNI		2.91840	0.0751
OPEN does not Granger Cause LASI	27	0.22776	0.7982
LASI does not Granger Cause OPEN		1.12635	0.3422
LTOR does not Granger Cause LMCAP	30	1.29975	0.2904
LMCAP does not Granger Cause LTOR		0.27494	0.7619
LVT does not Granger Cause LMCAP	30	0.12386	0.8840
LMCAP does not Granger Cause LVT		46.5141	4.E-09
LNLC does not Granger Cause LMCAP	30	0.30166	0.7422
LMCAP does not Granger Cause LNLC		7.23808	0.0033
LNI does not Granger Cause LMCAP	30	0.34705	0.7101
LMCAP does not Granger Cause LNI		3.45739	0.0472
OPEN does not Granger Cause LMCAP	30	0.48044	0.6241
LMCAP does not Granger Cause OPEN		1.29772	0.2909
LVT does not Granger Cause LTOR	30	0.33500	0.7185
LTOR does not Granger Cause LVT		0.00305	0.9970
LNLC does not Granger Cause LTOR	30	0.81544	0.4539
LTOR does not Granger Cause LNLC		2.14240	0.1384
LNI does not Granger Cause LTOR	30	0.21995	0.8041
LTOR does not Granger Cause LNI		0.18330	0.8336
OPEN does not Granger Cause LTOR	30	0.69425	0.5088
LTOR does not Granger Cause OPEN		0.03336	0.9672
LNLC does not Granger Cause LVT	30	5.45340	0.0108
LVT does not Granger Cause LNLC		0.55687	0.5799
LNI does not Granger Cause LVT	30	0.28259	0.7562
LVT does not Granger Cause LNI		4.57398	0.0203
OPEN does not Granger Cause LVT	30	0.08364	0.9200
LVT does not Granger Cause OPEN		1.16326	0.3288
LNI does not Granger Cause LNLC	30	0.02089	0.9793
LNLC does not Granger Cause LNI		2.80944	0.0793
OPEN does not Granger Cause LNLC	30	0.14513	0.8656
LNLC does not Granger Cause OPEN		1.39707	0.2660
OPEN does not Granger Cause LNI	30	0.03787	0.9629
LNI does not Granger Cause OPEN		1.92023	0.1676



## APPENDIX 6.2: CAUSALITY TEST AT LAGS 4

Pairwise Granger Causality Tests

Date: 08/07/14 Time: 00:11

Sample: 1981 2012

Lags: 4

Null Hypothesis:	Obs	F-Statistic	Prob.
LASI does not Granger Cause LRGDP	25	0.20124	0.9340
LRGDP does not Granger Cause LASI		2.05029	0.1354
LMCAP does not Granger Cause LRGDP	28	0.21022	0.9295
LRGDP does not Granger Cause LMCAP		0.31697	0.8631
LTOR does not Granger Cause LRGDP	28	0.64074	0.6399
LRGDP does not Granger Cause LTOR		1.11136	0.3802
LVT does not Granger Cause LRGDP	28	3.28448	0.0331
LRGDP does not Granger Cause LVT		0.49141	0.7421
LNLC does not Granger Cause LRGDP	28	0.43115	0.7844
LRGDP does not Granger Cause LNLC		0.31051	0.8674
LNI does not Granger Cause LRGDP	28	0.91878	0.4734
LRGDP does not Granger Cause LNI		1.12073	0.3761
OPEN does not Granger Cause LRGDP	28	1.20593	0.3408
LRGDP does not Granger Cause OPEN		1.02606	0.4192
LMCAP does not Granger Cause LASI	25	0.45178	0.7697
LASI does not Granger Cause LMCAP		2.19151	0.1163
LTOR does not Granger Cause LASI	25	0.21196	0.9280
LASI does not Granger Cause LTOR		1.45137	0.2630
LVT does not Granger Cause LASI	25	0.31152	0.8661
LASI does not Granger Cause LVT		0.68004	0.6158
LNLC does not Granger Cause LASI	25	0.07175	0.9897
LASI does not Granger Cause LNLC		0.56469	0.6918
LNI does not Granger Cause LASI	25	0.27425	0.8903
LASI does not Granger Cause LNI		0.98378	0.4441
OPEN does not Granger Cause LASI	25	2.07097	0.1324
LASI does not Granger Cause OPEN		0.96985	0.4510
LTOR does not Granger Cause LMCAP	28	0.47647	0.7525
LMCAP does not Granger Cause LTOR		0.73959	0.5766
LVT does not Granger Cause LMCAP	28	0.18174	0.9450
LMCAP does not Granger Cause LVT		18.2974	3.E-06
LNLC does not Granger Cause LMCAP	28	0.73563	0.5791
LMCAP does not Granger Cause LNLC		3.78512	0.0199
LNI does not Granger Cause LMCAP	28	0.27520	0.8903
LMCAP does not Granger Cause LNI		3.40607	0.0292

OPEN does not Granger Cause LMCAP	28	0.37862	0.8211
LMCAP does not Granger Cause OPEN		1.22730	0.3324
LVT does not Granger Cause LTOR	28	0.41688	0.7944
LTOR does not Granger Cause LVT		0.68836	0.6089
LNLC does not Granger Cause LTOR	28	0.33719	0.8495
LTOR does not Granger Cause LNLC		1.94540	0.1442
LNI does not Granger Cause LTOR	28	0.51405	0.7263
LTOR does not Granger Cause LNI		0.41713	0.7942
OPEN does not Granger Cause LTOR	28	1.41562	0.2669
LTOR does not Granger Cause OPEN		0.41372	0.7966
LNLC does not Granger Cause LVT	28	1.94760	0.1438
LVT does not Granger Cause LNLC		1.17037	0.3551
LNI does not Granger Cause LVT	28	1.19045	0.3470
LVT does not Granger Cause LNI		3.01631	0.0439
OPEN does not Granger Cause LVT	28	0.41882	0.7930
LVT does not Granger Cause OPEN		1.84734	0.1615
LNI does not Granger Cause LNLC	28	0.08992	0.9845
LNLC does not Granger Cause LNI		1.78796	0.1730
OPEN does not Granger Cause LNLC	28	0.01396	0.9996
LNLC does not Granger Cause OPEN		2.80989	0.0548
OPEN does not Granger Cause LNI	28	0.31018	0.8676
LNI does not Granger Cause OPEN		1.33699	0.2926

### APPENDIX 6.3: CAUSALITY TEST AT LAGS 7

Pairwise Granger Causality Tests

Date: 08/07/14 Time: 00:15

Sample: 1981 2012

Lags: 7

Null Hypothesis:	Obs	F-Statistic	Prob.
LASI does not Granger Cause LRGDP	22	1.18961	0.4123
LRGDP does not Granger Cause LASI		0.98899	0.5056
LMCAP does not Granger Cause LRGDP	25	0.76268	0.6302
LRGDP does not Granger Cause LMCAP		0.87160	0.5592
LTOR does not Granger Cause LRGDP	25	2.94253	0.0597
LRGDP does not Granger Cause LTOR		0.43981	0.8560
LVT does not Granger Cause LRGDP	25	4.87597	0.0125
LRGDP does not Granger Cause LVT		0.99027	0.4888
LNLC does not Granger Cause LRGDP	25	0.96212	0.5048
LRGDP does not Granger Cause LNLC		1.45965	0.2834
LNI does not Granger Cause LRGDP	25	2.27492	0.1154
LRGDP does not Granger Cause LNI		1.37245	0.3136
OPEN does not Granger Cause LRGDP	25	2.00222	0.1541
LRGDP does not Granger Cause OPEN		0.67691	0.6894
LMCAP does not Granger Cause LASI	22	0.69822	0.6763
LASI does not Granger Cause LMCAP		4.10869	0.0410
LTOR does not Granger Cause LASI	22	0.13103	0.9922
LASI does not Granger Cause LTOR		2.12841	0.1701
LVT does not Granger Cause LASI	22	0.23147	0.9638
LASI does not Granger Cause LVT		0.12312	0.9935
LNLC does not Granger Cause LASI	22	0.59965	0.7420
LASI does not Granger Cause LNLC		2.62196	0.1134
LNI does not Granger Cause LASI	22	0.28534	0.9400
LASI does not Granger Cause LNI		0.86042	0.5761
OPEN does not Granger Cause LASI	22	2.28335	0.1491
LASI does not Granger Cause OPEN		0.25195	0.9554
LTOR does not Granger Cause LMCAP	25	1.10431	0.4285
LMCAP does not Granger Cause LTOR		0.35239	0.9103
LVT does not Granger Cause LMCAP	25	0.14701	0.9908
LMCAP does not Granger Cause LVT		6.98892	0.0034
LNLC does not Granger Cause LMCAP	25	0.63643	0.7181
LMCAP does not Granger Cause LNLC		2.17319	0.1284
LNI does not Granger Cause LMCAP	25	0.35994	0.9059
LMCAP does not Granger Cause LNI		2.64420	0.0795
OPEN does not Granger Cause LMCAP	25	0.28686	0.9445
LMCAP does not Granger Cause OPEN		2.07774	0.1421
LVT does not Granger Cause LTOR	25	0.37363	0.8979
LTOR does not Granger Cause LVT		0.44663	0.8515

LNLC does not Granger Cause LTOR	25	0.70402	0.6705
LTOR does not Granger Cause LNLC		2.32905	0.1091
LNLC does not Granger Cause LTOR	25	0.59013	0.7512
LTOR does not Granger Cause LNI		1.19202	0.3869
OPEN does not Granger Cause LTOR	25	1.35233	0.3210
LTOR does not Granger Cause OPEN		0.53376	0.7913
LNLC does not Granger Cause LVT	25	1.54325	0.2574
LVT does not Granger Cause LNLC		1.12609	0.4178
LNI does not Granger Cause LVT	25	0.53358	0.7915
LVT does not Granger Cause LNI		1.95563	0.1621
OPEN does not Granger Cause LVT	25	0.57090	0.7649
LVT does not Granger Cause OPEN		2.68951	0.0760
LNI does not Granger Cause LNLC	25	0.23996	0.9645
LNLC does not Granger Cause LNI		1.46096	0.2830
OPEN does not Granger Cause LNLC	25	0.42342	0.8668
LNLC does not Granger Cause OPEN		2.62005	0.0814
OPEN does not Granger Cause LNI	25	0.52425	0.7980
LNI does not Granger Cause OPEN		4.08461	0.0225