FINANCIAL SECTOR REFORMS AND NIGERIA'S ECONOMIC GROWTH: 1970 – 2009

BULUS, YUSUF DAUDA
Ph.D/SOC.SCI/05134/2008-09
and
Ph.D/SOC.SCI/18519/1998-99

A DOCTORAL DISSERTATION SUBMITTED TO THE POSTGRADUATE SCHOOL, AHAMDU BELLO UNIVERSITY, ZARIA, IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF DOCTOR OF PHILOSOPHY (PHD) IN ECONOMICS
DEPARTMENT OF ECONOMICS,
FACULTY OF SOCIAL SCIENCES,
AHAMDU BELLO UNIVERSITY, ZARIA

2011

DECLARATION

I, Yusuf Dauda Bulus, do solemnly declare that to the best of my knowledge, the data contained in this dissertation is from original research and the work has not been submitted to any other university for examination. Materials referenced in this work have all been duly acknowledged.

_____ _____

Y. D. Bulus **Date**

CERTIFICATION

The Thesis entitled "Financial Sector Reforms and Nigeria's Economic Growth: 1970 - 2009" by Yusuf Dauda Bulus meets the regulations governing the award of the degree of Doctor of Philosophy (Economics) of Ahmadu Bello University, Zaria and is approved for its contribution to knowledge and literary presentation.

_____ _____

Professor Abdul-Ganiyu Garba **Date**
(Chairman, Supervisory Committee)

_____ _____

Professor Patricia S. Aku **Date**
(Member, Supervisory Committee)

_____ _____

Dr. Ishaya Audu **Date**
(Member, Supervisory Committee)

_____ _____

Dr. Ishaya Audu **Date**
(Head of Department)

_____ _____

Professor Joshua Adebayo Abiodun **Date**
(Dean, Post-Graduate School)

DEDICATION

This work is dedicated to God Almighty and to my revered parents Late Reverend & Mrs B. Y. Dauda

ACKNOWLEDGEMENT

My gratitude goes to God Almighty whose immeasurable love I have continued to enjoy. The grace to do all things comes from the Almighty to whom I owe thanks and praises. May the Lord's Name be reverenced and adored forever and ever in Jesus Name, Amen.

Though my parents are not among the living to celebrate the joy of completion of this work with me, I want to acknowledge from the depth of my heart the fatherly and motherly attention they gave me, making a sacrifice of their entire energy and resources in given the best they can to make the purpose of God over my life come to fulfilment. You were such a wonderful parent and your impartation over my life as ministers of the gospel has made possible the attainment of this feat. We missed you but the Lord has chosen to give you rest. We pray to meet one day and never to part again, amen.

It has been a wonderful privilege to have teachers and supervisors as Professor A-G. Garba and Professor (Mrs) P. S. Aku. You both have been a blessing to me right from my undergraduate days and up to the completion of this work. Your painstaking commitment and encouragement in the supervision of this work is what has made the completion of this work possible. Thank you for the intellectual and spiritual mentoring, praying that the good Lord will reward your labour of love in Jesus name, amen.

I also appreciate the support and encouragement of the Head of Department, Dr Ishaya Audu and Professor Mike Kwanashie who equally provided incisive guide to this work.

I want to acknowledge the valuable inputs of members of staff of the Department of Economics and the Postgraduate students in the department who in the course of

seminal meetings critique and made suggestions on the work. Your contribution during such meetings have been fruitful and helped to give focus to this work.

I am equally indebted to my family – my wife, Esther, my sons Abraham, Philip and Benyamin, all who have to bear with my occasional absence. Thank you for being there for me and may the good Lord reward your patience and love.
Finally, my thanks goes to my Pastor, brothers and sisters; Revd. Peter Ishaya, Akila, Samson, Bala, Dimas, Mrs Ruth Silas, Lois, Shipphra, Deborah, Phoebe and Damaris . You have been very supportive family members. Be blessed in Jesus Name, amen.

TABLE OF CONTENTS

TITLE - - - - - - - - - PAGE
Title page - - - - - - - - - - i

Declaration - - - - - - - - - - - ii
Certification - - - - - - - - - - - iii
Dedication - - - - - - - - - - - iv
Acknowledgement- - - - - - - - - - - v
Table of contents- - - - - - - - - - vii
List of tables-- - - - - - - - - - x
List of figures- - - - -- - - - xiii
List of appendices- - - - - - - - - - xv
Abstract- - - - - - - - - - xvi

CHAPTER 1: INTRODUCTION

1.1 Background to the study - - - - - - - - 1

1.2 Problem Statement - – - - - - - - - 3

1.3 Research Objective – - - - - - - - 6

1.4 Justification of the Study - – - - - - - - 6

1.5 Scope of the study- - - - - - - - - 7

1.6 The Structure of the Study – - - - - - - - 8

CHAPTER 2: LITERATURE REVIEW

2.1 Conceptual and Philosophical Framework- - - - - - 9

2.1.1 Concept of Financial Liberalization- - -- - - - 9

2.1,2 Concept of Economic Growth - - -- - - - 10

2.1.3 The Neoclassical Growth Theory – - - - - - 12

2.1.4 The Philosophy of Liberalization and Growth – - - - 13

2.2 Theoretical Literature - - - - - - - - - 19

2.2.1 Finance and Growth: Mainstream view - - - - - - 20

2.2.2 Finance and Growth: Non-Mainstream views- - -- - - 25

2.2.2.1 The Role of Information- - - - - - - 28

2.2.2.2 Demography and the Finance – Growth Nexus - - - - 31

2.2.2.3 The Role of Culture - - - - - -- - - 34

2.2.2.4 More on Finance and Growth Nexus - - -- - - 38

2.3 Financial Policy - - - - - - - - - 41

2.3.1 Financial Reform Policy - - - - - - - 44
2.4 Empirical Studies - - - - - - - - - 46
2.5 Review of Developments in the Nigerian Financial Sector - - 64
2.5.1 Phases of Policy Shifts - - - - - - 64
2.5.2 Period of Administrative Control or Regulation 1970-1986 - - 66
2.5.3 Period of Structural Adjustment Programme (SAP) 1987-1992 - - 77
2.5.4 The Post-SAP or Guided Deregulation Period 1993-1999- - - 85
2.5.5 The New Reform Policy Environment 2000 -2009 - - - - 87

CHAPTER 3: METHODOLOGY OF THE STUDY

3.1 Theoretical Framework - - - - - - - - - 98
3.2 Empirical Framework - - - - - - - - - 103
3.3 Model Specification - - - - - - - - - 111
3.4 Estimation Techniques - - - - -- - - 116
3.5 Sources of Information and Method of Data Collection -- - 120

CHAPTER 4: RESULTS AND ANALYSIS

4.1 Stochastic Properties of Key variables - - - - 122
4.2 The General Model- - - - - - - 124
4.2.1 The Over-parameterized ECM and Parsimonious Regression Result - 129
4.2.2 Diagnostic Tests - - - - - - - - - 134
4.2.3 Stability Test - - - - - - - - - - 135
4.3: Estimation of the Sectoral Equations - - - - - - 137
4,3.1 The Agricultural sector – - - - - - - - 138
4.3.2 The Manufacturing Sector - - - - - - - - - 151
4.3.3 The Services Sector - - - - - - - - - 161

CHAPTER 5: SUMMARY, CONCLUSION AND RECOMMENDATION

5.1: Summary – - - - - - - - - - 174
5.2: Conclusion – - - - - - - - - - 176
5.3: Recommendation – - - - - - - - - 177

BIBLIOGRAPHY - - - - - - - - - - 179
APPENDICES - - - - - - - - - - 197

LIST OF TABLES

Table 2.0 Core features of some Finance and Growth models - - - 40

Table 2.1 Growth in the Financial System – The major institutions -- - 69

Table 2.2 Real interest, Nominal interest, Treasury bill and Inflation rates (1970 1986)- 72

Table 2.3 Naira Exchange rate (1970-1986) - - - - - 74

Table 2.4 Average aggregate and sectoral GDP growth rates (1982 -1999) - 76

Table 2.5 Number of Development, Conventional and Specialized Banks and other institutions - - - - - - - - 81

Table 2.6 Financial savings by the banking sector and the Financial saving-GDP ratio (1987-1999) - - - - - - - 82

Table 2.7 Aggregate credit to the economy, Nominal and Real bank lending to the private sector (1987-1998)- - - - - - 83

Table 2.8 Maturity structure of commercial banks loans and advances (%) 1980-1996 83

Table 2.9 Deposit Money Banks savings and lending rates, and Interest rate Spread 84

Table 2.10 Deposit Money Banks savings and lending rates, and Interest rate Spread 1003-1999 - - - -- - - - - 87

Table 2.11 Interest rate developments 2000-2009 -- - - - 89

Table 2.12 Inflation development 2000-2009 - - - - - 90

Table 2.13 external Reserve (US$ billions) 1998-2008 - -- - - 91

Table 2.14 Foreign Investment Flow - - -- - - - 91

Table 4.1 Unit root test for variables in the general model -- - 124

Tale 4.2Cointegration test of the general model - -- - - 125

Table 4.3 Long-run static regression result of general model -- - 126

Table 4.4 Unit root test of residual series of the static model - - 128

Table 4.5 Overparameterized error correction result - -- - 130

Table 4.6 Parsimonious error correction result - - - - 131

Table 4.7 Summary of diagnostic tests of the general model. -- - 134

Table4.8 ADF and Phillip-Perron Tests – Agricultural sector equation -138

Table 4.9: Johansen Co-integration tests of the Agricultural model - 139

Table 4.10: Long-run Static model- Agricultural Sector - -- - 139
Table 4.11: Result of the Unit root test for the Residual - -- - 140
Table 4.12: Over-parameterized Error Correction Model - - 142

Table 4.13: The Parsimonious Error Correction Model - -- - 145
Table 4.14: Summary of diagnostic test for the Agricultural Model -- 148
Table 4.15: ADF and Phillips-Perron Tests – Manufacturing Sector Model -151
Table 4.16: Cointegration test of the Manufacturing Model -- - 152

Table 4.17: Long run static model – manufacturing sector -- - 152
Table 4.18: Unit root test of the residual series from manufacturing sector Model 153
Table 4.19: Over-parameterized Error Correction Model = Manufacturing Sector - 155

Table 5.20: Parsimonious Error Correction Result of the manufacturing sector- 157

Table 4.21: Summary of diagnostic tests – Manufacturing model -- 159

Table 4.22: ADF and Phillips-Perron Tests – Services Sector Model - 162
Table 4.23: Cointegration Test of the Services Model - - - 163

Table 4.24: Long-run static model – Services sector - -- - 163

Table 4.25: Unit root test of the residual series from services sector model -164
Table 4.26: Over-parameterized Error Correction model of the Services sector- 165
Table 4.27: Parsimonious Error Correction Result for the services sector- 166

Table 4.28: Summary of diagnostic tests – services sector model - 170

LIST OF FIGURES

Fig 2.1: Chart of Average Real interest, Nominal interest, Treasury bill & Inflation rates (1970 – 1986) - - - - - - - - - 72

Fig 2.2: Average Aggregate and Sectoral GDP Growth Rate (1982 – 1999) -- 77

Figure 2.3: Lending rate, Saving rate and Interest Spread - - - - 86

Figure 2.4: Aggregate Domestic Credit (₦ billion) - - - - - 86

Figure 2.5: Growth in Commercial and Merchant Banks Deposits (₦ billion) - 87

Figure 2.6: Real GDP growth rate & inflation rate Movement - - - 90

Figure 4.1: Graph of selected series used in estimation -- - 123

Figure 4.2: Recursive Residuals from the General Model -- - 135

Figure 4.3: CUSUM Test (General Model) - - - - 135

Figure 4.4: CUSUM Square Test (General Model) - - - 136

Figure 4.5: Recursive Coefficients (General Model) - - - 136

Figure 4.6: Graph of residual series – agric. Model -- - - 141

Figure 4.7: CUSUM Test(Agricultural Model) - - - - 149

Figure 4.8: CUSUM of Squares Test(Agricultural Model) -- - 149

Figure 4.9: Recursive residuals(Agricultural Model) - - - 149

Figure 4.10 Recursive coefficients(Agricultural Model) - - 150

Figure 4.11: The Actual and fitted regression lines - -- - 158

Figure 4.12: Recursive Residuals – manufacturing model -- - 159

Figure 4.13: CUSUM TEST – manufacturing model - - - 159

Figure 4.15: CUSUM SQUARES TEST – Manufacturing model -- 160

Figure 4.16: RECURSIVE COEFFICIENTS – Manufacturing model -- 160

Figure 4.17: Recursive residuals – services sector model -- - 170

Figure 4.18: CUSUM TEST – services sector model - -- - 171

Figure 4.19: CUSUM of Squares Test – services sector model - - 171

Figure 4.20: Recursive Coefficients – services sector model - 172

LIST OF APPENDICES

Appendix 1: Models of endogenous growth -- - - - 197

Appendix 2: Cointegration test result for the general model - - 199

Appendix 3: Cointegration test result for the agricultural sector model 207

Appendix 4: Cointegration test result for the manufacturing sector model- 217

Appendix 5: Cointegration test result for the services sector model - 227

Appendix 6: Correlation Coefficients of variables used in model estimation-233

Appendix 7: Data set - - - - - - - 237

ABSTRACT

This study was an attempt to examine the effect of financial sector reforms on the growth of the Nigerian economy. The interest was spurred by the outcomes of financial liberalization indicators whose trend has been contrary to the neo-liberal hypothesis, and the observed disconnect of the financial sector from the real sector. The main thesis of this work is that sectors respond differently to financial reforms. Aggregative analyses, common to most earlier empirical works, have tended to mask the possible varying sectoral effects of financial reforms and the implication of that is the inability of policy makers to understand the nature and pattern of sectoral effects of policy actions and the necessity for sector-specific policy. To fill that gap, we decided to examine the aggregate and the sectoral effect of financial reforms. Here we employed the error correction technique in the ordinary least squares estimation and the result obtained indicates differential effect of measures of reforms on both the aggregate and sectoral equations. For instance the banking system credit to the economy was found to be significant but negatively related to growth in aggregate output and output in the manufacturing and agricultural sectors. However sector-specific credit exerts differential effect as banking system credit to the agricultural sector was found to be insignificant, credit to the manufacturing and services sector sectors were found to be significant and with the expected sign. Similarly, we found interest rate spread and inflation rate to be significant but exerting negative effect on the aggregate equation as well as the agricultural and services sectors' equations. The effect of the variable on the manufacturing sector was found to be positive with respect to inflation. Again, while the exchange rate variable indicates positive and significant effect on the aggregate output growth, the effect was found to be negative though significant on the manufacturing and the services output growth but insignificant with respect to agricultural sector. Therefore, the rising cost of economic activities associated with increasing interest rate spread, high inflation rate and weak exchange rate of the naira have not been growth-promoting. Such developments seems to promote exchange-based and inflation hedging or swap behaviour. It is obvious from the result that the effect of financial reform has not been same across sectors. This calls for sector-specific financial policy. Also, the significance of the variable of capital expenditure in all the sectoral equations is indicative of the need for increase allocation for capital expenditure for the provision of basic and functional infrastructure. The study also recommends government institutional support for the agricultural and the manufacturing sectors to alter incentives in favour of agriculture and manufacturing and thus, align market forces to trigger and sustain investment in the two sectors.

CHAPTER 1

INTRODUCTION

1.1 Background to the study:

In the 1980s, the developing world was subjected to a series of external shocks – World Economic recession following restrictive demand management in developed countries in the early 1980s, the deterioration and collapse of a number of commodity prices, the debt crises and the subsequent massive decline in flow of foreign capital into these economies. Under these circumstances, a growing number of countries became critically dependent on official loans that were tied to the implementation of stabilization and Structural Adjustment Policies/Programmes (SAP) or on debt rescheduling, also conditional upon the acceptance of SAP.

In the early 1980s, on the assumption that the problem of developing countries was caused by inappropriate policies, the structural adjustment policies, as part of the World Bank economic adjustment advocacy package, prescribed a series of reforms or liberalization policies encompassing most economic activities. Thus, the financial policies embodied in the standard International Monetary Fund (IMF) stabilization package and SAPs, and which derive much of their intellectual content from the liberalization thesis of the neoclassical economics and the "Financial Repression Hypothesis" of McKinnon (1973), Shaw (1973) and Fry (1980), among others, attached the utmost importance to adopting a strategy of reforms, liberalization or deregulation.[1] It was viewed that this strategy would improve the financial structures, facilitate effective functioning of the financial system and renew economic development.

[1] These concepts have been employed and used interchangeably in a number of studies.

In Nigeria, SAP was introduced in 1986 to, among other things, correct structural imbalances in the Nigerian economy and to deregulate the financial and payment system. The government, through the Central bank of Nigeria (CBN), has since then adopted numerous structural and financial policies aimed at reducing the level of financial repression in the financial industry.

The measures include the abolition of sectoral credit allocation and interest rate ceilings; phased deregulation of interest and exchange rates and the adoption of market-determined techniques in 1987; the liquidation of distressed banks to eliminate contagion effects and the licensing of new banks, savings and finance companies in order to enthrone the market principle of free entry and exit in the banking industry [2]; the upward review of financial paid-up capital for commercial and merchant banks from N10million and N6million to N50million and N40million respectively by 1992; and the introduction and strict enforcement of regulatory and prudential guidelines in 1990, which, among other things, forces banks to make adequate provisions for non-performing loans and proper classification of loan quality.

Other measures include the promulgation of CBN Decree 24 of 1991 (amended in 1997, 1998, 1999 and 2007) and the Banks and Other Financial Institutions (BOFI) Decree 25, all in 1991 (amended in 1997, 1998,and 1999) to give the CBN greater flexibility in regulating and supervising the banking sector and other financial institutions; establishment of the Nigerian Deposit Insurance Corporation (NDIC) in 1988 as part of the financial safety net in the regulation of the banking system through the insurance of licensed bank deposits and to complement the CBN in the regulatory and supervisory role of the deposit money banks toward promoting

[2] A key feature of banking compared to other sectors is related to the fact that failure of one institution can easily spill over to the entire banking industry and the economy a large. A failing bank will directly affect depositors, especially the small ones, confidence will disappear and the would-be-depositors would be banking weary or move to informal sector.
Again, by contagion effects we mean the possibility of bank runs that may result from fall in public confidence in the system. See also Uchendu (1996) and Nnanna (1998).

financial stability and public confidence in the financial institutions; and the divestment of Federal Government holdings in most of the publicly-owned banking firms between 1990 and 1994. Also included were measures such as the systematic move away from the use of direct methods and instruments of monetary control to indirect market-oriented methods and instruments, culminating in the introduction of Open Market Operation (OMO) for the sale of government securities in January, 1993; the introduction of universal banking in 2001; the consolidation of the banking industry through the upward review of paid- up capital to N25billion in 2005; the establishment of the National Insurance Commission (NAICOM) in 1997 for effective administration, supervision, regulation and control of the insurance industry; and relatively recent was the establishment of the National Pension Commission (PENCOM) in 2004 as the sole regulator and supervisor on all pension matters in the country. The overall objective of the aforementioned measures was to institute the principle of free market system of economic management on the assumption that economic agents are rational, a behavioural postulate that is believed would promote efficiency

1.2 PROBLEM STATEMENT

Financial liberalization, which forms the core of the economic reform policies, assigned greater role to the market in the allocation of resources particularly in areas of more efficient and productive uses. Accordingly, the hypothesis is that the reforms in the financial sector are expected to improve the incentive for depositors to save by ensuring that deposit interest rates are positive in real terms. With the availability of higher deposit funds in the banking system, potentials users of funds will have greater access to credit from banks, which should now be less disposed to the practice of credit rationing. The funds so borrowed are expected to be channeled into productive investment, thus generating employment and greater output in the economy.

The period 1986 to 2009 witnessed the implementation of far-reaching financial reform policies usually as part of wider macroeconomic reform programmes. The outcome of the reform measures has not been without some unwanted effects, some heavily taking their toll on the living condition of the citizens. In the wake of the liberalization, the economy has suffered excessive increase in interest rates, widening spread between deposits and lending rates and unstable exchange rate of the Naira to the US dollar (from N4.02 in 1986 to N22.05 in 1993 and averaging N105.96 between 1998 and 2002). In some instances, government has had to intervene and re-impose some level of control. Also on record are wide-spread bankruptcies of financial institutions, with 34.5 percent of distress in all financial institutions accounted for by fraudulent practices and bad management (Ogunleye, 2002), rising rates of inflation (from 5.4 percent in 1986 to 40.9 percent by 1989 and averaging 65 percent between 1993 and 1997).

Efficiency and financial deepening which are some of the measures of liberalization success could not be validated as interest rate spread remains wide reflecting lack of competitive efficiency, and the index of financial deepening, ratio of broad money supply (M2) to GDP declined rapidly averaging 0.26 between 1986 and 1989.[3] Though unexpected is the fact that this index declined in spite of growth in the number of institutions as well as in number and types of product including innovations (Oyewole et al, 1993 and Anyanwu, 1995) and in spite of increase in nominal deposit rates. This development is in contrast to the neo-liberal hypothesis where financial liberalization should lead to a high and rising ratio of M2 to GDP indicating a large flow of bank loanable funds.

Also, high inflation rate in double digit persisted. As a consequence, positive real deposit rates have been difficult to achieve and maintain. Indeed, Nigeria's deposit rates have been volatile, which is indicative of the variability of the inflation rate. As noted by Mckinnon (1973), the variability of real deposit rate has an adverse effect

[3] M2 defined here as M1 + saving and time deposits of commercial banks; where M1 is currency plus demand deposits.

on the proportion of household – managers' wealth that is stored in the form of financial assets as oppose to commodities. As such, high inflation creates a condition that is not conducive to financial savings and instead promote commodity-based behaviour on the part of savers.[4] In sum, the outcomes of the financial reforms have rather resulted in a disconnect between the financial and the real sector of the economy with the former taking the life of its own and with less than expected effect on the latter. This is a challenge to the validity of the neo-liberal hypothesis.

Another consideration was that most empirical works on economic growth impact of reforms in the financial sector simply undertook aggregative estimations with results inconclusive in some cases. In other cases, conclusions drawn from such studies may be considered too general as GDP or GNP is the sum of values of goods and services produced by all economic agents in the agricultural, manufacturing, services and other sectors in the economy. It is a known fact that sectors respond differently to policy instruments and actions, and to discount that is to posit that economic agents behave the same which is socio-economically untrue. Disaggregative analysis allows for better insights as aggregate measures tend to mask the possible differential sectoral responses to or effect of a policy action. Therefore, a sectoral growth analysis of the impact of financial reform would not only provide us with better understanding of differences or variation in policy effects and the nature of the effects, but also the basis for more sector-specific policy action.

The role of the public sector has continued to remain one of the most controversial issues in development economics today. With inefficiencies in the use of resources and failure in performance of public sectors in many developing countries (and African countries in particular), a number of scholars are attracted to the currently fashionable view that public finance crowds out private investment. This view has been accepted uncritically without sufficient examination of the role of the public

[4] See also Anyanwu (1995) for more on household portfolio behaviour in the face of unstable prices.

sector and ways of enhancing its complementarity with private investment. This is particularly important for a low income and oil-dependent economy like Nigeria. The policy implications derived from studies focusing on the role of market mechanism and neglecting the instrumental role of the public sector may have limited applicability.[5] It is possible that an unreserved belief in the efficiency of free market without recourse to the necessary conditions or building blocks for the efficient functioning of the market system may not produce desired outcomes. Therefore, it is important to evaluate empirically, the thesis that financial liberalization will generate and sustain real growth. The thesis is that the effect of financial reforms is not homogenous across sectors. The impact parameters will therefore, differ across sectors and, the sectoral impacts will differ from the aggregate.

1.3 RESEARCH OBJECTIVES

The overall objective of this study is to assess the impact of reforms in the financial sector on the growth of the Nigerian economy. The specific objectives include;

i. To examine the aggregate and sectoral growth response to reforms in the financial sector; and
ii. To make policy recommendations that would enhance and make relevant the on-going reform process in the financial sector to the Nigerian economy.

1.4 JUSTIFICATION OF THE STUDY

In view of pivotal role of finance and the financial system in economic growth and development of any nation, it is not out of place to say that a study of developments in the financial sector and their attendant impact on the real economy is indispensable.

[5] Recent developments in the global financial industry (and their consequences on the real sector), which can be viewed as an epitomisation of pockets of financial crises, such as the Mexican, the Argentinean and the Asian in the 1990s, and the attendant bail out that has become of necessity, are once again calling for a rethink on the role the public sector in promoting and regulating the market.

It is over two decades now since the process of financial reform began, but the high hopes that were associated with their introduction, especially in terms of their positive impact o the growth and development process of the Nigerian economy, are yet to fully materialize. It is in the context of this that there is need to take a cursory look at the reforms in the financial sector – the policy premise, process and instruments, their growth and development impact and the likely shortcomings in the reform programme that could affect their full impact on growth.

1.5 SCOPE AND LIMITATIONS OF THE STUDY

Whether a policy aimed at providing a short-run or a long-run solution to the economic ailment of any given society, it must be adequately informed by a good historical experience that covers a good time frame and which guides the theoretical underpinnings of the policy decision. So time, as commonly construed by professionals in management, is vital when it comes to thrusting an ides that is worth some empirical flavour. This work deems it appropriate for the analysis to cover the period 1970 to 2009. the choice of such a range of time is informed by two reasons;

i. In the science of research, the period is wide enough to permit good deductions that may influence or redirect policy decisions;
ii. The period sufficiently covers the pre-reform (1970 – 1986) and the post-reform (1987 – 2009) years so that the possibility of a structural shift can be examined.

With regard to limitations, one of the common obstacles to most research is the availability of relevant data. Research in Nigeria is no such problem-free as record keeping and disclosure of information is generally poor. Again, where records are kept, they are not available in an easily retrievable form. However, this study wishes to repose sufficient confidence on the Nigerian data obtained from official sources with the hope that deductions emanating from the findings will be relevant for policy purposes.

1.6 STRUCTURE OF THE STUDY

This work is organized into five chapters. Beginning with the introduction, which include the research problem, objective, justification, hypothesis, delimitation and limitation and the structure of the study, the review of the relevant literature as well as reforms and development in the Nigerian financial sector are undertaken in the second chapter. The study framework and methodology are presented in the third chapter, while analysis of the data and estimation results are carried out in chapter four. The work ends with summary, conclusion and recommendation in the fifth chapter.

CHAPTER 2

LITERATURE REVIEW

2.1: Conceptual and Philosophical Framework

2.1.1: Financial liberalization:

Many developing countries are said to be characterized by **financial repression** which may be defined as a situation in which government and the central bank regulation distort the operation of financial markets. These regulations include: ceiling on the nominal interest rate making the real of interest very low or negative in periods of inflation, the imposition of reserve requirements on the deposit money banks (which has a limiting effect on their ability to lend), the provision for government to access credit from the banks to finance deficits, and the placement of credit ceilings and in most cases directed credit allocation to selected sectors of the economy. The consequence of these restrictions, so the argument goes, is to reduce the flow of funds to the formal financial sector and to distort the most productive allocation of resources, leading to lower levels of savings, investment and growth than otherwise would be the case (Thirlwall, 1994).

The importance of the growth of the money economy and financial deepening for economic development has been stressed in the development literature for long (e.g Schumpeter, 1934; Harrod, 1948; Domar, 1947; and Gurley and Shaw, 1960). However, it was the independent works of Ronald McKinnon and Edward Shaw in 1973 that first highlighted the dangers of financial repression in a rigorous way and argued the case for **financial liberalization.** According to McKinnon, money holdings and capital accumulation are complementary in the development process. Investment expenditure is lumpy and given the reliance on self-finances, economic agents need to accumulate money balances before investment takes place. Positive

and high real interest rates are necessary to encourage economic agents to accumulate money balances, and investment will take place as long as the real interest rate does not exceed the real rate of return on investment. Shaw, on the other hand, stresses the importance of financial liberalization for financial deepening, and the effect of high interest rate on the encouragement to save and the discouragement to invest in low-yielding projects. The increased liabilities of the banking system, resulting from higher real interest rates, enable the banking system to lend more resources for productive investment in a more efficient way.

2.1.2: Economic Growth:

The economic progress experienced by the Western economies in the last four decades of the 19th century brought to an end the pessimistic thinking concerning economic growth as portrayed by Ricardo and Malthus.[6] For Ricardo (1789) and Malthus (1819), the law of diminishing returns in agriculture and the law of equalization of profit rates between different sectors of the economy would lead, in the long-run, to a general fall in the profit rates, which, in turn, would lessen incentive to invest and consequently lead to a decline in capital accumulation which is the driving force in economic development. While Mill (1848) describes this as a stationary state in which production and population in a nation remain steady over time, to Marx (1867) it is simply the collapse of the capitalist system that would result from increasingly severe crises of over-production.

The progress in the late 19th century was accompanied by notable contributions on the theory of capital, interest rates and business cycle. However, this optimism was cut short following the Great Depression of the 1930s and Keynes observation that consumption increases with income but at a declining rate and therefore leading to stagnation in the economy.

[6] Ricardo (1789), Malthus (1819) and Marx (1867) are referred to as three great classical pessimists. See Thirlwall (1999) pp 86 – 89.

Since the 1950s, there again has been a shift in focus towards the question of growth factors, the growth process and development, and rules for balanced growth so as to avoid or cope with cyclical economic trends.

The starting point of more recent growth theories is typified by the assertion by Keynes in the 1930s that saving and investment are not usually undertaken by the same persons, and that the desire to save does not necessarily generate investment. Saving not match by an equal amount of investment leads to a decline in total spending, reduction in production and a fall in national income. These arguments provide the theoretical foundations for the frequent recurring business cycles characteristics of market economies. Therefore, when desire savings at full employment exceeds desire investment at full employment, periods of severe and prolonged unemployment such as during the Great depression occur. Similarly, when the inequality is reversed, periods of serious inflation result. This was the situation after the war and the resultant stagflation of the 1970s.

Investment plays an important role in Keynes' growth theory. It is the most important factor that determines the level of spending in the economy operating through the multiplier. On the other hand, investment is a potential source of instability when it is not maintained at a rate sufficient to stimulate corresponding level of demand for the production that it creates. It is therefore essential that the supply of productive capacity grow at the same rate as demand so that there is neither excess capacity nor excess demand.

Modern growth theories are centered on the development of a theoretical growth model that would ensure equality between the rate of growth of demand and adjustment in supply (Thirlwall, 1999). Generally, certain technical and behavioural relationships between economic variables are postulated and the growth path of the economy implied by the interaction of these relationships examined. Usually, the

major concern is the possibility of steady-state growth and the various ways in which the rate of growth of an economy with full employment could be raised.

2.1.3: The Neoclassical Growth Theory

The work house of modern growth analysis is the neoclassical theory. Following the works of Solow (1956) and Swan (1956), neoclassical growth theory seeks to explain the contribution inputs to the overall growth of output of an economy. The underlying assumption is that variations in inputs such as labour (L) and capital (K), together with technological progress (A), can account for any observed changes in output (Y). thus, output can functionally be express as;

$$Y = Af(L,K) \text{ ----------} 3.1$$

From the perspective of developing countries, the neoclassical theory certainly point to and increasing labour (L) and capital (K) inputs as a means of stimulating economic growth. This, in turn, suggests that encouraging savings (or at least access to savings) in order to finance investment in capital input (K) may be a useful policy direction. Unfortunately, empirical investigations using the neoclassical model in the developed economies have pointed to a significant part of the growth process being correlated with changes in technical progress (A) (Rebelo, 1991 and 1998; Jones, 1996 and 2004; Griffiths and Wall, 1999; Easterly, 2003; Rodrik, 2003 among others). "A" here is taken as a measure of technical change or productivity growth 'residual'. Thus, change in output is not only attributable to increase use of labour and capital as factor inputs but also to technical progress. However, earlier neoclassical growth models could not explain how and why technological change (or productivity growth) has had its observed effect. In other words, 'A' was simply treated as a residual in such models rather than a variable which could be manipulated for policy purposes.

In late 1980s, a number of economists were prompted to analyze the nature and role of such a 'residual' element in neoclassical growth model by seeking to 'endogenize'

it, as in the works of Romer (1990) and Barro et al (1995), among others.[7] Some other studies have gone further to look at the capital factor other than the physical capital. The role of social capital (Knack and Keefer, 1997), demography (Simon, 2002) and the institution of faith in promoting contract enforcement (Delacroix, 1993; Grier, 1997 and Bagella, Becchetti and Caiazza, 2001), in understanding variations in TFP among economies.

In all of these and alongside other factors, finance capital has come to be considered as very critical in bringing about the desired growth and development in any giving economy. Even when issues of demography and beliefs and their implications on growth are considered,[8] the transmission mechanism is linked to their effect on household finance, hence, a considerable attention on and advocation for financial reforms by proponents of financial liberalization. It is, however, important that we understand the philosophical premise and the driving force of the liberalization thesis as the exercise would help in explaining some of the study empirical findings and as well provide a context for appreciating suggestions made.

2.1.4: The Philosophy of Liberalization and Growth:

The quest for development has been a matter of general interest for long considering Adam Smith's *Wealth of Nations* (1776), which marked the emergence of economics as an intellectual discipline and specifically aimed to understand the nature and causes of economic development of a nation. Karl Marx (1867) also viewed at length the issues of economic development with prescriptions that run counter to the Smith's neo-liberal or the laissez-faire philosophy.[9]

[7] See Appendix 1 on brief review of the endogenous growth model
[8] See section 2.24 in the literature review.
[9] Liberalization is conceptualized simply as the *relaxation of previous government restrictions or regulations* (Garba et al, 2009). Neoliberal theory is the elaboration of a simple assumption: all human activity is always already a commodity and the best way (leading to the greatest satisfaction possible) is to organize these activities through a market. Some activities are already recognized as commodities (waged labor), but the theorists of neoliberalism argue that much activity that had previously been considered "inalienable"- like child-bearing, health care decisions concerning organ transplants, learning and research, voting, and artistic

However, for many decades after the classical era, interest in economic growth lapsed, concern for economic development of the third world countries emerged. The debates appeared to have started sharply following the Great Depression, the Keynesian revolution and the emergence in the post-war era of concern with economic development of these societies which have been failing to grow for long. Their sub-optimal operational levels and the tendency of low level equilibrium trap called for a more decisive approach. Thus, the interventionist role of the state was considered vital to the achievement of their economic stability, employment growth and output expansion. This lasted from the 1940s to the 1960s. Proponents of the interventionist role of the state include Rosenstein-Rodan (1943), Prebisch (1950), Singer (1950), Nurkes (1953), Scitovsky (1954) and Myrdal (1957), among others.

As alluded above, between the period 1945 and late 1970s, the dominant theory of employment determination was Keynesian which maintains that the level of economic activity is determined by the level of aggregate demand. Additionally, Keynesians maintain that capitalist economies are subject to periodic weakness in the aggregate demand generation process, resulting in unemployment. Occasionally, this weakness can be severe and produce economic depressions as exemplified by the Great Depression. In such a world, monetary and fiscal policy can stabilize the demand generation process (Palley, 2004).

With regard to income distribution, the post-Keynesians, widely associated with Cambridge, U.K., as against the American Keynesian known as neo-Keynesian (who tend to accept the neoliberal "paid what you are worth" theory of income distribution), argue that income distribution depends significantly on institutional factors. Thus, not only do a factor's relative scarcity and productivity matter, but so

---

work are really actions that are (in a hidden way) and should be considered as of income-bearing activities. The Good, the Just, the Beautiful and every other capitalized ideal become, in the neoliberal gaze, the many veiled form of the Commodity (Caffentzis, 2002).

too does its bargaining power, which is impacted by institutional arrangements (Palley, 1996). This explains the significance of trade unions, laws governing minimum wages, employee rights at work, and systems of social protection such as unemployment insurance. Finally, public understandings of the economy also matter, since a public that views the economy through a bargaining power lens will have greater political sympathies for trade unions and institutions of social protection.

Keynesianism constituted the dominant paradigm for understanding the determination of economic activity. This was the era in which modern tools of monetary policy (control of interest rates) and fiscal policy (control of government spending and taxes) were developed. It was also a period in which union coverage rose to historical highs and "New Deal" style institutions of social protection and regulation were expanded (Palley, 1998).

However, in the mid-1970s the Keynesian impulse went into reverse, to be replaced by neo-liberalism. This reversal was occasioned by the social and economic dislocations associated with the Vietnam War era and the OPEC oil price shocks, which dominated the 1970s. However, these dislocations only provided an entry point. The ultimate spark of neoliberal dynamism is to be found in the intellectual divisions of Keynesianism and its failure to develop public understandings of the economy that could compete with the neoliberal rhetoric of "free markets."(Palley, 2004).

For African countries, the oil price shocks, the collapse in commodity price and the eventual growth in indebtedness, the inability of government to sustain financing of growing demand for basic infrastructure, the growth of public consumption enabled by the available petro-dollar to finance imports which resulted in the decline of the industrial sector (in the case of Nigeria), jointly provided a fertile ground for the resurgence of neo-liberalism. From the late 1970s, liberalization has been the

dominant philosophy and ideology shaping national and international financial games since the collapse of the Gold Standard in 1971. Economic liberalism has strong foundations in economic thought and policy and it takes pride of place as the orthodox economic thought. Indeed, economic liberalism is, arguably, the pillar of much of the national economic policies and, the thought driving the process of global economic engagement in the last four decades (Garba et al, 2009). It has been thrust on developing economies with a force of "there is no alternative"(TINA)[10]

This epitomized in the adoption of the programme of structural adjustment,[11] a consensus policy prescription of the World Bank and the International Monetary Fund (IMF), coined the "Washington Consensus". On the term the "Washington Consensus", the inventor, John Williamson, argued that the set of policy reforms which most of official Washington thought would be good for economic reform in developing countries are summarized in 10 propositions (Williamson, 1990):

- Fiscal discipline
- A redirection of public expenditure priorities toward fields offering both high economic returns and the potential to improve income distribution, such as primary health care, primary education, and infrastructure
- Tax reform (to lower marginal rates and broaden the tax base)
- Interest rate liberalization
- A competitive exchange rate
- Trade liberalization
- Liberalization of inflows of foreign direct investment
- Privatization
- Deregulation (to abolish barriers to entry and exit)
- Secure property rights

In other words, economic liberalization is a set of policies and institutional changes comprising financial liberalisation (FL), trade liberalization (TL), privatization (P), exchange rate liberalization (XRL), capital account liberalization (CAL) and more

[10] The conservative government of Margaret Tharcher of Britain, defended the neoliberal prescription with the option of "there is no alternative". See Munck (2003)

[11] SAP was requirements placed of developing countries for accessing external loans from the World Bank and the IMF. "The loans were the embodiment of the new ideological consensus that had been building for some time among economists and governments in the industrial countries, together with the international finance institutions. That consensus stressed the value of liberalization and privatization; the loans were a mechanism for bringing them about." (Barbara Stallings, 1992)

liberal laws (MLL) that relax entry and exit conditions and grants equal rights and opportunities to national and international economic agents (Garba,et al 2009) .

EL = {FL, TL, P, XRL, CAL, MLL}

Thus, other forms of liberalizations, such as political liberalization, which has to do with Western advocacy for democratic system of government, are only complementary to economic liberalization with financial reforms forming the nucleus of economic liberalization (Garba, ibid). However, the outcomes of neoliberal policy prescriptions and the countervailing response of its proponents have brought to fore two important fallacies – fallacy of development outcomes and fallacy of policy prescription.

i. **THE FALLACY OF DEVELOPMENT OUTCOMES:** From the Structural Adjustment Programs of the mid-1980s to the mid-1990s, to the Heavily Indebted Poor Country (HIPC) and Poverty Reduction Strategy Papers initiatives of the late 1990s and the early 21st century, each of the neoliberal "solutions" have only produced failures.[12] As observed by Garba et al (2009), the disastrous outcomes associated with episodes of a deepening or a widening of liberalism is strong evidence that the theoretical claims of economic liberalism is not a secure foundation for finding solutions to the concrete problems of today. The claims are invalidated by weaknesses of assumptions but also, ethical commitments that glorifies greed, selfishness, hedonism and individualism even at the expense of social cohesion and progression.

[12] These failures have only left countries like Nigeria and its people in a more pauperized state in terms of the indices of the quality of life (from falling longevity, collapse of wages to increasing illiteracy) as well as in terms of the pure economic variables. For example, report of *African Agenda* (2000) observed that "*the most basic index of well-being is life itself – how many years a human can expect to live ....while other regions' life expectancy is improving, the average sub-Saharan African expect to live 14 years less than someone in the next poorest region, south Asia –and 30 years less than someone in the industrialized world"*

Although the global economy has expanded rapidly in the 1990s, it has been followed by deepened poverty, income inequality and economic regression in most countries in the sub-Saharan Africa, Latin America and South Asia.

One stylized fact about the neoliberal policy prescription from the experience of the global economy is the growing independence of the financial sector from the real economy. Finance is gradually becoming less complementary to real activities. In the current phase, financial flows are becoming less associated with the flows of real resources and long-term productive investments (Singh, 1999 and Garba et al, 2009). Some weekly financial transactions are in values of annual GDP made possible by trading in stocks, derivatives, options, futures and swaps. To this extent, it is now possible to witness growth in the financial sector of an economy yet with such growth having no effect on the real sector of the economy.

ii. **FALLACY OF POLICY PRESCRIPTION:** Again as observed, failure is all that has accompanied the adoption of liberalization tenets and this has not been limited to the developing countries as advanced economies have equally suffered a number of crises with multinational implications[13]. The response of government of the United States, Britain, Germany, France and other leading members of G7 to the crisis and bankruptcies of major firms is what has brought the fallacy of the policy prescription to the fore. Instead of allowing the market to sort itself out of the crisis and re-establish itself on the path of recovery toward equilibrium (*ala* philosophy of market mechanism), what we saw was massive and directed intervention by the governments to rescue their firms from total collapse. In other words,

[13] See Garba et al (2009) on list of seven major crises that have accompanied liberalization

> ***"instead of fiscal austerity and its attendant GDP deflation, the G7 governments implemented very large stimulus packages to avoid GDP deflation and growing unemployment; instead of allowing distressed financial organizations to collapse as they prescribed to developing and emerging countries in crisis, the US and UK governments and their allies bailed out their big banks and, instead of privatization of government businesses, the G7 governments nationalized and acquired stakes in private banks and firms at great costs to their taxpayers." (Garba et al 2009).***

In fully subscribing to the view of Garba, et al (2009), developing countries are more vulnerable to financial crisis, pay far more costs and for much longer time than developed countries. Many countries including Nigeria have not fully recovered from the financial crisis linked to the debt crisis of 1982. The experience of the crash in the Nigerian stock market are veritable lessons to be drawn. In addition, many including Nigeria do not meet the conditions for benefiting effectively from financial liberalization It is, therefore, unwise for government and financial regulators to embrace these neo-liberal policy prescription regardless of the state of the economy or of existence of generally accepted institutional preconditions for financial liberalization. There are alternatives to neo-liberalism[14] even as some of its apologists have suggested and the salient policy actions that condition the economic successes of fast-growing East-Asia Economies (Rodik, 2002; Munck, 2000; Stalling, 1992; and Mkandawire, 1998).

2.2: Theoretical Literature

The discourse on the relative importance of finance or, more generally, capital accumulation to economic development, though with varying perspectives and transmission process, has, nevertheless, produced some form of consensus that finance plays a critical role in economic growth and development. The potentially

[14] See Bade Onimode (2000) and Eskor Toyo (2001)

vital contribution of financial intermediation to economic development has long been recognized in the works of economists like Schumpeter, Cameron, Harrod and Domar, among others. In particular, the Stanford school whose leading proponents' works includes Gurley and Shaw (1955), Shaw (1973), Mckinnon (1973) and Gurley (1980), and supported by other works like those of Patrick (1966) and Fry (1980), emphasizes the importance of finance as a key determinant of economic development. In other words, the point is that private investment is positively related to the accumulation of real money balances. To stimulate investment, entrepreneurs, particularly in developing countries, need to accumulate real money balances before undertaking investment project given their limited access to credit and equity markets. Thus, finance, be it self-financing or debt-financing, is indispensable in any investment activity.

2.2.1: Finance and Growth: Mainstream Views

In modern economies finance underpins virtually every economic transaction that takes place. When we go to the supermarket, we usually pay using cash (owing to the cash-based nature of our economy), but now with increasing use of credit and debit cards issued by commercial banks (or the supermarkets themselves). The banking system, which include commercial banks as well as the central bank (e.g. the Central Bank of Nigeria), provide the payments system that make economic exchange possible. It is hard to imagine what economies would look like without 'money'– broadly defined as anything that is generally used in exchange for goods and services and the settlement of debt. Besides providing the means of payment, which underpins all economic transactions, the financial system provides a link between current and future output and consumption. When we borrow from a bank to buy a car, we are essentially bringing forward consumption against future income. This is made possible because financial intermediaries like banks, raise funds from surplus units (those economic agents whose income is greater than their current expenditure) and pass them on as loans to deficit units (those economic agents whose income is less than their current expenditure). Without the financial

system, which facilitates such inter-temporal transfer of resources, all consumption would have to be financed from current income. Similarly, firms would not be able to raise capital to finance investment in plant and equipment unless they already had accumulated enough profits in previous years. Many profitable, socially beneficial, investment opportunities–for example, the creation of new firms and innovation – would simply not take place (Demetriades and Andrianova, 2003).

Since the financial system is at the core of modern economies, the proposition that finance is essential for economic growth – the change in output from one year to the next – cannot be over emphasized and that is why financial considerations have continued to dominate the field of production. There are good reasons for the very large and growing body of academic literature that discusses the (seemingly rather obvious) relationship between finance and growth. The main reason can be traced back to pre-1970s economics literature, which, by and large, takes finance for granted (Modigliani and Miller, 1958 and Tobin, 1965). Traditional 'neoclassical' economics does not explicitly address the role of finance in consumption or investment decisions. It implicitly assumes that finance is 'neutral'; that is to say it does not make any difference whatsoever to economic decision making.[15]

In static models of consumption (i.e. models where time is not explicitly analyzed), households choose the bundle of goods and services that maximizes their utility subject to a single-period income constraint, without any explicit reference to the payments system (Dornbusch et al, 2004). Similarly, in this type of models, firms maximize profit by choosing the optimal level of inputs and output, again without any explicit reference to money or finance. By their very nature, such models are not capable of addressing the role of money and finance, since money and finance are both linked to inter-temporal decision-making. However, even when inter-temporal models are used to analyze consumption and investment decisions over time, the traditional neoclassical approach has been to treat money and finance in a

[15] See, for example, the 'Modigliani-Miller Theorem' which states that the capital structure of the firm is irrelevant.

superficial manner, usually by assuming–often implicitly–that there is a 'perfect capital market', in which economic agents can borrow or lend as much as they wish to maximize their respective objective functions (Demetriades and Andrianova, 2003 and Trew, 2006). In practice, this assumption translates into having a single interest rate that is used to discount to the present all future income or expenditure streams.

As earlier mentioned, the theoretical underpinnings of the relation between financial development and economic growth can be traced back to the writings of Schumpeter in the early 1900s. Schumpeter argued that the services provided by financial intermediaries were essential for efficient allocations of savings, technological progress and economic development. Since the early 1970s there has been a rapidly growing body of theoretical and empirical literature applicable to the field of finance and growth. Early but influential empirical studies that support the positive correlation between finance and economic growth include Parish (1953) where he states "*it is no wonder that industrial development is to no mean extent limited by the availability of finance where finance is defined as the provision of funds at the time it is needed",* Patrick (1966), Goldsmith (1969), McKinnon (1973) and Shaw (1973).

Patrick (1966) specifically looked into the causal relationship between financial development and economic growth. He identified two possible patterns of causality – ***demand-following*** and ***supply-leading***. In the demand-following pattern, economic growth induces the financial system to expand and finance adapt rather passively to developments in the real economy. In the supply-leading pattern, the financial sector growth precedes and induces real growth, actively assuming the role of channeling scarce resources from savers to investors according to the relative rates of return. Supply-leading finance is here seen as presenting an opportunity to induce real growth by proactive financial means. He equally did assert that the direction of causality changes over time, and that is, proactive financial development could induce real innovative investment before sustained "modern" economic growth could get underway, and "*as the process of real growth occurs, the*

supply-leading impetus gradually becomes less important, and demand-following financial response becomes dominants". Worthy of note from this is that any empirical work on finance and growth must be concerned with the resolution of the problem of causality.[16]

The works of Mckinnon (1973) and Shaw (1973) spur renewed interest by posing fresh challenges in this thinking, not only reviving but equally intensifying the debate on the role of finance and the financial system in economic development. In their submission, the functions of finance in the saving-investment process are underlined as being an effective conduit for;

i. the mobilization and allocation of capital;
ii. the transformation and distribution of risk and maturities.

Financial intermediaries and financial market operations are assumed to play a role of not only mobilizing investible resources but also ensuring the mot efficient transformation of mobilized funds into real productive capital. Nissanke (1991) argued that through diversification of investment and access to greater information, financial institutions are able to intermediate risk and transform maturity of portfolios between savers and investors most efficiently.[17] Thus, economic growth is seen as being associated with the expanding size and increasing complexity of the financial structure. Policies affecting the financial system and structure are, therefore, perceived as having substantial effects on the ace as well as the direction of development. In other words, as Galbis (1977) submits, "*it may well be that financial development is a pre-requisite, if not a major determinant, of the take-off into self-sustained growth*".

Tobin (1965) reiterating the neo-classical view where money is seen as a substitute for physical capital and productive investment (and real money balances as

[16] More on causality is discussed below.
[17] The role of information in the finance-economic growth relationship is referred to in more detail in section 2.23 of this chapter.

substitutes for physical assets in wealth holders' portfolio), suggested that the holding of financial assets by households could be inimical to growth. This contention was based on the premise that an increase in households' holdings of financial assets is wealth-reducing because it crowds out productive physical capital from their portfolios. Therefore, reducing the real returns on financial assets would encourage households to hold productive physical capital, thereby accelerating economic growth.

McKinnon (1973) contested this view point by developing a model of an economy with underdeveloped financial market. His work emphasizes the complementarity between monetary or financial assets and physical capital accumulation. The complementarity hypothesis is rested on two key assumptions;

i. All economic units are confined to self-finance; and
ii. Due to indivisibilities, investment requires the prior accumulation of money balances.

In other words, investors in an underdeveloped economy have limited access to external finance such that self-finance is, therefore, prevalent. And because investment expenditures are lumpier than consumption expenditures, potential investors must first accumulate financial assets before investing in physical assets/capital. In that case, financial and physical capital could be viewed as complements, not substitutes, and the more attractive financial assets are, the greater the incentive to invest. If returns on financial assets are deliberately kept low, households are discouraged from holding them and the process of capital accumulation is inhibited.

Shaw (1973) on his part underlined the benefits of an efficient and well-functioning financial system. In his argument, when interest rates are allowed to find their equilibrium levels, financial intermediaries can use their expertise to allocate efficiently the larger volume of investible funds. That is to say higher deposit rates

increase financial savings and expand the role of financial institutions in intermediating funds between savers and investors.

The main policy implication of what has become known as the 'McKinnon-Shaw Paradigm' is that government restrictions on the banking sector (such as high reserve requirements, selective credit allocation and interest rate ceilings) reduces financial development and hence, growth. It then follows that financial policies that kept returns low tend to retard economic growth through their negative impact on the accumulation of financial assets and their complements, physical capital. The development of the financial system, through reforms or removal of restrictions (liberalization) on the markets, thus, increases the incentive to save and raises the volume and efficiency of investment hence accelerating economic growth. In other words as McKinnon (1973) posits, the more attractive the processes of accumulation of money (such as higher real deposit rate of interest), the greater the incentive to invest. Here, deposits serve as channel for capital accumulation.

Subsequent theoretical and empirical literature on the links between financial development and growth is extensive. A very useful survey of the literature and the main issues is to be found in Levine (1997). A more recent survey is to be found in Trew (2006).

2.2.2: Finance and Growth: Non-Mainstream Views

Simon (2002) identified, essentially, three ways in which financial intermediaries may have a positive impact on economic growth. First is through funneling of savings into investment. Secondly, it may increase the marginal productivity of capital. Thirdly, it can increase the private saving rate and therefore long-term growth. An early interpretation of these mechanisms is to be found in. Hick's 'A Theory of Economic History' (1969). In short, Hicks argued that financial intermediaries that allowed for risk diversification and improved liquidity were crucial causes for the Industrial Revolution in England. The technology applied in

the Industrial Revolution had been known for long. However, development and application of these innovations required long-term commitment of capital. This could not have been undertaken unless financial intermediaries had made these investments more liquid. More recent useful interpretations of the mechanisms are to be found in Bencivenga *et al*. (1995) and Pagano (1993). The operations of these mechanisms, as summarized by Simon (2002), are as follow.

i. Funneling of savings to investment:

By connecting saving agents with investors, financial intermediaries facilitate the funneling of savings to investments. In this process, however, financial intermediaries absorb resources such that investment is less than actual saving. These leakages arise from fees, brokerage commissions and other expenses associated with financial transactions. Notably, transaction fees are the reward to financial intermediaries for a service provided. However, they also reflect X-inefficiencies and imperfect competition within the sector. Typical X-inefficiencies include transaction tax and high reserve requirements. The more efficient the financial market, the less the leakages and consequently, the greater the proportions of savings funneled into investments leading to economic growth.

ii. Efficient capital allocation:

Financial intermediaries enable agents to share risk. Through portfolio diversification, the securities market enable investors to share the otherwise uninsurable risk of idiosyncratic risks. In the absence of banks and securities markets, agents can only insure against idiosyncratic liquidity shocks by investing in assets that can be liquidated quickly. This is potentially inefficient because money is not necessarily invested in projects with high productivity. Instead investment decisions will be determined by the degree of liquidity of the project. In the presence of stock markets on the other hand, agents can buffer idiosyncratic liquidity shocks by selling shares. Through portfolio diversification it is therefore possible to hedge against rate of return risk. Consequently, there is greater

willingness to invest in less liquid (but potentially more productive) projects. An alternative interpretation is that firms can increase production by specializing. However, specialization increases the risk arising from sector demand and supply shocks. If this risk can be shared on the stock market, specialization can be implemented which will increase productivity and therefore growth. Yet another interpretation is provided by Greenwood and Smith (1997) who argue that specialization requires more transactions. Because each transaction is associated with a cost, financial intermediaries that lower transaction costs will facilitate specialization. Some literatures (as cited in the next subsection) have also emphasized the importance of information and management control in improving the allocation of capital. Financial intermediaries tend to have substantial research facilities and arguably greater insight into the market than individual investors. Consequently, these institutions can successfully exploit shocks to the market and invest savings in industries with higher marginal productivity.

iii. Effect on savings:

The relation between financial markets and savings is theoretically ambiguous and will depend on the agent's attitude to risk. More specifically, if the agent has a utility function with a positive third derivative, then introducing an insurance market will reduce precautionary savings. Similarly, if endowment risk is shared on international capital markets, there will be less precautionary savings. On the other hand, as highlighted by Jacobson *et al*. (1998), development of financial markets may increase the rate of return to savings and therefore boost saving itself. Although the effect on saving is theoretically ambiguous there is empirical evidence indicating that as financial markets are expanded, the level of savings tends to fall. Lindh and Lindström (1997) investigate structural breaks in the financial sector of the seven largest OECD nations and find that breaks typically coincide with downturns in savings. Lindh (2000) studies US data covering the period 1929 to 1996 and found that financial sector expansion seems associated with a decrease in the savings rate.

2.2.2.1: The role of information

In the neoclassical theory of investment, the source of finance does not matter in determining the level of investment; bank loans, bonds, retained earnings, stock issues all have the same cost. Similarly, neoclassical consumer theory assumes that households face no borrowing constraints, i.e. they can borrow or lend as much as they like at the same interest rate. However, it is common knowledge that there are a multiple of interest rates on the market, when we wish to borrow (or lend), and that searching to find the best rate does take time. Sometimes when we think we have found the best rate, we fill in all the necessary application forms, the lender may well decide to decline the application. Meanwhile, we have incurred substantial transaction costs in terms of both the fees we may have paid and the time we have wasted. This could be taken as a rather superficial criticism of neoclassical consumer theory as the conclusions of the model may not be fundamentally altered even if we explicitly allow for transaction costs. Thus to ignore them may be an acceptable simplification.

However, a more fundamental criticism is that allocation decisions themselves may change when we relax the assumption of perfect capital markets. If a consumer is refused credit, then his consumption decision may well change; for example, he may not buy the car he intended to, which, has implications for the firm that produces cars. Similarly, if a firm cannot raise capital, an investment opportunity may go unexploited. Or it may be exploited by a competitor in a different economic environment, so that even if the firm was to 'save-up' to carry out this investment, by the time it is able to do so, the project may no longer be profitable. Thus, finance may well 'matter' in a very fundamental sense. This can have profound implications, not only in terms of explaining why some countries grow faster than others but also in terms of the validity of some of the most fundamental axioms of mainstream (neoclassical) economics, on which many generations of economic students have been educated. For example, the so-called 'First Theorem of Welfare Economics', which states that the 'competitive economy is Pareto-efficient' (that is to

say no one could be made better off without making someone else worse off), is derived from a model that has no role for money and no role for finance.[18]

Once we relax the assumption of 'perfect capital markets', many interesting questions arise, including what the sources and implications of financial market imperfections might be. Transaction cost is one of such imperfection. We have also touched upon what may be at the root of transaction costs when we said that it takes time for consumers to find out about the various interest rates on the market. The key to understanding finance–banks, capital markets, money, prudential regulation of financial markets and institutions is indeed the understanding of the information problems that are associated with financial decision making by firms, households and financial institutions.

In the last 3 decades or so, a very large body of literature has emerged on the economics of information, much of which specifically focuses on finance (Stiglitz and Weiss, 1981). Take, for example, the information problems associated with borrowing and lending decisions.[19] Information is usually distributed asymmetrically (i.e. shared unequally) between borrowers and lenders. This gives rise to two problems: **adverse selection and moral hazard**. Adverse selection occurs before a transaction takes place and in the case of loans it refers to the selection of bad credit risks. Moral hazard occurs after a loan is granted and refers to the incentive of the borrower to act in a way that is not acceptable to the lender (if they knew about it), typically taking on excessive risk since this increases the probability of default. Between them, adverse selection and moral hazard, can explain much of what we see in the financial system and can also provide a justification for some forms of government intervention, such as prudential regulation and supervision of financial institutions. They can also explain why banks exist in the first place. In a

[18] The first theorem of welfare economics is the 20th century analogue of Adam Smith's 'invisible hand': the notion that free markets will achieve a socially optimal outcome if left to their own devices.

[19] One of the most important earlier applications to finance is the work by Stiglitz and Weiss (1981) which explains how adverse selection in the credit market can result in a arbitrary rationing of credit among identical borrowers.

nutshell, banks can be efficient forms of organization able to address the adverse selection and moral hazard problems in the credit market, mainly through screening and monitoring of potential borrowers. Information problems are also at the heart of theoretical models that try to explain the relationship between finance and growth (e.g. Bencivenga and Smith, 2000).

Once it is accepted that what goes on in financial markets can make a difference to economic decision making and, consequently, to the allocation of resources, then an in-depth study of various aspects of the relationship between finance and growth begins to make a lot of sense. Different types of finance, by addressing information problems in different ways, can result in differences in both the volume and pattern of investment (e.g. those with short-term payoffs versus those with long-term payoffs), as well as the productivity of physical and human capital (Demetriades and Adrianova, 2003). In any realistic economic development model, these are important channels of economic growth.

Again, it also becomes legitimate to study government policies towards the financial system. Should, for example, governments own banks, should they provide central banking services, should they control capital flows or even interest rates, should they stipulate capital or reserve requirements for banks, should they regulate stock markets, and, if so, how, etc. Since information problems are at the heart of financial decision making, it is also not unreasonable to argue that the relationship between finance and growth may in part depend on how successfully the financial system manages to address information problems. Thus, it may not be out of place to say that an economy with a well-functioning financial system that manages to address the variety of adverse selection and moral hazard problems adequately is likely to enjoy high rates of investment, and to have a highly productive capital stock. Yet it is true that an economy with a financial system that fails to effectively address information problems is likely to exhibit high levels of uncertainty, low and unproductive investment and low growth, as well as financial instability.

2.2.2.2: The role of demography

Early works more specifically linking demography to other financial assets was carried out by Yoo (1994a and 1994b). There are very different interpretations as to how much demography and age structure have on asset prices and returns. No one disputes that demography does have some impact, but how much is still an open question.

Historically, demography has played a very important role in economic writing as evident in the works by e.g. Malthus and Smith. However, only more recently have there been more systematic attempts to empirically investigate the impact of demography on macro economic variables such as inflation, interest rate and GDP growth (Bloom et al, 1999). Such variables have, of course, a fundamental impact also on financial markets. A number of literatures tend to focus either on demography and macroeconomics, or on a specific age cohort and its impact on financial assets through saving over the life-cycle (Higgins, 1998).

There are a number of mechanisms through which demography could theoretically influence inflation (and the interest rate). The main mechanisms can briefly be summarized as follow:

(i) Within a traditional IS-LM framework, a change of the saving rate, induced by, for example, the age structure, would shift the IS-curve and consequently influence both aggregate demand and price-level.

(ii) Within a Human Capital model, labour quality may improve with age consequently shifting the AS-curve and thereby reducing inflationary pressure.

(iii) Within Solow's framework of economic growth, demography will affect the steady state capital-labour ratio and the productivity of the economy (which could reduce inflationary pressure).

(iv) An older generation is likely to generate more government expenditure (but less tax revenue) that will affect the budget deficit

(v) An age-induced change in the savings rate can also have an impact on the current account such that the domestic price-level is influenced. Higgins and Williamson (1997) and Higgins (1998) investigated the effect of youth-dependency on international capital flows and the current account.

(vi) An alternative mechanism proposed by Lindh and Malmberg (2000b) is that the age composition may influence the structure and policies of Trade Unions.

(vii) Given varying risk aversion over the life cycle, demography may influence the portfolio choice and the velocity of money. Again this may have implications on the inflation.

Much of the work on the links between demography and growth has been done in the context of development economics. The literature since the late 1950s can roughly be divided into the views of the 'population pessimists' (that could otherwise be referred to as neo-Malthusians) and the 'population optimists' (or the Smithonians). The Pessimists argue that high youth dependency ratios in many developing countries reduce capital accumulation and consequently, slow technological progress and economic growth. The Optimists emphasize how a growing population may enable a country to capture economies of scale and also promote technological and institutional reform (notably education). Most of the more recent literature, however, emphasizes how the impact of demography on growth varies across the cycle of demographic transition. The demographic transition causes a bulge into the population pyramid. Over time this bulge will move, from being concentrated among the young, to the prime workers and then to the old. Importantly, the young and the old consume more than they generate which reduces output per capita. Population growth therefore has a purely transitional effect on economic growth and what matters is the population structure rather than the absolute levels of each cohort. There is a two-way causality between economic growth and demographic transition. Consequently, it is possible to have a policy induced change of economic or demographic variables that can promote a

virtuous cycle of cumulative causation in which demography and economics interact in a mutually reinforcing way. By the same logic it is possible to have persistent poverty traps that have been notorious in, for instance, many parts of Africa and South Asia.

There are various explanations to why a large working age cohort may improve growth. First, this age group saves more causing capital accumulation. Secondly, growth of the working age population may stimulate greater division of labour and technological progress through R&D expenditure.

Recent research often subdivides the population to get a better understanding of what segment of the labour force that has the most positive impact on growth (Miles, 1999; Bloom and Sachs, 1998a; Bloom et al, 1999; and Lindh and Malmberg, 2000c) Research indicates that the proportion of the population aged 50 to 64 years contributes the most to growth. Two main explanations have been proposed to this observation.

i. Firstly, it is possible that the accumulated human capital of this age group may improve productivity.
ii. Secondly, this age cohort tends to be less mobile than younger workers. Perhaps paradoxically, this may have a positive impact on productivity as workers become more efficient by 'learning by doing' as companies dare trusting older worker with long-term productive projects.

In two empirical studies, Bloom *et al*. (1998a and 1999) finds that demographic transition contributed substantially to the 'economic miracle' of East Asia. Very high growth rates in the period of 1965 to 1990 can partly be explained by the fact that the working age population grew much faster than the dependent population. Bloom and Williamson (1998a) estimate that population dynamics account for as much as 1/3 of the observed GDP growth per capita in the period. This suggests that population dynamics may have been the single most important determinant of

economic growth in East Asia between 1965 and 1990. Moreover, there is a strong correlation between life expectancy and growth. One explanation to this is that higher life expectancy improves the incentive to save for old age that in turn increases capital accumulation.

2.2.2.3: The role of culture

It is a fact that the empirical literature on the determinants of economic development has progressively tested the significance of the impact on growth of several factors different from the traditional production inputs. Some of these include; human capital (Mankiw-Romer-Weil, 1992), the government sector (Hall-Jones, 1997), social and political stability (Alesina-Perotti, 1994), corruption (Mauro, 1995),[20] social capital (Knack-Keefer, 1997), and income inequality (Perotti, 1996).

However, while these works often claims the importance of looking at institutions and at "deep fundamentals" in order to understand the roots of economic growth, the relationship between cultural heritage from religious beliefs, institution building and economic development has not been thoroughly explored. There are only a few woks such as those of Iannaccone (1998) that focuses on the Weberian hypothesis which postulates a positive relationship between protestant ethics and growth, and that of Landes (1998) which observed that cultural factors contribute to explain differences in human capital accumulation and in rates of economic development.

It is reasonable to assume that "deep fundamentals", such as cultural *ethos* or religious beliefs, have an impact on growth not only directly, but also by shaping and ordering the set of values which crucially influence institution building and individual behaviours and, through them, the "wealth of nations".[21]

[20] In addition to Mauro (1995), there are a number of other works on the impact of corruption on economic development. However, these works treated corruption as a factor isolated from what could be considered an emerging value system.

[21] Even here, we are not unmindful of emerging values that may have no histo-traditional basis but fundamentally assuming a character of a culture and technically sanctioned by governmental system. Corruption and abuse of contractual obligation is one such value system.

The Weberian hypothesis which is informed by the observation that the protestant Reformation divided Europe in two different areas with different standards for productive effort, contractual dealings and accumulation of capital, provides the basis for most analysis on religion and economic development. This hypothesis postulates that Protestantism gives relatively higher social value to entrepreneurship and to the accumulation of "productive" human capital. For this, gifted individuals in protestant societies invested more in human capital and directed it more toward productive activities.

The rationale for the Weberian hypothesis is rooted in the theological differences between catholic and protestant creed. In the protestant (calvinist) *ethos* in fact, wealth is often regarded as a sign of "predestination" by God. On the contrary, the catholic *ethos* remains much more related in the past to the idea that God's providence is what matters and that wealth accumulation is a sign of greed, and of wrong ranking of values (Begalla *et* al, 2001).

One of the most insightful syntheses of the Weberian hypothesis is from Marshall (1982) who advocates that "protestant asceticism (according to Max Weber) restricted consumption of luxuries and prohibited spontaneous enjoyment of the world. On the other hand, it insisted upon relentless efforts in one's lawful vocation as the duty of all Christians. This unique combination, Weber felt, was almost certain, ceteris paribus, to lead to the accumulation and reinvestment of capital by those involved in business activities. Thus, through the entirely unintended consequences of the double injunction to diligence in lawful callings and asceticism in the world, ascetic Protestantism created the modern capitalist mentality".

Three main deductions from the Weberian hypothesis are;

i. The protestant ethics laid the ground for a stronger defence of property rights;

ii. The higher social value of entrepreneurial risk taking in protestant societies, emphasized by Weber, is at the root of the relatively higher development of financial markets in which people can share risk inter-temporally or cross-sectionally; and

iii. The higher value of individual responsibility has led to a higher emphasis on economic freedom and to a limitation of the role of the state in financial and non-financial markets.

Blum and Dudley (2001) argued that higher respect of contractual obligations in protestant societies may be the result of the higher costs of defection from contractual relationships in protestant societies.[22] For Catholics this cost is low because it is always possible to obtain pardon with the intermediation of a Priest. For a Calvinist, or for believers of other ascetic protestant denominations influenced by Calvinism, there is not such intermediation and defection weakens the belief in one's own predestination.

In the light of the above premise, we can argue that religious belief - and the cultural environment generated by them – is likely to affect not only individual behaviour, but also to shape the institutional framework in which decisions are taken.

The works by Begalla, Bechetti and Ciaizza (2001) analyses the effects of religious background on institutions on an enlarged set of countries and evaluates the comparative impact of three religious environments (Catholicism, Protestantism and Islam) on institution building and pace of economic progress. It verifies whether the different development of financial and non-financial institutions affects the relationship between them (i.e. the three religious environments) and growth.

A significant empirical finding in Begalla *et* al (2001) is that the effect of financial institutions on growth is positive when considered in protestant and catholic

[22] The cost of defection is here defined as pronounced laws that frown at and punishes contracts violators or defectors.

countries and insignificant when considered in Muslim countries only. This occurs both in level and growth estimates. Since the latter subgroup has been shown to have a significantly lower level of development of financial institutions, the hypothesis that financial institutions become beneficial only after a given threshold is not rejected by their empirical test.

In summary, the result of their work suggests that the three religious and cultural backgrounds have a strong impact on the way institutions are designed. The reduced role of the state, the higher emphasis on economic freedom and on the stronger defence of legal obligations are shown to be significantly related to the specific cultural background originated by the Reformation and recently assimilated also by Catholic countries. On the contrary, the prohibition of interest charges in Islamic finance, even though not always respected and often circumvented, generates weaker and less efficient banking and financial institutions. By testing the impact of institutions separately for the three religious backgrounds, they find that a positive relationship between finance and growth occurs only in the subgroup (protestant and catholic countries) in which financial institutions are more developed.

Accepting all these potentials for growth promotion through financial intermediation, the adherents of financial reform hypothesis have criticized the widespread recourse, in developing countries, to policies considered repressive to the financial system (e.g. the imposition of ceilings on interest rates accompanied by directed and rationed allocation of credit to 'preferred' sectors at low interest rates). These policies are seen to impede financial development and hence, intercepting and weakening an important set of impulses to faster economic development. It is viewed that most stagnant economies of the Third World suffer from 'shallow' finance and repression accompanied by slow growth of financial assets and structures (Nissanke, 1991 and Popiel, 1994).

It has, however, been observed that experience with financial deregulation in a number of developing countries since the late 1970s and early 1980s has revealed considerable difficulties involved in transiting from 'repression' to 'liberalization'. Nissanke (1991), therefore, submits that "*with varying experience in a number of countries, it is quite clear that the design and management of transition process from 'repression' to 'liberalization' depends heavily on a prior examination of the mechanism of 'financial repression' in the context of the prevailing financial system and economic structure in country specific sense. Leaving financial liberalization to the 'magic' of the market place is fraught with dangers in fragile economies with highly imperfect markets and poor information*".

2.2.2.4: More on Finance and Growth Nexus

As observed by Trew (2006), theoretical models of the finance –growth nexus generally differ along three aspects: (i) the type of endogenous growth; (ii) the finance mechanism; and (iii) the treatment of asymmetric information. Using this structure, the table below, outlines the main features of some of the influential finance and endogenous growth models. What can be clearly observed from the table is that regardless of the source of endogenous growth, the main feature determining growth in most models is some financial constraint on the acquisition of either knowledge via education or technology via entrepreneurship.

Financial intermediation in most models takes the form of a perfectly competitive banking system, while some consider a role for stock market, but only as a choice between mutually exclusive banks and markets (Greenwood and Smith, 1997). Yet others considered both the joint-determination and co-existence of banks and stock markets as determined by state-dependent moral hazard conditions (Blackburn *et al.* 2005). In these models there is feedback from growth in the economy to the determination of optimal financial structure, be it bank based or a mixture of banks and markets. This is to say that as an economy develops, it can afford those financial structures that better facilitate faster growth.

Saint-Paul (1992)'s approach was that of modeling the stock markets, wherein stock markets that facilitate international risk sharing enables specialization in technologies and higher growth. Using a multiple equilibria framework, it therefore means that there is thus a low (high) growth equilibrium associated with low (high) financial development, reflecting the idea of different take-off points for nations. This is in a way concurring the view of Schumpeter (1934) that the financial sector needs to reach "*critical mass*' before advances in financial sophistication will improve growth.

There is the case of treating the financial sector as static (where the nature of relationship between agents and intermediaries does not change endogenously over time) with the degree of efficiency of identifying/ screening/funding/monitoring suitable borrowers determining the costs of financial intermediation and so the level of economic growth. Trew (2006) observed that the static nature of this relationship requires that the level of financial depth remains constant as the economy grows. However, lessons drawn from empirical literature have demonstrated that, at the least, financial depth does change over the course of long period of sustained growth.

Table 1.1: *Core features of some Finance and Growth Models*

Author(s)	Source of endogenous growth	Finance mechanism	Information Problem
BS 91	Production externalities	Insurance market and Entrepreneurship	Exogenous liquidity shock
S92	Production externalities	Capital market	Exogenous productivity Shock
KL93b	Vertical innovation	Entrepreneurship funding, Heterogeneous agents	Adverse selection (screening)
BC96	Production externalities	Contract or screen hetero-geneous entrepreneurs	Adverse selection (ration or screening)
FM96	Horizontal innovation	Funding and monitoring entrepreneurs	Moral hazard (effort aversion)
BH96	Horizontal innovation	Entrepreneurship, project Appraisal, risk diversification	Moral hazard (deceit)
GK98	Human capital accumulation	Credit market *vs* intergovern-mental altruism	None
M03	Vertical innovation and Capital accumulation	Entrepreneurship screening	Moral hazard (effort aversion)
AHM05	Vertical innovation	Entrepreneurship, credit constraints	Moral hazard (deceit)
BBC05	Production externalities and	Entrepreneurship, markets and banks	Adverse selection (moral hazard)

***Notes*: BS91 is Bencivenga and Smith (1991); S91 is Saint-Paul (1992); KL93b is King and Levine (1993b); BC96 is Bose and Cothren (1996); FM96 is de la Funte and Martin (1996); BH98 is Blackburn and Hung (1998); GK98 is de Gregorio and Kim (1998); M03 is Morales (2003); AHM05 is Aghion *et al.* (2005); BBC05 is Blackburn *et al.* (2005).**

Source: Adapted from Trew A. (2006) "Finance and Growth: A Critical Survey", *Economic Record.* Vol. 8 no. 259, pp481 – 490.

A number of papers referred to above (e.g. Aghion *et al,* 2005; Morales, 2003; Blackburn and Hung, 1998; and Blackburn *et al,* 2005; among others) consider some form of entrepreneur who cannot or will not personally fund a project either because it is too large or too risky. In that case, increasing the ease with which entrepreneurs can obtain funds will, thus, increase the rate of technological progress and so the rate of economic growth. Others (e.g. de Gregorio and Kim, 1998)

consider a role for the accumulation of human capital as entering directly into the production function; the efficiency with which this process is facilitated by screening or funding agents thus has an effect on economic growth.

The implications for policy in these models are, in general, limited to advocating liberalized financial markets and efforts to increase the efficiency of banks and markets while providing the institutional support required to diminish the cost of moral hazard and enforce contracts. Again, the review is equally suggesting that greater financial efficiency (be it in providing insurance, pooling resources, screening entrepreneurs or monitoring borrowers) increases the incentive to entrepreneurship or the accumulation of human capital, thus increasing the rate of technological progress and consequently also the growth rate of the economy.
Suffice to say that what is missing in most of these models is a consideration of their quantitative implications. The possibility of the numerical interpretation would have help in three ways;

- It would aid an understanding of the principle mechanics behind most finance and growth theories;
- It would create the potential for testing against data; and
- It would enable the implications of the theory to be placed in an historical context.

The only quantitative lesson that can be sketched from the theory is simply that, *ceteris paribus,* a country with higher financial efficiency, by way of lower information asymmetry or better financial technologies, will have a higher long-run economic growth.

2.3: Financial Policy

A reference to financial repression has always been government policy on maintaining low interest rate, a non-market allocation of credit (selective credit allocation) and the maintenance of high reserve ratio.

It is commonly believed that the theoretical underpinning for low interest rate policy was provided by the popular version of the Keynesian proposition that interest rates should be kept low in order to speed up the accumulation of capital. Recalling Keynes' liquidity preference theory which argues that due to liquidity preferences, the real rate of interest tends to settle at a point higher than the full employment level, resulting in lower income and output. It was, therefore, feared that without ceilings, interest rates would reflect the scarcity of capital generally prevailing in developing countries and float to a level that would make capital formation difficult. This is the basis of Keynesian countervailing policies. In the Keynesian view, saving rates, being dependent mainly on the level of income, could be raised indirectly:- adopting a low interest rate policy would sustain investment and income, leading to higher saving.

Low interest rates were also favoured with the aim of helping small farmers and small scale or cottage industries to access or make use of bank credit for setting up or expanding production, as well as keeping inflation down through lowering the borrowing cost for working and fixed capital (Galbis, 1977 and Khatkhate, 1980) additional reason proffered included the infant industry arguments in favour of protecting and supporting indigenous production (Teriba and kayode *(ed)*, 1977).

The neo-liberal school has maintained, however, that the adoption of low interest rates policy is not limited to these reasons alone but also included 'hidden objectives'. The argument is that a low interest rate policy couple with a selective credit policy and an expansionary policy are indispensable for government seeking to control the allocation of resources in order to implement its programme as well as to finance public sector deficits at low costs (Popiel, 19994). In the words of Fry (1982), "*government deficits are invariably financed by taxing the domestic monetary system in one way or another, a higher proportion of funds from the financial system being transferred to the public sector*"

Interest rates and their structure are of primary importance in the financial markets, as they affect capital movements or savings, investment and consumption decisions. It is generally perceived that interest rate play a crucial role in the transmission of monetary policy and their effects on economic growth (Nnanna, 2004). Prior to 1986, interest rate policy in Nigeria was characterized by government regulation on both deposit and lending rates. Thus, owing to the inflationary situation, real interest rates were for most times negative. Again for reasons earlier adduced for regulation and maintenance of low interest rate, credit allocation was constraint as the system lack sufficient capital to make available to willing investors. Similarly, the surplus spending units were not encouraged to save in way that their savings could be channeled into investment.

With regard to exchange rate, a fixed exchange rate regime was adopted in Nigeria shortly after independence in 1960, with the British Pound Sterling as an anchor for the national currency. With the enactment of Exchange Control Act of 1962, the CBN was vested with the authority to earn and disburse foreign exchange in the country. Following the realignment with the United States dollar and the change from Pound to Naira as well as the resultant devaluation of the currency in 1973, the parity between the naira, the pound sterling and the US dollar was severed, and naira was pegged to a basket of currencies of Nigeria's major trading partners: the United kingdom, the Unite States, Germany, France, Japan, Switzerland and the Netherlands. Between 1977 and 1981, a strict exchange control regime was administered to reduce the pressure on the external sector. This failed to achieve the policy objective and was replaced with a managed exchange rate regime. Following the Economic Stabilization Act of 1982, the exchange rate was realigned and made more flexible in order to stem frivolous demand for foreign exchange. This policy was sustained until 1986 when exchange rate was made to be market driven under the structural adjustment programme.

2.3.1: Financial Reform Policy

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).

In August 1987, all controls on interest rates were removed, while the CBN adopted the policy of fixing only its minimum rediscount rate to indicate the desired direction of interest rate changes. This was modified in 1989, when the CBN issued further directives on the required spread between deposit and lending rates. In 1991, the government prescribed a maximum margin between each bank's average cost of funds and its maximum lending rate. Later, the CBN prescribed saving

deposit rate and maximum lending rate. Partial deregulation was, however, restored in 1992 when financial institutions were only required a specified spread between their average cost of fund and their maximum lending rates. The removal of the maximum lending rate ceiling in 1993 saw interest rate rising to unprecedented levels in sympathy with rising inflation rate which rendered banks' high lending rates negative in real terms. In 1994, indirect interest rate controls were restored. As these and other controls in 1994 and 1995 had negative economic effects, in October 1996, interest rates were totally liberalized. Since then, market determined interest rates have been in operation.

With regard to the exchange rate policy, the reforms under the SAP brought about market-driven rate regime with the introduction of the Second-Tier Foreign Exchange Market (SFEM). It was expected that Naira exchange value will stabilize at a sustainable equilibrium level. What followed SFEM was a regime of failed experiments of administrative management of the exchange rate of the Naira. A continuous depreciation of the Naira exchange rate and declining real exchange rate was observed up till 1990.

A number of exchange rate regimes characterized the exchange rate management from 1987 to 2002. Beginning with the Dutch Auction System (DAS) in April 1987, that regime was replaced by the Autonomous Foreign Exchange Market (AFEM) in 1988. In 1989, it was the Inter-bank Foreign Exchange Market (IFEM), while in 1990, DAS was re-introduced under what was called 'Guided Deregulation' based on a Dual Exchange Rate regime. IFEM regime came on board again n the guided deregulation years of the mid-1990s. However, with the continuous depreciation of the currency, IFEM management was considered a failure, and in place, DAS was re-introduced for the third time in July 2002.

With respect to monetary management, the direct approach constituted the main technique before the introduction of SAP. Between 1986 and 1993, efforts were made

by the authorities to create an enabling environment for the introduction of indirect approach to monetary management. A major action taken as part of the reform was the initial rationalization and eventual elimination of credit ceilings for strong banks. After meeting the initial conditions, monetary management shifted to indirect method in which Open Market Operation (OMO) is the main instrument. The system has, since then, witnessed the development of primary and secondary market for securities to take advantage of the liberalization introduced through the reforms, and the ability of the CBN in managing liquidity in the financial system has been enhanced. Discount houses, banks, and stock brokerage institutions are now very active in the primary and secondary markets for government securities such as treasury bills.

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. Capital market is germane to the flow of funds from surplus spending units to deficits spending units. It provides a mechanism for equity financing of the productive sectors thereby minimizing self-financing by enterprises (Alege and Ogunrinola, 2005). 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.

2.4: Empirical Studies

The more contentious issue in the finance-growth literature has not been whether a positive association exists in the data but the direction of causality between these two variables. Specifically, does financial development cause economic growth or does it simply follow growth generated elsewhere in the economy? Applied

economists approach causality-type questions using the notion of 'Granger causality', which utilizes the concept of statistical predictability. If variable **X** helps predict the future time path of variable **Y**, then it is said that **X** Granger-causes **Y**. Without getting too philosophical, this is of course not quite the same as true causality: if a variable helps predict another variable it does not necessarily mean it causes it. It may well be the case that there is another variable, **Z** that is, the true cause of both **Y** and **X**, but **X** responds more quickly to **Z** than **Y**. Hence Granger-causality may just mean that **X** is a leading indicator of **Y**. Therefore, even if we find that financial development helps predict future economic growth (in the Granger-sense), it does not necessarily follow that it causes it.

However, this need not concern us too much, for the following reason. Conceptually, financial development is, at best, a facilitator of economic growth, rather than its ultimate true cause. Its true cause has to be sought in the real sector: the creation of new ideas, the discovery of natural resources or of alternative ways of using existing resources, product innovation, technological progress etc. Finance is, of course, essential in ensuring that new ideas are translated into new products and services, natural resources are exploited, and that new products and technologies materialize. A well-functioning financial system is one that enables the real economy to fully exploit such new opportunities. Thus, we could interpret Granger-causality from financial development to economic growth as a basic second test that a healthy, well-functioning, financial system must normally be able to pass.

What if we don't find Granger-causality running from financial development to economic growth but we find reverse causality, i.e. from economic growth to financial development? This is not what is usually expected. But financial development is, of course, expected to follow economic growth elsewhere under most circumstances, since when the real economy grows, there should be more savings coming into the financial system, which will allow it to extend new loans etc. It is, however, also expected to lead economic growth, assuming a well-

functioning financial system. Therefore, we would normally expect to see bi-directional causality between finance and growth, sometimes known technically as a feedback relationship.

If there is no Granger causality from finance to growth, a number of factors could be at play. One possibility is that;

(i) Funds are being diverted to non-productive activities due to micro-economic inefficiencies in the banking system. If the banks are not able to solve informational problems very well, because the problems themselves are either very severe or because their screening and monitoring systems are not effective, they may end up financing low quality projects or may avoid funding long-term projects altogether, focusing on projects with shorter-term payoffs.

(ii) An alternative explanation is political interference in the banking system that may channel funds into unproductive projects (e.g. embarking on poorly programmed nuclear or space/satellite project or financing white elephant projects that generate rents for government officials).

(iii) Reverse causality may also indicate fundamental macroeconomic problems, such as a high degree of political or economic uncertainty, including high and unpredictable inflation. Under these circumstances, financial savings may not be channeled into new investment because firms, domestic and foreign, are simply not willing to invest when the future is highly uncertain. Thus, a country's financial savings might be channeled into foreign banks and may well end up financing growth in other countries.

(iv) A final, related but more innocuous, explanation of reverse causality is that the financial system under consideration is either an international or a regional centre of finance, and may therefore have a weak relationship with domestic economic growth (e.g. Hong Kong, London, or New York).

The arguments by Bencinvenga and Smith (1991), Levine (1997) and Saint-Paul (1992) support the view of supply-leading hypothesis proposed by Schumpeter (1934) and Patrick (1966). In addition, most 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.

In furtherance to the above, 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.

A number of empirical studies have been conducted at both cross-country and country-specific levels. For instance, Ogun (1986) using data for 19 selected African countries 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, o its degree of financial development. The author specified and estimated three equations with each accounting for a separate definition of real money balances (M1, M2 and M3).[23] The other variable accounting for the degree of financial development is the ratio of monetary liabilities to nominal GDP. Result obtained indicates 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 other 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

[23] 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.

growth positively correlates with all the variables of real money balances, it negatively correlates with all the three measures of financial development.[24] Even when the countries were grouped into high and low income using a per capita income of US$500, result shows that while measures of real money balances are significant and correctly signed, measures of financial development are insignificant in countries with per capita above US$500. Similarly, in countries with per capita income below US$500, measures of real money balances were found to be significant but insignificant with respect to measures of financial development.

A key implication of Ogun's findings is that the hypothesis that real money balances contribute significantly to productivity appears plausible. This means policies that support the growth of real money balances should be pursued. In other words, inflationary financing should be avoided and price stability ensured. As for the insignificance of variable of financial development, three reasons could be adduced to that;

i. Either there was no significant growth of financial activities (financial growth) over the period under study in the selected countries (meaning, there was no improvement in the shallowness of their financial markets), or
ii. If there was financial development, the intermediation was not growth related (meaning, the intermediation might have not resulted in flow of funds from savings to investment in real sector activities). Or
iii. Because as at 1986, financial reforms had just begun n most African countries. There is, therefore, a possibility of obtaining more improved results after about two decades of experience with reforms.

Demetriades and Hussein (1996), using annual data from 1965 to 1992 for a number of Asian countries, found that only in the case of Sri Lanka did the evidence support the financial –led growth hypothesis. For Pakistan, the result indicates that

[24] The three measures are M1/GDP, M2/GDP and M3/GD. See note 28.

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.

Using data of seven (7) Asian developing countries, Habibullah's (1999) results suggest that only the Philippines' data support the financial-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. Similarly, the works of Caldaron and Liu (2003) on 109 developing and developed countries, and 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. Earlier 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).

Another important cross-country empirical work is that of Rousseau and Wachtel (2005) who examined the relationship between economic growth and finance depth in 84 countries with the view to identify whether or not there has been a change in the relationship between the two over the period 1960 – 2003. Their work was informed by both the pessimists [e.g. Robinson 1952 and Lucas, 1988], optimists [e.g. King and Levine, 1993; Levine, 1997 and 2004] and cautious [e.g. Arestis, Demetriades, Temple (1999) and many more] view on the finance-growth relationship. Their findings indicate recent data relative to the original data for the period from 1960 to 1989 show no strong relationship between finance and growth. They adduce two possible reasons for this;

i. Financial *depth* may have had greater value as shock absorber in the 1970s and 1980s decades characterized by worldwide nominal shocks;

ii. The spread of financial liberalization in the 1980s may have led to increasing financial depth in countries that lacked the legal and regulatory infrastructure to successfully exploit financial development.

In other words, the finance-growth relationship that had seemed so robust in studies using data from the 1960s to the 1980s simply does not carry over to data in the following 15 or more years from 1990. this means policies that have promoted and /or forced increases in financial depth in the early decades of financial liberalization, in response to the prevailing Washington consensus, may possibly have altered the basic structural relationship between finance and growth, and therefore, making it inappropriate to use the coefficients on finance obtained with data for years pioneering financial liberalization to estimate the impact of future policy initiatives aimed at spurring growth through increasing the size of a country's financial sector. Though this may demand further study at country-specific level, the work of Rousseau and Wachtel (2005) could be another vindication of Patrick (1966) earlier referred to.

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 obtained 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.

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.

Specifying his equations to capture the Mckinnon complementarity hypothesis, prompting questions of Laumas' work were;

i. Is money complementary with physical capital in the context of the demand for money function?
ii. Is money complementary with physical capital in the context of an investment function?

To answer these questions, 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.

In making a case for some level of control, Demetriades and Luintel (1996) 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. 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. Unalmis (2002), using Turkish data for the period 1970 – 2001, 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. Whether this is another indication of declining degree of influence of finance on real growth, after attaining some level of financial sophistication, as has been postulated, would require a period-type estimation employed by Rousseau and Wachtel (2005).

Pahlavani *et al* (2006) estimated the interdependence between real capital formation, savings and output in Iran for the period 1960-2003. The result indicates that while investment dynamically Granger-causes the short-run growth in output (which is consistent with endogenous growth explanation), savings were, however, found to have transitory equilibrating effects on the growth of output. Thus, just as suggested by Gavin *et al* (1997) that policy emphasis should shift away from saving and concentrate on removing the impediments to growth during liberalization, Pahlavani *et al* (2006) opined that there is scope to reduce the reliance on savings as the domestic source of economic growth and the need to better target saving to the long-run strategic provision of capital (including infrastructure) in any structurally transforming economy.

Equally important in country-specific study are works that have attempted to disaggregate the impact analysis by assessing the finance-growth relationship regionally/provincially or sectorally. For example, Hasan and Zhou (2006) explored the Chinese experience by employing a panel of sample covering 31 Chinese provinces during the transition period 1986 – 2002. Overall, empirical evidence

indicates a strong role of financial markets and institutions in promoting economic growth. But more specifically, regions with more developed financial markets and institutions, more open and easy environment for private and foreign investors, more protection of property rights, better investment opportunities, and more complete market institutions were found to have stronger growth. Koetter and Wedow (2006) also used German regional economic data to answer the question of **which matter: quantity or quality of finance-growth relationship in a bank-based economy?** Using annual data for the period 1994-2003, their result supports the notion that the quality of financial intermediation as a measure of cost efficiency of individual banks significantly affects growth (as 1 percent increase in cost efficiency spurs GDP per worker by 0.09 percent). The result also indicates that the traditional proxy of quantity, ratio of volume of credit to GDP used in most studies, receives no statistical support in their sample. In other words, an expanding amount of bank credit has no significant effect on growth. Thus, based on evidence, the conclusion of Koetter and Wedow (2006) is that it is not the volume of funds that is in short supply in Germany's regions that is responsible for non-significance volume effect of finance on growth.[25] The positive effect of financial development quality on growth suggests that economic expansion ***better but not necessarily more banking.

As for the work of Das and Guha-Khasnobis (2007) on the Indian economy for the period 1972 – 2003, an innovation in this work is the sectoral assessment alongside aggregate analysis of the finance-growth relationship. While the empirical findings identified two co-integrating relations between financial development, output growth and allocation of credit, which make sense from the stand point of economic theory, the result, however, indicates that the nature of relation between financial development and allocation of credit or between output and allocation of credit are different across sectors of the economy. For example, while the study identified a positive association between financial development and only short-term loan for

[25] In fact, the negative and mostly insignificant coefficient found for lending volume may merely reflect the maturity of the German economy and could actually indicate an excess supply of credit.

agriculture, the relation between financial development and the two uses of credit (short-term and long-term) for manufacturing sector is positive. This means a general credit policy will not give same result across the sectors in the economy. This calls for a deployment of carefully nuanced policy as a single policy for the whole economy may backfire as it can generate differential impact on different sectors of the economy.

A number of studies have been conducted with particular attention on Nigeria. One of the earliest of these works is that of Ikhide (1987) using data for the period 1959 - 1986. The work had two-fold objective, 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 necessarily coterminous with economic growth), and secondly, to examine the determinants of this growth for the same period. In trying to address these objectives, Ikhide, however, only 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. The argument linking estimate of these to the objective of the study is that "*a rise in this ratio is an indication that the assets of financial institutions have grown more rapidly than the GDP. Conversely, when this ratio falls, it means that GDP ahs risen faster than assets which will be an indication that irrespective of the absolute growth in the number of institutions, it has not been commensurate with the growth in the real sector*". Therefore, the observed consistency in growth, as result indicate, in FIR over the period under study means the country experienced a more rapid growth in financial assets than in domestic produce, a factor which could be attributed to the expansion in the number of financial intermediaries – commercial, and merchant banks, savings institutions, credit unions etc.

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. Again, like Ogun (1986), this study period falls squarely under the pre-liberalization period as reforms only began in 1987.

Anyanwu (1995) looked the relationship between financial deregulation and financial deepening within the context of SAP for the period 1960 – 1992. Notwithstanding his neo-structuralist reservations on the neo-liberal model of financial reform, the author went on to adopt the McKinnon-Shaw framework in estimating a financial deepening equation.

In his submission, while underscoring the importance of maintaining macroeconomic stability in the implementation of reforms, he observed that the principal areas in which stabilization is crucial to the success of financial liberalization are domestic prices (low and stable), fiscal balance (low deficit couple with a broad tax base), stability of the real exchange rate and liberalization of the external sector. Unfortunately, the nation's financial liberalization has been accompanied by high inflation rates, large fiscal deficits and highly unstable exchange rate index. As a consequence, positive real deposit rates have been difficult to achieve and maintain and necessitating the banking sector to operate high lending/deposit rates spread, high liquidity and reserve requirements. Similarly, a resort to seigniorage revenue to finance deficit by government has always impacted negatively on the intermediation activities of the banking sector. For reforms in the financial sector to produce the right impact, Anyanwu (1995) suggested the need for what he called logistical framework, political commitment

and creation of an enabling environment. While the first suggestion has to do with the underlying regulatory and supervisory framework and the competent of the Central Bank in implementing it, the second suggestion has to do with realizing that financial reforms involve difficult decisions regarding cost of credit, the efficiency of the institution itself and removal of distortions all of which requires a strong political commitment. The third suggestion has to do with reforming the macroeconomic environment for stability and the establishment of an incentive framework supportive of entrepreneurship and private sector development. This third suggestion is directed at addressing the incidence of market failures, which do make public sector intervention necessary.

Aigbokhan (1996) and Agbawn (1998) undertook a near similar study using the Nigerian data. While the former looked at the relationship between financial development and economic growth by testing the hypothesis on supply-leading and demand-following finance in Nigeria, the latter was also concerned with financial deepening and economic growth in Nigeria. Using quarterly data for the period 1978:1 to 1993:4, Aigbokan (1996) employed the Granger causality modeling 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.

However, it is worthy of note, as observed by Akyuz (1993), that the monetisation rate employed as a measure of financial development may not result in investment-drive intermediation because even sectoral surpluses and deficits can lead to increase in financial deepening and not necessarily increase in flow of financial resources from savers to investors. Similarly, absolute increase in the number of

banks does not provide evidence in support of real financial growth, as monetisation may not necessarily mean financialisation.[26]

Agbawn (1998) 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 insignificancy 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. This position closely follows the structuralists' argument of Taylor (1983) and Wijnbergen (1983) that draws extensively from the Keynesian framework. Thus, the observed growth in the economy as indicated in Aigbokhan (1996) might have resulted from activities that are public sector-induced (such as increase provision of infrastructural facilities and subsidies on agriculture) and not necessarily expansion in private sector activities engendered by financial reforms.

Making conclusion similar to that of Aigbokhan (1996), Nnanna and Dogo (1998) posited that the growth in financial depth in the post-reform period is attributable not only to the rise in the level of development of new institutions and instruments, but also to the relatively low level of deficit financing in the early 1990s, the declining rate of inflation and improved investors confidence in the ability of the market to allocate funds efficiently (measured in the work by the value of the ratio of private sector credit to GDP).

While the work could be considered an important attempt to assess the post-SAP impact of financial reforms, it, however, suffers some flaws. The first is the measure

[26] While monetization refers to growth or expansion of the exchange economy, financialization refers to growth in the use of near-money instruments in the exchange activities that are more investment-related.

of market efficiency in fund allocation employed in the work. That measure can better represent the size of the private sector involvement in financial activities. Cost is the benchmark of measuring efficiency and intermediation cost measured by the spread between the deposit and lending rates is a better measure of market efficiency in fund allocation. Secondly, and also observed in the works of Aigbokhan (19960 and Agbawn (1998), these studies did not estimate a growth function that captures financial development that would enable us see how the reform (instruments and process) relates to economic growth either directly or indirectly. In line with the Repressionists hypothesis, the ultimate objective of any financial reform is to better reposition finance as economic growth lubricant. In other words, the goal is to create an environment in which financial resources can better be channeled into real investment and hence growth.

A more recent study by Adeoye (2007) assessing 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. Further, 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. Thus, closely following earlier works by Adeoye and Adewuyi (2005), the case from the result is converse to the McKinnon – Shaw hypothesis.

On reforms and growth in savings, freeing interest rate to market forces has been assumed to raise real interest rates. The high interest rates that liberalization brings are supposed to encourage people to save more of their income. However, evidences emanating from experiences are mixed. This is attributed, theoretically, to the dominant effect between income and substitution effects (Turtleboom, 1991). Empirical evidences are also mixed as financial sector reform in some countries has been followed by a sharp decline in private savings. Various explanations have been

advanced for this outcome. Two of the most important ones relate to the fact that the impact of interest rate changes depends on a country's level of development; for poor countries, savings are less sensitive to interest rate changes. Evidence in some countries shows that savings decline even though interest rates rose (Ndung'u, 1997). Secondly is the relative size of the formal and the informal sectors. The predominance of the informal activities places these activities outside the control or influence of the formal system (Aryeetey, 1997).

In more specific terms, results of studies carried out by Oshikoya (1992), Azam (1996) and Ndung'u (1997) were mixed. For example, while Oshikoya observed that savings in Kenya stagnated after financial liberalization with private investment falling, thus, prompting him to conclude that savings in Kenya are determined by factors other than interest rate (such as money demand and income). Azam arrived at a different conclusion by arguing that national savings in Kenya relate positively with real interest rate. Ndung'u, on the other hand, observed that while savings increased in the early years of liberalization (1985-1989), the 1990s witnessed a decline in the rate of savings.

Other empirical works on reforms and growth in savings worthy of considering include that of Bandiera *et al* (2000) using the Method of Principal Components developed by Theil (1971) . They constructed a 25-year time series index of financial liberalization in order to find out whether financial reform raise or reduce savings in a sample of eight (8) developing countries. The result indicates that the pattern of effect differs across countries suggesting that while financial liberalization may sometimes increase private savings, the opposite can also be the case. In other words, while liberalization appeared to have had a significant positive and direct effect on savings in Ghana and Turkey, and negative effect on Korea and Mexico, there was no clear discernable effect in the other countries. Again, Bandiera *et al*, thus, argued, considering that government saving can also be adversely affected by financial reform; it would be unwise to rely on an increase in savings as a channel

through which financial liberalization can be expected to increase economic growth. Earlier insight on his observation has been provided by Gavin *et al* (1997) in their overview and policy issues on savings behaviour in Latin America. Drawing form the experiences of East Asia and Latin America in the last 25 years, based their work on the following evidences;

i. Higher growth precedes high saving rather than the reverse. It is only after a sustained period of high growth that saving rates increase and may do so with a delay that can be quite significant;
ii. The most powerful determinant of saving over the long-run is economic growth. Latin America's low rate of saving, over the period under review, is primarily the consequence, more than the cause, of the region's history of low and volatile economic growth, while the high saving observed in the Asian "Miracle" economies is due to their high and less volatile economic growth.
iii. Stabilization and reform policies aimed at raising efficiency and promoting economic growth may, although temporarily, reduce saving rates for many years and therefore increase reliance of the economy on potentially volatile capital flows.

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.

Using Sri Lanka data, Kelly and Mavrotas (2003a) examined the determinants of private savings with focus on the role of financial sector development over the period 1970-1997. Also employing an index of financial development created by the use of Method of Principal components as do Bandiera *et al* (2000), their findings suggests a strong and positive effect of financial sector development on private savings during the period under review. The effect of credit constraint on private saving was found to be equally strong.

Again, Kelly and Mavrotas (2003b) using different measures of financial development for a panel of 17 African countries,** also examined the effect of financial sector development on private savings. The results obtained vary considerably among countries in the panel, thus, highlighting the importance of using different measures of financial development rather than a single indicator. Moreover, the result also indicates that in most countries in the sample, a positive relationship between financial development and private savings seem to hold. The empirical analysis also suggests that a change in government savings is offset by an opposite change in private savings in most of the countries in the panel, thus, confirming the Ricardian equivalence hypothesis. Liquidity constraint shows no significant effect on saving in most countries in the group.

In summary, the foregoing reviews have shown that approaches, experiences and conclusions have not been the same across economies or regions. Important in explaining the divergence is the differences inherent in our worldviews usually reflected in the analytical cum methodological frameworks.

2.5: Review of Developments in the Nigerian Financial Sector

2.5.1 Phases of Policy Shifts

The Nigerian financial system has witnessed tremendous growth in terms of assets, physical expansion, range of products, style and scope of operations since1970. The process of this metamorphosis spans through eras of control and regulation to those

of liberalization/decontrol, guided autonomy, and deregulations and reforms. Not only is the year 1970 of historical relevant, as it relate to change in the nation's geopolitical structure from the system of regional governments to system of state governments, it also marked a period when the structure of the country's financial system became discernible and almost complete (i.e, with virtually all the key institutions – the central bank, the commercial and merchant banks, the stock exchange, the development banks, the insurance companies, and the non-bank financial institutions – established).[27]

The history of Nigeria's banking and finance industry can be viewed as a story of recurring changes in the nature and structure of the financial markets in response to economic, political and, in particular, regulatory policy changes. These changes have, clearly, not occurred at a constant, predictable and steady pace. In fact, relatively short periods of very rapid changes have been followed by periods of slow evolutionary growth during which previous rapid changes have been absorbed, digested and consolidated. Some of the changes have resulted in a fundamental alteration of the financial system,[28] but others have been of only transitory significance.

In a general context, one can think of a policy environment as a setting within which things occur, the framework which influences, as is in turn modified what occurs by providing incentives, throwing up challenges, creating obstacles and offering opportunities. If so, then the financial policy environment is obviously shaped by the nature and structure of its markets as well as by policies that influence those markets. The focus in this chapter primarily is how developments and innovations emanating from policy changes have impinged on the growth of the sector and its attendant impact of the rest of the economy.

[27] 1970 also marked the end of the Nigerian civil war.
[28] One good example is the Indigenisation policy legitimized through the instrument of the Nigerian Enterprise Promotion Decree No. 4 of 1972 and No. 3 of 1977.

In reviewing policy developments in the financial sector in the last three and half decades (36 years), the analysis is structured into four time-periods, viz; 1970 -1986 which can be described as period of regulated policy environment or administrative controls; 1987 – 1992 which can be regarded as period of deregulated policy environment or Structural Adjustment Programme (SAP)[29]; 1993 – 1999 which can be considered as post-SAP or period of 'guided' deregulation; and 2000- 2006 taken as period of economic reform.

2.5.2: Period of Administrative Control or Regulation 1970 – 1986

All over the world government regulation of the financial operations were common especially in the 1950s, 60s, 70s and first half of the 1980s. the major reason given for such intervention were macroeconomic stability, safety and soundness of the financial system, competition and efficiency, prevention of systemic collapse, development factors as well as resource allocation through credit rationing (Oloyede, 1994). In Nigeria, government's grip over the financial industry was almost total over this period. The use of directed credit in the allocation of financial resources among sectors and sub-sectors was the rule. Opening bank branch offices was also teleguided while interest rate structure was strictly controlled.

It is true that market forces may be inadequate in allocating financial resources according to government's ever changing social preferences and development aspirations. For these reasons and to the extent that intervention could be desirable, the financial industry was the most regulated in Nigeria over this period.

An important factor shaping events of the policy environment 1970 is the fact of occurrences of 1967 to 1970. The post-civil war environment was driven by the desire to rebuild the war-tone economic and social environment. The policy of Reconciliation, Reconstruction and Rehabilitation, largely captured under the Third National Development Plan provides for government intervention in all spheres of the national life of the country, and the financial infrastructure was not an

[29] It is worthy of note that although the elements of the policy reform took effect in 1986, their impact on most economic indicators became perceptible from1987.

exception. One important development strategy that legitimizes government overwhelming intervention in the system is the indigenization and the nationalization of the wholly or partially owned foreign financial enterprises.[30] The military governments of Generals Gowon and Obasanjo, through the 1972 and 1977 Nigeria Enterprise Promotion Decrees forced the divestiture or acquisition of foreign shares in banks into the hands of Nigerians. Where Nigerians did not have the financial capacity to purchase the shares, the then government bought and warehoused such stocks on their behalf (Adeyemi, 2002). These and other developments did had an over bearing effects on the financial sector.[31]

The idea of nurturing and building the capacity of the financial system is usually preceded by setting up the financial superstructure often in form of institutions necessary for effective monetary operation, promotion of effective asset/liability management by wholesale and retail banks, and provision of development finance, especially to the real sectors.

The institutional foundations of economic development have now come to be emphasized in addition to the trilogy of resource, technology and human preferences that hitherto dominated traditional economic thinking. This is because institutions structure economic forces and play an important role in expanding human choices by influencing the availability of information and resources, by shaping incentives and by establishing the basic rules of social transactions (Soyibo, 2002). In other words, institutional innovation contributes to development by providing more efficient ways of organizing economic activities (Ostrom *et al.*, 1989).

By 1970, there was, already, a functional Central Bank of Nigeria (CBN), established under the Central Bank Act of 1958. Even though it was tasking for the CBN to

[30] The indigenization and nationalization was not limited to financial enterprises as oil enterprises were equally taken over.

[31] Some of the other developments include the African festival of Arts and Culture (FESTAC) in 1977 and the 1975 enhanced package of salaries that led to wage increase of between 30 – 130 percent christened the Udoji Award.

evolve an organized money and capital market in the early years of its operation, by the beginning of the 1970s, Treasury bills, Produce bills and call money scheme had already been introduced. Certificates of Deposit and Bankers' Unit Fund became operational in 1975 while Stabilization Securities came into being a year later. The effect of these initiatives was the domestication of the financial markets to serve the development needs of the economy.

By 1970, there were 14 commercial banks with 273 branches and only 1 merchant bank with a single office. By 1986, these figures have risen to 29 for commercial banks with 1,367-branch network (879 urban and 481 rural) and 12 for merchant banks with 27 branches (see table 1). The ownership distribution arising from the indigenization policy of 1972 which prompted the government to acquire 40 percent of the shares of foreign-owned banks and creation of states, with virtually each state owning a bank, resulted in a structure in 1985 where, according to Falegan (1987);

- Foreign/Federal Government ownership – 7
- State Government ownership - 20
- Private ownership – 5

Total 32

Institutional growth was not limited to commercial and merchant banks but development banks as well. While development banking dates back to the establishment of regional development corporations in the early 1960s, the Nigerian Industrial Development bank (NIDB), being the first development bank, was established in 1964 and was required to provide long-term loans and equity capital for industrial ventures among other responsibilities.

Between 1972 and 1977, four other development banks were established. These are the Federal Savings Bank (1972), the Nigerian Bank for Commerce and Industries (NBCI, 1973) the Nigerian Agricultural and Cooperative Bank (NACB, 1973), and the Federal Mortgage Bank (FMBN, 1977).

Table 2.1: Growth in the Financial System – The Major Institutions

Institutions	Years		
	1970	1980	1986
CBN	1	1	1
Commercial Banks	12	20	29
Merchant Banks	1	6	12
Devt. Banks	1	5	5
Insurance Coy	43	70	88
Fed. Savings Bank	1	1	1
Stock Exchange	1	1	1
Stock Brokers	8	10	-

Source: Ajayi (1990) p. 36; CBN: Statistical Bulletin, vol. 15 (2004)

An important inference is that this category of banks did not experience an upsurge compared to commercial and merchant banks over the period under review. This is understandable when viewed against the specialized nature of development finance institutions generally. A counterpart development in the private sector to these public sector development banks, geared toward encouraging long-term funding and investment banking was the establishment of the Nigerian Acceptances Limited (NAL) in 1969, and this was later followed with establishment of UDT (Nigeria) Limited in 1973, First National Bank of Chicago (Nig.) Limited in 1974, and ICON Limited (Merchant Bankers) in 1975.

The growth in insurance companies has also been tremendous, from a total of 43 in 1970 to 88 by 1986. Their growth is not only noticeable in number but also in operation, as data have shown that their total assets increased from N46.1 million in 1970 to N2.487 billion by 1986. Also noticeable is the trend in their investment pattern as it relates to government securities. From statistics, these accounted for 14.4 and 15.5 percent of their total investments in 1970 and 1975 respectively. The figures progressively rose to 18.5 percent in 1983, and 33 percent by 1986. This is an indication that the ratio of government securities holding by these insurance

companies to their total securities was high, an outcome that is reflective of the development perspective of that period.

Equally interesting is the change in the ownership structure of the insurance firms. In 1970, out of the total of 43 firms, 12 were foreign owned, 5 jointly while the rest wholly owned by Nigerians. By 1977, following the indigenization policy, the companies were either jointly or wholly owned by Nigerians, so that by 1986, of the 88 insurance companies, 70 were wholly owned by Nigerians while the rest 18 were jointly owned by Nigerians and foreigners.[32]

Capital market activities started prior to 1960, but the Lagos Stock Exchange did not commence operations until 1961. From 9 securities it started with, the Exchange had only 14 as at 1971. The situation, however, witnessed an improvement between 1971 and 1974 when the number rose to 34. The Lagos Stock exchange was reconstituted into the Nigerian Stock Exchange in 1977. By 1978 the number has risen to 42 and by 1980, not less than 92 equities were quoted in the Nigerian Stock Exchange (Ekezie, 1997). It is worthy of note here that government fiat accounted for the relatively rapid growth of the Exchange.

In terms of regulation of the capital market activities, the Capital Issues Committee set up in 1962 evolved into the Capital Issues Commission (CIC) in 1973. Charged with the regulation of public issues of securities on advisory basis, the CIC was transformed into the Security and Exchange Commission (SEC) in 1978 as an apex regulatory body. This development set the stage for the stimulation of medium to long-term investments in the economy while providing the requisite technical and administrative support for the capital market.

With the foregoing institutional setting, the operating environment of the Nigerian financial system gave rise to unpredictable and sometimes complex climate,

[32] See Central Bank of Nigeria: Statistical Bulletin, 2004. pp 141-149.

depending on the objectives of the financial policies and the consequent response of the players. Of significance to us regarding the operating environment of the Nigerian financial system and worthy of attention are issues of (i) interest rate structure, (ii) monetary development and credit growth, and (iii) foreign exchange management.

The administration of interest rate market over the years largely reflects direct control by the regulatory authority. Although the nominal interest took their benchmarks from the treasury bill rates, the real rate for most of the time were negative owing to the fact that inflation rate were always higher than nominal rates. Between 1970 and 1986, the real interest rate was only positive in five out of 17 years (see table 2). For most time, the monetary authority either specify a maximum level of lending rate, and /or minimum level of saving rate, and/or maximum spread between saving and lending rates. The strategy of linking savings rate to the cost of fund to the banks and the policy of restricting the spread to a fixed percentage above cost of funds is adjudged complicating especially given sharp practices by banks such as under-the-table dealings and the escape-route charges not covered in the bankers' tariffs, among others (Adeyemi, 2002). It is obvious here that the problem is not just the interest rate level but also the inflation rate. The negative real rates simply imply that the cost of borrowing relative to the return on investment were prohibitive, just as the rates could not induce people to readjust their portfolio in favour of domestic savings.[33]

[33] Short-term borrowing for exchange activities usually characterize most financial transactions in such macro-settings, the result of which is higher rate of inflation except where significant level of imports are allowed to augment domestic production. This is, however, not without some consequences.

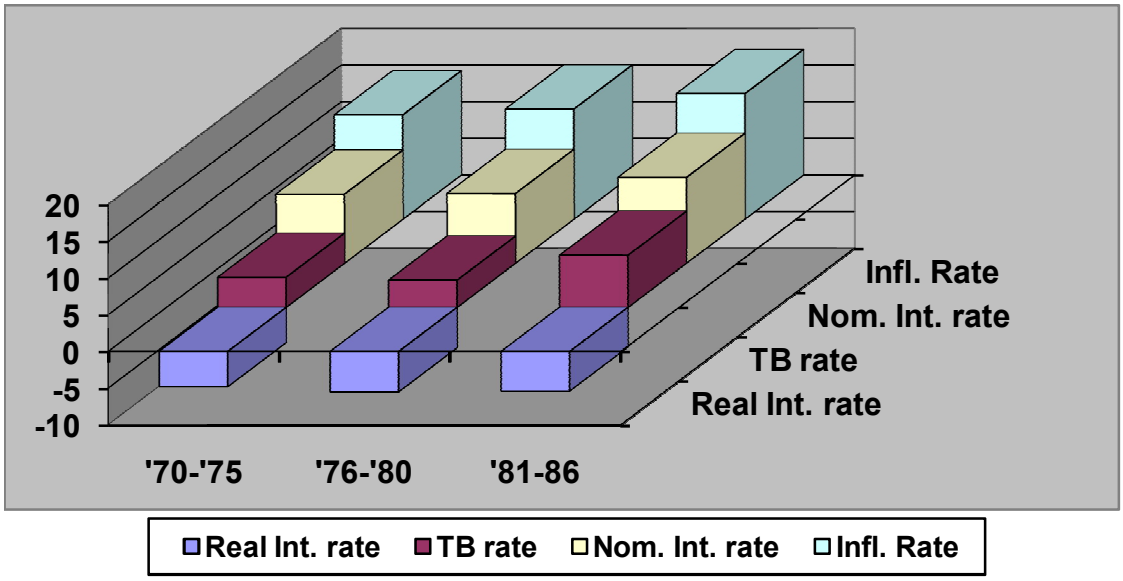
Table 2.2: Real interest, Nominal interest, Treasury bill & Inflation rates (1970 – 1986)

Year	Nom Int. rate*	Inflation rate	Real Int. rate	Treasury bill rate
1970	7.5	13.8	(6.3)	4.0
1975	9.0	33.9	(24.9)	4.5
1980	9.5	9.9	(0.4)	5.0
1986	12.0	5.4	6.6	8.5

Note: * This is with respect to commercial banks. Values in parentheses are negative values

Source: CBN: Statistical Bulletin, vol. 15 (2004); CBN: Annual Reports (various issues)

Fig 2.1: Chart of Average Real interest, Nominal interest, Treasury bill & Inflation rates (1970 – 1986)



The monetary operations of the authorities over the period 1967-1970 were largely dictated by the exigencies of the civil war. The paralysis in economic activities resulted in drop in government revenue in the face of huge government expenditure. Deficit financing became unavoidable, compelling Treasury bill issuance limit of the government to be increased from 85 percent in 1968 to 150 percent in 1970. Treasury certificate was also introduced to ease public sector borrowing.

The post-war monetary condition did not change until 1974 when the oil boom resulted in an unprecedented inflow of foreign exchange earnings from crude oil export. The nation's foreign reserves rose sharply from $180.4 million in 1970 to $3.7 billion in 1975. Though the balance of payments position quickly normalized, deficit financing continued to be on the increase during the period. The banking system liquidity rose sharply and monetary aggregates increased as a result of government monetization of oil proceeds to support projects some of which were non-economic because there was no corresponding increase in productivity arising from such projects.[34] Due to the highly liquid financial environment, the monetary authority's policy shifted from the injection of high-powered money to the pursuit of price stability. The major instruments adopted for this purpose were the strict enforcement of the existing selective credit control in order to restrain credit to commerce and trading, while directing banks to give specified minimum of their credit to the real sector, particularly agriculture and manufacturing, in order to contain inflation from the supply-side.

The policy shift, however, did not significantly change the liquidity situation in the economy. The oscillation in oil revenues from year to year and even dropping to as low as $4.3 billion in 1978 did not change the pattern of government financing and the CBN monetary operations until the onset of SAP. Thus, effort at controlling monetary aggregates over the period prior to SAP was simply a mirage (Falegan, 1987), as M1 (narrow money) and M2 (broad money) were always over shooting their targeted increases. Currency outside the banking system was about half of total currency in circulation, a situation depicting the cash behaviour of the society combined with the reluctance to save in banks, as well as a lack of public confidence in the banking system (Adeyemi, 2002).

On foreign exchange policy and management, the Nigerian currency, not being a traded currency whose value could be determined by operations in the foreign

[34] See note 4 above on such non–economic projects.

exchange market, had its exchange rate largely subjected to administrative management. The naira was, accordingly, pegged to the US dollar and the Pound Sterling within the framework of the IMF adjustable-peg exchange rate system (Obadan, 1994). In 1973, the IMF par value system came to an end and a system of generalized floating ensued. Under this system, some countries floated their currencies independently, e.g. the US dollar and the British pound sterling, while some pegged their currencies to the dollar or the Special Drawing Rights (SDR) or to a basket of currencies.

With the generalized floatation of currencies, the Nigerian monetary authorities decided, in April 1974, that the naira should be managed independently of the US dollar and other currencies. As a result, a policy of 'progressive appreciation' of the naira was introduced. This, it is argued, took cognizance of many factors, viz, the country's balance of payments position, rate of inflation, movement in foreign exchange reserves, and movement in foreign markets of currencies of Nigeria's major trading partners, especially the US dollar and the British pound sterling (Obadan, 1994). In furtherance to that, considering the need to facilitate the prosecution of an independent exchange rate policy in a world of floating rates, a decision was taken to peg the naira to a system of import-weighted basket of currencies of seven major trading partners of Nigeria, which took effect from February, 1978, thus, granting discretionary powers to the CBN to adjust the quotation, whenever it considered that the resultant rate was unsustainable owing to some factors in the foreign exchange market.

Table 2.3: Naira Exchange Rate (1970 – 1986)

Year	₦:US $ 1	US$:₦ 2	₦:£ 3	Change in 2(%) rate of Depr/Appr	Change in External Reserve
1970	0.7142	1.400	1.7114	0.0	-
1971	0.6944	1.440	1.7156	2.9	26.5
1972	0.6579	1.520	1.6289	5.6	44.8
1973	0.6579	1.520	1.6289	0.0	25.8

1974	0.6293	1.589	1.4795	4.5	1191.5
1975	0.6158	1.624	1.3618	2.2	8.6
1976	0.6266	1.596	1.1317	-1.7	-9.5
1977	0.6466	1.547	1.1671	-3.1	-17.4
1978	0.6067	1.648	1.2238	6.5	-50.4
1979	0.6027	1.659	1.2628	0.7	143.6
1980	0.5469	1.828	1.2647	10.2	78.9
1981	0.6052	1.652	1.2495	-9.6	-55.5
1982	0.6731	1.486	1.1735	-10.0	-57.7
1983	0.7506	1.332	1.1216	-10.4	-23.8
1984	0.7672	1.303	1.0765	-2.2	46.3
1985	0.8921	1.212	1.1999	-14.0	130.9
1986	1.7323	0.577	2.5554	-48.5	118.6

Source: Obadan (1994) and CBN: *Statistical Bulletin,* vol.17 (2006)

The naira, though pegged to a basket of currencies under the managed floating system, did responded to significant changes in the economy from the middle of 1970s. In that light, it can be seen that the naira appreciated in value relative to the dollar in the years 1974 and 1975 and over the periods 1978 –1980, correlating positively with periods of increase in oil receipts (see table 3).

With increasing flows of oil receipts, less attention was paid to ensuring stability in the real exchange rate.[35] However, when oil prices crashed in 1981, leading to a serious shortfall in foreign exchange earnings and the consequent emergence of serious balance of payments and external debt problems, the authorities had to embark on the policy of gradual depreciation of the naira, such that the exchange rate of the naira fell from \$1.828:₦1.00 in 1980 to \$0.577:₦1.00 by 1986 (see table 3). This was equally true with respect to exchange rate of the naira in relation to other currencies.

On the structure and growth of the economy over this period, the general performance was not impressive as can be seen in table 4 below. Given that National

[35] To stabilize the real exchange rate in the face of changing international prices, the nominal exchange rate is usually adjusted by the difference or rate of changes in international prices.

Development Plan was used as the key strategy to economic development, the Second, Third and Fourth National Development Plans were articulated and implemented within this period. Attention was significantly paid on balanced development of the different sectors of the economy and the various geographic areas of the country.

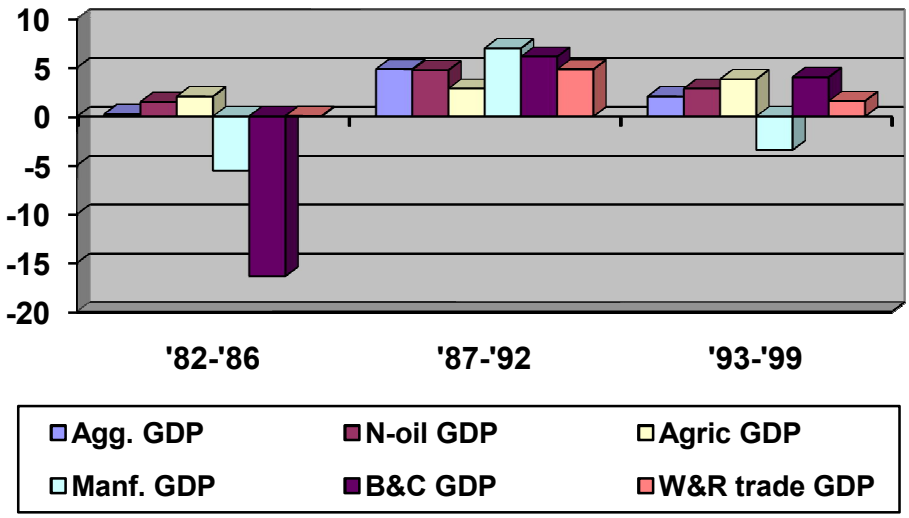
Table 2.4: Average Aggregate and Sectoral GDP growth rate (1982 – 1992)

Period	Agg.GDP	Non-oil	Agric.	Fin.Inst	Manufac.	Build & Cons	W&R Trade
'82-'86	0.22	1.47	6.04	5.32	-5.58	-16.36	0.34
'87-'92	4.82	4.72	3.95	22.62	6.96	6.10	4.48
'93-'99	2.03	2.82	3.79	3.96	-3.44	4.01	1.56

Source: Computed from CBN: *Statistical Bulletin,*vol. 15 (2004)

The pre-SAP years were characterized by negative GDP growth, except for the years 1985 and 1986 that recorded positive growth. On the average, aggregate GDP grew by only a margin of 0.22 percent, a clear indication of lack of economic progress over the period. While agriculture, net of livestock, forestry and fishing grew on an average of 6 percent, the result from the manufacturing, and the building and construction sectors were quite disheartening given their negative growth rates of –5.6 percent and –16.4 percent respectively (see table 4 above). Though, the financial sector, and the wholesale and retail trade sub-sector GDP grew by 5.32 percent and 0.34 percent respectively, and 1.5 percent for non-oil GDP, aggregate GDP in real terms was negative.

Fig 2.2: Average Aggregate and Sectoral GDP Growth Rate (1982 – 1999)



The contribution of oil to GDP averaged 14.0 percent during this period, while agriculture and manufacturing contributed about 35.0 percent and 9.0 percent respectively in the same period. The sharp decline in the price of crude oil in the international market resulted in a decline in economic activities as the economy became oil-dependent the more. The continued appreciation of real effective exchange rate in the face of weak agricultural performance swells imports, thus, compelling the introduction of the first economic adjustment policy tagged "Austerity Measures" in 1982. The policy was aimed at reducing private consumption and public spending. Although domestic investment averaged 15.3 percent of GDP, indicating a fairly conducive investment response, the savings-income ratio averaged 7.9 percent of GDP. This reflected the low propensity to save following difficulties associated with the austerity measures, which reduced spending power of workers.

2.5.3: Period of Structural Adjustment Programme (SAP) 1987 – 1992

The SAP policy was considered revolutionary as it sought to dismantle a policy regime that has been in place virtually since independence and in the process

displacing the myriads of hands of the bureaucrats (Ajayi, 1990). Dramatic changes that have occurred in the financial system over the years are traceable to policy changes and as a response to SAP. In this section, we will look at the philosophy, institutional changes and operational performance of the financial sector following the adjustment programme. This should provide insights into the extend to which the structural adjustment programme actually increased the quantity and quality of the financial services produced by the sector, as well as the degree of improvement in efficiency expected to accompany the enhancement of the role of market forces and the promotion of a competitive market structure.

As crude oil markets decline and foreign debt accumulated in the early 1980s, policy makers began to contemplate stabilization and adjustment measures. Given that the results of the 1982 Austerity Measures were not encouraging, discussion with the International Monetary Fund (IMF) and the World Bank began in 1983, the last year of the civilian second republic. The deliberations were inconclusive until 1986, when the government of General Babangida negotiated a standby agreement with the IMF and implemented the SAP. The SAP was presented as a 'home-grown' reform programme and it was undertaken without direct IMF financing, yet the programme reflected orthodox donor prescription for reform.[36] Central elements of SAP included substantial currency devaluation, trade liberalization, general monetary and fiscal restraint, reduction in public sector subsidies and employment, and the privatization of state-owned enterprises. Before the implementation of SAP, the World Bank had urged the Nigerian government to deregulate the financial sector. In a 1983 report, the Bank identified such problems as government allocation of credit, public subsidies that fostered negative real interest rates, an inadequate number of licensed banks and the 'complexity and rigidity' of government regulations as impediments to the appropriate workings of the economy (World

[36] The government actually refused to draw down the available Special Drawing Rights (SDR) despite the IMF standby agreement. Only a structural adjustment support was accepted from the World Bank. The donor prescription has been described as the 'Washington Consensus' which emphasizes five key policies: (i) trade liberalization and export-led-growth, (ii) financial market liberalization and financial capital mobility, (iii) fiscal and monetary austerity, (iv) privatization, and (v) labour market flexibility (Palley 2002).

Bank, 1983b). The presence of measures of these types distorts investment patterns, promotes inefficient allocation and impedes savings (Lewis and Stein, 2002).

The 1986 SAP moved this agenda forward significantly, as it calls for the removal of directed credit allocation, the unification of interest rates, the maintenance of real positive interest rates, and the restructuring of banking to enhance financial intermediation (FRN, 1986). The issue of financial liberalization, it is argued, elicited less attention or slight commentary in the public debates over structural adjustment. Central concerns in the SAP debates included questions on devaluation, trade liberalization, privatization and public sector retrenchment, and the removal of subsidy on fuels and fertilizer (Lewis and Stein, 2002). However when implementation began, it became obvious that the financial sector is central in the reform process as the sector stands in a cross road between production and consumption.

In terms of institutional changes/growth, the period witnessed the emergence of innovative institutions such as the Bureau de Change, the Peoples Bank, the Community Bank and others (see table 5 below).

While there were only 29 commercial banks by the end of 1986, this figure almost doubled by 1990, so that by 1993, 66 commercial banks were licensed to operate in Nigeria (a growth rate of about 128 percent). The case of merchant banks was more dramatic as their figure rose from mere 12 by the end of 1986 to 54 by 1991 (a growth rate of about 350 percent with an annual average of 8 banks). This remarkable growth was occasioned by the ease of entry that came with the structural adjustment programme, and the liberalization of the interest rate and the exchange rate deregulation both of which widen opportunities for more participants in the financial sector.

The period also witnessed the setting up and growth of specialized banks and institutions, most notable of which are the Peoples and Community Banks. In line with the objective of developing an enterprising economy, these low income group-targeted banks were set up to accelerate the pace of economic development. The government of General Babangida announced the creation of Peoples Bank of Nigeria (PBN) in his independence broadcast of 1st October 1989, with pilot operation involving 16 communities across six states which commenced on the 3rd October 1989. The PBN was, however, given a legal status by Decree No. 22 of 1990, with the objectives spelt out which include;

i) Extending banking facilities to the poor people who do not have access to the credit facilities available at conventional banks;
ii) Create opportunities for self-employment for the vast, unutilized and underutilized, manpower resources;
iii) Complement government efforts in improving the productive base of the economy and raising rural employment and income;
iv) Halt rural-urban migration; and
v) Inculcate banking habit at the grassroots level. The number eventually grew from 20 by the end of 1989 to 271 by 1993 (an over 1000 percent growth rate).

In similar vein, the Community Banks took off in December 1990. Facilitated through the setting up of the Community Bank Implementation Committee (CBIC) which later metamorphosed into the National Board for Community Banks, the idea of community bank is to encourage development in rural communities from within rather than from the outside. The concept of community banking simply applies to a self-sustaining financial institution, owned and managed by a community or group of communities for the purpose of providing credit, banking and other financial services within the area (Ekezie, 1997). Thus, rising from 66 in 1991, their number grew to 879 by the end of 1993. The combined implication of the growth of these

institutions is the growth in the banking habit or number of the banking public and the resultant increase in the volume of savings mobilized.

Table 2.5: Number of Development, Conventional and Specialized Banks and other Institutions

Banks/Institutions	1987	1989	1991	1993	1995	1997	1999
Commercial Banks	34	47	65	66	64	64	54
Merchant Banks	16	34	54	53	51	51	38
Development Banks	4	4	4	4	4	4	4
Specialized Banks	-	-	287	1150	1633	1296	1295
i. Comm. Banks	-	-	66	879	1355	1015	1014
ii. Peoples Banks*	-	20	221	271	275	278	278
iii. Edu.Banks	-	-	-	-	1	1	1
iv. Urban Dev. Banks	-	-	-	-	1	1	1
v. Maritime Banks	-	-	-	-	1	1	1
Specialized Fin. Inst.	91	98	126	673	656	476	539
i. Finance Houses	-	-	-	310	279	270	280
ii. Insurance Coy.	91	98	107	125	145	135	na
iii. Discount Houses	-	-	-	3	4	5	5
iv. Prim. Mortg. Inst.	-	-	23	252	280	115	194
v. NERFUND	-	-	1	1	1	1	1
vi. NEXIM	-	-	1	1	1	1	1
vii. NSITF (NPF)	-	-	1	1	1	1	1
viii. Bureau De Change	-	92	102	144	223	-	-
ix. NDIC	-	1	1	1	1	1	1

* The figures reported are those of branches
Source: CBN: *Statistical Bulletin* (various issues)

Other specialized banks are the Education, Urban Development and Maritime Banks. They were set up with the objective of providing financial services to specific sectors in line with their calling. Given the sector specific nature of these banks, their growth is usually in branch networking and not in number, and so the number remained one for each from inception up to 1999 as shown in table 5.

Since the basic objective of the reforms was to increase the quantity and quality of the financial services produced by the financial sector, as well as the efficiency with which these services are produced, the following performance indicators, as suggested by Ajakaiye (2002), are worthy of attention;

- volume of savings mobilized,

- volume of credit to the end-users,
- term structure of credit,
- trend of interest rates on savings, lending and the spread.

Table 2.6: Financial Savings by the banking sector and the Financial saving – GDP ratio 1987 – 1999 (₦ billion)

Year	Commercial banks Savings & Time deposits	Merchant banks (Time deposits)	Financial Savings/GDP ratio (%)
1987	15.09	2.82	16.3
1988	18.40	3.98	15.4
1989	17.81	3.9	9.8
1990	23.14	4.35	10.0
1991	30.36	5.01	11.0
1992	43.44	8.34	9.6
1993	60.90	19.30	11.6
1994	76.13	11.32	9.6
1995	93.33	11 10	5.4
1996	115.35	15.51	4.7
1997	154.06	19.76	6.0
1998	161.93	30.30	6.8
1999	241.60	24 71	7.7

Source: CBN: *Statistical Bulletin*, vol. 15 (2004)

On the volume of financial savings mobilized by the banks, table 6 below shows the volume of savings mobilized by the commercial and merchant banks between 1987 and 1992. From the table, the volume of financial savings mobilized by the banking sector indicates a higher quantum and a higher average annual growth rate in the SAP period (averaging 25.32 percent) relative to the pre-SAP period (with the average of 16.18 percent). When considered in relation to the GDP, the financial savings-GDP ratio actually declined from 16.3 percent in 1987 to 9.6 percent by 1992.

With respect to credit to the economy, the performance of the banking sector rose in nominal terms in the SAP era compared to the pre-SAP era. The high growth rate might be due to the increase in the number of the banking institutions and the growth in the volume of financial resources mobilized as shown in table 5 and 6. However, when we take inflation into account, real credit actually fell by about 40 percent between 1987 and 1992 (see table 7).

Table 2.7: Aggregate Credit to the economy, Nominal and Real Bank lending to the Private sector, 1987 – 1998 (₦ billion)

Year	(Nominal)				(Real)			
	Aggregate Credit (net)	Comm.	Merchant	Total	CPI (1985=100)	Comm.	Merchant	Total
1987	46.9	17.9	5.7	23.6	117.3	15.3	4.8	20.1
1988	57.3	20.8	6.5	27.6	181.2	11.1	3.6	15.1
1989	49.3	22.3	7.1	29.4	272.7	8.2	2.6	10.8
1990	57.7	26.4	8.9	35.3	292.8	9.0	3.0	12.0
1991	83.8	31.8	11.3	43.0	330.9	9.6	3.4	13.0
1992	171.1	43.4	13.7	57.1	478.4	9.1	2.9	12.0
1993	280.7	50.7	15.9	66.5	752.0	6.7	2.1	8.8
1994	439.1	92.0	21.9	113.9	1180.7	7.8	1.9	9.7
1995	474.4	141.7	30.4	172.1	2040.4	6.9	1.5	8.4
1996	371.1	171.6	40.9	212.5	2638.1	6.5	1.6	8.1
1997	365.9	215.1	49.8	264.9	2863.1	7.5	1.7	9.2
1998	519.5	257.6	56.5	314.2	3149.2	8.2	1.8	10.0

Source: CBN: *Statistical Bulletin,* vol. 15 (2004)

Table 2.8: Maturity structure of Commercial banks Loans and Advances (%) 1980 – 1996

Year	12 months or less	Between 1 -3 years	Above 3 years	Total
1980	78.40	10.40	11.20	100
1981	78.00	8.50	13.50	100
1982	78.70	8.30	13.00	100
1983	81.40	8.10	10.50	100
1984	79.40	8.30	12.30	100
1985	82.10	7.90	10.00	100
1986	81.20	7.40	11.40	100
1987	80.80	8.50	10.70	100
1988	83.10	7.70	9.20	100
1989	80.60	7.70	11.70	100
1990	82.70	7.10	10.20	100
1991	82.20	7.60	10.20	100
1992	82.66	6.76	10.59	100
1993	82.71	6.26	11.03	100
1994	87.00	7.00	6.00	100
1995	89.00	6.50	4.50	100
1996	83.00	7.00	10.00	100

Source: CBN: *Statistical Bulletin* (various issues)

In assessing how resources mobilized are channeled towards the desired development activities, a look at the maturity structure of the loans and advances provided by the banking sector will be incisive. The structure indicates that commercial banks loans and advances shifted more toward shorter terms during the

SAP and post-SAP period relative to the pre-SAP period. From table 8, the pre-SAP period had an average of 79 percent of commercial banks loans and advances maturing within 1 year, while the post-SAP period had an average of 83 percent. Thus, while the tendency to shift the maturity structure towards the short-end had always been there, what SAP did was to intensify the process rather than reversing it (Ajakaiye, 2002). This is clearly evident from the decline in the average percentage of loans and advances with maturity period of between 1-3 years and those maturing above 3 years. Table 8 shows that while loans with 1-3 years maturity averaged 8.4 percent for pre-SAP years, the figure fell to 7.26 percent between 1987 and 1999, a 15 percent decline. The decline is more obvious with respect to loans and advances with maturity of above 3 years. While the pre-SAP period averaged 11.71 percent, the post-SAP average was 9.36 percent, a decline of about 25 percent. A deduction from the foregoing is that for an economy desirous of fast growth, the credit structure does not present a hopeful scenario. Thus, until credit is made available to investors on long-term basis, the financial system may be less efficacious in its role in economic growth. The data is also showing that while the post-SAP period witnessed an increase in volume of resources mobilized in nominal terms, the real quantity, as measured by their maturity structure, might not have improved.

Table 2.9: Deposit Money Banks Savings and Lending rates, and Interest rate Spread

Year	Savings rate	Lending rate	Interest rate spread
1987	14.0	19.2	5.2
1988	14.5	17.6	3.1
1989	16.4	24.6	8.2
1990	18.8	27.7	8.9
1991	14.3	20.8	6.51
1992	16.1	31.2	15.1
1987-1992	15.58	23.52	7.84

Source: C.B.N: Statistical Bulletin, 2006

With respect to the efficiency with which the financial services are being provided, table 9 shows, contrary to expectation, a decline interest rate on savings in the face of rising lending rate. Clearly, the spread between these two rates widened

considerably with the introduction of SAP. Again the pattern of the difference between the two rates shows that the spread tends to be wider whenever the banks gained complete freedom to determine interest rates (example in 1992 and 1997). The narrow spread in 1991 and 1994 were policy induced. Thus, the expectation that liberalization would bring about a reduction in the cost of funds, which prompted the liberalization of entry and the privatization of state-owned banks, could not be achieved. On the contrary, the policies have merely provided opportunities for the operators in the financial sector to extract oligopoly rents.

2.5.4: The Post-SAP or Period of Guided Deregulation 1993 - 1999

Following the annulment of the June 1992 Presidential election, the exit of the then administration in August of that year, and the setting up of an interim government that lasted for only six months, the coming into power of the government of General Abacha came with it an economic management approach that reintroduced some form of regulation. Though the approach, in a way taken as 'guided deregulation' was not a complete return to the pre-SAP policy style, some measure of re-regulation were undertaken occasioned by fixation of rates of some variables.

In this period, many of the policies that contributed to growth were reversed. Consequently, the economy again started to decline. Real GDP growth rates fluctuated between 2.3 percent in 1992; 4.4 percent in 1996 and 0.4 percent in 1999. The share of agriculture decline to 35 percent and that of the manufacture equally fell to 4.5 percent. In 1994, the government announced a new budget of "guided deregulation" and began reversing some of the previous policies that were considered contributory to the stagnation, high inflation and reduction in income. As a result of the policy reversals, gross fixed capital investment as a percentage of GPP further declined to 7.4 percent, while gross savings – income ratio stood at 8.2 percent. This reflects decrease in propensity to save as inflation rose much higher than the real interest rate.

Figure 2.3: Lending rate, Saving rate and Interest Spread

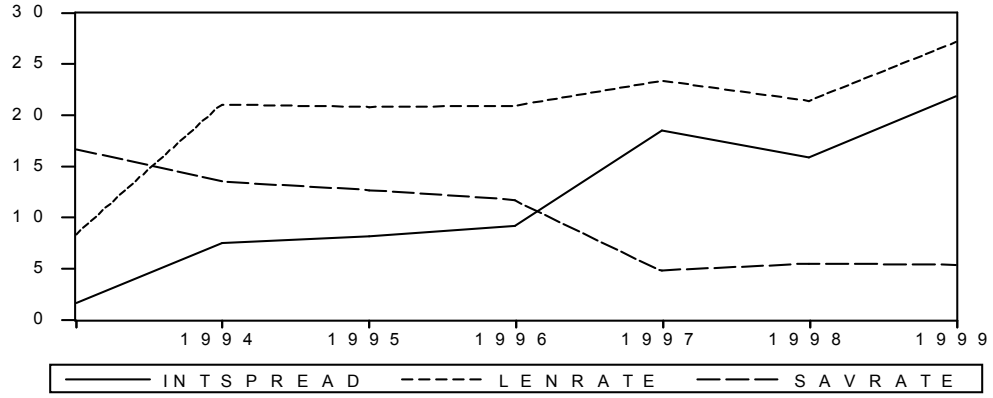
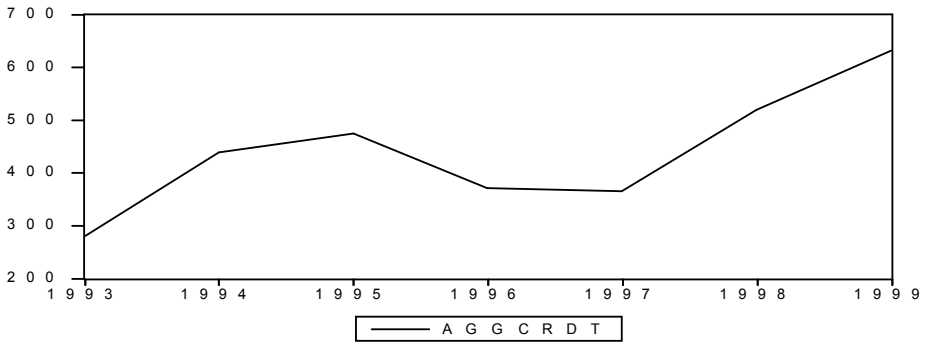


Figure 2. 4: Aggregate Domestic Credit (₦ billion)



In terms of the number of commercial and merchant banks, the period witnessed a crisis in the financial system that resulted in the collapse of some banks. The development was a clear departure from what obtains between 1987 and 1992 when the number of commercial banks grew by 92 percent as against a decline of about 19 percent in the number of commercial banks between 1993 and 1999 (see table 5 above). The same result applies to merchant banks whose number dropped from 53 in 1993 to 38 in 1999.

Again, though the period witnessed a growth in the quantum of commercial and merchant banks saving and time deposits, that was not the case with respect to the ratio of financial savings to gross domestic product. In fact, the ratio dropped from an average of 8.6 percent between 1987 and 1992 to an average of 7.4 per cent between 1993 and 1999.

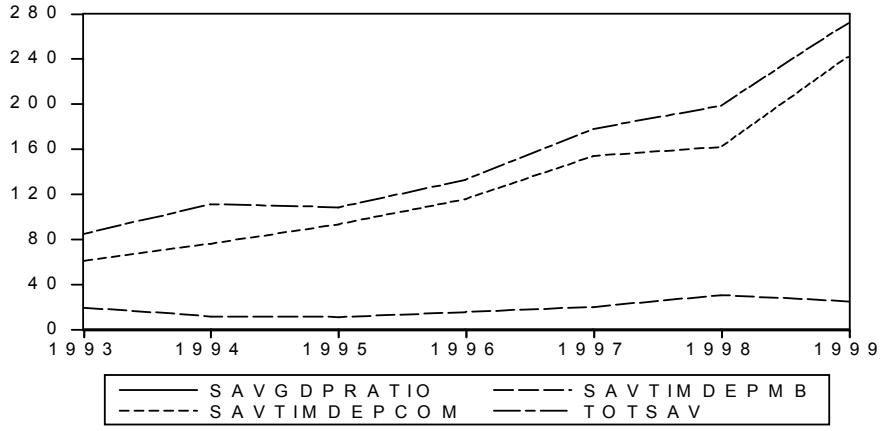
Table2.10: Deposit Money Banks Savings and Lending rates, and Interest rate Spread 1993-1999

Year	Saving rate	Lending rate	Interest rate spread
1993	16.66	18.32	1.66
1994	13.50	21.00	7.50
1995	12.61	20.79	8.18
1996	11.69	20.86	9.17
1997	4.80	23.32	18.52
1998	5.49	21,34	15.85
1999	5.33	27.19	21.86
1993 - 1999	**10.00**	**21.83**	**11.83**

Source: C.B.N: Statistical Bulletin, 2006.

In terms of cost of intermediation, owing to the fixation of interest rate on lending at 21 per cent over most of the years, the interest spread narrowed in size compared to what obtains before 1993 and after 1999. Though a single digit spread can be considered appropriate to guarantee efficiency in the system, the resultant performance indicators did not corroborate these figures.

Figure 2.5: Growth in Commercial and Merchant Banks Deposits (₦ billion)



2.5.5: The New Reform Policy Environment 2000 – 2009:

The policy environment beginning 2000 has been informed first by the new political environment that marked the end of fifteen (15) years of military rule and the

beginning of a civilian administration platformed on three-tier structure of governance from May 29th 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 NEEDS came on stream 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.

The NEEDS rests on four key strategies:

- Reforming the way government works and its institutions;
- Growing the private sector;
- Implementing a social charter for the people and
- 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. 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.

The interest rate regime in 1994 – 1998 was essentially administered and, therefore, did not reflect the market conditions. Despite the deregulation of key prices in the economy, including interest rate, under the Obasanjo Administration, the measures adopted had salutary effect on the general direction of interest rates.

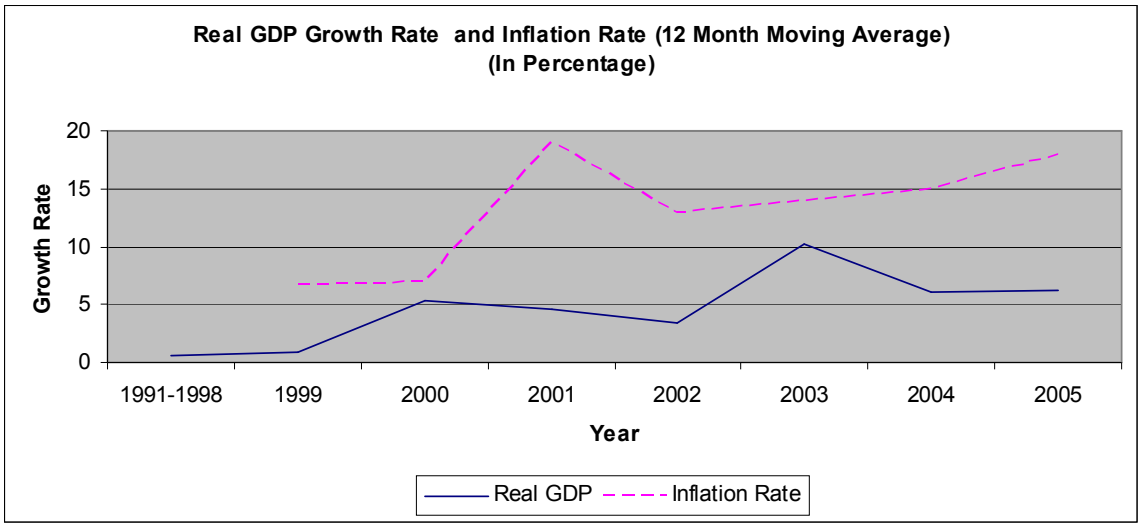
Table 2.11: Interest Rate Developments

	Avg 1995-1999	2000	2001	2002	203	2004	2005	2006	2007	2008	2009	Average 2000-2009
MRR/MPR	14.56	13.5	14.3	16.5	15.0	15.0	13.0	14.0	8.5	9.81	7.44	12.7
Prime Lending Rate	18.61	17.9	18.3	20.7	19.6	18.9	17.8	17.3	16.9	15.14	18.36	18.1
Maximum Lending Rate	22.70	21.6	21.3	26.7	21.6	20.4	19.5	18.7	18.4	18.70	22.90	21.0
90 Days	13.34	10.6	10.2	16.3	14.3	13.7	10.5	9.6	10.3	11.95	13.30	12.1

Source: CBN: Statistical Bulletin and Annual Report, Various Issues

For instance, the prime lending rate and maximum lending rate which averaged 18.61 and 22.7 per cent over the 1995 - 1999 period, declined to 16.9 and 18.4 per cent, respectively at end 2007, though the average for the period 2000-2009 stood at 18.1 and 21.0 percent respectively. This development in interest rates appeared to have triggered the granting of more credit to the private sector for investment purposes, corroborating credit developments outlined in Table 3.

Figure 2.6: Real GDP growth rate & inflation rate Movement



The real gross domestic product (GDP) which averaged 1.9 per cent in the period 1991-1998 shot up to 5.0 per cent in 1999-2004 and is expected to edge further to 7.0 per cent in 2006. Manufacturing capacity utilization increased from 36.6 per cent in 1991-1998 to 40.9 percent in 1999-2005. Similarly, inflation rate (12-month moving average trended downwards from an average of 36.6 per cent in 1991-1998 to 12.4 per cent in 1999-2004. The fiscal operations of government improved significantly with the institutionalization of transparency through the machinery of due process. Consequently, the overall fiscal balance/GDP which was in deficit of 5.6 per cent in 1991-1998 swung into a surplus of 0.6 per cent in 1999-2004.

Table 2.12: Inflation Development

	Average											Average
	1995-1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2000-2009
Year-on-Year	17.6	14.5	16.5	12.2	23.8	10.0	11.6	8.6	6.6	15.1	12.1	13.1
12- Month Moving Average	25.5	6.9	18.9	12.9	13.9	15.4	17.9	8.2	5.4	11.6	12.4	12.4

Source: Central Bank of Nigeria: Statistical Bulletin, vol. 15, 2004 and Annual Report, 2006.

The external sector was under less pressure with the external reserve rising from US$7.1 billion and US$5.5 billion in 1998 and 1999, respectively to US$28.3 billion in

2005, the highest in Africa. This level of external reserve could support about 19.3 months of imports, which far exceeds the international benchmark of three months. The exchange rate has maintained stability around the predetermined band of plus/minus 3.0 per cent in 2004 and 2005. The end-period exchange rate at N137.2 to a dollar in 2003, appreciated to N132.9 and N128.5 per a dollar in 2004 and 2005, respectively.

Table 2.13: External Reserve (in $'billion)

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
External Reserves	7.1	5.4	9.4	10.3	7.7	7.5	16.9	28.3	42.30	51.33	53.00	42.38
Months of Import	9.2	7.6	13.6	11.3	8.5	8.5	18.4	19.3	16.7	16.1	13.8	Na

Source: Central Bank of Nigeria: Statistical Bulletin, vol. 15, 2004 and Annual Report & Statement of Account, 2007, and WAMZ Database

Table 2.14: Foreign Investment Inflow

CUMULATIVE FOREIGN PRIVATE INVESTMENT IN NIGERIA (N'M)			
YEAR	**PAID UP CAPITAL PLUS RESERVES**	**OTHER LIABILITIES**	**TOTAL**
Ave. 1995-1998	58,195.15	72,488.68	131,128.70
1999	73,554.70	80,633.90	154,188.60
2000	74,991.60	82,543.80	157,535.40
2001	78,847.60	83,495.80	162,343.40
2002	82,062.00	84,569.60	166,631.60
2003	91,050.10	87,427.90	178,478.00
2004	150,676.10	98,744.50	249,220.60
2005	166,375.1	103,469.6	269,844.70
2006	191,813.5	111,029.8	302,843.30
2007	228,911.6	135,097.1	364,008.7
2008	NA	NA	NA
2009	NA	NA	NA
Ave. 1999-2007	126,475.80	96,334.66	222,805.32

Source: Central Bank of Nigeria: Statistical Bulletin, 2009 and Annual Report, 2009.

Cumulative foreign investment inflow to the country, which averaged N131.1 billion during the 1995 – 1998, increased progressively between 1999 and 2004,

averaging N177.9 billion during the period. This shows that the investment climate in the country has become generally, more investor friendly, largely because of the macroeconomic policy reforms adopted and the attendant favourable and conducive investment environment.

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 6th 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, lose 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. FDI 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 are 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 reforms 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 a 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 s 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 cleared that the banking sector, in particular, and the financial industry, 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.

CHAPTER 3

Methodology

3.1: Theoretical Framework

The inter-relationship between the goods (commodity) and the financial (money) markets of any economy can be analyzed within the framework of the two-sector IS-LM model. This framework developed by Hicks (1937) and further developed by Hansen (1953) was more of an interpretation of Keynes' *General Theory of Employment, Interest and Money* (1936). The essence of the development is to provide a framework for analyzing the inter-relationship between the real and the financial sector of a market economy. The real sector is concerned with the receipts of the national products by factors of production and the expenditure of this income by households, firms and government. The money or financial sector, on the other hand, relates to the analysis of the demand for and supply of money, interest rates and equilibrium in the sector. In other words, the money market is concerned with the set of influence on the desire to hold money.

These two sectors are closely inter-related so much so that what happens in one sector depends upon and also affect what happens in the other. The linkage variable according to the framework is the interest rate. Meaning, any shock to either sector causes the rate of interest to change and this change will also affect the other sectors. The effects of these changes will initiate interactive process until equilibrium is established.

In deriving the equation for the real sector (IS equation), we begin with the simple Keynesian national income identity:

$Y = C + I + G - NX$ ---------- *3.1*

Where

$C = cY^d$
$Y^d = Y\text{-}T$
$T = T_o\text{-}tY$

I = $I_o - ir$

G = G_o

NX = NX_o

Where, *C* is consumption expenditure, *I* is investment expenditure, *G* is government expenditure, *NX* is net export, Y^d is disposable income, *T* is tax and *r* is interest rates. The IS equation from the foregoing is of the form:

$Y_t = \theta_1 To_t + \theta_2 Io_t + \theta_3 r_t + \theta_4 G_t o + \theta_5 NXo_t$ ----------*(3.2)*

Where, [θ_1 = (-c/1-c-ct); θ_2= (1/1-c-ct); θ_3= (i/1-c-ct); θ_4= (1/1-c-ct) and θ_5= (1/1-c-ct)]. With (θ_1 and $\theta_3 < 0$; θ_2, θ_4 and $\theta_5 > 0$)

Equation (3.2) is the real sector or commodity-market equilibrium which is assumed to depend on the domestic interest rate (*r*), level of government spending (*Go*), level of investment spending (*Io*), the level of foreign spending on domestic output (*NXo*) and the constraints to households spending on domestic output (*To*).

On the other hand, in deriving the financial sector equation, the demand for and supply of money equations are thus specified as;

$M^d = Mo + kY - mr$ ----------*(3.3)*

$M^s = M$ ----------*(3.4)*

And at equilibrium,

$M^s = M^d$, that is,

$M^s = Mo + kY - mr$ ----------*(3.5)*

Where, M^d is aggregate demand for money, M^s is aggregate supply of money, *Y is* Income or wealth, and *r* is interest rate.

Equation (3.5) is saying money-market equilibrium is assumed to depend on real income/wealth (Y) and domestic interest rate (r). A variant of equation (3.5) as described by Kallon (1994) and Folorunso and Abiola (2000) incorporates the domestic inflation rate (P), so that equation (v) becomes;

$M_t = \delta_1 Mo + \delta_2 Y_t + \delta_3 r_t + \delta_4 P_t$----------*(3.6)*

Where δ_1=>0, δ_2= k > 0, δ_3= m > 0 and $\delta 4 > 0$.

Because we are analyzing an open economy as described by our specification of equation (3.1), the identity implies that;

$NXo = Y - (C + I + G)$, restated as,

$NXo = Y - TE$ ----------*(3.7)*

Where, TE = C + I + G is Total expenditures, and NXo is net exports or trade surplus. Thus, reducing spending relative to income through restrictive monetary and fiscal policies can reduce balance of trade.

Again, because cross-border transactions involves payments and receipts in currencies with varying exchange rates, changes in relative prices have effect on the trade balance and the possibility that such changes can either worsen or improve the trade balance. Thus, a trade balance measured in terms of domestic goods can be written as:

$NXo = X - [eP_f/P]Q$ ----------*(3.8)*

Where X denotes the foreign demand for domestic goods (i.e. exports) and Q denotes domestic demand for foreign goods (i.e. imports), while the term $[eP_f/P]$ measures the *value* of domestic demand for foreign goods in terms of domestic goods.[37]

[37] The term $[eP_f/P]$ is the standard definition of real exchange rate, where e is the nominal exchange rate; P_f is foreign price level, and P the domestic price level.

The trade and payments implications can be demonstrated from equation (3.8). Suppose we have an exchange depreciation and that, in the first instance, domestic and foreign prices, *P* and *Pf*, are unchanged, the relative price of imports, eP_f/P, would rise. The effect of this is that if the physical volume of imports does not change, their value measured in domestic currency would increase because of the higher prices. This means higher import spending (measured in terms of domestic currency) and thus a worsening of the trade balance.

A simple balance of payment equation derived from the foregoing is in the form:

BOP = NXo (Y, eP_f/P) ----------*(3.9)*

By a simple assumption, we can say that capital flows internationally in response to nominal interest rate differentials.[38] However, such a relationship is incomplete in a world in which exchange rates do or are expected to change. For example, if a foreign currency is expected to depreciate over the next one year relative to the domestic currency, it means the return in domestic currency (say in *naira*) of investment in the economy of the said foreign currency would decline. The natural preference is to invest in domestic bonds, even though the domestic interest rate is below the foreign interest rate.

Thus, an analysis of interest rate equalization must incorporate expectation of interest rate changes. If we posit that investment in domestic bonds attract the interest i, while investing in foreign bonds earns the interest i_f, plus whatever the individual earns from the appreciation of the foreign currency, the total return on foreign bonds, measured in domestic currency is:

$R_fB_d = i_f + \Delta e/e$ ----------*(3.10)*

[38] For example, if domestic interest rates were 7 percent and foreign rates were 10 percent, we would expect a capital outflow.

Where, i_f is foreign interest rate, and $\Delta e/e$ can be interpreted as the *expected* change in the exchange rate.

The introduction of exchange rate in equation (3.9) would modify our balance of payments equation. By this, we want to posit that capital flows are governed by the difference between the domestic interest rate and the foreign interest rate adjusted for expected change in exchange rate (i.e. $i - i_f - \Delta e/e$). This means an increase in foreign interest rate or an expectation of depreciation, given the domestic interest rates, would lead to a capital outflow. Conversely, a rise in domestic interest rates or an expectation of appreciation would bring about a capital inflow. The BOP equation arising from the foregoing is:

$BOP = NXo\ (Y, eP_f/P) + CF\ (i - i_f - \Delta e/e)$ ----------(3.11)

Where CF is capital flows while all other terms are as already defined.

A reduced form of equation (3.11) can be stated as:

$BOP = \beta_1 Y_t + \beta_2 R_t^* + \beta_3 Ncf_t$ ----------(3.12)

Where $R^* = f(e, Pf, P)$ *and* $Ncf = f(I, i_f, \Delta e/e)$

Solving for Y in equation (3.12) gives;

$Y_t = \eta_1 R_t^* + \eta_2 Ncf_t + \eta_3 BOP$ ----------(3.13)

Where $\eta_1 = (\beta_2/\beta_1)$; $\eta_2 = (\beta_3/\beta_1)$; *and* $\eta_3 = (1/\beta_1)$ with η_1 and $\eta_3 < 0$; $\eta_2 > 0$.

Substituting equation (3.13) into equation (3.6) and solve for r gives us;

$r_t = \lambda_1 Mo + \lambda_2 R_t^* + \lambda_3 Ncf_t + \lambda_4 BOP + \lambda_5 P_t + \lambda_6 M^s$-------(3.14)

Where, $\lambda_1 = (\delta_1/\delta_3)$; $\lambda_2 = (\delta_2\eta_1/\delta_3)$; $\lambda_3 = (\delta_2\eta_2/\delta_3)$; $\lambda_4 = (\delta_2\eta_3/\delta_3)$; $\lambda_5 = (\delta_4/\delta_3)$; $\lambda_6 = (1/\delta_3)$

With $\lambda_1, \lambda_2, \lambda_3, \lambda_5 > 0$; *and* $\lambda_4, \lambda_6 < 0$.

When we substitute equation (3.14) into equation (ii), we now have the aggregate output equation of the form;

$Y_t = \theta_1 To_t + \theta_2 Io_t - \theta_3 (\lambda_1 Mo + \lambda_2 R_t^* + \lambda_3 Ncf_t + \lambda_4 BOP + \lambda_5 P_t + \lambda_6 M^s) + \theta_4 G_t o + \theta_5 NXo_t$.

Which can be represented as;

$$Y_t = \theta_1 To_t + \theta_2 Io_t - \theta_3\lambda_1 \text{Mo} + \theta_3\lambda_2 R_t^* + \theta_3\lambda_3 \text{Ncf}_t + \theta_3\lambda_4 \text{BOP} + \theta_3\lambda_5 P_t + \theta_3\lambda_6 M^s + \theta_4 G_t o + \theta_5 NXo_t \text{ ----------(3.15)}$$

With $\theta_2, \theta_3\lambda_6, \theta_4,$ and $\theta_5 > 0$; $\theta_1, \theta_3\lambda_2,$ and $\theta_3\lambda_5 < 0$; $\theta_3\lambda_1,$ while $\theta_3\lambda_2, \theta_3\lambda_3,$ and $\theta_3\lambda_4,$ <or>0)

The foregoing framework provides for the building of a macromodel and simulation of result, however, to analyze a case of sectoral disconnect, such as that between the financial sector and the real sector, the vector error correction is considered more appropriate as it can allow for the development of a regression relationship between the growth in the financial sector and development in the real sector once the variables have been established to be differenced stationary and characterized by a long run relationship.

3.2: Empirical Framework

Empirical evidence suggests that there is a strong relationship between the financial development of any country and its economic performance. The traditional neoclassical growth model suggests that output can only grow through increased accumulation of capital and/or technical progress. All growth models have come to agree that the rate of growth of an economy is determined by the accumulation of physical and human capital, the efficiency of resource use and the ability to apply modern technology. However, there is the notion that the scarcity of long-term finance in developing countries is the major impediments to higher investments and output growth in these economies. By implication, it means the stimulation of sustained economic growth requires a balance between investment in physical and financial assets. Meaning, growth in financial assets is *sine quanon* to growth in physical assets.[39]

Finance is critical to investment. Finance facilitates investment and for growth to take place, financial institutions must not only pool savings but also direct them to

[39] We also recognize in this relationship the importance of investment in human and social capital, as well as in natural and environmental capital.

viable investment. Generally, credit is the link through which resources are transferred for capital formation. Thus, the desire to achieve a high and sustainable rate of economic growth requires the channeling of the mobilized capital into investment. The impact of reforms is not limited to spurring growth in domestic finance for investment, but equally expected to attract external capital. In other words, the elasticity of foreign capital to financial reform is expected to be positive.

Another issue relates to liberalisation and financial development/growth. It is generally agreed that financial liberalisation raises financial activity relative to production of goods and non-financial services. However, there is much less consensus on the effects of this 'financial growth'. To the financial repression theorists, financial growth represents increased intermediation between savers and investors because higher interest rates supposedly raises savings and shift them from unproductive assets towards financial assets, thereby raising the volume of productive investment (McKinnon, 1973; Shaw, 1973).

While it is true that financial liberalisation can shift existing savings towards financial assets (a process that can be termed financial resource reallocation), reallocation is not the only and the most important reasons for financial growth/deepening. It is important to note that financial liberalisation can also lead to deepening by redistributing savings and investment among various sectors and by creating greater opportunities for speculation. Thus, deepening resulting from reallocation and redistribution and the creation of greater opportunities for speculation may not necessary implies/result in a positive development as that may even worsen the use of savings.

Furthermore, redistribution of savings and investment among sectors can, by changing sectoral surpluses and deficits, result in financial deepening without any change in aggregate savings and investment. For example, when higher interest rates redistribute income and savings from debtors to creditors, even when this does

not alter the volume of aggregate savings (i.e. Lower savings of debtors are compensated by higher savings of creditors), it increases deficits and surpluses and, hence, the amount of financial intermediation.[40] In line with Akyuz (1991), this means the tendency exist for financial intermediation to increase while aggregate savings and investment fall.

Similarly, financial deepening can be the result of a redistribution of a given volume of aggregate investment, when for instance, higher interest rates induce households to reduce investment in housing and shift to bank deposits (Where immediate returns are more attractive). The increase in the households' surplus and in the volume of deposits represents a decline in household investment and not a rise in savings.

Financial liberalisation often raises holdings of both financial assets and liabilities by firms and individuals at any given level of income, investment and savings (Akyuz 1993 P.6). The tendency to borrow in order to purchase asset is driven by the increased scope for capital gains generated by financial deregulation. The instability in interest rates and asset prices is most at times propelled by liberalisation, thus raising prospects for quick profits through speculation on changes in the market valuation of financial assets. Also, financial sector liberalisation allow a greater freedom for banks and other financial institutions to lend to finance activities unrelated to production and investment, and to firms and individuals to issue debt in order to finance speculation. All these can generate considerable financial activity and hence financial deepening but unrelated to the real economy.

Deepening can also result from the impact of changes in interest rates on the form in which savings are held. Infact, one of the main reasons why savings do not, in practice though, respond to increases in real interest rates is the existence of a range

[40] Note that the prime role of the financial system in the saving-investment process is to intermediate between deficit and surplus sectors rather than to transfer aggregate savings into aggregate investment.

of assets with different degrees of protection against inflation so that returns on such assets also influence savings decision. Put differently, greater is the influence of interest rates on the allocation of savings among alternative assets relative to the influence on the volume of savings.

We can conclude this by saying that while most studies on finance economic growth relationship have featured financial deepening in estimation of investment function, financial deepening brought about by liberalisation may not necessarily be associated with a higher level and/or better use of savings. Indeed, some empirical evidences do not support the claim that financial growth is associated with faster growth (Dornbusch and Reynoso, 1989). Thus, the degree of financial deepening may not be a good measure of the contribution of finance to growth and development, though that may depend on the chosen measure of financial development, a concern to be attended to in our empirical estimation.

The functional relationship arising from the foregoing posits that interest rate, Income level, domestic credit, financial development and exchange rate, among others, are potential determinants of the level of investment in an economy undergoing financial reform.

Lastly, another key assumption behind financial liberalisation is that raising interest rates leads automatically to factor proportions more in accord with a country's relative factor scarcity. Another look at the causal link between interest rate policy and factor intensity would help to verify this proposition. The verification requires establishing whether or not the real interest rate affects the choice of technology in less developed countries in any systematic manner. To do that, as Khatkhate (1980 p.211) observed;

> ***"A host of complex and often intractable, issues have to be disentangled before coming to any definitive conclusions about the***

magnitude and direction of the effect (that) changes in factor prices would have on factor combinations".

We may wish, therefore, to say that in reality less developed countries have only limited technology options so that factor proportions in these countries cannot be greatly changed simply by changing relative factor prices. Determinants of factor proportions are more likely to include, the production scale and the choices facing producers in developing countries, which are generally narrow, the degree of participation in international trade and the products quality as well as other exogenous factors that influences technology choices which shapes an economy's factor intensity.

However, even if we assume that factor intensity depends on relative factor price, Nissanke (1991) argued that;

"The price of capital good is related to the total cost of capital and not just the interest cost. The total cost of capital is determined not only by production cost but by other fiscal instruments such as profit taxation, depreciation allowances etc. Interest costs constitute the cost of borrowed funds and represent only one element in the total capital cost mix."

With this, it can be said that a country's factor intensity is influenced by, not only the level of interest rates, but also by these other components of capital 'price'. This means the effect of interest rates varies depending on a country's corporate finance structure (i.e. the dominant form of corporate financing as indicated by the average ratio of debt to equity finance; and that of external to internal funds).

It is important to note that the main impulse to financial reforms in developing countries has come from the frustration with ineffective and wasteful intervention and the belief that liberalisation would raise allocative efficiency. This informed why many countries have chosen to liberalize rather than reform their industrial

polices and state intervention. However, is it true that the history of development of the highly industrialized countries has been a history of intervention-free liberal development? And how can allocative efficiency argument hold in an economic environment where incidence of market failures are prevalent as a result of lack of information, inequitable distribution of income, a faulty system of property rights, as well as hosts of other fundamental structural and institutional constraints.

Almost all modern examples of industrialization have been accompanied by state intervention. Directed and preferential credits have been the most important instruments of some successful industrializers in East Asia (Amsden, 1989, Bradford, 1986, Cho and Khatkhate, 1989, and Westphal 1990, among others). In Japan, an important instrument of intervention was policy-based finance, used through the Japan Development Bank "to induce the private sector to achieve specified policy objective" (Somel, 1992). It was based on the recognition that "if private financial markets were perfect (in terms of competition, information and freedom of transaction), policy-based finance would be unnecessary. In reality, there are limits to the perfect fulfillment of these conditions in the financial markets".[41] Thus, policy-based finance is more or less one means of compensating for these market limitations

In South Korea, Lee (1992) observed that "the extensive intervention by the government with South Korea's financial system can be viewed as an internal capital market and consequently led to a more efficient allocation of credit than possible in a free market financial system" (p.187). While some countries have directed credit with much less success, a number of factors seem to separate success from failure in this respect.

i. The ability of government to prevent the interventionist finance from degenerating into inflationary finance; to resist excessive credit expansion and to ensure fiscal discipline. That was why Dornbusch and Reynoso,

[41] See Akyuz (1993) and Somel (1992) for more on lessons from Japan.

(1989) observed that macroeconomic stability appears to have been a more important factor in growth than financial liberalization and deepening.

ii. The making of provision of support conditional upon good performance, and actually to see that government support and protection are actually used for the purposes intended rather than simply as a hand out (Akyuz, 1993)

iii. The design of objective, well defined and market-based performance indicator namely, competitiveness in world markets and export performance in order to assess the nature and extent of the support needed, and whether it is being used effectively (Amsden 1989; and Westphal 1990).

iv. Working out social consensus on the purpose and modalities of government intervention. This means "When the government does intervene in private economic activities or carries out economic activities itself in place of private sectors, it must not merely give some abstract reasons, but rather clearly explain the concrete need for and obtain social agreement on those activities" (Akyuz, 1993).

It would have been rare to record disappointing results of state intervention experienced by many developing countries, had the above factors been taken into account.

On the second inference, the relevant issue in financial reform is efficiency rather than deepening. From the point of view of the role of finance in economic growth and development, the conventional notions of allocative and productive (i.e. cost) efficiency are the most relevant.

Financial institutions and markets can be said to be allocative efficient if they direct resources to their more socially productive uses i.e. they finance investment with the highest social rates of return (Akyuz, 1993 p.8). Allocative efficiency is closely related with the extent of "the accuracy "with which developments in the financial sector reflects developments in the real sector. In other words, market valuation reflecting real sector fundamentals. Prices of financial assets provide market signals for resource allocation. However, studies by Cutler, Poterba and Summers (1990),

Miller and Weller (1991) and Kupiel (1991) provided evidence to show that financial liberalization in industrial countries resulted in a considerable increase in the volatility of interest rates, equity prices, exchange rates and the price of real estate, gold, silver and collectable assets, and caused large and sustained deviation of these from their fundamental values.[42] These deviations reflect perverseness of speculative forces. In the words of Cutler, Poterba and Summers (1990 p.36), "the similarity of pattern in a wide range of assets markets suggests the possibility that they are best explicable as a consequence of the speculative process itself".

In orthodox theory, efficient allocation means a tendency towards equalization of rates of return on investment in different sectors. Also, a more efficient credit allocation is expected to reduce the variation of the cost of finance across borrowers on the assumption that profit maximization requires equalisation of Marginal cost of borrowing and Marginal rate of return on investment.[43] Therefore, since financial liberalisation implies a reduction or elimination of credits on preferential terms, that is expected to reduce variation in cost of capital across sectors. However, a successful industrial policy could reduce variance in borrowing cost by diminishing the number of industries requiring special treatment (Akyuz 1993). It has been argued that the decline in the inter industry variance of borrowing cost in South Korea in the 1980s compared to the 1970s reflects the success of industrialization polices (Amsden and Euh, 1990 pp 43-44) and not of financial liberalisation as suggested by some others (e.g. Cho, 1988).

In case it might be possible to achieve allocative efficiency (in orthodox sense) intra-sectorally, evidence has shown that it has not been possible for the financial reform to lead to inter-sectoral efficiency. This is because, while in some sectors (e.g. Agriculture and industry), their rates of return on investment truly reflect the economic fundamentals, other sectors (e.g. banking) where speculative forces

[42] Fundamental value is that value that is commensurate with developments in the real economy.
[43] In the review of developments in the financial sector carried out in chapter two we could see that, going by the growing interest rate spread, the expected equalization between the marginal cost of borrowing and the marginal rate of return on investment, as a response to development in the financial system following the reforms, has remained elusive.

dominates, their rates of return are an exaggeration of performance of the real economy.

Apart from the distorting effects of speculation on asset price and resource allocation, financial markets in developing countries (even in a deregulated setting) would also fail to allocate resources efficiently because of a number, of imperfections. These include missing markets, asymmetric and incomplete information and various externalities not mediated by markets (Greenwald and Stiglitz, 1986; Stiglitz 1989a; Datta Chadhuri, 1990).

3.3: Model Specification

From the theoretical framework above, the general model in equation 3.15 does not sufficiently capture direct policy variables in a way that would permit an assessment of their impact on output, and so modified output function, showing the relationship between financial sector and economic growth, complemented by a series of control variables that can be introduced in an output model is specified thus,

$Y_{it} = d_0 + d_1FD_{it} + d_2X_{it} + U_{it}$ ---------- *(3.16)*

Where,

Y_{it} = measure of output growth (e.g. growth rate of GDP or GDP per capita);

FD_{it} = a set of financial variables

X_{it} = a set of baseline explanatory variables that have been shown empirically to be robust determinants of growth

The estimable sectoral equations are specified, thus;

$agricY_{it} = d_0 + d_1FD_{it} + d_2X_{it} + U_{it}$ ----------*(3.17)*

$manufY_{it} = d_0 + d_1FD_{it} + d_2X_{it} + U_{it}$ ----------*(3.18)*

$servY_{it} = d_0 + d_1FD_{it} + d_2X_{it} + U_{it}$ ----------*(3.19)*

The *FD* set of variables include price or measure of cost of intermediation (interest rate spread, exchange rate and or inflation rate), measures of financial deepening (the broad money supply–gdp ratio, credit to the private sector-gdp ratio, and the total deposits-gdp ratio), measure of foreign resource flow (net capital flow-gdp ratio), and measure of financial mobilization (savings-gdp ratio). Similarly, the *X* variables include measure of economic instability (ratio of fiscal balance to GDP), measure of public sector activity (ratio of government final consumption to gdp), and measure of investment (ratio of gross fixed capital formation to gdp).

Interest rates (*R*) and their structure are of primary importance in the financial markets, as they affect saving, investment and consumption decisions. For instance, the fluctuation in interest rates is a key variable in the valuation of contingent claims such as interest rate options as well as the selection of optimal hedging strategies for risk-averse investors (Nnanna et al, 2004). It is generally perceived that interest rate play a crucial role in the transmission of monetary policy and economic growth. It is expected that a low positive interest rate will engender capital accumulation, promote investment and, hence, economic growth. In Nigeria, banks lending rates have generally remained high while deposit rates have been low and in most cases negative in real terms. The wide margin between lending and deposit rates has created a disincentive to borrowers and savers alike. This development has the tendency of discouraging investment in the primary (agriculture) and secondary (manufacturing) sectors of the economy, while encouraging investment in tertiary (commerce/distributive trade) activities.

The exchange rate (*Exr*) is the price of domestic currency in terms of foreign currency. It is the rate at which a unit of foreign currency exchanges for local currency. Fluctuations in exchange rate occur during periods of domestic currency appreciation or depreciation. Exchange rate has received considerable attention in terms of its influence on investment and growth. The literature is, however, ambiguous about the direction of the effect of real exchange rate on the level of investment. While a real depreciation of exchange rate raises the cost of imported

capital goods, which, in turn, would lead to a fall in domestic investment; a real depreciation arising from raising the profitability in the tradable goods sector, would stimulate investment in this sector but depress investment in the non-tradable. Given the import dependent nature of the key productive sectors, continued depreciation of the naira exchange rate meant that more resources would be needed to increase domestic output. In the absence of domestic sources of input and inadequate infrastructure, depreciation of the Naira value will raise the cost of production, which will in turn make locally produced goods less competitive compared to their imported counterparts (Egwaikhide et al, 2001). The likely implications of that on the sectoral growth can be inferred.

With respect to domestic credit (*LY*), the general argument is that with reforms, more credit will be directed toward productive activities. The selective and directed credit allocation that characterized the pre-reform credit policy was considered inefficient because such compulsory allocations ended up not been used for the purpose for which they were meant. Credit has remained an essential source of capital for investment as self-financing can support only a limited level of investment. It is expected that with the liberalization of the credit market, an increasing amount of credit would be efficiently allocated to productive sectors, thus, spurring growth.

With respect to fiscal balance (*Fb*), public expenditure (*Gt*) is the total of capital and recurrent expenditure of the government in a particular fiscal year. Total expenditure can be said to be determined by output or income in the economy, external assistance in the form of aids and grants, and borrowing from overseas. However, on the assumption that all other variables that determine expenditure outside income are proportionally less significant, government expenditure can be specified linearly as;

$G_t = \lambda_0 + \lambda_1 Y_t$ ----------(3.20)

In the same vein, total revenue (Rt) to the government can be specified as a function of output or income generated or earned by all economic units in the system. That is;

$R_t = \beta_0 + \beta_1 Y_t$ ----------(3.21)

From equations (4.20) and (4.21), the fiscal balance can be derived from the difference between government expenditure and total revenue. Meaning,

$Fb = (G_t - R_t) = (\lambda_0 + \lambda_1 Y_t) - (\beta_0 + \beta_1 Y_t)$

$(\lambda_0 - \beta_0) + (\lambda_1 - \beta_1) Y_t$ ----------(3.22)

From equation (3.22), $(G_t - R_t)$ gives us the fiscal balance while $(\lambda_0 - \beta_0) + (\lambda_1 - \beta_1)$ are coefficients of fiscal balance. The fiscal balance has the effect of either crowding-out resources that could otherwise have been used in financing production (depending on the nature and or areas of government expenditure) or spurring production (where expenditures have direct bearing with the real sectors).

A moderate domestic price level (P) has the effect of promoting growth as profitability encourages more investment and, hence, more production. On the other hand, high price levels could be growth-thwarting as high production costs translate into high price for goods and services. When incomes are not rising by the same proportion, consumption levels fall; hence, increase in unintended inventory/stock of unsold goods.

As for financial development measure, the use of M2/GDP ratio can be flawed with the argument that less developed countries or developing economies are substantially cash-based economies and because the central monetary authority (the central bank) in these economies are virtually non-autonomous, the ways and means process of financing public deficits tends to expand the cash component of total money supply. For that, the growth in the ratio may not be a good indicator/measure of the level of financial intermediation or development. In this work, the chosen measures are the total deposit-GDP ratio and the Loan-GDP ratio. These measures provide better insights on the response (in terms of the savings and investment behaviour) of economic agents to the reform policies. The general

expectation, therefore, is that increase in these ratios should lead to growth in the levels of savings and investment, and hence growth in national productivity.

Government capital expenditure or public investment is generally expected to be investment and growth – promoting. When government expends public resources in the provision of social and economic infrastructure, the productivity of economic agents is enhanced. In other words, the quality of labour and, hence, its productivity will improve if there is increase in availability of and accessibility to educational and health services. Similarly, increase in the provision of power, water and road infrastructure would not only attract but also increase the profitability of investment. Thus, in line with Keynesian proposition, the role of government activity is accounted for through the variable of government capital or investment expenditure.

On flow of foreign financial resources, there is a long-standing concern that capital inflows will boost consumption and reduce saving, with little effect on investment and growth. Bosworth and Collins (1999) study the effect of capital inflows on investment and savings for 58 developing countries over the period 1978 to 1995. They find that capital inflows have been directed to investment with small but no statistically significant negative impact on national savings. An increase of a dollar in capital inflows is associated with an increase in domestic investment of about 50 cents. Gruben and McLeod (1998) arrived at similar conclusion. Again, Bosworth and Collins (1999) equally find that FDI seem to increase investment one-for-one, while portfolio inflows have no discernable impact on investment and the effect of additional loan is between the two. Collins (2002) lends further support to this view by concluding that FDI inflows do seem to be associated with increases in domestic investment. A similar conclusion is that of Mody and Murshid (2001) who find a strong link between FDI and investment, but find that portfolio flows and loans have smaller effect. Therefore, since the reforms aimed at attracting foreign resources to bridge the saving-investment gap, we consider it necessary for the

empirical assessment to account for the effect of external capital on domestic investment.

With respect to the variable 'ψ', the problem of structural shift is examined in terms of the constancy of the parameters of the model above over the study period. Two sub-periods are identified in this study, the pre-reform and the post-reform periods, which are distinct enough to lead one to expect that structural changes could have occurred – changes that change the behaviour of the economic units. We can state the problem of structural shift by considering the following;

$Y_i = X_i \beta_i + \Sigma_i, \qquad \Sigma_{i\ =\ 1,\ 2}$

Where $Yi_,$ is a vector of observations of the regressand, X_i is a matrix of observations of the regressors, β_i is a vector of coefficients and Σ_i is a vector of disturbances. The hypothesis to be tested is H_0: $\beta_1 = \beta_2$. Chow's test is designed to simultaneously test the shift due to all the regressors in the model. The use of binary dummies enables us to make that comparison between the regressand and all the regressors. The binary dummy variable 'ψ' will take the value 0 for pre-reform years and 1 for post-reform years.

Finally, '*u*' is assumed to be normally distributed with mean zero and constant variance. That is '*u*' ~ *normally* $(0, \sigma^2)$.

3.4 Estimation Techniques:

(a) Unit root tests

Within the general context, the approach to empirical analysis to be employed in this work is econometrics in nature. In examining empirical or causal relationship between or among variables, attention is first paid on the examination of the time series properties by testing for unit roots and co-integration. For any useful regression analysis, it is essential to identify the order of integration of each time series (variables), provided of course, that the variable can be transformed into a stationary variable through differencing. If it follows that y_t has to be differenced d times before it becomes stationary, then y_t is said to be integrated of order d

[denoted as y_t – *I(d)*]. A stationary series is integrated of order zero, *I(0)* (i.e no differencing is necessary), while *I(I)* series will be differenced once to become stationary. The same holds for an *I(2)* series which will need to be differenced twice to become stationary.

One question that we may wish to ask here is, do macroeconomic variables such as GDP, money supply, credit, savings, interest rate, exchange rate, inflation rate, fiscal balance and so on, revert back to some long-run trend following a shock, or do they follow random walk? The importance of this question is that if these variables follow random walks or have different orders of integration, a regression of one variable against other variables can lead to spurious result since OLS estimates would definitely not yield consistent parameter estimates. The assumption that a series y_t is non-stationary can, however, be viewed as a testable hypothesis by performing unit root tests. The unit root test has its origin in the works of Fuller (1976) and Dickey and Fuller (1979, 1981).

Adopting the simple relationships of random walk with drift in addition to time trend, the Dickey-Fuller (DF) test is carried out by applying first, a different operation to equations (a) and (b) respectively:

$\triangle y_t = a + \beta y_{t-1} + e_t$ ----------*(3.23)*

$\triangle y_t = a + b_t + \beta y_{t-1} + e_t$ ----------*(3.24)*

The assumption of unit root can be tested by investigating the significance of y_{t-1} which is based upon either the OLS coefficient estimate (i.e. β) or the associated *t*-statistics in equations (a) and (b). Since the conventional asymptotic cannot be applied, Monte Carlos' methods have been employed to obtain the critical values for *n(b-1)* which are provided by Fuller (1976). If it is certain that the variable is non-stationary in level, then first difference can be taken and the test will be applied to $\triangle y_t$ rather than y_t itself.

One of the drawbacks of the DF test is that it necessarily assumes that the data generating process is an AR(1) process under the null hypothesis. If this assumption does not hold then autocorrelation in residual (e_t) will influence the test. In order to overcome this problem, the augmented Dickey-Fuller (ADF) test can be employed. This is done by generating the basic DF framework of equations (a) and (b) to allow the series of first differences, $\triangle y_t$, to be autocorrelated. The ADF test is implemented by the OLS estimate of the following equations:

$$\triangle y_t = a + \beta y_{t-1} + \Sigma \alpha_i \triangle y_{t-1} + e_t \text{ ----------} \quad (3.25)$$

and

$$\triangle y_t = a + b_t + \beta y_{t-1} + \Sigma \alpha_i \triangle y_{t-1} + e_t \text{ ----------} \quad (3.26)$$

However, the inclusion of a time trend does not guarantee that ADF tests for unit roots will be powerful in every application. Perron (1989) shows that such tests cannot reject the unit root hypothesis when the true data process is a stationary error about a trend function with a one-time break.

(b) Cointegration and Error Correction Modeling.[44]

Granger (1981) hypothesized that economic variables may individually be non-stationary, but are not mutually independent. Rather, there seem to be a mechanism that prevents wide divergence. For instance, it may be that the variable x_t and y_t are random walks but the variable $z_t = x_t - \Phi y_t$, is stationary (where z is the linear combination of the two variables). If this is the case, we can say that x_t and y_t are cointegrated and we can call Φ the cointegrating parameter or vector if x_t and y_t are vectors of variables (Engle and Granger, 1987).

In the event of non-stationarity of the series, we conduct tests of Cointegration. Again, we applied both the DF and ADF test of the residuals of the static (long-run)

[44] The concept of Cointegration implies that if there is a long-run relationship between two or more non-stationary variables, deviation from this long-run path is stationary. Variables may move apart in the short-run but be brought together by market forces, government policy or both. Thus, variables are cointegrated if they are affected by the same long-run influence.

regressions. We can interpret the presence of Cointegration to imply that long-run movements in these multiple time series are related to each other. If the tests confirm the Stationarity of the residuals, then the variables in question are said to be cointegrated. Time series can only be cointegrated if they are integrated of the same order.

The fact that variables are cointegrated implies that there is an adjustment process which prevents errors in the long-run relationship from becoming larger and larger. Engle and Granger (1987) have shown that any cointegrated series will have an error correction presentation. It follows that Cointegration is a necessary condition for error correction model to hold (Engle and Granger, 1991).[45] Phillips and Loretan (1991) have considered a variety of ways of presenting cointegrating systems with particular emphasis on error correction model (ECM) presentation, and such models incorporate both the economic theory relating to the long-run relationship between variables and short-run disequillibrium behaviour.

The starting point of ECM is a test against the null hypothesis that the residuals of the long-run (static) model are non-stationary. Here we apply both the DF and ADF tests to the residuals of the static cointegrating regressions. The evidence of stationarity of the residuals indicates that the variables in the model are indeed cointegrated.

Our next step is to switch to a short-run model with an error correction mechanism. Adopting the Engle-Granger representation, we employ an error correction dynamic specification of the form:

$$\triangle Y_t = \alpha_1 + \alpha_2 \triangle K_t + \alpha_3 (Y\text{-}K)_{t-1} + e_t \text{ ----------(3.27)}$$

$$\triangle Y_t = \alpha_1 + \alpha_2 L(\triangle K) + \alpha_3 (ECM)_{t-1} + e_t \text{ ----------(3.28)}$$

[45] See Hylleberg and Mizon (1989) for detailed analysis of Cointegration and error correction mechanism.

Where Y is the vector of output variable (as defined in equation 3.16 above), K is vector of variables that cointegrate with the dependent variable, L is a general lag operator, and *ECM* is the time series residuals from the cointegrating vectors.

Equation (3.28) incorporates a corrective mechanism by which previous disequilibria in the relationship between the level of Y and the level of one or more of its determinants are permitted to affect the current change in Y. In this way an allowance is made for any short-run divergence in Y from its long-run rate. A complete *ECM* specification of equation 3.16, therefore, takes the form;

$$\triangle Y_t = \alpha_1 + \alpha_2 L(\triangle FD) + \alpha_3 L(\triangle X) + \alpha_4 L\,(ECM)_{t-1} + e_t \text{ ----------(3.29)}$$

apriori; $\alpha_2 <> 0$, while $\alpha_3 > 0$ and, $\alpha_4 < 0$.

Similarly, the selected sectoral error-correction specifications take the form;

$$\triangle agric Y_t = \alpha_1 + \alpha_2 L(\triangle FD) + \alpha_3 L(\triangle X) + \alpha_4 L\,(ECM)_{t-1} + e_t \text{ ----------(3.30)}$$

$$\triangle manuf Y_t = \alpha_1 + \alpha_2 L(\triangle FD) + \alpha_3 L(\triangle X) + \alpha_4 L\,(ECM)_{t-1} + e_t \text{ ----------(3.31)}$$

$$\triangle serv Y_t = \alpha_1 + \alpha_2 L(\triangle FD) + \alpha_3 L(\triangle X) + \alpha_4 L\,(ECM)_{t-1} + e_t \text{ ----------(3.32)}$$

3.5 Sources of Information and Method of Data Collection:

Information covering the study were sourced from official publications (which are secondary in nature), mainly from articles published in both local and international journals, conference papers, mimeos, monographs and related textbooks, among many others.

With regard to the data used in this study, they are sourced from official publications of the Federal Office of Statistics (F.O.S), Annual Reports and Statement of Account, and Statistical Bulletin both of the Central Bank of Nigeria, and the statistical publications of the Nigerian Stock Exchange and the Security and Exchange Commission (SEC). Reference is also made to the United Nations Statistics on National Accounts and the Selected Statistics on African Countries of the African Development Bank (ADB).

The reliance of this work on secondary information was premised on the nature of the study area whose information or data can hardly be sourced elsewhere outside official quarters. However, with respect to conclusions reached in this study, the normal caveat applies.

The Eviews 5 Software was used to estimate and test results of the models

CHAPTER 4

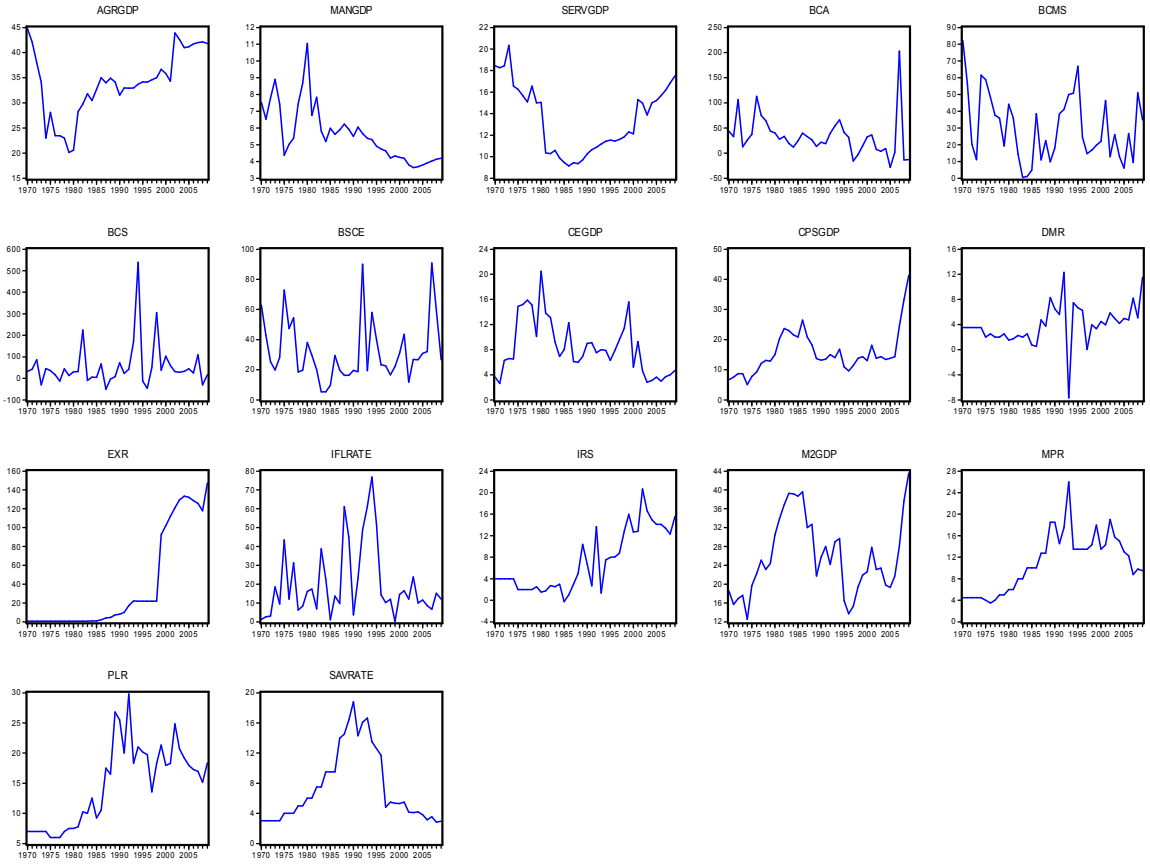
Results and Analysis

The estimation of our augmented output model using the IS-LM framework as derived in chapter four aimed at establishing the relationship between the real sector and the financial sector. This is in a way undertaken by the augmentation of financial factors into the restricted production function. Again, in order to provide for a dynamic specification that will allow for any observable long-run relationship, the error correction specification suggested in the preceding chapter is employed in our estimation.

4.1: Stochastic Properties of Key Variables

To proceed with the test, graph of each series is first visually examined to see whether a trend is present or not as shown in figure 1. A trend variable is necessary in the ADF 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. Form figure 1 below only the exchange rate (EXR) variable exhibits trend characteristic.

Figure 4.1: Graph of selected series used in estimation



Note: BSCE stands for Banking system credit to the economy; CCPSGDP stands for ratio of Credit to the Core Private Sector to GDP; EXR stands for Exchange rate of the naira to the US dollar; GDP stands for Gross Domestic Product; IFLRATE stands for Inflation Rate; IRS stands for Interest rate spread (The arbitrage premium that measure the distortion in the interest rate regime or market distortion); DMR stands for measure of monetary policy distortion on the cost of fund of the marginal bank (obtain as prime lending rate less minimum rediscount rate); PLR stands for Prime Lending Rate; SAVRATE stands for savings deposit rate; MPR stands for monetary policy rate; M2GDP stands for ratio of broad money supply to GDP; BCA stands for Banking system credit to agricultural sector; BCMS stands for banking system credit to the manufacturing sector; BCS stands for banking system credit to the services sector; CEGDP stands for ratio of capital expenditure to GDP; AGRGDP stands for ratio of Agricultural gdp to Total gdp (in real terms); MANGDP stands for ratio of Manufacturing gdp to Total gdp (in real terms) SERVGDP stands for ratio of Services gdp to Total gdp (in real terms).

Sources: Central Bank of Nigeria: Statistical Bulletin and Annual Report and Statement of Accounts (various issues)

In literature, most time series data are non-stationary and using a non-stationary variables in the model might lead to spurious regressions (Granger and Newbold, 1977). The first or second differenced terms of most of the variables will usually be stationary (Ramanathan, 1992).

All the variables are tested at levels, first and second differences for stationarity using the Augmented Dickey Fuller (ADF) and Phillips-Perron tests. The ADF test is favoured over the DF test because the ADF test provides for inclusion of sufficient lag terms to capture the full dynamic nature of the process. One way of determining the number of lagged terms is by examining the significance of the estimated lag coefficients

4.2 The General Model

The results of the unit root and cointegration tests for variables in the general model are presented below.

Table 4.1: Unit Root tests for variables in the general model

ADF and Phillips-Perron Tests

Variable	Trend	At level	1st diff.	2nd diff.	Integration
BSCE	Without	2.88(19.17)	1.16(-0.28)	0.81(-3.74*)	I(I)
EXR	With	-1.39(0.57)	-5.57*(-5.27*)	-9.27*(-18.51*)	I(I)
GDF	Without	7.12(0.64)	-1.05(-2.88)	-4.37*(-5.32*)	I(2)
IFL	Without	-3.36**(-3.21**)	-6.24*(-10.56*)	-6.35*(-20.12*)	I(O)
CCPS/GDP	Without	0.86(-0.06)	-4.26*(-4.22*)	-10.24*(-17.35*)	I(I)
IRS	Without	-0.43(-1.57)	-7.47*(-12.37*)	-7.62*(-23.40*)	I(I)
CEGDP	Without	0.73(0.01)	-8.81*(-8.44*)	-9.79*(-25.08*)	I(I)
PDUM	without	-1.21	-6.16*	-10.25*	I(I)
M2GDP	Without	-1.28(-1.56)	-5.38*(-5.38*)	-10.38*(-16.85*)	I(I)
GDPGR	Without	-5.74*(-5.54*)	-7.68*(-24.33*)	-6.397(-42.31*)	I(O)

Note: Values in parenthesis are Philips-Perron test values.
* Significant at 1% level ** Significant at 5% level
Critical values with trend 1% = -4.25; 5% = -3.54
Critical value without trend 1% = -3.64; 5% = -2.95
Source: Author's computation

The results of the ADF and PP tests are presented in table 5.1. A critical outcome of this finding is that the real sector variable, the GDP growth is I(0), indicating that the variable is not significantly volatile.

As a follow-up and based on the integration tests above, cointegration test are undertaken to verify whether there exists a long-run relationship between financial development variables and economic growth variable for the aggregate model. The

idea here is to avoid spurious regressions, and that is undertaken using the Johansen co-integration test.

Table 4.2: Co-integration tests of the General model

Eigen value	0.944	0.902	0.852	0.761	0.518	0.371	0.315	0.164	0.0005
Hypothesis	r=0	r=1	r=2	r=3	r=4	r=5	r=6	r=7	r=8
Max.Eigen val.	97.84*	78.83*	65.02*	48.65*	24.82	15.78	12.89	6.09	0.02
95% C. V.	58.43	52.36	46.23	40.08	33.88	27.58	21.13	14.26	3.84
Trace Test	349.94	252.10	173.28	108.25	59.60	34.77	18.99	6.11	0.02
95% C. V.	197.37	159,53	124.62	95.75	69.81	47.86	29.79	15.49	3.84

Source: Author's computation

Table 5.2 reports the estimates of Johansen procedure and standard statistics. In determining the number of co-integrating vectors, we used degrees of freedom adjusted version of the maximum eigenvalue and trace statistics, since the existence of small samples with too many variables or lag Johansen procedure tends to over estimates the number of co-integrating vectors (see Civcir, 2003 and Adebiyi et al, 2004). The Johansen co-integration test suggests that there are four co-integrating equations at both 1 and 5 percent levels of significance. In all, the co-integration result implies that there exists a long-run relationship between financial and economic growth variables. In other words, we reject the null hypothesis of no co-integration vector and interpret this as evidence of six co-integrating vectors.

Having explained the unit root and co-integration tests, the co-integrated equation 1 is re-specified as an ECM using Engel-Granger two-step method (with lagged residual as error correction term). The econometric model transformed from the economic model under the ECM framework is our equation 3.29 reproduced below;

$$\triangle Y_t = \alpha_1 + \alpha_2 L(\triangle FD) + \alpha_3 L(\triangle X) + \alpha_4 L\,(ECM)_{t-1} + e_t \text{ ----------} (3.29)$$

Variables are as earlier defined. The ECM is the error correction term (obtained from lagged residual of static regression). All the variables in the equation are stationary

(second order first differenced), and therefore ordinary least square (OLS) method gives consistent and valid estimates (Enders, 1995). The model is estimated by OLS method and the residual is tested for autocorrelation error. The model makes use of annual time series and has lagged dependent variables as explanatory variable. A series of diagnostic tests are conducted to verify stability and to evaluate the predictive accuracy of the model. These tests are essential to judge the validity and acceptability of the conclusions drawn from the model estimates

Table 4.3: Long-run Static Regression Results of Aggregate Model

Dependent Variable: GDP
Method: Least Squares
Sample: 1970 2009
Included observations: 40

Variable	Coefficient	Std. Error	t-Statistic	Prob.
BSCE	5.42E-06	4.71E-06	1.152094	0.2584
CCPSGDP	-0.015270	2.587963	-0.005900	0.9953
CEGDP	-32.08307	15.61679	-2.054397	0.0487
EXR	-0.015710	0.188365	-0.083403	0.9341
GDF	1.27E-05	4.19E-05	0.302248	0.7645
IFL	0.529406	0.233564	2.266642	0.0308
IRS	1.335769	1.751057	0.762836	0.4515
M2GDP	-1.660986	1.853209	-0.896275	0.3772
PDUM	5.729490	11.86917	0.482720	0.6328
C	57.40573	21.97146	2.612741	0.0139

R-squared	0.469179	Mean dependent var	27.12105
Adjusted R-squared	0.309932	S.D. dependent var	26.76300
S.E. of regression	22.23211	Akaike info criterion	9.253270
Sum squared resid	14828.00	Schwarz criterion	9.675490
Log likelihood	-175.0654	F-statistic	2.946246
Durbin-Watson stat	2.366771	Prob(F-statistic)	0.012477

Source: Author's computation

Having checked for cointegration between the contemporaneous economic and financial sector variables, we obtained the long-run results of the financial sector reform-economic growth nexus by estimating the general model (equation 4.29) and testing for stationarity of the residuals. The results of the long-run estimates are

presented in table 5.2b, proving the significance of the variables – ratio of capital expenditure to gdp (CEGDP) and inflation rate (IFL). Other variables such as the measure of intermediation costs (irs), growth in banking system credit to the economy (bsce), credit to the core private sector – gdp ratio (ccpsgdp), measure of financial deepening (M2/gdp) and policy shift dummy (pdum) are insignificant in our static model. Again, some coefficients carried signs in line with our apriori expectations while others did not. For example, the credit to the core private sector-GDP ratio expected to have positive effect on output measured by GDP, yet result from the estimate shows and inverse relationship. This could be reflecting or indicating that the bulk of credit advanced by the deposit money banks to the private sector is hardly channeled into real production activities. In other words, if the bulk of credit advanced is only used to facilitate exchange (trade), and for an economy that is opened and import dependent for household consumables, such advances would have little or no effect on the real sector. In fact, the inverse relationship may be an indication that investors are risk averse and the credit supply has tended to facilitate a drain in the national resources as the economy continue to expend on imports, thus, dampening local production. In line with Adeoye (2008), the negative relationship could be as a result of poor lending activities brought about by high cost of lending in most part of the years under study. Cost of business and the general condition of the business environment can make loans unattractive to investors and entrepreneurs. Until came consolidation, confidence in the Nigerian deposit money banks was marginal. Most investors were scared of putting their resources in banks and other financial institutions due to recurring bank distress. The reforms which produced the 25 mega banks in Nigeria with high capital base have reposed some confidence in the financial industry. The poor performance of the industry in the past may be responsible for the negative impact of measures of financial development on economic growth, and this may not be unconnected with the poor state of the Nigerian economy which has not provided a conducive environment for financial institutions to operate over the years (Adeoye, 2008).

Similarly, another measure of financial development, the ratio of broad money supply to gdp (M2,GDP), which is expected to exert positive effect on the growth of output, is found insignificant and carrying a sign that signifies an inverse relationship with growth in gdp. The general expectation of the reform and as theoretical postulation and empirical findings have demonstrated, financial reforms aims at removing obstacles to financial operation to facilitate financial intermediation, a lubrication that should spur activities in all sectors and grow the economy at large. The non-significance and unexpected sign of the variable could be attributed to policy reversal that occasioned the reforms between 1993 and 1997.

Table 4.4: Unit Root Test of Residual Series

Null Hypothesis: RESID02 has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-7.482203	0.0000
Test critical values:	1% level	-3.610453	
	5% level	-2.938987	
	10% level	-2.607932	

*MacKinnon (1996) one-sided p-values.
Augmented Dickey-Fuller Test Equation

Dependent Variable: D(RESID02)
Method: Least Squares
Sample (adjusted): 1971 2009
Included observations: 39 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RESID02(-1)	-1.193628	0.159529	-7.482203	0.0000
C	-0.449467	3.110574	-0.144497	0.8859

R-squared	0.602079	Mean dependent var	-0.427218
Adjusted R-squared	0.591325	S.D. dependent var	30.38670
S.E. of regression	19.42552	Akaike info criterion	8.820973
Sum squared resid	13961.98	Schwarz criterion	8.906284
Log likelihood	-170.0090	F-statistic	55.98336
Durbin-Watson stat	2.101847	Prob(F-statistic)	0.000000

Source: Author's computation

furthermore, the result may be another vindication of Lucas (1988) submission that financial factors and material factors contribute less to economic growth relative to the contribution of human capital. In other words, injection of financial capital in an environment where the human capital necessary to transform them into real resources is lacking can hardly generate growth. Therefore, in such setting, the impact of financial development in the growth process is very minimal and hardly felt.

The relatively low R^2 shows that the model performance is only fair (goodness of fit). Similarly, the DW statistics indicates a weak acceptance of the null hypothesis of no serial correlation.

The result in table 4.4 is that of stationarity test for residual series generated from the static regression model using the explanatory variables. The result confirmed the existence of linear combination of the variables at I(0) implying that these variables are co-integrated. The result also suggest a rejection of null hypothesis that the least squares residuals are non-stationary. This implies that the explanatory variables in the equation and the dependent variable (total GDP growth rate) are fundamentally related, a case of stable long-term relationship.

4.2.1: The Over-parameterized dynamic Error Correction Model and Parsimonious Regression Result

Following the confirmation of co-integration among the variables, we proceed to specify and estimate the over-parameterized short-run dynamic equation. The equation is specified as an error correction model (ECM) incorporating the one period lagged residual from the static regression. The autoregressive distributed lag technique was used with a maximum lag of 2 to obtained the over parameterized equation (table 4.5). Finally, through sequential elimination, a parsimonious result was obtained as shown below in table 4.6.

In the over-parameterized model, the variables are found to be generally weak in significance although the model's goodness of fit is quite high and free some serial correlation problem. The quality of the result is also demonstrated by low values of the Akaike Information and Schwarz Criteria.

Table 4.5: Over-parameterized Error Correction Model result

Dependent Variable: D(GDP,2)
Method: Least Squares
Sample (adjusted): 1974 2009
Included observations: 36 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(BSCE,2)	5.90E-06	2.48E-05	0.237947	0.8173
D(BSCE(-1),2)	3.08E-05	5.24E-05	0.587323	0.5714
D(BSCE(-2),2)	-6.57E-05	0.000144	-0.456038	0.6592
D(CCPSGDP,2)	-7.028746	4.979817	-1.411447	0.1917
D(CCPSGDP(-1),2)	-1.133082	2.969421	-0.381583	0.7116
D(CCPSGDP(-2),2)	0.855256	4.725230	0.180998	0.8604
D(CEGDP,2)	-43.48220	57.40584	-0.757452	0.4681
D(CEGDP(-1),2)	-59.65574	47.23223	-1.263030	0.2383
D(CEGDP(-2),2)	30.53350	35.46940	0.860841	0.4117
D(EXR,2)	0.330003	0.805661	0.409605	0.6917
D(EXR(-1),2)	0.871484	0.738684	1.179779	0.2683
D(EXR(-2),2)	-1.258953	1.006838	-1.250403	0.2427
D(GDF,2)	-1.30E-05	0.000211	-0.061850	0.9520
D(GDF(-1),2)	0.000326	0.000261	1.251913	0.2422
D(GDF(-2),2)	0.000184	0.000234	0.786785	0.4516
D(IFL,2)	0.045400	0.450677	0.100738	0.9220
D(IFL(-1),2)	-0.225876	0.295351	-0.764772	0.4640
D(IFL(-2),2)	0.345978	0.261046	1.325353	0.2177
D(IRS,2)	4.275305	2.061607	2.073773	0.0679
D(IRS(-1),2)	-1.848452	3.438621	-0.537556	0.6039
D(IRS(-2),2)	-0.032250	3.814047	-0.008456	0.9934
D(M2GDP,2)	-0.451800	2.694450	-0.167678	0.8705
D(M2GDP(-1),2)	3.995879	3.156716	1.265834	0.2374
D(M2GDP(-2),2)	0.284531	3.183112	0.089388	0.9307
D(PDUM,2)	21.02381	33.71210	0.623628	0.5483
RESID02(-1)	-1.470823	0.529539	-2.777553	0.0215
C	1.432624	4.220330	0.339458	0.7421

R-squared	0.968021	Mean dependent var	-0.864860
Adjusted R-squared	0.875637	S.D. dependent var	64.77696
S.E. of regression	22.84370	Akaike info criterion	9.208933
Sum squared resid	4696.511	Schwarz criterion	10.39657
Log likelihood	-138.7608	F-statistic	10.47822
Durbin-Watson stat	1.894450	Prob(F-statistic)	0.000465

Source: Author's computation

The result of the parsimonious model demonstrates the significance of variables in our parsimony. The banking system credit to the economy, ratio of credit to the core private sector to gdp, the ratio of capital expenditure to gdp, exchange rate of the naira to the US dollar, government fiscal deficit, inflation rate, interest rate spread, and ratio of broad money supply to gdp, are all found to be significant.

Table 4.6: Parsimonious Error Correction Model result

Dependent Variable: D(GDP,2)
Method: Least Squares
Sample (adjusted): 1974 2009
Included observations: 36 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(BSCE(-2),2)	-3.25E-05	1.15E-05	-2.817086	0.0098
D(CCPSGDP,2)	-6.061939	1.258688	-4.816077	0.0001
D(CEGDP(-2),2)	16.36406	10.04190	1.629578	0.1168
D(EXR(-1),2)	0.843576	0.250857	3.362773	0.0027
D(GDF(-1),2)	0.000130	5.22E-05	2.496953	0.0201
D(IFL(-1),2)	-0.321329	0.150066	-2.141258	0.0431
D(IFL(-2),2)	0.255609	0.150207	1.701716	0.1023
D(IRS,2)	-5.368398	0.852956	-6.293877	0.0000
D(IRS(-1),2)	-2.894631	0.960334	-3.014193	0.0062
D(M2GDP(-1),2)	3.148907	0.693228	4.542386	0.0001
D(PDUM,2)	12.93396	17.03167	0.759407	0.4553
RESID02(-1)	-1.506842	0.210929	-7.143824	0.0000
C	2.212951	3.173805	0.697255	0.4926

R-squared	0.946594	Mean dependent var	-0.864860
Adjusted R-squared	0.918730	S.D. dependent var	64.77696
S.E. of regression	18.46659	Akaike info criterion	8.944001
Sum squared resid	7843.344	Schwarz criterion	9.515827
Log likelihood	-147.9920	F-statistic	33.97177
Durbin-Watson stat	1.834327	Prob(F-statistic)	0.000000

Source: Author's computation

Though significant, the sign of the coefficient of the banking system credit to the economy depict an inverse effect which is contrary to what is expected. While theory has generally posited banking credit as exerting positive effect on real sector activities, such as the augmented production function of Ho (2005) which accounts

for the contribution of bank credit to aggregate output, accounting for the effect of maturity structure could give rise to a varying effect of the variable on output growth. It is generally expected that growth in credit with longer tenure do provides a leverage of opportunity for investment into ventures that have long gestation period and which are also capable of generating value chains of other activities/investment, thus creating a positive net effect on output. On the other hand, where credits of short term maturity are dominant, their availability and growth can hardly support the emergence of value chains and, hence, little or no effect on output growth. The result we have might just be another way of affirming the fact that credits of short term duration , though important, can hardly spur economic growth compared to those with longer term duration.[46] The significant but negative sign of the coefficient of credit growth variable is a further confirmation of that.

Again, producing similar result is the ratio of credit to the core private sector to gdp. The coefficient though significant carried a negative sign. An inference here could be that the recoded increase in credit to the system, in general, and the core private sector, in particular, might have resulted in less being channel to real sector activities, such as agricultural and manufacturing, and more going into service-related ventures.

The ratio of capital expenditure to gdp is found to be significant, though with a lag in effect, justifying the expectation that for a developing economy constrained by insufficient and weakly-functional infrastructure, increase expenditure to provide physical infrastructure broaden the space of economic activities and grows production and productivity. The coefficient depicts an increasing return to scale for every naira of capital expenditure on output growth. Therefore, it is appropriate to suggest an expenditure restructuring in the Nigerian fiscal system where more of

[46] In view of the fact that credit data used in this analysis are those issued by the deposit money banks whose loan portfolios are dominated by short term instruments.

public expenditure would be on capital-related activities with less allocated to finance recurrent-related activities, particularly those outside of personnel costs.

Government fiscal deficit is significant at 1 percent level and carries a positive sign. Where the financing of deficits does not crowd-out private sector access to capital, such deficits may rather exert positive impact on productivity. Until recently, much of government deficits in Nigeria had been financed by drawing down from reserves and/or borrowing from external sources. An emerging development now is the growth in public debt financed through the local issuance of debt instruments by government (the FGN Bonds, for example) and a significant share of which carries a long term maturity profile. Given that the development is recent relative to the period under study, the implication of the change in government deficit financing pattern may exert the growth thwarting effect expected. Even more unsure is the fact that the resultant effect of the fiscal deficit would depend on type of activities that attract the expenditure of the borrowed resources. If the activities are not recurrent in nature, such as overheads, but more of production and job creation related, a non-inverse relationship with output growth should be expected.

The inflation rate variable is significant at 5 percent level and inversely related to output growth as shown by the sign of the coefficient. The reason for this could simply be that given the low level of income of most Nigerian, there is the tendency of households not affording more of what is offered in the market when prices are higher and leaving producers with stock of unsold commodities. The implication of unplanned inventories is reduction in the level of production, and where the situation persist, reduction in plant size and sometimes layoffs follow. The net effect of that is fall in aggregate output.

Our measure of cost of intermediation, the interest rate spread (IRS) is significant at 5 percent level and the coefficient rightly signed. Since decline in growth is a manifestation of fall in business confidence, the implication of this result is that

monetary policy actions that could result in increase in the spread[47] would generate moral hazards and grow risk aversive investment activities as more borrowed funds will be channeled into service-related, as against production related, activities.

The lagged error correction term ECM(-1) has the expected negative sign (-7.14) and statistically significant at 5 percent level. The result confirms the existence of long-run relationship between the growth in GDP and the explanatory variables. The coefficient of the error term indicates the speed of adjustment of around -1.51. This suggests that following short-run disequilibrium/deviation, about 151percent of the adjustment to the long-run takes place within one period, either by market mechanism, government intervention or a combination of both. At 1.83, the DW does not suggest any evidence of serial correlation.

4.2.2: Diagnostic Tests

To confirm the robustness of the model, we performed the diagnostic tests and the results are as shown in table 5.7 below.

Table 4.7: Summary of Diagnostic Tests for the Aggregate Growth Model

Test	**F - Statistics**	**Probability**
Jarque-Bera Normality	0.688	0.71
Breusch – Godfrey (B-G)	0.015	0.99
White Heteroscedasticity	0.83	0.67
Ramsey Reset	1.33	0.31

Source: Author's computation

The Jarque-Bera test for normality of residual assumption is not violated, therefore the inference is valid. The result showed that the error process could be described as normal. Similarly, the B-G test result indicates the absence of serial correlation, just

[47] Such policy actions can take the form of decision that all prices be market determined without due consideration to the level of development of the financial markets, and the degree of information symmetry, or otherwise, among agents.

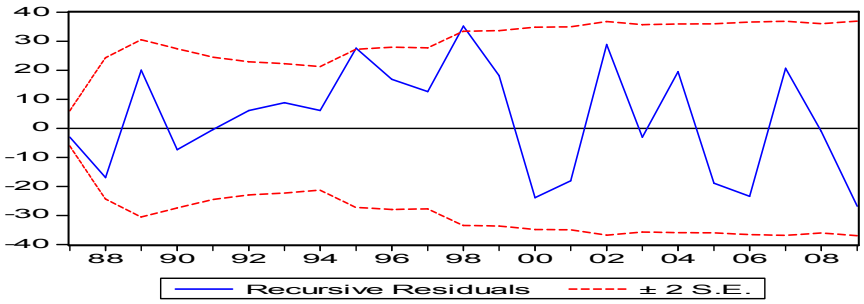
as the absence of White Heteroscedasticity and the specification error (going by Ramsey Reset test) were validated. The results suggest that the model is robust for policy analysis.

4.2.3: Stability Test

Further tests undertaken are those relating to the stability of the model. This is necessary in view of the fact that stability of the model will determine the extent to which we can make forecast concerning behavior of the variables in the model.

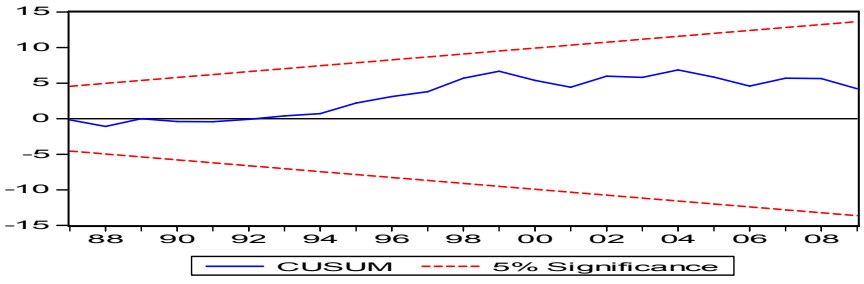
First we examine the recursive residuals of the estimate. Fig. 4.2 shows two different periods when the residuals went beyond the ±2 s.e. bounds. The periods are 1994 and 1998. Thus, except for these periods, in general the residuals were within the bounds.

Fig. 4.2: Recursive Residuals



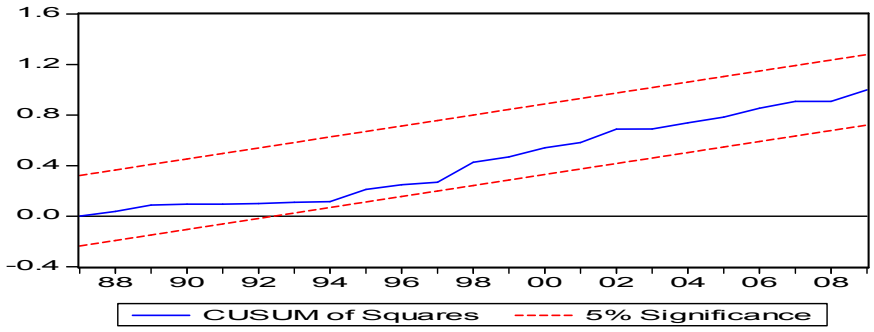
Source: Author's computation

Fig. 4.3: CUSUM Test



Source: Author's computation

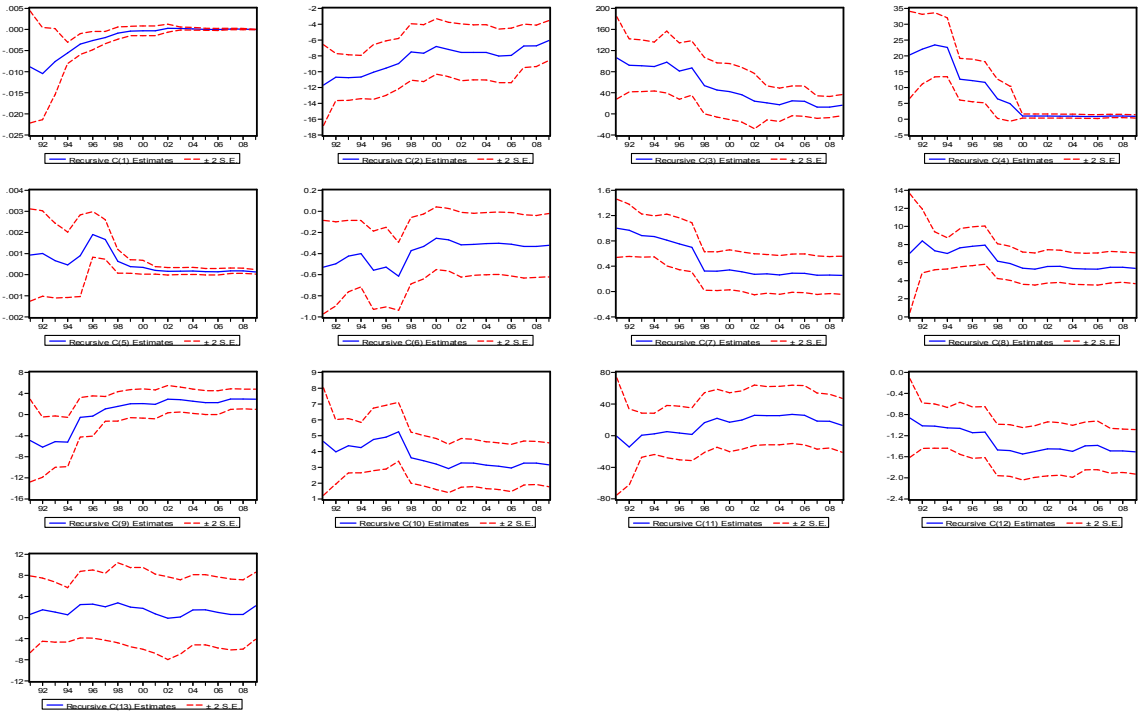
Fig. 4.4: CUSUM Square Test



Source: Author's computation

The cumulative sum (CUSUM) (fig. 4.3) and cumulative sum of squares (CUSUMsquares) (fig. 4.4) tests of residual of the result in table 4.6 gives a better result as the values were within the 5 percent significance bound. The tests, thus far, support the view that the model is relatively stable as shown above.

Fig. 4.5: Recursive Coefficients



Source: Author's computation

With regard to the stability of the coefficients, fig.4.5 present the test report. C(1) represents banking system credit to the economy lagged two periods, C(2)

represents ratio of credit to the core private sector to gdp, C(3) represent ratio of capital expenditure to gdp, and so on. In other words, the graphs in figure 4.6 follow the coefficient reporting format starting with variable of banking system credit to the economy (bsce). We observed from above that except for the coefficients of banking system credit to the economy, exchange rate of the naira to the US dollar and government fiscal deficit, all other coefficients were generally stable. The recursive started from 1991 due to degree of freedom problem. However, it can also be observed from the results that the coefficients of Inflation rate (C6) and the our measure of financial intermediation M2/gdp C(10) records some level of deviations in the years 1995-97. The could be attributed to the policy shift that saw the reintroduction of some measure of regulation.[48] In general, the coefficients could be described as stable over the sample period.

Therefore, on the basis of foregoing result, we reject the null hypothesis that financial developments (measured by selected variables in the model) do not significantly output growth in the economy. In other words, the alternative hypothesis holds true that selected indicators of financial development significantly determines the economy output growth .

4.3: Estimation of the Sectoral Equations

For the purpose of empirical estimation, we have chosen three sectors, agriculture, manufacturing and services to evaluate the possible impact of financial sector reforms on the performance of the sectors. The idea, as espoused in our analytical framework and the methodology of the study is to add value to existing studies on the subject by taking a sectoral assessment of the effects of the behaviour of reform-indicating variables. The choice of the sectors has been informed by the fact that the workings of an economy shows the complementarity among the manufacturing, agriculture and the services sectors. The growth of each is strongly dependent and

[48] This was when the concept of "Guided Deregulation" became operational to justify the macroeconomic management approach of the then military administration.

facilitated by the growth of the others, either as a supplier of factor inputs, final products for consumption or distribution of the factor inputs and final products to economic agents. The imperativeness of this relationship is what make each of these sectors central in the economic progress of any society. In other words, every economy stands on the tripod of these three sectors such that policy designs should be couched in a way and manner that will promote activities in each of these sectors.

4.3.1The Agricultural sector

Owing to the importance of the agricultural sector in terms of its contribution to the GDP (over 40 percent) and being the largest employer of labour in the Nigerian economy, identifying the possible effect of developments in the financial sector on this one important sector is imperative.

To begin with, we tested for the possibility of a long-run relationship among the variables, having established the level of stationarity of the variables. The cointegration test result is as presented below.

Table 4.8: ADF and Philips-Perron Tests – Agricultural Sector Model

Variable	Trend	At level	1st difference	2nd difference
BCA	Without	-5.77*(0.16)	--7.03*(-7.48*)	-7.54*(-25.31*)
EXR	With	-1.39(0.57)	-5.57*(-5.27*)	-9.27*(-18.51*)
M2GDP	Without	-1.28(-0.64)	-5.38*(-2.88)	-10.38*(-5.32*)
IFL	Without	-3.74(-3.21)	-5.39*(-10.56*)	-6.50*(-20.12*)
AGRGDP	Without	-1,81(-0.33)	-6.38*(-7.96*)	-8.06(-36.88*)
IRS	Without	-0.43(-1.57)	-7.47*(-12.37*)	-7.62*(-23.40*)
CEGDP	Without	-2.11(0.01)	-9.16*(-8.44*)	-8.61*(-25.08*)
BSCE	Without	-5.03(-5.03)	-9.40*(-19.06)	-5.70(*-24.53)
CPSGDP	Without	0.369(-0.06)	-4.26*(-4.22)	-10.23(-17.35)
PDUM	without	-1.21	-6.16*	-10.25*
DMR	Without	-6.27(-6.37)	-7.62*(-29.13)	-6.73(-5829)

Note: Values in parenthesis are Philips-Perron test values

* Significant at 1% level ** Significant at 5% level
Critical values with trend 1% = -4.21; 5% = -3.53; 10% = 3.19
Critical value without trend 1% = -3.64; 5% = -2.94; 10% = 2.61
Source: Author's computation

Table 4.9: Johansen Co-integration tests of the Agricultural model

Eigen val	0.979	0.912	0.844	0.810	0.694	0.653	0.570	0.369	0.277	0.137	0.000
Hypothesis	r=0*	r=1*	r=2*	r=3*	r=4*	r=5*	r=6	r=7	r=8	r=9	r=10
Max Eigen Stat	146.4	92.29	70.71	63.17	45.06	40.25	32.09	17.54	12.31	5.59	0.01
95% CV	70.54	64.50	58.43	52.36	46.23	40.08	33.88	27.58	21.13	14.26	3.84
Trace test	525.43	379.03	286.74	216.03	152.9	107.79	67.55	35.45	17.91	5.59	0.01
95% CV	285.14	239.24	197.37	159.53	125.6	95.75	95.76	47.86	29.79	15.49	3.84

Source: Author's computation

The Johansen cointegration test suggest that there are six cointegrating equations at both 1 and 5 percent levels of significance. In all, the cointegration result implies that there exists a long-run relationship between measures of financial reforms and productivity in the agricultural sector. In other words, we reject the hypothesis of no cointegration vector and interpret this as evidence of four cointegrating vectors.

Table 4.10: Long-run Static model- Agricultural Sector

Dependent Variable: AGRGDP
Method: Least Squares
Sample: 1970 2009
Included observations: 40

Variable	Coefficient	Std. Error	t-Statistic	Prob.
BCA	-0.006996	0.018412	-0.379980	0.7067
CEGDP	-1.002117	0.166603	-6.014992	0.0000
CPSGDP	0.032396	0.255618	0.126734	0.9000
DMR	-0.569697	0.284715	-2.000937	0.0548
EXR	-0.034687	0.030438	-1.139601	0.2638
IFLRATE	-0.072502	0.039685	-1.826950	0.0780
IRS	0.689571	0.327634	2.104702	0.0441
M2GDP	0.143084	0.221742	0.645275	0.5238
BSCE	0.071880	0.039231	1.832213	0.0772
PDUM	2.105715	1.876821	1.121958	0.2711
C	34.77621	3.701505	9.395153	0.0000

R-squared	0.772561	Mean dependent var	33.92527
Adjusted R-squared	0.694134	S.D. dependent var	6.572188
S.E. of regression	3.634758	Akaike info criterion	5.647379
Sum squared resid	383.1325	Schwarz criterion	6.111820
Log likelihood	-101.9476	F-statistic	9.850684
Durbin-Watson stat	2.015439	Prob(F-statistic)	0.000001

Source: Author's computation

The result of the long-run static model is presented in table 4.10 following the check on the contemporaneous relationship between the selected financial variables and a measure of productivity in the agricultural sector. The result indicates the significance of four out of the ten variables in the model – ratio of capital expenditure to gdp (cegdp), measure of monetary policy distortion (dmr), inflation rate (iflrate), banking system credit to the economy (bsce) and measure of intermediation cost (irs), though at different levels. The variables equally carried the expected signs.

In terms of model fit, the coefficient of determination is 77 percent and the F-statistic of 9.8 indicates that the model has good fit, given the probability of F-statistics. The model is free from the problem of serial correlation as shown by the DW statistic.

Table 4.11: Result of the Unit root test for the Residual

Null Hypothesis: RESID01 has a unit root
Exogenous: Constant
Lag Length: 1 (Automatic based on SIC, MAXLAG=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-5.270724	0.0001
Test critical values:	1% level	-3.615588	
	5% level	-2.941145	
	10% level	-2.609066	

*MacKinnon (1996) one-sided p-values.

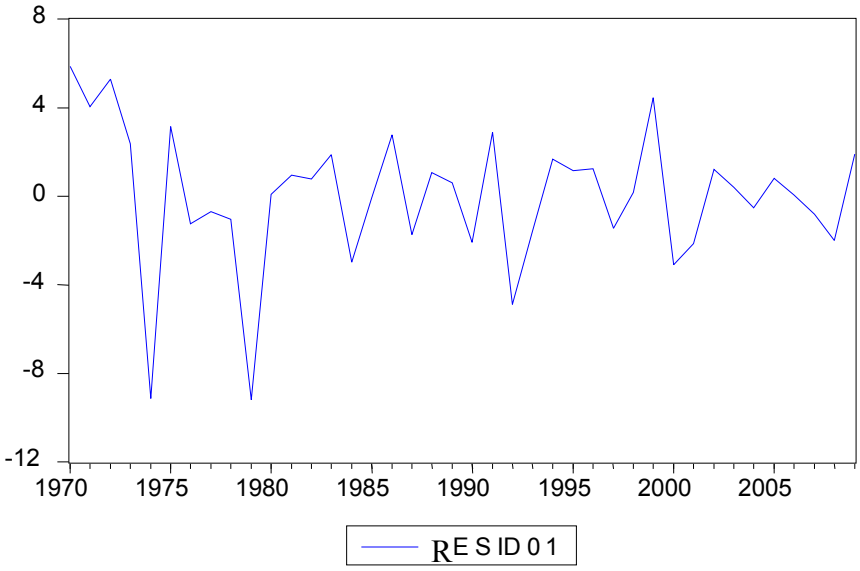
Augmented Dickey-Fuller Test Equation
Dependent Variable: D(RESID01)
Method: Least Squares
Sample (adjusted): 1972 2009
Included observations: 38 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RESID01(-1)	-1.222414	0.231925	-5.270724	0.0000
D(RESID01(-1))	0.079594	0.156430	0.508817	0.6141

C	-0.289658	0.492296	-0.588382	0.5601
R-squared	0.582658	Mean dependent var		-0.056873
Adjusted R-squared	0.558810	S.D. dependent var		4.558354
S.E. of regression	3.027755	Akaike info criterion		5.129177
Sum squared resid	320.8556	Schwarz criterion		5.258460
Log likelihood	-94.45436	F-statistic		24.43206
Durbin-Watson stat	2.057890	Prob(F-statistic)		0.000000

Source: Author's computation

Fig. 4.6: Graph of residual series – agric. model



The result in table 4.11 is that of stationarity test for residual series generated from the static regression model using the explanatory variables at their levels. The result confirmed the existence of linear combination of the variables at I(0) implying that these variables are cointegrated.

Table 4.12: Over-parameterized Error Correction Model

Dependent Variable: D(AGRGDP,2)
Method: Least Squares
Sample (adjusted): 1974 2009
Included observations: 36 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(BCA,2)	0.017253	0.019099	0.903350	0.4012
D(BCA(-1),2)	0.017548	0.027238	0.644241	0.5432
D(BCA(-2),2)	0.018281	0.059495	0.307275	0.7690
D(CEGDP,2)	-0.396162	0.682928	-0.580094	0.5830
D(CEGDP(-1),2)	0.049298	0.648785	0.075985	0.9419
D(CEGDP(-2),2)	-0.109369	0.516231	-0.211861	0.8392
D(CPSGDP,2)	0.092596	0.491664	0.188331	0.8568
D(CPSGDP(-1),2)	-0.280857	0.482269	-0.582365	0.5815
D(CPSGDP(-2),2)	-1.737628	1.426172	-1.218386	0.2688
D(DMR,2)	0.268144	0.695066	0.385782	0.7130
D(DMR(-1),2)	0.477893	0.615813	0.776036	0.4672
D(DMR(-2),2)	0.487213	0.622306	0.782916	0.4634
D(EXR,2)	0.146208	0.174087	0.839857	0.4332
D(EXR(-1),2)	-0.005898	0.124605	-0.047334	0.9638
D(EXR(-2),2)	-0.081714	0.132592	-0.616283	0.5603
D(IFLRATE,2)	0.120930	0.097126	1.245086	0.2595
D(IFLRATE(-1),2)	0.034068	0.089226	0.381820	0.7158
D(IFLRATE(-2),2)	-0.029456	0.106660	-0.276170	0.7917
D(IRS,2)	-0.119610	0.699619	-0.170964	0.8699
D(IRS(-1),2)	-0.683180	0.591664	-1.154677	0.2921
D(IRS(-2),2)	-0.623168	0.659748	-0.944554	0.3814
D(M2GDP,2)	0.383913	0.589718	0.651010	0.5392
D(M2GDP(-1),2)	-0.321422	0.458893	-0.700428	0.5099
D(M2GDP(-2),2)	0.739413	0.543025	1.361657	0.2222
D(BSCE,2)	-0.103296	0.074315	-1.389980	0.2139
D(BSCE(-1),2)	-0.125850	0.098740	-1.274560	0.2496
D(BSCE(-2),2)	-0.049550	0.137266	-0.360982	0.7305
D(PDUM,2)	-3.730176	6.003476	-0.621336	0.5572
AGRESID01(-1)	-1.277602	0.527029	-2.424159	0.0516
C	-0.348953	0.677454	-0.515094	0.6249

R-squared	0.911080	Mean dependent var	0.102566
Adjusted R-squared	0.481301	S.D. dependent var	4.944403
S.E. of regression	3.560996	Akaike info criterion	5.252865
Sum squared resid	76.08417	Schwarz criterion	6.572464
Log likelihood	-64.55157	F-statistic	2.119880
Durbin-Watson stat	1.619453	Prob(F-statistic)	0.176421

Source: Author's computation

The result of the over-parameterized model is reported in table 5.12 above. The parameter estimates along with the standard errors, t-values and the corresponding critical values are given in the table. From the table above, banking system credit to the agricultural sector is found to be insignificant but carries a positive sign. This signifies that the available of financial credit to the sector can spur increase in output of the sector. In other words, the non-optimalization of the sector's potential, notwithstanding its dominance in terms of contribution to the nation's gross domestic product, has been constrained by level of credit availability. Similarly, the exchange rate of the naira to the US dollar and the interest rate spread (proxy for cost of intermediation) are equally not significant with inverse effect on the sector's output performance. This is in line with our apriori expectation that when exchange rate of the naira rises, for a sector that depends on import for a number of factor inputs such as fertilizer and other agro-chemicals, the liberalization and gradual devaluation of the exchange rate of the naira since 1986 and the lack of local private investment to set up industries that would be producing these inputs has affected productivity in the sector. The high cost of farm inputs has always been the cry of the practitioners in the sector.

The challenge of the cost of factor inputs is further affected by the cost of borrowing or access to credit. While government efforts to increase access to credit through credit guarantee and other financial intervention policies have been quite commendable, little has been done in terms of the cost of credit. A number of variables come under the banks' cost function such that the interest rate charge by the banks for general loan applications (agriculture inclusive) is, in most cases, to high for a farmer to either service or eventually repay. World Bank (2002) revealed that high interest rate in the Nigerian financial system is a reflection of the extremely poor infrastructural facilities and inefficient institutional framework necessary to bring about substantial reduction in the risk associated with financing a traumatized economy. It has also been argued that the business environment is

risky and uncertain, coupled with an inefficient judicial system, which makes it difficult for banks to enforce contracts.

From the result, inflation rate tends to have a varying direction of effect o the sector's output going by the signs. Government fiscal deficit has, in most times, been inflationary, exacerbating increase in the cost of production. A caveat to this is that not all fiscal deficits generate negative effect on output, the difference being in the source of the deficit and the financing instrument employed. For instance, where deficit arises from increase in recurrent expenditure and financed by ways and means process, this would surely give rise to increase in cost. This is not the same in effect as fiscal deficits arising from financing of capital projects – infrastructure- which can have the effects of increasing access, reducing cost and stimulating production.

To further lay credence to the foregoing argument, the variable, ratio of capital expenditure to gdp, carried the expected sign. This means, for a growing economy with so much potential lying unexplored, devoting a significant amount of current resources to building capital structure (infrastructure) would leapfrog production activities in the agricultural sector. In other words, the result is simply confirming the position that the weak and, in some cases, lack of key infrastructure has been the bane of growth of economic activities across a number of sectors in the economy.

The result of the parsimonious error correction model is presented in table 4.13. Except for the variables of banking system credit to the agricultural sector (bca) and policy shift dummy (pdum), all other variables in the equations - ratio of capital expenditure to gdp (cegdp), measures of financial deepening, i.e, credit to core private sector gdp ratio (cpsgdp) and broad money supply gdp ratio (m2gdp), exchange rate of the naira (exr), , inflation rate (ifl), measure of intermediation cost (irs), and the banking system credit to the economy (bsce) are all significant though at different levels.

Table 4.13: The Parsimonious Error Correction Model

Dependent Variable: D(AGRGDP,2)
Method: Least Squares
Sample (adjusted): 1974 2009
Included observations: 36 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(BCA,2)	-0.001088	0.005652	-0.192503	0.8492
D(CEGDP,2)*	-0.424962	0.133599	-3.180882	0.0045
D(CEGDP(-2),2)*	-0.296524	0.110156	-2.691860	0.0137
D(CPSGDP(-2),2)*	-0.697587	0.266061	-2.621909	0.0159
D(DMR(-1),2)*	0.546099	0.185748	2.940003	0.0078
D(DMR(-2),2)***	0.172913	0.108467	1.594160	0.1258
D(EXR(-2),2)***	-0.060763	0.038892	-1.562346	0.1332
D(IFLRATE(-2),2)**	-0.045700	0.024691	-1.850916	0.0783
D(IRS(-1),2)**	-0.308593	0.162145	-1.903183	0.0708
D(M2GDP,2)**	0.283588	0.124916	2.270228	0.0338
D(M2GDP(-2),2)*	0.466438	0.160756	2.901531	0.0085
D(BSCE(-1),2)*	-0.075976	0.027040	-2.809719	0.0105
D(PDUM,2)	-1.207654	2.278081	-0.530119	0.6016
ECM(-1)"	-1.614600	0.263641	-6.124247	0.0000
C	-0.636810	0.486137	-1.309940	0.2044

R-squared	0.804696	Mean dependent var	0.102566
Adjusted R-squared	0.674494	S.D. dependent var	4.944403
S.E. of regression	2.820938	Akaike info criterion	5.206353
Sum squared resid	167.1115	Schwarz criterion	5.866152
Log likelihood	-78.71435	F-statistic	6.180345
Durbin-Watson stat	1.661156	Prob(F-statistic)	0.000110

Note *significant at 1% level; **significant at 5%level; ***significant at 10% level
Source: Author's computation

As observed from the estimation output, the measures of financial deepening are both significant but carried different coefficient signs. The inverse sign observed in the credit to core private sector gdp ratio may just be an affirmation of the fact that the flow of credit to the private sector and indeed to the entire as also indicated by the sign of the coefficient of the banking system credit to the economy (bsce) did not favour the agricultural sector. And so even when there is growth in credit, agriculture production ratio tends to decline.

The coefficient of the exchange rate variable indicates that a 1 percent rise in the exchange rate reduces the agricultural production ratio by 0.06 percent. The implication is that a weaken naira against the currencies of Nigerian trading partners would continue to exert dampen effect on the productivity of the agricultural sector, inasmuch as the sector continue to remain dependent on imports for its major inputs.

Similarly a 10 percent increase in the general price level reduces the index by 0.5 percent. The observed price and exchange rate behavious may not be unconnected with the ways by which Government fiscal deficits are financed. The implication is that government fiscal operations up to 2009 have usually resulted in large and growing overall deficits, which have been largely financed through the CBN credit, as CBN is statutorily required to underwrite unsubscribed debt issues, as well as grant credit in the form of Ways and Means Advances (Ojo, 2001). This mode of deficit financing directly increases the monetary base and increases the level of excess liquidity with adverse consequences on price level, exchange rate and agricultural performance.

The coefficient of the ratio of capital expenditure to gdp indicates that a 10 percent increase in the ratio reduces agricultural production ratio by 4.2 percent. This is not suppose to be the case. This is simply an indication that government capital expenditure have had no significant bearing on activities in the agricultural sector. Of course not every infrastructural expenditure can spur growth in the especially when such infrastructural provisions are urban biased. For example, mass housing schemes of governments in urbanized areas, building and rehabilitation of in urban centres, water projects for the benefit of urban centres, building of airports and many of such urban biased activities of government have almost no effect of agricultural production which is wholly a rural activity. It is not just enough to restructure public expenditure in favour of the capital component, but equally important is to be more strategic in the administration of capital expenditure in

favour of sectors that can spur value chain activities. The agricultural sector is one of such sectors. The dire need of the sector in getting key infrastructure in place and functional is unquestionable. The rural sector where the bulk of the agricultural activities take place suffers poor connectivity with the urban centres where the markets are. A substantial amount of the produce of the sector either perishes or get disposed by farmers at a price below what would make them breakeven. Thus, absence of effective roads and rail networks and the lack of storage facilities have constraint growth of production in the sector. It is important that government provide the lead in infrastructural development and, in some cases, involve the private sector through the Public-Private-Partnership (PPP) arrangement.

Therefore, going by the non-significance of the banking system credit to the agricultural sector, the inverse effect of ratio of credit to the core private sector and the economy-wide credit, as well as the inverse effect of exchange rate, the general price level and intermediation cost on agriculture production ratio, we can conclude that the net effect of reforms in the financial sector on agriculture significantly negative.

Cointegration is revealed in the agricultural production model. That is to say that there is a long run relationship between the dependent variable and its explanatory variables. The speed of adjustment to equilibrium in its current period is 161 percent. The parameter of the error correction term is significant at 1 percent and it justifies the use of an ECM specification of the model

Therefore, on the basis of foregoing result, we reject the null hypothesis that financial sector reforms (measured by selected variables in the model) do not significantly affect output growth in the agricultural sector. In other words, the alternative hypothesis holds true that output growth in the agricultural sector in Nigeria has been negatively affected by the selected indicators of financial development over the period under study.

Diagnostics:

Necessary diagnostics to establish the robustness of the results are conducted and results are presented in table 5.14 below. The Jarque-Bera test for normality of residual assumption is not violated (given that the F-Stat of 3.34 is below the threshold value of 5) and therefore the inference is valid. The result showed that the error process could be described as normal. Similarly, the B-G test result indicates the absence of serial correlation, just as the absence of White Heteroscedasticity and the specification error (going by Ramsey Reset test) were validated. The results suggest that the model is robust for policy analysis.

Table 4.14: Summary of diagnostic test for Agric. Sector model

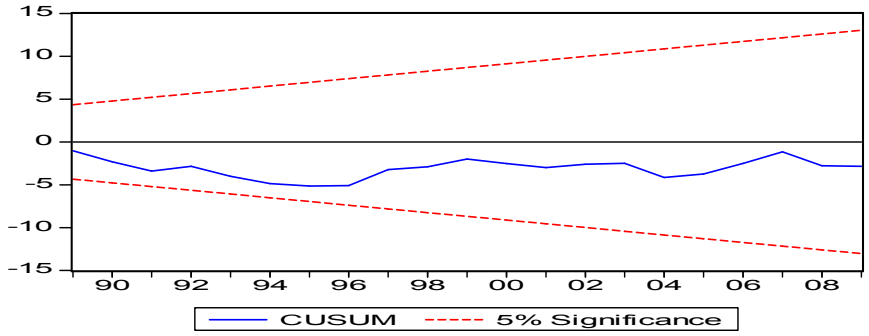
Test	F - Statistics	Probability
Jarque-Bera Normality	3.34	0.1885
Breusch – Godfrey (B-G)	3.594	0.0562
White Heteroscedasticity	3.157	0.0999
Ramsey Reset	3.145	0.0367

Source : Author's computation

Stability Test:

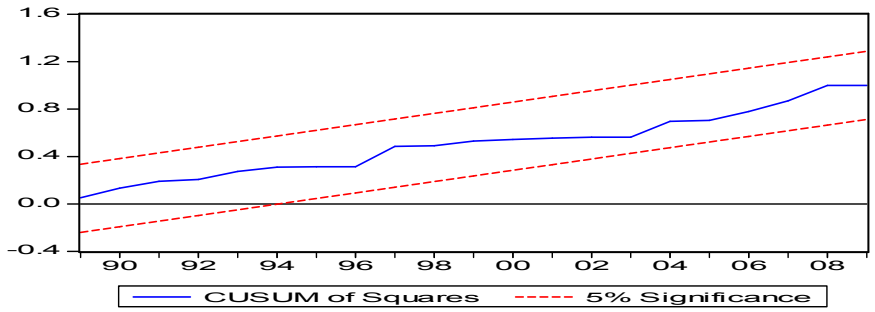
We test for stability properties of the model using cumulative sum of the residuals (CUSUM) and the cumulative sum of squares of the residuals (CUSUM Squares) tests. The CUSUM test is based on a plot of the sum of the recursive residuals. If this sum goes outside a critical bound, one concludes that there was a structural break at the point at which the sum began its movement toward the bound. The CUSUM of Squares test is similar to CUSUM test, but plots the cumulative sum of squared residuals, expressed as a fraction of these squared residuals summed over all observations (Kennedy, 2003).

Figure 4.7: CUSUM Test



Source: Author's computation

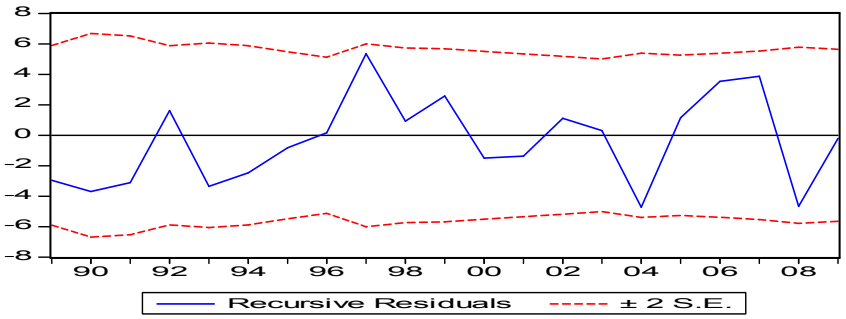
Figure 4.8: CUSUM of Squares Test



Source: Author's computation

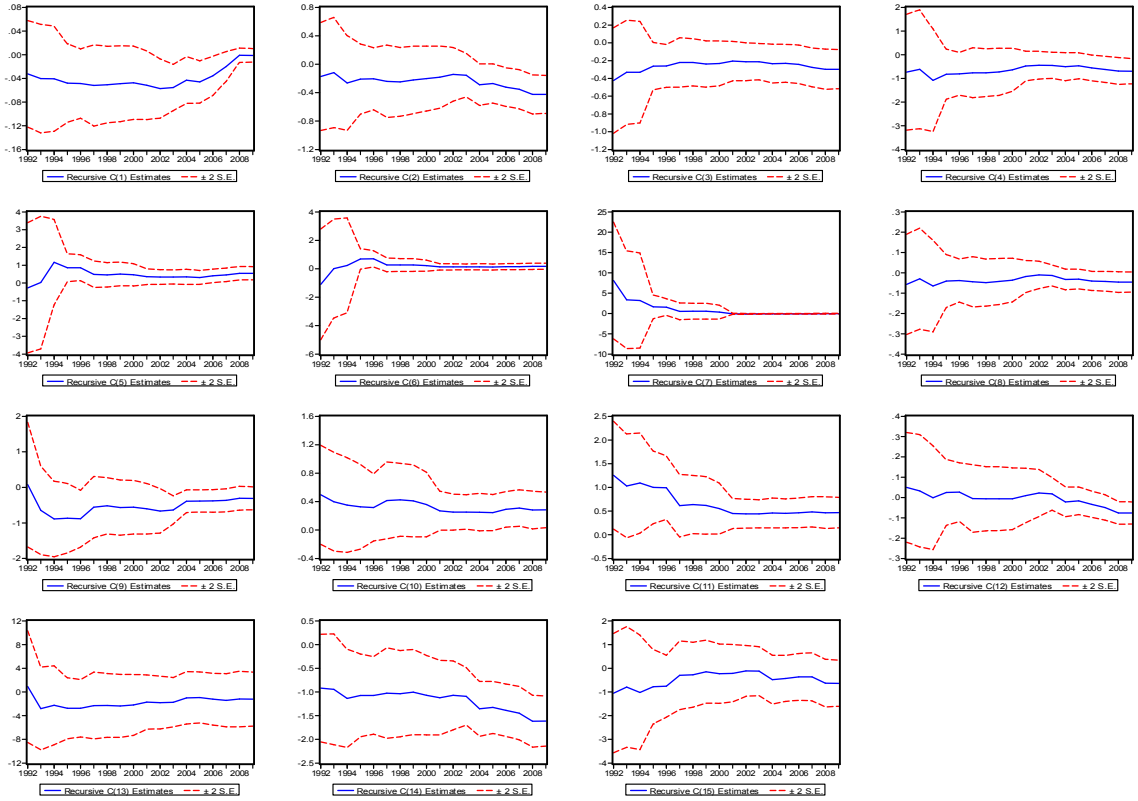
The results of the test are provided in figures 4.7 and 4.8. The existence of parameter instability is established if the Cumulative Sum of the residuals and the Cumulative Sum of Squares of the residuals go outside the area between the two critical (dotted) lines. It is estimated at 5 percent critical level. Thus, for the period under review, stability is established using both the CUSUM and the CUSUM of Squares tests.

Figure 4.9: Recursive residuals



Source: Author's computation

Figure 4.10 Recursive coefficients



Source: Author's computation

On the stability of the coefficients, figure 4.10 present the test report. C(1) represents the banking system credit to the agricultural sector at current period, C(2) and (3) represents capital expenditure at current and lagged two periods, C(4) and C(5) are credit to the private sector gdp ratio lagged two periods and measure of monetary policy distortion lagged one period, and so on. In other words, the graphs in figure 4.10 follow the coefficient reporting format starting with our banking system credit to the sector(bca). We observed from above that the exception of the coefficients of monetary policy distortion measure and exchange rate both lagged two periods, the coefficients of all other variables are relatively stable. The recursive started from 1992 due to degree of freedom problem.

4.3.2The Manufacturing Sector

The manufacturing sector is one important sector whose growth has significant bearing and implications on the development of the others sectors, agriculture and services sector in particular. The manufacturing sector has maintained an abysmally low performance over the years since the introduction of the Structural Adjustment Programme in 1986 and the adoption of the liberal approach to economic management that saw the gradual withdrawal of government involvement in direct production activities, by way of privatization and commercialization of State-Owned Enterprises. The expected private sector response has not been satisfactory, but with that said and done, it is important that an empirical assessment of the policy implications on the performance of the sector be undertaken.

The reforms in the financial sector have been quite broad and introduced at varying period of time. Here we also begin by testing for the possibility of a long-run relationship among the variables, having established the level of stationarity of the variables. The cointegration test result is as presented in table 4.16 below.

Table 4.15: ADF and Phillips-Perron Tests – Manufacturing Sector Model

Variable	Trend	At level	1st difference	2nd difference	Integration
BCMS	Without	-4.55(-4.55)	-7.78(-12.02)	-11.90*(-29.96)	I(0)
EXR	With	-1.39(0.57)	-5.57*(-5.27*)	-9.27*(-18.51*)	I(I)
M2GDP	Without	-1.28(-0.64)	-5.38*(-2.88)	-10.38*(-5.32*)	I(I)
IFL	Without	-3.74(-3.21)	-5.39*(-10.56*)	-6.50*(-20.12*)	I(0)
MANGDP	Without	-0.68(-2,25)	-3.00(**-10.74)	-2.71(-26.49)	I(I)
IRS	Without	-0.43(-1.57)	-7.47*(-12.37*)	-7.62*(-23.40*)	I(I)
CEGDP	Without	-2.11(0.01)	-9.16*(-8.44*)	-8.61*(-25.08*)	I(I)
BSCE	Without	-5.03(-5.03)	-9.40*(-19.06)	-5.70(*-24.53)	I(0)
CPSGDP	without	0.369(-0.06)	-4.26*(-4.22)	-10.23(-17.35)	I(I)
PDUM	without	-1.21	-6.16*	-10.25*	I(I)
DMR	without	-6.27(-6.37)	-7.62*(-29.13)	-6.73(-5829)	I(0)

Note: Values in parenthesis are Philips-Perron test values

* Significant at 1% level ** Significant at 5% level
Critical values with trend 1% = -4.21; 5% = -3.53; 10% = 3.19
Critical value without trend 1% = -3.64; 5% = -2.94; 10% = 2.61
Source: Author's computation

Table 4.16: Cointegration test of the Manufacturing Model

Eigenval	0.966	0.947	0.816	0.692	0.668	0.531	0.480	0.425	0.271	0.171	0.007
Hypothesis	r=0*	r=1*	r=2*	r=3*	r=4*	r=5	r=6	r=7	r=8	r=9	r=10
Max Eigen Stat	128.94	111.88	64.42	44.69	41.87	28.80	24.88	21.04	12.00	7.13	0.29
95% CV	70.54	64.50	58.43	52.36	46.23	40.08	33.88	27.58	21.13	14.26	3.84
Trace Stat	485.95	356.99	245.11	180.69	136.01	94.14	65.34	40.46	19.42	7.42	0.29
95% CV	285.14	239.24	197.37	159.53	125.6	95.75	95.76	47.86	29.79	15.49	3.84

Source: Summary of result in appendix 4

Table 4.17: Long run static model – manufacturing sector

Dependent Variable: MANGDP
Method: Least Squares
Sample: 1970 2009
Included observations: 40

Variable	Coefficient	Std. Error	t-Statistic	Prob.
BCMS	0.008292	0.013228	0.626810	0.5357
CEGDP	0.027259	0.056667	0.481048	0.6341
CPSGDP	0.004676	0.086904	0.053810	0.9575
DMR	0.102348	0.096917	1.056045	0.2997
EXR	-0.008407	0.010361	-0.811490	0.4237
IFLRATE	-0.007124	0.013667	-0.521207	0.6062
IRS	-0.072582	0.111357	-0.651800	0.5197
M2GDP	-0.007949	0.076498	-0.103914	0.9180
BSCE	-0.012838	0.013416	-0.956923	0.3465
PDUM	-1.182504	0.638863	-1.850949	0.0744
C	7.010311	1.358188	5.161519	0.0000

R-squared	0.590847	Mean dependent var	5.640635
Adjusted R-squared	0.449760	S.D. dependent var	1.668895
S.E. of regression	1.237955	Akaike info criterion	3.493216
Sum squared resid	44.44347	Schwarz criterion	3.957658
Log likelihood	-58.86431	F-statistic	4.187816
Durbin-Watson stat	1.179366	Prob(F-statistic)	0.001192

Source: Author's computation

The Johansen cointegration test (table 4.16) suggest that there are five cointegrating equations at 5 percent levels of significance. In all, the cointegration result implies that there exists a long-run relationship between measures of financial reforms and

productivity in the manufacturing sector. In other words, we reject the hypothesis of no cointegration vector and interpret this as evidence of four cointegrating vectors.

The result of the long run static model as shown in table 4.17 indicates only the variable measuring the structural shift (pdum) to be significant. Other variables such as banking system credit to the manufacturing sector (bcms), ratio of capital expenditure to gdp (cegdp), inflation rate (iflrate) and measure of intermediation cost (irs), though insignificant, carried the expected signs.

In terms of model fit, the coefficient of determination is 59 percent and the F-statistic of 4.2 indicates that the model has good fit (given the probability of F-statistics), though suffers the problem of serial correlation as shown by the DW statistic.

The result of the unit root test for the residual series generated from the long run static model as shown in table 4.18 indicates series to be stationary at levels. This is also confirming the existence of linear combination of the variables at I(0) implying that these variables are cointegrated.

Table 4.18: Unit root test of the residual series

Null Hypothesis: RESID01 has a unit root
Exogenous: Constant
Lag Length: 3 (Automatic based on SIC, MAXLAG=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-5.852883	0.0000
Test critical values:	1% level	-3.626784	
	5% level	-2.945842	
	10% level	-2.611531	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(RESID01)
Method: Least Squares
Sample (adjusted): 1974 2009
Included observations: 36 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RESID01(-1)	-1.394420	0.238245	-5.852883	0.0000
D(RESID01(-1))	0.651570	0.180833	3.603154	0.0011
D(RESID01(-2))	0.607228	0.168167	3.610866	0.0011
D(RESID01(-3))	0.330882	0.151074	2.190197	0.0362
C	-0.090532	0.137395	-0.658920	0.5148

R-squared	0.562994	Mean dependent var	-0.064744
Adjusted R-squared	0.506606	S.D. dependent var	1.172676
S.E. of regression	0.823711	Akaike info criterion	2.578252
Sum squared resid	21.03349	Schwarz criterion	2.798185
Log likelihood	-41.40853	F-statistic	9.984307
Durbin-Watson stat	2.182741	Prob(F-statistic)	0.000026

Source: Author's computation

The result of the over-parameterized error correction model is presented in table 4.19. A measure of government investment expected to stimulate growth in the manufacturing sector, ratio of capital expenditure to gdp (cegdp) has a significant relationship with the growth in manufacturing production ratio when lagged and carries the expected sign. An explanation to this could be the fact that because manufacturing activity in Nigeria is significantly constraint by infrastructural deficiency, increase in government financial resources devoted to execution of infrastructural projects would go a long way in stimulating growth in the sector.

The inflation rate (ifl) variable is significant and depicting a positive effect on manufacturing production ratio. In other words, the result indicates that a 10 percent rise in inflation rate increases manufacturing output ratio by 0.4 percent. This is relatively weak and not unexpected in an infrastructural-challenged developing economy, like Nigeria, where the bane of growth in productivity is infrastructure-induced cost and demand signals do not stimulate increase in

manufacturing activities. This has negatively affected the require confidence in the business environment.

Table 4.19: Over-parameterized Error Correction Model

Dependent Variable: D(MANGDP,2)
Method: Least Squares
Sample (adjusted): 1974 2009
Included observations: 36 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(BCMS,2)	-0.016637	0.014860	-1.119624	0.3057
D(BCMS(-1),2)	-0.019661	0.015361	-1.279979	0.2478
D(BCMS(-2),2)	0.071353	0.033371	2.138191	0.0763
D(CEGDP,2)	0.156725	0.123135	1.272793	0.2502
D(CEGDP(-1),2)	0.454204	0.354148	1.282526	0.2470
D(CEGDP(-2),2)	0.728778	0.313591	2.323976	0.0591
D(CPSGDP,2)	-0.386867	0.211603	-1.828269	0.1173
D(CPSGDP(-1),2)	0.428871	0.216328	1.982499	0.0947
D(CPSGDP(-2),2)	0.251025	0.267381	0.938827	0.3841
D(DMR,2)	-0.134075	0.194770	-0.688378	0.5169
D(DMR(-1),2)	-0.146822	0.160963	-0.912149	0.3969
D(DMR(-2),2)	1.018407	0.409097	2.489403	0.0472
D(EXR,2)	0.047170	0.033623	1.402897	0.2102
D(EXR(-1),2)	-0.101343	0.063217	-1.603111	0.1600
D(EXR(-2),2)	0.080357	0.055048	1.459744	0.1947
D(IFLRATE,2)	0.047530	0.033255	1.429262	0.2029
D(IFLRATE(-1),2)	0.073889	0.041070	1.799100	0.1221
D(IFLRATE(-2),2)	0.143374	0.062223	2.304193	0.0608
D(IRS,2)	-0.011979	0.159038	-0.075321	0.9424
D(IRS(-1),2)	-0.328610	0.188566	-1.742681	0.1320
D(IRS(-2),2)	-0.518222	0.209491	-2.473713	0.0482
D(M2GDP,2)	0.150011	0.118865	1.262029	0.2538
D(M2GDP(-1),2)	0.143127	0.125030	1.144738	0.2959
D(M2GDP(-2),2)	-0.076312	0.174923	-0.436263	0.6779
D(BSCE,2)	0.019786	0.019481	1.015694	0.3490
D(BSCE(-1),2)	-0.080322	0.051339	-1.564532	0.1687
D(BSCE(-2),2)	-0.242244	0.103614	-2.337944	0.0580
D(PDUM,2)	-4.341361	2.022870	-2.146140	0.0755
MANRESID01	-0.775137	0.314132	-2.467553	0.0486
C	0.206367	0.217312	0.949634	0.3790

R-squared	0.949172	Mean dependent var	-0.029539
Adjusted R-squared	0.703506	S.D. dependent var	1.851264
S.E. of regression	1.008036	Akaike info criterion	2.728793
Sum squared resid	6.096823	Schwarz criterion	4.048392
Log likelihood	-19.11827	F-statistic	3.863666
Durbin-Watson stat	0.836491	Prob(F-statistic)	0.048464

The interest spread variable is found to be significant and carries the expected sign.

Measure of institutional and economic policy shift proxy using dummy (pdum) is found to be significant. And going by the sign of the coefficient, the result implies that the deregulation of the Nigerian economy has had a negative impact on the manufacturing performance in Nigeria. This is true of a consequence of liberalization policy, inclusive of trade liberalization, that is implemented in an economy whose production structure is import dependent.

Trade liberalization in an economy with weak infrastructure and an a toddling industrial structure has a higher likely implication of flooding the domestic market with foreign manufactures at the expense of local producing industries. Error correction term are found to be significant revealing cointegration in the manufacturing output model.

The result from the estimation of the parsimonious model is presented in table 4.20. Variables in the model were all found to be significant, though at different levels with the exception of our measure of policy shift.

Important in this result is the evidence of a positive effect of banking system credit to the manufacturing sector but negative effect of the economy-wide banking system credit on growth of manufacturing output. A deduction to that is simply that credit directed at manufacturing activities tends to spur activities in the sector but growth in economy-wide credit provision has tended to dampen activities in the sector, possibly owing to the susceptibility of the economy to all kinds of imports. In that light, growth in banking system credit to the economy tends to filter out of the economy in form of payments for imports, a condition that is detrimental to domestic manufactures.

Table 4.20: Parsimonious Error Correction Model for the manufacturing sector

Dependent Variable: D(MANGDP,2)
Method: Least Squares
Sample (adjusted): 1974 2009
Included observations: 36 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(BCMS(-2),2)	0.050533	0.009441	5.352826	0.0000
D(CEGDP(-2),2)	0.246326	0.048443	5.084918	0.0000
D(CPSGDP(-1),2)	0.202995	0.088973	2.281543	0.0321
D(DMR(-2),2)	0.409217	0.083809	4.882724	0.0001
D(EXR(-1),2)	-0.059626	0.017118	-3.483250	0.0020
D(IFLRATE(-2),2)	0.036052	0.012393	2.909056	0.0079
D(IRS(-2),2)	-0.100530	0.065388	-1.537435	0.1378
D(M2GDP(-1),2)	0.146711	0.070382	2.084489	0.0484
D(BSCE(-1),2)	-0.039929	0.009806	-4.071845	0.0005
D(BSCE(-2),2)	-0.089275	0.016307	-5.474610	0.0000
D(PDUM,2)	0.310368	0.931198	0.333300	0.7419
MANRESID01(-2)	-0.466401	0.202385	-2.304521	0.2050
C	-0.000800	0.203818	-0.003923	0.9969

R-squared	0.716366	Mean dependent var	-0.029539
Adjusted R-squared	0.568384	S.D. dependent var	1.851264
S.E. of regression	1.216234	Akaike info criterion	3.503594
Sum squared resid	34.02220	Schwarz criterion	4.075420
Log likelihood	-50.06469	F-statistic	4.840878
Durbin-Watson stat	1.737964	Prob(F-statistic)	0.000590

Equally important is the evidence that measures of growth in financial intermediation, (m2gdp and cpsgdp) are both found to have significant and positive effect on growth in manufacturing output. However, the exchange rate and the intermediation cost effects are significant and inverse in line with the theoretical expectation. The dependence of the manufacturing sector on imports of factor inputs (including labour in some industries) and the interest rate spread have combined to exert a higher cost, therefore, reducing activities in the sector

The model's measure of goodness of fit is 71 percent and free from the problem of serial correlation going by the DW statistic. An important outcome from this result is the evidence of cointegration that is revealed in the model. That is to say there is a

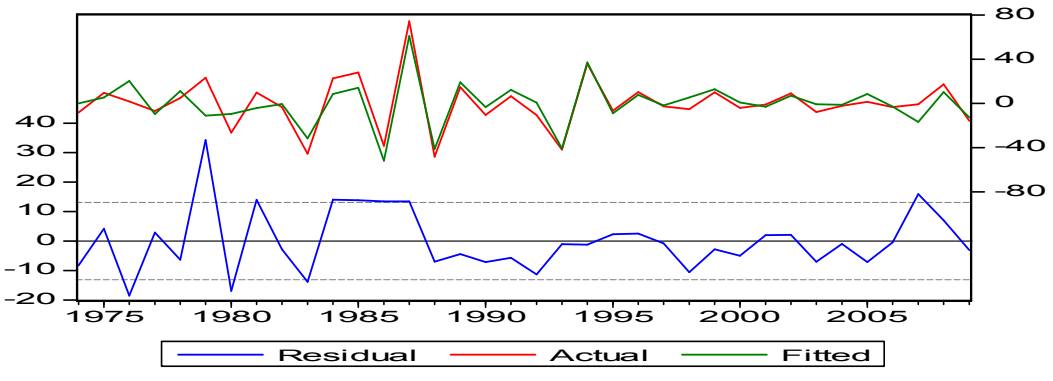
long-run relationship between the dependent variable and the explanatory variables. The speed of adjustment to equilibrium in its current period is 46.3 percent. The parameter of the error term is significant at 5 percent. This result also justifies the use of ECM specification for the model.

Therefore, on the basis of foregoing evidence from our parsimonious estimate, we reject the null hypothesis that financial sector reforms (measured by selected variables in the model) do not significantly affect output growth in the manufacturing sector. In other words, the alternative hypothesis holds true that output growth in the manufacturing sector in Nigeria has had significant but mixed effect from the indicators of financial development over the period under study.

Diagnostic Test:

Again to establish the robustness of the results, we conducted some diagnostic tests and the results are as presented in table 4.21 below. The Jarque-Bera test for normality of residual assumption is not violated and therefore the inference is valid. The result showed that the error process could be described as normal. Similarly, the B-G test result indicates the absence of serial correlation, just as the absence of White Heteroscedasticity and the specification error (going by Ramsey Reset test) were validated. These results also suggest that the model is robust for policy analysis.

Figure 4.11: The Actual and fitted regression lines



Source: Author's computation

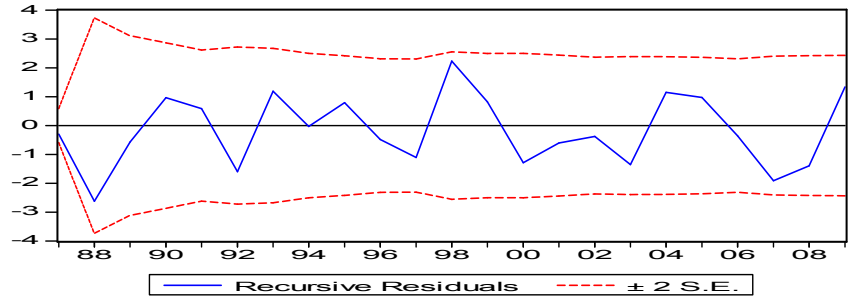
Table 4.21: Summary of diagnostic test for the Manufacturing model

Test	F - Statistics	Probability
Jarque-Bera Normality	1.875	0.392
Breusch – Godfrey (B-G)	1.103	0.350
White Heteroscedasticity	2.214	0.085
Ramsey Reset	2.434	0.068

Stability Test:

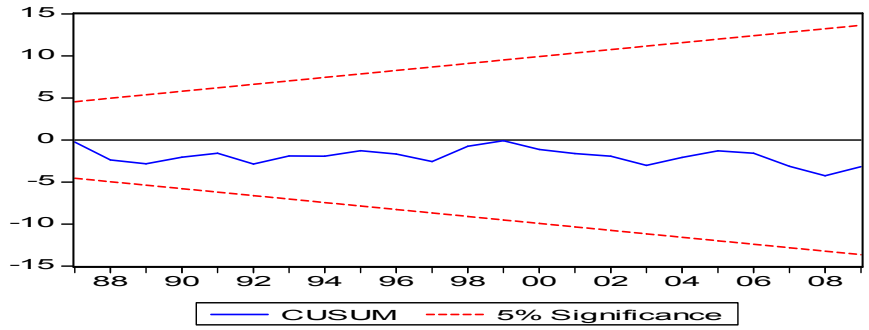
Here we also test for stability properties of the model using cumulative sum of the residuals (CUSUM) and the cumulative sum of squares of the residuals (CUSUM Squares) tests. The CUSUM test is based on a plot of the sum of the recursive residuals and, as has been established, if this sum goes outside a critical bound, one concludes that there was a structural break at the point at which the sum began its movement toward the bound. The CUSUM of Squares test is similar to CUSUM test, but plots the cumulative sum of squared residuals, expressed as a fraction of these squared residuals summed over all observations (Kennedy, 2003).

Figure 4.12: Recursive Residuals



Source: Author's computation

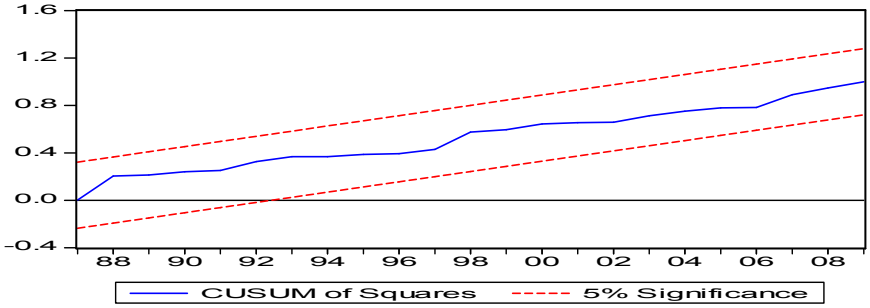
Figure 4.13: CUSUM TEST



Source: Author's computation

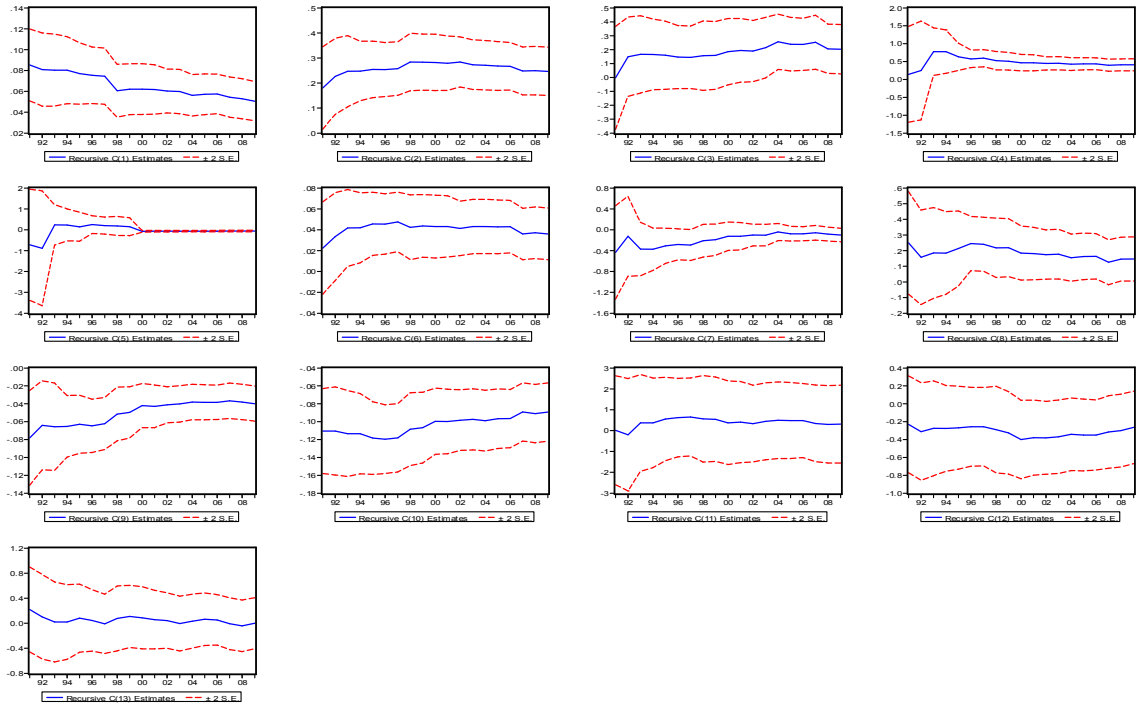
The results of the tests are presented in figures 4.12, 4.13 and 4.14. The existence of parameter instability is established if the Cumulative Sum of the residuals and the Cumulative Sum of Squares of the residuals go outside the area between the two critical (dotted) lines. It is estimated at 5 percent critical level. Thus, for the period under review, stability is established using both the CUSUM and the CUSUM of Squares tests.

Figure 4.14: CUSUM SQUARES TEST



Source: Author's computation

Figure 4.15: RECURSIVE COEFFICIENTS



Source: Author's computation

The recursive coefficients reports stability of the coefficients, figure 4.15 above presents the test report. C(1) represents the banking system credit to the manufacturing sector lagged two periods, C(2) and C(3) represents ratio of capital expenditure to gdp at current period and credit to private sector gdp ratio one period lag, C(4) represents measure of monetary policy distortion, C(5) represent exchange rate at current period, and so on. In other words, the graphs in figure 4.15 follow the coefficient reporting format starting with our banking system credit to the manufacturing sector (bcms). We observed from above that with the exception of the coefficients of measure of monetary policy distortion (dmr) and exchange rate (exr), coefficients of all other variables appeared to be relatively stable. The recursive started from 1991 due to degree of freedom problem.

4.3.3 The Services Sector

This is a broad and an important sector with a number of activities that tend to shape or direct the pattern of developments in the sector. The services industry is strategic in the development process as the sector provides the connection between the producers and their consumers. The services sector in Nigeria is composed of transport and communication, utilities, hotel and restaurant, finance and insurance, real estate and business services, community, social and private services. The various sub-components have had varying performances over the years. For instance, the transport subsector had not faired really well in view of the eventual dependence of the economy on a unimodal transport system which has the road transport as the dominant means of passenger and cargo freighting. The other very important means of transportation such as the rail system, the water ways system and the air transport system, have either suffered neglect, as in the case of rail system, or never developed, as in the case of water ways, or too expensive to be afforded my most Nigerians, as in the case of air transport. The communication industry, on the other hand, has witnessed a remarkable growth, though not until 2001, with the liberalization policy and the subsequent licensing of operators in the industry. The subsector grew from an average of 866,782 fixed wired/wireless lines

in 2001 to 88,348,026 actively connected lines by 2010 (NCC,2011). This is in fact an industry revolution.

The finance and insurance subsector equally witnessed remarkable changes following the introduction of the SAP and the reforms in the financial system especially in areas of exchange and interest rates liberalization, the licensing of new banks, the introduction of specialized banks, such as the Peoples Bank, the Community Banks, urban development bank, the NEXIM bank, the Bank of Industry, among many other new institutions, either as regulators or operators. These have brought in obvious changes in the financial landscape of the Nigerian economy. Hotel and Restaurant, and Real Estate services have also witnessed a boost with the growth of urbanization (as Nigeria is said to be having one of the highest rate of urbanization in the world). The period has also witnessed the emergence of many NGOs involved in a number of different aspects of community and social services. All these have combined to make the services sector the fastest growing sector in the economy.

Here we again begin by testing for the possibility of a long-run relationship among the variables, having established the level of stationarity of the variables. The cointegration test result is as presented in table 4.23 below.

Table 4.22: ADF and Phillips-Perron Tests – Services Sector Model

Variable	Trend	At level	1st difference	2nd difference	Integration
BCS	With	-0.34(3.25)	-9.39*(-3.73)	-21.73*(-1.53)	I(I)
EXR	With	-1.39(0.57)	-5.57*(-5.27*)	-9.27*(-18.51*)	I(I)
GDF	Without	7.12(-0.64)	-1.05(-2.88)	-4.37*(-5.32*)	I(0)
IFL	Without	-3.36**(-3.21)	-6.24*(-10.56*)	-6.35*(-20.12*)	I(0)
SGDPratio	With	-2.03(-2.03)	-5.96*(5.97)	-5.903*(-24.35)	I(I)
IRS	Without	-0.43(-1.57)	-7.47*(-12.37*)	-7.62*(-23.40*)	I(I)
CEGDP	Without	0.73(0.01)	-8.81*(-8.44*)	-9.79*(-25.08*)	I(I)
PDUM	without	-1.21	-6.16*	-10.25*	I(I)

Note: Values in parenthesis are Philips-Perron test values

* Significant at 1% level ** Significant at 5% level
Critical values with trend 1% = -4.25; 5% = -3.54
Critical value without trend 1% = -3.64; 5% = -2.95
Source: Author's computation

Table 4.23: Cointegration Test of the Services Model

Eigen value	0.993	0.922	0.816	0.772	0.636	0.514	0.168	0.010
Hypothesis	r=0	r=1	r=2	r=3	r=4	r=5	r=6	r=7
Max.Eigenval.	189.443	96.847	64.338	56.123	38.448	27.389	6.988	0.370
95% C. V.	52.362	46.231	40.078	33.877	27.584	21.132	14.264	3.841
Trace Test	479.945	290.502	193.665	129.317	73.194	34.747	7.358	0.370
95% C. V.	159.53	125.62	95.75	69.82	47.86	29.80	15.49	3.84

Source: Summary of result in appendix 5

Table 4.24: Long-run static model – Services sector

Dependent Variable: SGDPRATIO
Method: Least Squares
Sample: 1970 2009
Included observations: 40

Variable	Coefficient	Std. Error	t-Statistic	Prob.
BCS	4.42E-07	7.23E-07	0.611238	0.5454
CEGDP	-1.842171	1.374880	-1.339877	0.1897
EXR	0.016648	0.018702	0.890163	0.3800
GDF	-5.49E-06	3.69E-06	-1.485614	0.1472
IFL	-0.033901	0.022694	-1.493852	0.1450
IRS	-0.308574	0.145466	-2.121280	0.0417
PDUM	-3.341289	1.090007	-3.065383	0.0044
C	17.48505	0.751879	23.25515	0.0000

R-squared	0.660907	Mean dependent var	12.93750
Adjusted R-squared	0.586731	S.D. dependent var	3.445003
S.E. of regression	2.214655	Akaike info criterion	4.604927
Sum squared resid	156.9503	Schwarz criterion	4.942702
Log likelihood	-84.09853	F-statistic	8.909931
Durbin-Watson stat	1.234106	Prob(F-statistic)	0.000005

Source: Author's computation

Again, the Johansen cointegration test (table 4.23) suggest that there are six cointegrating equations at 5 percent levels of significance. In all, the cointegration result implies that there exists a long-run relationship between measures of financial reforms and productivity in the manufacturing sector. In other words, we reject the

hypothesis of no cointegration vector and interpret this as evidence of four cointegrating vectors.

The result of the long-run static model for the services sector in table 4.24 shows government fiscal deficit, inflation rate interest rate spread and policy shift dummy to be significant. The result has a high goodness of fit but suffers the problem of serial correlation going by the Durbin-Watson statistic.

Residual series generated from the estimate of the long-run static model when tested for stationarity is found to be white noise at 5 percent level. The result of the unit root test of the residual series is resented in table 4.25below.

Table 4.25: Unit root test of the residual series

Null Hypothesis: RESID04 has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.048374	0.0031
Test critical values:	1% level	-3.610453	
	5% level	-2.938987	
	10% level	-2.607932	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(RESID04)
Method: Least Squares
Date: 04/11/11 Time: 17:13
Sample (adjusted): 1971 2009
Included observations: 39 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RESID04(-1)	-0.617887	0.152626	-4.048374	0.0003
C	-0.010131	0.305005	-0.033215	0.9737

R-squared	0.306978	Mean dependent var	-0.027500
Adjusted R-squared	0.288247	S.D. dependent var	2.257524
S.E. of regression	1.904570	Akaike info criterion	4.176310
Sum squared resid	134.2133	Schwarz criterion	4.261620

Log likelihood	-79.43804	F-statistic	16.38933
Durbin-Watson stat	2.031515	Prob(F-statistic)	0.000253

Source: Author's computation

On the basis of the stationarity of the residual series, we can estimate error correction model for the services sector. To do this, we began with the estimation of an over-parameterized model, the result of which is presented in table 4.26 below.

Table 4.26: Over-parameterized Error Correction model of the Services sector

Dependent Variable: D(SGDP,2)
Method: Least Squares
Sample (adjusted): 1974 2009
Included observations: 36 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(BCS(-1),2)	-0.091161	0.046247	-1.971150	0.0627
D(CEGDP(-1),2)	118779.2	59845.91	1.984751	0.0611
D(CEGDP(-2),2)	-59092.09	45538.78	-1.297621	0.2092
D(EXR,2)	-932.2071	760.5133	-1.225760	0.2345
D(EXR(-2),2)	-4519.841	1501.991	-3.009233	0.0069
D(IFL,2)	-61.62010	460.3373	-0.133859	0.8949
D(IFL(-1),2)	638.9435	532.2703	1.200412	0.2440
D(GDF,2)	0.230099	0.152746	1.506418	0.1476
D(GDF(-2),2)	-0.756983	0.258656	-2.926595	0.0083
D(IRS,2)	-5290.380	3536.995	-1.495728	0.1503
D(IRS(-1),2)	-9995.898	5209.905	-1.918634	0.0694
D(IRS(-2),2)	-7115.775	3586.485	-1.984053	0.0611
D(PDUM,2)	14497.00	44809.17	0.323528	0.7497
D(SGDP(-1),2)	0.016349	0.171078	0.095567	0.9248
RESID01(-1)	-0.126678	0.108028	-1.172640	0.2547
C	9139.088	10043.83	0.909920	0.3737

R-squared	0.890839	Mean dependent var	8915.153
Adjusted R-squared	0.808969	S.D. dependent var	128898.7
S.E. of regression	56337.91	Akaike info criterion	25.01723
Sum squared resid	6.35E+10	Schwarz criterion	25.72101
Log likelihood	-434.3101	F-statistic	10.88108
Durbin-Watson stat	1.962904	Prob(F-statistic)	0.000002

The result, once again, indicates the significance of credit in sectoral growth and development, though with a lag in effct. This is similar to our findings with respect to the manufacturing sector. Ratio of government capital expenditure to gdp,

government fiscal deficit, interest rate spread, and lagged value of the sectoral performance, policy shift dummy and our error correction term (the Lagged value of the residual),were all found to be significant, although some with signs contrary to our apriori expectation.

The performance of these variables in our parsimonious estimate indicates the significance of the variables of banking system credit to the services sector and rightly signed. The implication then is that increase flow of credit and the employment of policies that would facilitate such flows will go a long way in spurring growth in the services sector. As has been well observed, lack of credit availability and the unwillingness of the deposit money banks to grant credit to real sector activities, even when they are awashed with liquidity, has been the bane of growth in economic activities in most sectors of the economy.

Table 4.27: Parsimonious Error Correction Model for the services sector

Dependent Variable: D(SERVGDP,2)
Method: Least Squares
Sample (adjusted): 1974 2009
Included observations: 36 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(BCS(-2),2)	7.88E-06	3.83E-06	2.058715	0.0505
D(CEGDP,2)	-3.969235	1.369815	-2.897643	0.0079
D(CEGDP(-2),2)	1.374978	0.773022	1.778705	0.0880
D(EXR,2)	0.047520	0.026028	1.825719	0.0804
D(EXR(-1),2)	-0.061773	0.034003	-1.816714	0.0818
D(GDF,2)	-1.37E-05	5.92E-06	-2.309468	0.0298
D(IRS,2)	-0.233030	0.063491	-3.670266	0.0012
D(IRS(-1),2)	-0.171556	0.058993	-2.908089	0.0077
D(PDUM,2)	2.303970	1.149052	2.005105	0.0564
D(SERVGDP(-1),2)	-0.396258	0.101732	-3.895103	0.0007
ECM(-1)	-0.569662	0.146184	-3.896893	0.0007
C	0.182344	0.268716	0.678576	0.5039

R-squared	0.792715	Mean dependent var	0.025000
Adjusted R-squared	0.697709	S.D. dependent var	2.800242
S.E. of regression	1.539601	Akaike info criterion	3.962125
Sum squared resid	56.88891	Schwarz criterion	4.489965
Log likelihood	-59.31825	F-statistic	8.343863
Durbin-Watson stat	1.907178	Prob(F-statistic)	0.000008

Source: Author's computation

The ratio of government capital expenditure to gdp is again found to be significant in the model and the sign of the coefficient is negative (at current period) but positive when lagged. With respect to this sector, the sign of the coefficient can be subject to varying interpretation. First is which component of public expenditure induces more activities in the services sector, recurrent or capital expenditure? It can be argued that because service does not involve physical production of goods, instead, it is an intangible good that has an intrinsic quality of meeting the satisfaction of economic agents, recurrent expenditure (which include personnel and overhead costs, statutory and debt transfers) of the public sector with their implications on consumption or demand, in general, would more likely have a propelling effect on services related activities. If so, then increase in the size of recurrent component of total public expenditure would exert positive effect on services sector growth. However, it can also be argued that for a developing economy confronted with the challenge of infrastructure, expenditure in favour of capital projects would likely be more efficacious in growing activities in other sectors of the economy (services sector inclusive). In that case, we would expect a positive relationship between our variable of capital expenditure-gdp ratio (cegdp) and growth in services sector activities as our result has shown. The period-related differences in sign of the coefficients could just be another way of telling us that increase in capital expenditure do not usually favour services relate activities at the time when they are being effected, but would most certainly promote or grow activities in the sector as time goes by. This is the lag implication of public expenditure on capital-related activities.

The exchange rate variable is also found to be significant and carries the expected sign when lagged. Again as explained in the result of our manufacturing sector estimate, because of the openness of the economy resulting from the trade and exchange rate liberalisation, variation in exchange rate would definitely exert strong impact on sectoral activities. The strong and negative effect of exchange rate on

growth of the services sector can be explained by the fact that because of the import dependent of the economy on goods and services, a fall in exchange rate either by way devaluation or depreciation (such that more naira is needed to exchange for a dollar), would increase costs and, thus, reduce volume of activities in the sector.

With respect to government fiscal deficit, its significance and the negative sign (at current period) of the variable's coefficient but positive when lagged, could just be another demonstration of the fact that government is the major spender and so driving activities in the economy. In other words, because the private sector in Nigeria is not fully developed, thus, lacking in capacity that can drive the growth process, public sector fiscal activities would continue to exert strong effects on sectoral performances.

The inflation rate variable in the model is significant at 10 percent level and positively signed. The implication of this is that rising general price level has tended to attract more participants and increase activities in the services sector. This is not unexpected in view of the fact that some service related businesses involve activities that may not require large initial cost outlay, with opportunity for rent seeking and transferring cost to the consumers, the possibility of enjoying super normal profit can result in growth in activities in the sector even in the face of rising general price level in the economy.

The sign of the coefficient of the interest rate spread, a measure of cost of financial intermediation, in this result is negative. While the significance of the variable implies that activities in the sector are cost-responsive, it is rightly expected that the relationship will be inverse, that is to say, lower intermediation cost will stimulate increase in activities in the sector. In other words, what the result above is saying is that rising cost of financial intermediation has tended to lower activities in the sector. An explanation to that could be because financial intermediation is a service activity and so a component of services sector activities, rising cost of intermediation

activities would lower the volume of financial intermediation and hence lower level of activities in the sector. Another explanation could be because the market structure and the environment leaves the consumer with little or no alternative, transferring a significant proportion of the cost to the final consumers has tended to lower their demand for services.

The policy shift dummy is here found to be significant and carries a sign with the implication that the change in policy strand that ushered in the structural adjustment programme and the eventual liberalization of the economy had a dampening and strong effect on the performance of the service sector activities.

The lagged error correction term ECM(-1) has the expected negative sign (-3.90) and statistically significant at 5 percent level. The result also confirms the existence of long-run relationship between the growth in the ratio of service sector gdp to total gdp and the explanatory variables. The coefficient of the error term indicates the speed of adjustment of around -0.57. This suggests that following short-run disequilibrium/deviation, about 57 percent of the adjustment to the long-run takes place within one period, either by market mechanism, government intervention or a combination of both. At 1.91, the DW does not suggest any evidence of autocorrelation.

Diagnostic Test:

In order to establish the robustness of the results diagnostic tests are conducted and results are presented in table 4.28 below. The Jarque-Bera test for normality of residual assumption is not violated (given that the F-Stat of 1.584 is below the threshold value of 5) and therefore the inference is valid. The result is showing that the error process could be described as normal. Similarly, the B-G test result indicates the absence of serial correlation, just as the absence of White Heteroscedasticity and the specification error (going by Ramsey Reset test) were validated. The results suggest that the model is robust for policy analysis.

Table 4.28: Summary of diagnostic tests – Services model

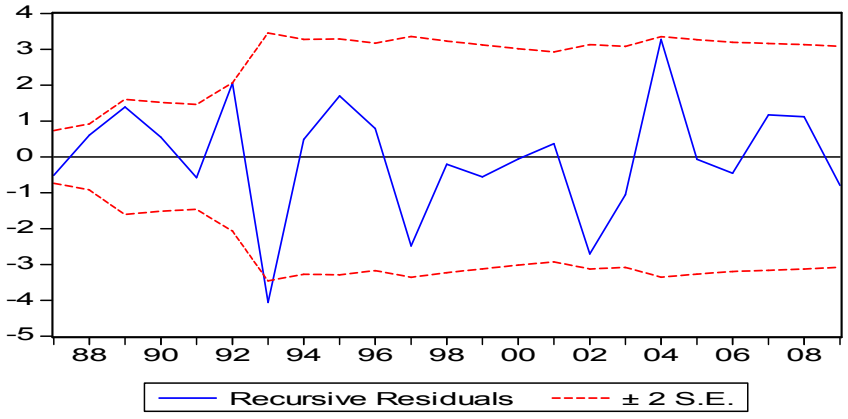
TEST	F-Statistic	Probability
Jarque-Bera Normality	1.584	0.453
Breusch – Godfrey (B-G)	2.249	0.129
White Heteroscedasticity	0.950	0.557
Ramsey Reset	1.648	0.191

Source: Author's computation

Stability Test

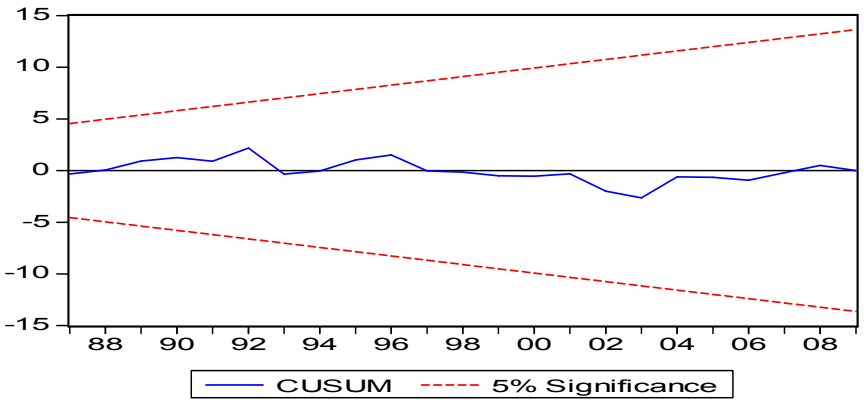
We test for stability properties of the model using cumulative sum of the residuals (CUSUM) and the cumulative sum of squares of the residuals (CUSUM Squares) tests. The CUSUM test, as we have said, is based on a plot of the sum of the recursive residuals. If this sum goes outside a critical bound, one concludes that there was a structural break at the point at which the sum began its movement toward the bound. The CUSUM of Squares test is similar to CUSUM test, but plots the cumulative sum of squared residuals, expressed as a fraction of these squared residuals summed over all observations (Kennedy, 2003).

Figure 4.17: Recursive residuals



Source: Author's computation

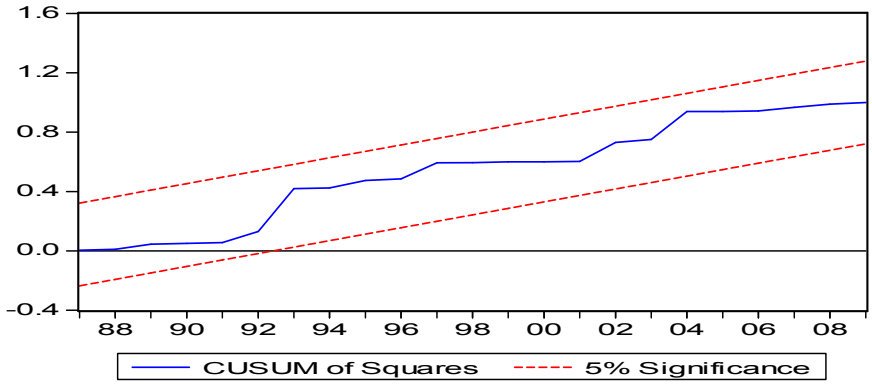
Figure 4.18: CUSUM TEST



Source: Author's computation

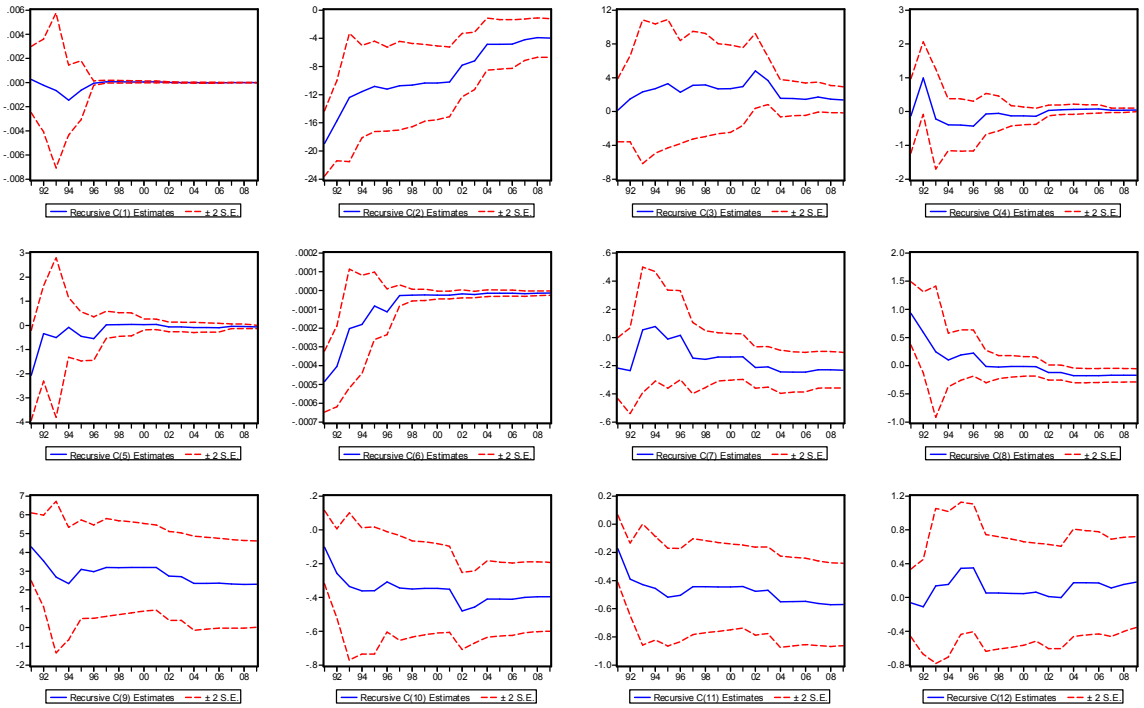
The results of the tests are presented in figures 4.17 and 4.18. Again, as argued, the existence of parameter instability is established if the Cumulative Sum of the residuals and the Cumulative Sum of Squares of the residuals go outside the area between the two critical (dotted) lines. It is estimated at 5 percent critical level. For the period under review, stability is established using the CUSUM and the CUSUM of Squares tests.

Figure 4.19: CUSUM of Squares Test



Source: Author's computation

Figure 4.20: Recursive Coefficients



Source: Author's computation

On the stability of the coefficients, figure 4.20 presents the recursive coefficient test report. C(1) represents the banking system credit to the services sector lagged two periods, C(2) and (3) represents ratio of capital expenditure to gdp at current period and at two periods lag, C(4) and C(5) represents exchange rate of the naira at current period and when lagged two periods, and so on. In other words, the graphs in figure 5.19 follow the coefficient reporting format starting with our banking system credit to the services sector (bcs). We observed from above that the coefficients of ratio of capital expenditure to gdp (cegdp) at both current period and when lagged two periods, interests rate spread at current period (irs), policy shift dummy (pdum), and that of lagged dependent variable (stgdpratio-1) were generally stable. Others were less stable. Again, the recursive started from 1992 due to degree of freedom problem.

Therefore, on the basis of foregoing result, we reject the null hypothesis that financial development (measured by selected variables in the model) does not

significantly determines output growth in the services sector. In other words, the alternative hypothesis holds as evidence by the significant and positive effect of measures of financial reform on services sector output growth.

CHAPTER 5

Summary, Conclusion and Recommendations

5.1: Summary:

Though the global economy suffered over the 2007 -2009 period following the financial crises that began in the United States, spreading across Europe and other economies around the world, the significance of finance, and, in particular, the reforms that began in the 1980s following the resurgence of the neo-liberal economics in stimulating economic growth has become undoubtful. Evidences from a number of countries have vindicated the significance of finance to economic growth. This is not to say that there have not been variations from the evidences in country-specific terms, but not significant enough to prove otherwise in finance-economic growth relationship.

The study was structured into six chapters organized into introduction, review of policy developments, theoretical and empirical literature, methodology results and analysis and conclusion.

In our findings, we saw from the parsimonious error correction estimates of the aggregate model that the coefficient of growth in banking system credit to the economy, though significant, carries a wrong sign. This is contrary to expectation though the effect of maturity structure of the credit could give rise to a varying effect of the variable on output growth. The result also show capital expenditure to be significant, though with a lag in effect, justifying the expectation that for a developing economy constrained by insufficient and weakly-functional infrastructure, increase expenditure to provide physical infrastructure broaden the space of economic activities and grows production and productivity. The coefficient depicts an increasing return to scale for every naira of capital expenditure on output growth.

The inflation rate was found to be inversely related to the output growth and significant. This is in line with expectation that increase in general price level following reforms may rather exert a damning effect on productivity growth particularly in low income countries where purchasing power is low. The implication of unplanned stock of unsold goods is reduction in the level of production, and where the situation persist, reduction in plant size and sometimes layoffs follow with the net effect of fall in aggregate output. In similar vein, the result indicates a significant and damning implication of high intermediation cost measured by interest rate spread. In other words, the high intermediation cost would only promote risk-aversive investment activities which sees more investment undertaken in services sector as against manufacturing or agricultural sector. The result also confirm the existence of a long-run relationship between growth on output and the explanatory variables. The model performed well in term of the normality and stability test.

With respect to the sectoral estimates, the parsimonious error correction result for agricultural sector, having established the level of stationarity of the variables in the model and tested for their possible long-run relationship, indicates banking system credit to the agricultural sector having no significant effect on agricultural output growth while ratio of government capital expenditure to gdp to be significant but inversely related to growth in the sector's output, thus, indicating the dire need for encouraging credit availability to the sector and getting basic infrastructure in place and functional. Infrastructure provision have been more favourable to urban areas relative to the rural areas. For instance, a bulk of expenditure on works and transport have been skewed towards linking and providing for urban centres. Exchange and inflation rates were also found to have significant inverse effect on agricultural output growth. The implication then is that sustained fiscal deficits over the years and their mode of financing have given rise to increase in the monetary base and, hence, increase in the level of excess liquidity with adverse consequences on general price level, exchange rate and agricultural performance.

The result of the manufacturing sector model also affirmed the significance of the banking system credit to the manufacturing sector, ratio of capital expenditure to gdp and credit to private sector gdp ratio. Equally significant but inversely related to growth in manufacturing output are exchange rate and the financial intermediation cost. The model also passed the normality and stability test.

With respect to the services sector, the banking system credit to the services sector was found to be significant, just as other variable in our parsimonious error correction equation were also found to be significant. It has become obvious from the result that exchange rate and financial intermediation cost have significantly affected the growth of the sector negatively, but that notwithstanding, the liberalisation policy has raised the level of activities in the sector as demonstrated by the significance of the policy shift dummy.

5.2: Conclusion:

The significance of finance in economic development cannot be over flogged in view of the role finance has played fostering growth of advanced economies of the world and other fast growing economies of today. Policies that would ease the playing of such a role by finance have come to be given a pride of place in policy discourse and empirical researches have produced evidential proof of not only how changes in the financial landscape have spurred growth in the real sector but also how and why policy designs must be painstakingly pursued to produce the expected result.

In Nigeria, while major policy reforms in the financial sector have been introduced with varying degrees of implementation, the net effect has invariably fallen short of expectation. The problem might not be policy per se but the underlying assumptions whose variances with the fundamentals in the economy have constrained their appropriate and full effect.

Empirically, we have been able to demonstrate the aggregate economy and sectoral performance effect of the financial reforms, 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.

5.3: Recommendations:

Arising from the findings of this work, we wish to strongly recommend the following;

i. That given the varying sector-specific effects of financial reforms, on-going reforms in the financial sector and, indeed, future reforms in the sector should be designed to be sector-specific as outcomes arising from across-the-board policy application are usually inequitable. For example, to expect sectors such as agriculture and manufacturing, in a developing economy like Nigeria, to respond positively to market-determined rate of interest for capital is to be unrealistic.

ii. That a deliberate effort at supporting activities in the agricultural and the manufacturing sectors of the economy is of utmost necessity. Mere reliance on market forces to direct activities in these sectors would not produce the expected outcome as capital is costly to be accessed or obtained in the market place. The attempt being made by the current administration with the sectoral intervention funds from the Central Bank of Nigeria is a step in the right direction. What is however required is that the policy be followed by an implementation process that eases access to the funds by the expected beneficiaries.

iii. That government appreciate the fact that the appropriate effect of the financial sector on other sectors in the economy is strongly dependent on the availability of key, adequate and functional infrastructure whose provision can fundamentally grow investors and public confidence as

well as ease the cost and process of doing business in the economy. In the light of this, restructuring public expenditure in favour of more resources of the government going into infrastructure provision will be a welcome development as results have shown the significant effect of the ratio of capital expenditure to gross domestic product. Doing so would have the twin effect of attracting private sector investment that would create jobs and raise households income levels, as well as, reducing the recurrent expenditure of the government by way of changing the current structure where government is the largest employer of labour.

iv. That monetary policy actions that could give rise to increase in intermediation cost, hence, generating moral hazards and grow risk-aversive behaviour, should be watched against because such actions have the tendency of promoting more of service-related activities at the expense of production-related activities. Growth substantially platformed on services is not sustainable.

v. That further research is needed in investigating the relative effects of cultural heritage, religious beliefs and institution building on financial development in Nigeria, just as further research may also be necessary to investigate the possible effect of demographic changes, as verified on our various census results, on rate of domestic savings and investment and their net effect on economic development.

BIBLIOGRAPHY

Acaravci, A; Ozturk, I and S.K. Acaravci (2007) "Finance-Growth Nexus: Evidence from Turkey", *International Research Journal of Finance and Economics,* Issue 11, 29 - 40

Adam, C.S (1992) "Recent Development in Econometric Modeling Methods: An Application to the demand for Money in Kenya" *AERC Special Paper 115*, Oxford, Centre for the study of African Economies.

Adekanye F.A (1990) "Major Developments and Innovations in the Nigerian Financial Environment Since 1960" In papers and Proceedings of the Bank Directors' Seminar on Innovations, Technology and the Nigerian Financial Sector. Financial Institution Training Centre (FITC), Lagos

Adeoye, B.A. (2007) 'Financial Sector Development and Economic Growth: The Nigerian Experience". Paper presented at the 48th Annual conference of the Nigerian Economic Society. Abuja Sheraton and Towers, 22nd – 24th August 2007.

Adeyemi K.S. (2002) "The Nigerian Banking System in a Historical Perspective". in Stein H, Ajakaiye O. and P. Lewis (ed) Deregulation and the Banking Crises in Nigeria. Pelgrave Publishers Ltd, New York

AERC (1996) "The impact of Financial Sector reforms on Domestic Resource Mobilization for Investment in Africa". Second Senior Policy Seminar, November.

Afolabi, J.A (1995) "An Assessment of the impact of Inflation on Financial Intermediation in the Nigerian Banking sector" *NDIC Quarterly*, Vol. 5 No. 1 March

African Agenda (2000) The Facts: *African Agenda, Vol.3, No. 4*

Agbawn, M.O (1998) "Financial Deepening and Economic Growth in Nigeria." Being an M.Sc Thesis submitted to the Dept. of Economics A.B.U Zaria.

Aigbokan, B.K (1996) "Financial Development and Economic Growth: A Test of Hypothesis of Supply-leading and Demand-following

Finance with Evidence on Nigeria." *Nigeria Economic and Financial Review*, Vol 1. No. 1

Ajakaiye O. (2002) "Banking Sector Reforms and Economic Performance in Nigeria". in Stein H, Ajakaiye O. and P. Lewis (ed) Deregulation and the Banking Crises in Nigeria. Pelgrave Publishers Ltd, New York

Ajayi, S.I (1990) "Appraisal of the Nigerian Financial System". In papers and Proceedings of the Bank Directors' Seminar on Innovations, Technology and the Nigerian Financial Sector. Financial Institution Training Centre (FITC), Lagos

Alayande, B.A.(2007) "Financial Sector Liberalization and Economic growth in Nigeria", Paper Presented at the 48th Annual Conference of the Nigerian Economic Society. Abuja Sheraton and Towers, 22nd – 24th August.

Akyuz, Y (1991) "Financial Liberalization in Developing Countries: A Neo Keynesian Approach" *UNCTAD Discussion Paper.* No. 36, March

Akyuz, Y (1993) "Financial Liberalization: the Key Issues" *UNCTAD Discussion Paper,* No. 56, March.

Alashi S.O.(2002) "Process of Restructuring and Distress Resolution in the Nigerian Banking Industry". in Stein H, Ajakaiye O. and P. Lewis (ed) Deregulation and the Banking Crises in Nigeria. Pelgrave Publishers Ltd, New York

Alawode, A. A and Ikhide, S.I (1997) "Why should Financial Liberalization Induce Financial Crises? *Savings and Development* Vol. XXI No. 3

Alayande B.A (2007) "Financial Sector Liberalization and Economic Growth". Paper Presented at the Annual Conference of the Nigerian Economic Society, Abuja, October

Alege P.O and I.O Ogunrinola (2005) "Economic Reforms in the Financial Services Sector and the Growth of the Nigeria Economy", Paper Presented at the 46th Annual Conference of the Nigerian Economy Society, Abuja, August.

Al- Zubi, K;Al-Rjoub, S and E. Abu-Mhareb (2006) "Financial Development and

Economic Growth: A New Empirical Evidence from the MENA Countries 1989-2001", *Applied Econometrics and International Development,* No.6, 3-11

Apergis, N; Filippidis,I and C. Economidou (2007) "Financial Deepening and Economic Growth Lingaes: A Panel Data Analysis", *Review of World Economics, No. 143, 179-198*

Amsden, A and Euh, Y (1990)"Republic of Korea's Finanicla Reform: What are the lesson?", *UNCTAD Discussion paper* No. 3, April.

Anyanwu, J.C (1995) "Structural Adjustment Programs, Financial deregulation and Financial Deepening in Sub-Saharan Economies: the Nigerian case." *Nigerian Economic and Financial Review*, Vol. 1 No.1

Arestis,P. and P. Demetriades (1996) "Finance and Growth: Institutional Consideration and Causality", *Department of Economics Working Paper No. 5,* University of East London

Arestis, P. amd P. Demetriades (1997) "Financial Development and Economic Growth: Assessing the Evidence". *Economic Journal* Vol. 107, No. 442, 783 - 799

Aryeetey, E (1994) "Formal Financial Institutions and the Development of Integrated Financial Markets in Africa: A case study of Ghana" The World Bank Research Report Administered by the Overseas Development Institute working paper No. 78, London.

Aryeetery, E (1997) "Savings, Investments and Financial Development with Informal and semi-formal Markets in Africa." *Africa Development Review*, Vol. 9, No. 1 June.

Azam, Jean-Paul (1996) "Savings and Interest rate: the case of Kenya", *Savings and Development* Vol. No.

Balogun, E.D. (2007) "Banking Sector Reforms and the Nigerian Economy: Performance, Pitfalls and Future Policy Options" Paper Presented at the Annual Conference of the Nigerian Economic Society, Abuja, October

Bandiera O; Caprio Jr, G; Honohan P. and F. Schiantarelli (2000) "Does Financial Reform Raise or Reduce Savings". *Review of Economic and Statistics*, Vol. 82 No. 2

Bencivenga, V.R and Smith, B.D (1991) "Financial Intermediation And Endogenous Growth" *Review of Economic Studies*, Vol. 58, April.

Blackburn, K and V.T.Y. Hung (1998) "A Theory of Growth, Financial Development and Trade", *Economica*, 65 107 - 124

Blackburn, K. Bose, N. and S. Capasso (2005) "Financial Development, Financing Choice and Economic Growth". Review of Development Economics No 9. 135-139

Bloom, D.E. and J.D. Sachs (1998a) "Geography, Demography, and Economic Growth in Africa", *Brookings Papers on Economic Activity,* 2, 207 - 295

Bloom,D.E and J.G. Williamson (1998) "Demographic Transition and Economic Miracles in Emerging Asia", *World Bank Economic Review,* September, 419 - 455

Bloom,D.E; Canning D. and P.N. Malaney (1999) "Demographic Change and Economic Growth in Asia". *CID Working Paper,* No. 15, Center for International Development at Harvard University, Cambridge, MA

Blundel-Wignall, A. and Browne, F (1991) "Macroeconomic consequences of Financial Liberalization: A summary Report Working Paper No. 98 OECD. Department of Economics and Statistics, February.

Bradford, C.I (1986) "East Asian Models: Myths and Lessons" Overseas Development Council, New Jersey.

Cafentzis G. (2002) "Neoliberalism in Africa, Apocalyptic Failures and Business as Usual Practices", in *ALTERNATIVES:* Turkish Journal of International Relations, Vol. 1 No. 3, Fall

Calderon, C. and L. Liu (2003) "The direction of Causality between Financial Development and Economic Growth" *Journal of Development Economics*. No.72, 321-334

CBN (2009) Central Bank of Nigeria: Statistical Bulletin. December.

Central Bank of Nigeria: Annual Report and Statements of Accounts, Various Issues

Cho, Yoon-je (1988) "The effects of Financial Liberalization on the efficiency of Credit Allocation: Some Evidence from Korea". *Journal of Development Economics*, Vol. 29

Cho, Y and Khathate, D. (1989) "Lessons of Financial Liberalization in Asia: A Comparative Study". *World Bank Discussion paper*, No. 50

Christopoulos,D.K. and E.G. Tsionas (2004) "Financial Development and Economic Growth: Evidence from Panel Unit root and Cointegration tests", *Journal of Development Economics*,No.73, 55-74

Courakis, A.S (1984) "Constraints on Bank choices and Financial Repression in Less Developed Countries" *Oxford Bulletin of Economics and Statistics*, Vol. 49.

Cutler, D.M, Poterba, J.M and summers, L.H (1990) "Speculative Dynamics, *NBER Working paper*, No. 3242 January

Das, P.K. and B. Guha-Khasnobis (2007) "Finance and Growth: An Empirical Assessment of Indian Economy", *WIDER Discussion Paper* No. 2007/13. March.

Data-Chadhuri, M (1990) "Market Failure and Government Failure" *Economic Perspectives*, Summer.

Demetriades, P.O. and K.A. Hussein (1996) "Dose Financial Development cause Economic Growth? Time Series Evidence from Sixteen Countries". *Journal of Development Economics.* No. 51, 387 - 411

Demetriades P. & Andrianova S. (2004) "Finance and Growth: What We Know and What We Need to Know". University of Leicester.

Demetriades, P.O. and Luintel K.B. (1996) "Financial Development, Economic Growth and Banking Sector Controls: Evidence from India" The Economic Journal Vol. 106, March.

Demetriades P.O. and K.B. Luintel (1997) "The Direct Costs of Financial Repression: Evidence from India". *Review of Economics and Statistics,* May.

Dornbusch R. and Reynoso, A (1989) "Financial Sectors in Economic Development" American Economic Review. Papers and Proceedings, May.

Dziobek C. (1998) "Market-based policy instruments for systemic Bank Restructuring", *International Monetary Fund (IMF) Working paper* No. 113, August.

Edward S. (1989) "Sequencing Economic Liberalization in Developing Countries" *Finance and Development*, IMF, Washington,March

Essien E.A and Onwwioduokit (1998) "Recent Development in Econometrics: An Application to Financial Liberalization and Savings in Nigeria." *NDIC Quarterly* Vol. 8 No ½ March/June

Ekezie E. (1997) The Nigerian Financial and Banking System. Futron Publishers, Enugu.

Ezeudurji, F.U (1996) "Mobilizing Financial Resources for Growth: Financial policy " Proceedings of the workshop on Nigeria: prospects for Development A.K.A Vision 2020 Sheraton Hotel and Towers, Abuja, April 15-17

Fakiyesi T. (2000) Money, Finance and Porfolio Behaviour of Commercial Banks: Analysis of the Nigerian Experience Panaf publishers Inc, Lagos, Nigeria

Falae O. (1989) "Banking Industry in the 1990s: Challenges and Prospects" In papers and Proceedings of the Bank Directors' Seminar. Financial Institution Training Centre (FITC), Lagos

Fisher, B and Reisen, H (1994) "Financial Opening: Why, How and When". International Centre for Economic Growth, *Occasional Paper* No. 25, San Fransisco California.

Freidman, M (1969) "The Quantity Theory of Money: A Restatement". In Freidman (ed) The Optimum Quantity Theory of Money and Other Essays Aldine, Chicago, 1969.

Fry M.J (1980) "Savings, Investment, Growth and the cost of Financial Repression" *World Development*, Vol. 8 No. 7

Fry M.J (1982) "Models of Financially Repressed Developing Economies" *World Development* Vol. 10 No. 9

Galbis, V (1977) "Financial Intermediation and Economic Growth in Less Developed Countries: A Theoretical Approach" *Journal of Development Studies,* Vol 13.

Garba,AG and P.K.Garba (2003) "Globalization of Finance after the Bretton Woods Conference of 1944". Selected Paper of the 44th Annual Conference of the Nigerian Economic Society on *Globalization and Development of Africa*

Garba, A-G, M.M. Usman and R.Sanusi (2009) "Theoretical, Ethical and Strategic Issues in Liberalization and Globalization: The Case of Cross-Border Banking", Paper Presented At CBN Executive Seminar organized by the Research and Human Resource Departments. December, 2nd – 4th.

Garba, A-G and P.K. Garba "The Globalization of Finance: Path, Policy Challenges and Options for Nigeria" , Unpublished

Gavin, M; Hausmann R. and E. Talvi (1997) "Saving Behaviour in Latin America: Overview and Policy Issues. *Working Paper 346*. Inter-American Development Bank, Office of the Chief Economist

Gelb, A. (1989) "Financial Policies, Growth and Efficiency" *World Bank Research Working paper* No. 202, Washington D.C June

Gelb, A (1997) "Comments on Perspectives on Financial Regulation and Liberalization in Afrcia Under Incentive Problem and Asymmetric Information' by Ncube M. Sembat L." *Journal of African Economics*

Goldsmith, R. W (1969) Financial Structure and Development Yale University press, New Heaven

Greenwood, B. and Jovanovic (1990) "Financial Development and Distribution of Income" *Journal Of political Economy*, Vol. 98 October

Greenwood, J and B.D. Smith (1997) "Financial Markets in Development and the Development of Financial Markets". *Journal of Economic Dynamic and Control*. No. 21, 145 - 181

Greenwood, B and Stiglitz, J.E (11986) "Externalities in Economies with Imperfect Information and Incomplete Markets" *Quarterly Journal of Economics*, Vol. 101 No. 2

Gurley, J.G. and E.S. Shaw (1955) "Financial Aspect of Economic Development", *American Economic Review* Vol.70 no. 1, 95 - 127

Guryay, E; Safakli, O.V. and B. Tuzel (2007) "Financial Development and Economic Growth: Evidence from Northern Cyprus", *International Research Journal of Finance and Economics,* Issue 8, 57-62

Habibullah M.S (1995) "The demand for M3 in a Financially Deepening Economy: the Malaysia Experience " Nigerian Journal of Economic and Social studies, Vol. 37, No. 2

Habibullah M.S (1999) "Financial Development and Economic Growth in Asian countries: Testing the Financial -Led-Growth Hypothesis" *Savings and Development,* No. 23, 279-290

Higgins, M. (1998) "Demography, National Saving and International Capital Flows", *International Economic Review,* No. 39, 343 - 369

Hall, R. E. and Jones, C. I. (1999) "Why Do some Countries Produce so much more Output per Worker than Others?", *Quarterly Journal of Economics* , No. 114(1): 83– 116.

Harrison, P; Sussman, O and J. Zeira (1999) "Finance and Growth: Theory and Evidence". *Federal Reserve Board Finance and Economics Discussion Paper* No.1999-35

Hasan I. and M. Zhou (2006) "Financial Sector Development and Growth: The Chinese Experience". *WIDER Discussion Paper* No. 2006/85. August.

Honohan, P. and Atiya, I (1989) "Inter Sectoral Financial Flows in Developing # Countries" World Bank working paper

Hunte, C.K and Bryant, S.K (1999) "Financial Deepening and Income Velocity: Evidence from Latin America 1966-1997", *Savings and Development*. Vol. XXIII No. 3

Ikhide, S. J (1987) "Financial Growth and Economic Development in Nigeria" Nigerian Journal of Economic and Social Studies Vol. 29 No. 3

Ikhide, S. I (1994) "Financial Sector Reform, Macro Economic Instability and the order of Economic Liberalization: Evidence from Nigeria'" AERC, Nairobi, Project Report December

Ikhide S. I (1997) "Financial Sector Reform and Growth of Capital Market in Nigeria" V.R.F Monograph Series No. 291. Institute of Development Economics, Tokyo, February.

Jalilian H. and C. Kirkpatrick (2005) "Does Financial Development Contribute to Poverty Reduction?" *Journal of Development Studies*. Vol 41. No 4. May

Jung-Woo S. (1986) "Financial Development and Economic Growth: International Evidence" *Economic Development and Cultural Change*, Vol. 34 January

Kelly, R. G. Mavrotas (2003) "Savings and Financial Sector Development: Pane Cointegration Evidence". *WIDER Discussion Paper* No. 2003/12. February.

Keynes J.M (1936) "The General Theory of Employment, Interest and Money. Macmillan London

Khatkhate D.R (1980) "False Issues in the Debate of interest rates in Less Developed Countries", *World Development,* Vol. 16

Khatekhate D.R (11988) "Assessing the Impact of Interest rate in Less Developed Countries", *World Development*, Vol 16.

King, R.G. and R. Levine (1993a) "Finance ,and Growth: Schumpeter Might be Right". *Quarterly Journal of Economics*, No. 108, 717 - 737

King, R.G. and R. Levine (1993b) "Finance, Entrepreneurship and Growth: Theory and Evidence" J*ournal of monetary Economics*, No. 32, 513 - 542

Knack, S. and Keefer, P., (1997) "Does Social Capital Have an Economic Payoff? A Cross-Country Investigation.", *The Quarterly Journal of Economics,* No. 112 (4):1251-1288.

Landes, D. (1998) The Wealth and Poverty of Nations. Abacus, London

Laumas, P.S. (1990) "Monetization, Financial Liberalization and Economic Development". Vo. 38, N0.2, 377 – 390

Lewis P and H. Stein (2002) "The Political Economy of Financial Liberalization in Nigeria". in Stein H, Ajakaiye O. and P. Lewis (ed) Deregulation and the Banking Crises in Nigeria. Pelgrave Publishers Ltd, New York

Lee, C.H (1992) "The Government, Financial System, the Large Private Enterprises in the Economic Development of South Korea" *World Development*. Vol. 220. No. 2

Lim, J.Y (1991) "The Philippine Financial Sector in the 1980s" UNCTAD Discussion Paper No. 35, March

Lindh, T and T. Lindstrom (1997) "Structural Breaks in the Financial Sector Share, Savings and GDP Growth in OECD: 1960-1992", *Applied Economics,* No. 29, 33-41

Lindh, T (2000) "Short-run Costs of Financial Market Development in Industrialized Economies". *Eastern Economic Journal,*

Lindh, T. and B. Malmberg (2000b) "Can Age Structure Forecast Inflation Trends?', *Journal of Economics and Business*, No. **52**, 31-49

Lindh, T. and B. Malmberg (2000c), 'Population Change and Economic Growth in the Western World, 1850-1990', *Working Paper*, Uppsala University

Lucas, R. (1988) "On the Mechanics of Development". J*ournal of Monetary Economics*, Vol. 22, No.1, 3 – 42,

Maimbo. S. M and G. Mavrotas (2003) 2Financial Sector Reforms and Savings Mobilization in Zambia" *WIDER Discussion Paper* No. 2003/13. United Nations University. February.

Mankiw, G, Romer D. ad Weil, D.N (1992) "A contribution to Empirics of Economic Growth" Quarterly Journal of Economics.

Mathieson, D.J (1980) "Financial Reform and Stabilizing Policy in a Developing Economy" *Journal of Development Economics*, Vol. 7.

Martin, M (1997) "The Impact of Financial Sector Reform on Domestic Resource Mobilization for Investment in Africa: A Summary" *Africa Development Review*, Vol. 9 No. 1 June

Mauro, P. (1995) "Corruption and Growth", *Quarterly Journal of Economics,* No. 110, 681-712

Mavratos, G. and R. Kelly (2001a) "Savings Mobilization and Financial Development: The Nexus". Savings and Development, Vol. XXV, No. 1, 33 - 66

Mckinnon, R.I (1973) Money and Capital in Economic Development Washington D.C the Brooking Institution.

Miller M. and Weller, P. (1991) "Financial Liberalization, Asset Prices and Exchange Rates". *Working paper* No. 94 OECD, Dept. of Economics and Statistics, February.

Miles, David. (1999) "Modeling the Impact of Demographic Change Upon the Economy", *The Economic Journal*, **109**, 1-36

Mkandawire, T.(1998). *Thinking About the Developmental State in Africa.* UNCTAD/GDS/MDPB/Misc.9 (September).

Mkandawire, T, and C. C. Soludo (1999) Our Continent, Our Future: African Perspectives on Structural Adjustment. Dakar, Senegal: CODERSIA.

Modigliani and Miller (1958)" Modigliani, Franco., Merton Miller. 1958. "The Cost of Capital, Corporation Finance, and the Theory of Investment." *American. Economic. Review.*, 48, 261–297.

Montiel, P.J (1995) "Financial Polices and Economic Growth: Theory, Evidence and Country Specific Experience from Sub Saharan Africa" *AERC Special paper*, No. 18, April.

Morales, M.F. (2003) "Financial Intermediation in a Model of Growth Through Creative Destruction". *Macroeconomic Dynamics*, No. 7, 363 - 393

Moudud, J.K.and K. Botchway (2009) "The Search for a New Developmental State", *International Journal of Political Economy.* Vol. 37 no. 3, Fall pp. 5-26

Munck, R (2003) "Neoliberalism, Necessitarianism and Alternatives in Latin America: there is no alternative (TINA)?" *Third World Quarterly,* Vol. 24, No. 3 pp495 – 511

Murinde, V. and F.S.H.Eng (1994) "Financial Development and Economic Growth in Singapore: Demand-following or Supply-leading?", *Applied Financial Economics,* No. 4, 391-404

Ncube, M and Senbet L.w (1997) "Perspectives on Financial Deregulation and Liberalization in Africa Under Incentive Problems and Asymmetric Information' *Journal of African Economics*, Vol. 6 No. 1

Ndung'u N. S (1997) "The Impact of Financial Sector Liberalization on Savings, Investment, Growth and Financial Development in Anglophone Africa" *African Development Review*, Vol. 9, No. 1 June.

Ndekwu, R.W (1998) "The Financial System's Role in Resource Mobilization and Investment: Analysis of Financial Deepening in Nigeria's Financial Sector." Paper presented at a seminar on The Dynamics of managing the Nigerian financial System in the 21sst Century and Challenges for the Next Millennium. Central Bank of Nigeria, December

Ngugi, R. W (2000) "Financial Reform Process in Kenya: 1989-1996" *African Development Review*, Vol. 12, No. 1 June

Nissanke, M (1990) "Mobilizing Domestic Resource for African Development and Diversification: Structural Impediment to Financial Intermediation". *World Bank Conference on African Economic issues.* Nairobi, June

Nissanke, M (1991) "Theoretical Issues on Finance and Development: A critical Literatures Survey" International Development Centre, Queen Elizabeth House, *Development Studies Working papers* No. 36, June

Njinkeu, D. (1997) "Impact of Banking Sector Reforms In Francophone Africa" African Development Review, Vol. 9, No, 1 June

Nnanna, O.J and Dogo, M (1998)"Structural Reform, Monetary {policy and Financial Deepening: The Nigerian Experience". Central Bank of Nigeria, *Economic and Financial Review*, Vol 36, No. 2, June

NPC (2004) National Economic Empowerment and Development Strategy. National Planning Commission, abuja

Nurkes, R. (1953) Problem of Capital Formation in Underdeveloped Countries. Oxford University Press

Ogun, O.D (1986) "A note on Financial Deepening and Economic Growth: Evidence from Africa." *Nigerian Journal of Economic and Social Studies*. Vol. 28, No. 2. July.

Ogunpola, A, and Ojo, O (1975) "Market Failure and Government Intervention in the Nigerian Economy" *Quarterly Journal of Administration.* Vol. IX No. 4 University of Ife, July.

Ojo, M.O (1998) "Recent Development in Monetary Policy management: the Role of CBN in Encouraging the Growth of Savings and Investments:" Seminar for Finance and Economic Correspondents, Hill Station Hotel, Jos.

Ologunde, A.O; D.O. Elumilade and T.O. Asaolu (2006) "Stock Market Capitalization and Interest Rate in Nigeria: A Time Series Analysis". *International Research Journal of Finance and Economics*. Issue 4(2006).

Oloyede, A. (1998) "The Financial System's Role in Resource Mobilization and Investment: An Analysis of Financial Deepening in the Nigeria's Financial Sector" Seminar for Finance and Economic Correspondents, Hill Station Hotel, Jos.

Onimode, B. (2000) Africa in the World of the 21st Century. Ibadan University Press

Onwioduokit E. (2007) "Financial Sector Development and Economic Growth in Nigeria" Paper Presented at the 46th Annual Conference of the Nigerian Economic Society, Abuja, August

Orji, H.O (1990) "Appraisal of the Nigerian Financial System". In papers and Proceedings of the Bank Directors' Seminar on Innovations, Technology and the Nigerian Financial Sector. Financial Institution Training Centre (FITC), Lagos

Oyaromade R. (2005) "Financial Sector Reforms and Financial Savings in Nigeria" Paper Presented at the 46th Annual Conference of the Nigerian Economic Society, Abuja, August

Oyewole, O.B et al (1993) "The Effect of Financial Liberalization and Financial Innovation in Nigeria: An Empirical Survey. *University of Bradford Discussion Paper* Series 2 No. 40

Oshikoya, T. W (1992) "Interest rate Liberalization, Savings Investments and Growth" The case of Kenya" *Savings and Development*, Vol. 26, No. 3

Pagano, M. (1993) "Financial Markets and Growth: An Overview". *European Economic Review*, No. 37, 613 – 622.

Pahlavani, M; Verma R. and E. Wilson (2006) "The Role of Capital Formation and Saving in Promoting Economic Growth in Iran". Paper presented at the 35th Australian Conference of Economists, Curtin University of Technology, Perth. September 25th – 27th

Palley, T.I. (1996) Post Keynesian Economics: Debt, Distribution, and the Macro Economy (London: Macmillan Press, 1996).

Palley. T.I. (1998) "Restoring Prosperity: Why the U.S. Model is Not the Right Answer for the U.S. or Europe," *Journal of Post Keynesian Economics,* vol. 20, Spring , pp. 337-54.

Palley, T. I. (2004) "From Keynesianism to Neoliberalism: Shifting Paradigms in Economics", in Deborah Johnston and Alfredo Saad-Filho, eds., Neo-liberalism--A Critical Reader (Pluto Press)

Patrick, H.T (1966) "Financial Development and Economic Growth in Developing Countries" *Economic Development and Cultural Change*, Vol. 14, No.2 174 – 189, January.

Persson, T., and G. Tabellini (2006). "Democracy and Development: The Devil in the Details," *American Economic Review Papers and Proceedings*, No. 96, 319-324.

Phillips, P.C.B (1986) "Understanding Spurious Regression in Econometrics" *Journal of Econometrics*, December

Polak, J.J (1990) "Financial Polices and Development" International Centre for Economic Growth, *Occasional Paper* No. 11

Popiel, A. P (1994) "Financial System in sub-Saharan Africa: A comparative Survey" *World Bank Discussion Paper* No. 260, Washington D.C

Prebisch, R. (1950) The Economic Development of Latin America and its Principal Problems. ECLA, UN Department of Economic Affairs, New York

Rebelo, S (1991) "Long-run Analysis and Long-run Growth" *Journal of Political Economy*, Vol. 99 500-521

Robini N. and X. Sal-i-Martin (1992) (Financial Repression and Economic Growth", *Journal of Development Economics. No. 39 5 - 30*

Robinson, J. (1952) "The Generalization of the General Theory", in the Rate of Interest and Other Essays. Macmillan, London

Rodrik, Dani. 2002. "After Neoliberalism, What?" Available at http://ksghome.harvard.edu/~drodrik/After%20Neoliberalism.pdf.

Roe, A. R (1982) "High Interest Rates: A New Conventional Wisdom for Development Policy? Some Conclusions from Sri Lankan Experience", *World Development,* Vol. 10, No. 3

Roe, A. R and Sowa, N.K (1997) "From Direct to Indirect Monetary Control in sub Saharan Africa." *Journal of Economies*, Vol. 6, No. 1 June

Rosenstein-Rodan P. (1943) "Problem of Industrialization of East and South-East Europe, *Economic Journal*, June – September

Rousseau P. L and P. Wachtel (2005) "Economic Growth and Financial Depth: Is the Relationship Extinct Already?". *WIDER Discussion Paper* No. 2005/10. December

Saint-Paul, G. (1992) "Technological Choice, Financial Markets and Economic Development". *European Economic Review*, No.36

Schumpeter J. (1934) The Theory of Economic Development: An inquiry into Profit, Capital, Credit, Interest and Business Cycle. Harvard University Press, Cambridge MA.

Scitovsky, T. (1954) "Two Concepts of External Economies", *Journal of Political Economy*, April

Shaw, E. S (1973) Financial Deepening and Economic Growth, Oxford University Press New York.

Simon, P (2002) "Demography and Finance – Finance and Growth", Paper Presented in a seminar at Institute for Futures Studies, Stockholm, May.

Singer, H. (1950) "Distribution of Gains Between Investing and Borrowing Countries", *American Economic Review,* May.

Singh, A. (1993) 'The Stock market and Economic Development: Should Developing countries Encourage Stock market? *UNCTAD Review,* No. 4.

Soludo C.C. (2006) "Beyond Banking Sector Consolidation in Nigeria" Paper Presented at the *Global Banking Conference on Nigerian Banking Reforms*, London, March, 29th

Somel, C (1992) "Finance for Growth: Lessons from Japan" *UNCTAD Discussion Paper* No. 44

Soyibo, A. (1997a) "Banking Sector Reforms in Africa, Effects on Savings, investments and Financial Development" *African Development Review*, Vol. 9 No. 1 June.

Soyibo, A (1997b) "Financial liberalization and Bank Re-structuring in Sub-Saharan Africa: Some lessons of Sequencing and Policy Design" J*ournal of African Economies,* Vol. 6, No. 1 June

Soyibo A.(2002) Institutional Aspects of Regulatory Reforms in the Nigerian Banking Industry". in Stein H, Ajakaiye O. and P. Lewis (ed) Deregulation and the Banking Crises in Nigeria. Pelgrave Publishers Ltd, New York

Stalling, B (1992) "International Influence on Economic Policy: Debt, Stabilization, and Structural Reform" *in* The Politics of Economic Adjustment (Stephan Haggard & Robert R. Kaufman eds)

Stein H, Ajakaiye O. and P. Lewis (2002) "Financial Deregulation and Banking Crises: An Introduction to Theoretical, Institutional and Policy Issues" in Stein H, Ajakaiye O. and P. Lewis (ed) Deregulation and the Banking Crises in Nigeria. Pelgrave Publishers Ltd, New York

Stiglitz, J. E. and A. Weiss (1981) "Credit Rationing in Markets with Imperfect Information". *American Economic Review*, Vol. 71, No.3, 393 - 410

Stiglitz, J.E (1989) "Financial markets and Development" Oxford *Review of Economic Policy*, vol. 5 No. 4

Stiglitz, J. E (1994) "The Role of States in Financial Markets" Proceedings on the *World Bank Annual Conference on Development Economics* Washington D.C

Taylor, L (1983) Structuralism Macroeconomics. Applicable Models for the Third World, New York, Basic Books.

Teriba, O and Kayoed M. O edt (1977) "Industrialization in Nigeria, patter, Problems and Prospects Ibadan University Press, Ibadan.

Temple, J. (1999)"The New Growth Evidence". Journal of Economic Literature. No. 37, March, 112 - 156

Theil, M. (2001) "Finance and Economic Growth: A Review of Theory and the Available Evidence". Brussels, EC.

Thomas I.P (1996) "The Saving-Investment Nexus: Why it Matters and how it Works". *Working Paper No.1. Centre for Economic Policy Analysis,* New School for Social Research, New York.

Tobin, J. (1965) "Money and Economic Growth" *Econometrics*, Vol.33, No. 4 October

Toyo E. (2001) Delusion of a Popular Paradigm: Essays on Alternative to Economic Development. The Nigerian Economic Society, Kenbim Press Limited, Ibadan.

Trew A (2006) "Finance and Growth: A Critical Survey". *Economic Record*. Vol 82 No. 259. December.

Turtleboom, B (1991) "Interest Rate Liberalization: Some Lessons from Africa" *IMF Working Paper*. No. 121, December

Udegbunan, R.K (1995) "Financial Deregulation and Monetary Policy in Nigeria: An examination of the new Operating Technique". *The Nigerian Journal of Economic and Financial Review* Vol. 1, No.1 University of Benin, June

Ukeje, E.U. and N.I.Akpan (2007) financial Sector Development and Economic

Growth in Nigeria" Paper Presented at the Annual Conference of the Nigerian Economic Society, Abuja, October.

Unalmis, D. (2002) "The Causality Between Financial Development and Economic Growth: The Case of Turkey", *The Central Bank of Turkey,* Research Department Working Paper, No. 3, June

Villanueva D. and Mirakhor A, (1990) "Strategies for Financial Reforms" *IMF staff papers* September 507-536

Wijnbergen, V. S (1983) "Interest rate management in Less Developed Countries", *Journal of Monetary Economics*, Vol. 12 No. 3 September

Williamson, J. (1990) "What Washington Means by Policy Reform" in John Williamson eds. Latin American Adjustment: How Much Has Happened?, Institute for International Economics, April.

Williamson, J and Mahar, M (1998) "A survey of Financial Liberalization", Essay in International Finance, No. 211 Department of Economics Princeton University.

World Bank (1993) The East Asian Miracle: Economic Growth and Public Policy, New York, Oxford University Press

World Bank (1998) World Development Report: Financial System and Development Oxford University Press, New York.

Yoo, P. S. (1994a) "Age Dependent Portfolio Selection", *Federal Reserve Bank of St. Louis Working Paper*, No. 94-003A

Yoo, P. S. (1994b) "Age Distribution and Returns of Financial Assets", *Federal Reserve Bank of St. Louis Working Paper*, No. 94-002B

APPENDICES

APPENDIX 1:

Models of Endogenous Growth

The origin of endogenous growth theory is traceable to the early 1960s in the seminal work of Kenneth J. Arrow 'Learning by Doing'. The endogenous growth theory seeks to explain changes in total factor productivity (TFP) by analyzing the role of a number of variables that might explain the size and variation of the total factor productivity residual over time. A number of variables are usually included and one of such variable is investment in training and education as a means of equipping labour to make better use of the technology available. By adding this human capital variable (H) to the neoclassical production function, equation 1 now becomes;

$Y = Af(L,K,H)$ ---------- i

The addition of this extra variable '***H***' has helped reduce the 'unexplained' element of the total factor productivity growth in empirical work. In Nigeria, a number of empirical works have been done in and attempt to account for the role of human capital in economic growth.[49]

Some other studies have gone further to look at the capital factor other than the physical capital. The role of social capital (Knack and Keefer, 1997), demography (Simon, 2002) and the institution of faith in promoting contract enforcement (Delacroix, 1993; Grier, 1997 and Bagella, Becchetti and Caiazza, 2001), in understanding variations in TFP among economies.

A number of different specifications of endogenous growth models have characterized growth analysis and determinants of economic growth. Briefly, Romer (1990) specification in which;

[49] See 2002 Annual Conference of the Nigerian Economic Society.

$Y = f(A,X)$ ---------- ii

Where Y is output, A is an index of the amount of knowledge that has been discovered, and X is a vector of remaining inputs into production (e.g capital and labour). We also have the 'AK' model of Rebelo (1991) in which;

$Y = AK$ ---------- iii

This is a theoretical model of endogenous growth which postulates that output could be proportional to a broad concept of capital (K) that included both physical and human capital. In principle, k could also include any kind of stock of knowledge, technology, or organizational technique that can be built up over time by sacrificing some of today's consumption to accumulate such a stock.

Jones (1996) specified his model in which human capital in the model is interpreted as skill or experience in using advanced intermediate goods. That is;

$\mathbf{Y}(t) = \mathbf{L}_y(t)^{1-a} + \int_o^{h(t)} X_i(t)^a d_i$ ---------- iv

Where Y is output produced by competitive firms using (L_y), and X_i represents a collection of intermediate capital goods. The model is premised on the argument that the amount of human capital in the firm determines the range of intermediate capital goods the firm can use.

Smolny (2000) specified his growth equation to provide a further look at the residual factor in the endogenous growth theory. His equation;

$Y = f(K,L,HK,U\ residual)$ ---------- v

Where Y, K and L are real output, capital input and labour input respectively. HK is human capital per worker and U an indicator of business cycle (factor utilization). His argument here is that the accumulation of research and development (R&D) constitutes the stock of knowledge which increases the productivity of other factor inputs. Thus like other specifications, output is attributed to the change in the factor inputs, and a residual which is attributed to knowledge.

Appendix 2:

COINTEGRATION TEST RESULT FOR THE GENERAL MODEL

Sample (adjusted): 1974 2007
Included observations: 34 after adjustments
Trend assumption: Linear deterministic trend
Series: BSCE CCPSGDP EXR GDF GDP IFL IRS M2GDP PDUM
Lags interval (in first differences): 2 to 2

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.943729	349.9400	197.3709	0.0000
At most 1 *	0.901594	252.1027	159.5297	0.0000
At most 2 *	0.852277	173.2686	125.6154	0.0000
At most 3 *	0.760885	108.2463	95.75366	0.0052
At most 4	0.518149	59.59870	69.81889	0.2479
At most 5	0.371284	34.77458	47.85613	0.4600
At most 6	0.315540	18.99598	29.79707	0.4932
At most 7	0.163961	6.105742	15.49471	0.6830
At most 8	0.000500	0.017010	3.841466	0.8961

Trace test indicates 4 cointegrating eqn(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 *	0.943729	97.83732	58.43354	0.0000
At most 1 *	0.901594	78.83410	52.36261	0.0000
At most 2 *	0.852277	65.02224	46.23142	0.0002
At most 3 *	0.760885	48.64763	40.07757	0.0043
At most 4	0.518149	24.82412	33.87687	0.3970
At most 5	0.371284	15.77860	27.58434	0.6845
At most 6	0.315540	12.89024	21.13162	0.4623
At most 7	0.163961	6.088732	14.26460	0.6018
At most 8	0.000500	0.017010	3.841466	0.8961

Max-eigenvalue test indicates 4 cointegrating eqn(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):

BSCE	CCPSGDP	EXR	GDF	GDP	IFL	IRS
7.71E-06	-0.207904	-0.090346	-2.26E-05	0.014695	-0.043411	0.234701
-1.72E-06	0.130778	0.038633	-7.70E-07	0.041881	0.005241	-0.059891
1.43E-06	0.384272	-0.071114	-8.28E-06	0.002656	0.028769	0.213780
-2.39E-06	0.506686	-0.009571	-2.58E-05	-0.013655	0.051641	-0.303549
-5.41E-06	-0.268721	0.077236	2.90E-05	-0.029652	0.016720	0.410136
6.84E-07	-0.551925	-0.028541	-4.23E-06	-0.001322	0.017572	0.125374
4.36E-06	-0.382535	0.008962	1.53E-05	-0.014243	0.023199	0.209381
-2.35E-06	-0.065156	-0.050842	-1.77E-05	0.009766	0.012679	0.128117
6.79E-06	0.113926	-0.061678	-3.24E-05	0.011946	0.063524	-0.116008

Unrestricted Adjustment Coefficients (alpha):

D(BSCE)	-29628.83	-78670.07	30250.86	-109546.1	-68521.31	-12555.76
D(CCPSGDP)	-0.570032	-1.105447	-0.047377	-1.621737	-0.315720	0.290837
D(EXR)	7.183786	-3.442044	4.021674	3.817195	-1.247834	1.519188
D(GDF)	-7785.630	21846.59	-25082.00	7770.571	3296.570	-2861.627
D(GDP)	3.735910	-15.99790	-14.70797	13.95424	0.278112	-5.068996
D(IFL)	5.431487	-0.238634	-7.367765	-4.691944	-2.146961	1.550555
D(IRS)	-0.784854	-1.092408	-0.996515	1.382143	-1.276862	0.397229
D(M2GDP)	0.601429	-0.850722	1.057320	-1.986102	0.353670	0.024302
D(PDUM)	-0.000449	0.006849	-0.035564	-0.027268	-0.030813	-0.050456

1 Cointegrating Equation(s): Log likelihood -1442.007

Normalized cointegrating coefficients (standard error in parentheses)

BSCE	CCPSGDP	EXR	GDF	GDP	IFL	IRS
1.000000	-26972.37	-11721.07	-2.936635	1906.458	-5631.958	30448.88
	(6532.06)	(785.956)	(0.34892)	(371.671)	(684.215)	(4439.95)

Adjustment coefficients (standard error in parentheses)

D(BSCE)	-0.228380
	(0.31648)
D(CCPSGDP)	-4.39E-06
	(4.6E-06)
D(EXR)	5.54E-05
	(1.4E-05)
D(GDF)	-0.060012
	(0.06471)
D(GDP)	2.88E-05
	(5.6E-05)
D(IFL)	4.19E-05
	(1.9E-05)
D(IRS)	-6.05E-06
	(4.9E-06)
D(M2GDP)	4.64E-06

	(6.6E-06)	
D(PDUM)	-3.46E-09	
	(2.6E-07)	

2 Cointegrating Equation(s): Log likelihood -1402.590

Normalized cointegrating coefficients (standard error in parentheses)

BSCE	CCPSGDP	EXR	GDF	GDP	IFL	IRS
1.000000	0.000000	-5811.240	-4.792626	16325.74	-7046.561	28019.17
		(2715.00)	(1.04070)	(1318.83)	(2400.69)	(12998.4)
0.000000	1.000000	0.219107	-6.88E-05	0.534595	-0.052446	-0.090082
		(0.09250)	(3.5E-05)	(0.04493)	(0.08180)	(0.44288)

Adjustment coefficients (standard error in parentheses)

D(BSCE)	-0.093298	-4128.363
	(0.29724)	(9244.91)
D(CCPSGDP)	-2.50E-06	-0.026056
	(4.4E-06)	(0.13533)
D(EXR)	6.13E-05	-1.943680
	(1.4E-05)	(0.42382)
D(GDF)	-0.097524	4475.715
	(0.05568)	(1731.86)
D(GDP)	5.63E-05	-2.868883
	(5.1E-05)	(1.57621)
D(IFL)	4.23E-05	-1.160435
	(1.9E-05)	(0.60332)
D(IRS)	-4.17E-06	0.020311
	(4.7E-06)	(0.14685)
D(M2GDP)	6.10E-06	-0.236295
	(6.6E-06)	(0.20510)
D(PDUM)	-1.52E-08	0.000989
	(2.7E-07)	(0.00838)

3 Cointegrating Equation(s): Log likelihood -1370.079

Normalized cointegrating coefficients (standard error in parentheses)

BSCE	CCPSGDP	EXR	GDF	GDP	IFL	IRS
1.000000	0.000000	0.000000	-5.782248	25267.12	-9379.796	19785.38
			(1.13833)	(2054.45)	(3755.03)	(19654.8)
0.000000	1.000000	0.000000	-3.15E-05	0.197470	0.035526	0.220364
			(9.9E-06)	(0.01782)	(0.03257)	(0.17050)
0.000000	0.000000	1.000000	-0.000170	1.538634	-0.401504	-1.416872
			(7.4E-05)	(0.13295)	(0.24300)	(1.27193)

Adjustment coefficients (standard error in parentheses)

D(BSCE)	-0.049968	7496.208	-2513.632
	(0.29782)	(16923.3)	(4500.90)
D(CCPSGDP)	-2.56E-06	-0.044262	0.012163

	(4.4E-06)	(0.25124)	(0.06682)
D(EXR)	6.70E-05	-0.398262	-1.068001
	(1.2E-05)	(0.68777)	(0.18292)
D(GDF)	-0.133451	-5162.605	3331.075
	(0.03796)	(2156.83)	(573.629)
D(GDP)	3.52E-05	-8.520752	0.090377
	(4.5E-05)	(2.57088)	(0.68375)
D(IFL)	3.17E-05	-3.991664	0.024017
	(1.5E-05)	(0.87410)	(0.23247)
D(IRS)	-5.60E-06	-0.362622	0.099572
	(4.5E-06)	(0.25568)	(0.06800)
D(M2GDP)	7.61E-06	0.170004	-0.162393
	(6.5E-06)	(0.36733)	(0.09769)
D(PDUM)	-6.62E-08	-0.012677	0.002834
	(2.7E-07)	(0.01519)	(0.00404)

4 Cointegrating Equation(s): Log likelihood -1345.755

Normalized cointegrating coefficients (standard error in parentheses)

BSCE	CCPSGDP	EXR	GDF	GDP	IFL	IRS
1.000000	0.000000	0.000000	0.000000	34041.92	-11052.89	106758.8
				(2872.00)	(5205.64)	(21743.9)
0.000000	1.000000	0.000000	0.000000	0.245269	0.026412	0.694143
				(0.02308)	(0.04183)	(0.17474)
0.000000	0.000000	1.000000	0.000000	1.797063	-0.450779	1.144603
				(0.14330)	(0.25974)	(1.08493)
0.000000	0.000000	0.000000	1.000000	1517.541	-289.3504	15041.45
				(303.128)	(549.434)	(2294.98)

Adjustment coefficients (standard error in parentheses)

D(BSCE)	0.212353	-48009.27	-1465.136	3.311457
	(0.24493)	(19935.8)	(3558.14)	(1.03357)
D(CCPSGDP)	1.32E-06	-0.865973	0.027685	5.61E-05
	(3.6E-06)	(0.29647)	(0.05291)	(1.5E-05)
D(EXR)	5.79E-05	1.535857	-1.104537	-0.000292
	(1.1E-05)	(0.87320)	(0.15585)	(4.5E-05)
D(GDF)	-0.152058	-1225.366	3256.701	0.166208
	(0.03721)	(3028.85)	(540.588)	(0.15703)
D(GDP)	1.78E-06	-1.450334	-0.043183	-0.000311
	(4.0E-05)	(3.29139)	(0.58745)	(0.00017)
D(IFL)	4.30E-05	-6.369006	0.068925	5.94E-05
	(1.4E-05)	(1.12353)	(0.20053)	(5.8E-05)
D(IRS)	-8.91E-06	0.337690	0.086343	-8.86E-06
	(4.0E-06)	(0.32782)	(0.05851)	(1.7E-05)
D(M2GDP)	1.24E-05	-0.836326	-0.143383	2.96E-05
	(5.8E-06)	(0.47093)	(0.08405)	(2.4E-05)
D(PDUM)	-8.67E-10	-0.026493	0.003095	1.00E-06

	(2.7E-07)	(0.02237)	(0.00399)	(1.2E-06)		

5 Cointegrating Equation(s): Log likelihood -1333.343

Normalized cointegrating coefficients (standard error in parentheses)

BSCE	CCPSGDP	EXR	GDF	GDP	IFL	IRS
1.000000	0.000000	0.000000	0.000000	0.000000	-17540.95	-479826.5
					(16410.9)	(75575.9)
0.000000	1.000000	0.000000	0.000000	0.000000	-0.020334	-3.532160
					(0.11658)	(0.53687)
0.000000	0.000000	1.000000	0.000000	0.000000	-0.793281	-29.82107
					(0.87225)	(4.01690)
0.000000	0.000000	0.000000	1.000000	0.000000	-578.5787	-11107.69
					(851.554)	(3921.60)
0.000000	0.000000	0.000000	0.000000	1.000000	0.190590	17.23127
					(0.51834)	(2.38708)

Adjustment coefficients (standard error in parentheses)

D(BSCE)	0.583194	-29596.18	-6757.451	1.327136	-122.1629
	(0.25444)	(18697.1)	(3677.26)	(1.16588)	(1407.49)
D(CCPSGDP)	3.03E-06	-0.781133	0.003300	4.69E-05	-0.023293
	(4.3E-06)	(0.31500)	(0.06195)	(2.0E-05)	(0.02371)
D(EXR)	6.47E-05	1.871175	-1.200914	-0.000328	-0.043033
	(1.3E-05)	(0.91903)	(0.18075)	(5.7E-05)	(0.06918)
D(GDF)	-0.169899	-2111.222	3511.315	0.261674	530.0766
	(0.04377)	(3216.47)	(632.600)	(0.20057)	(242.131)
D(GDP)	2.78E-07	-1.525069	-0.021703	-0.000303	-0.852959
	(4.8E-05)	(3.53762)	(0.69576)	(0.00022)	(0.26631)
D(IFL)	5.46E-05	-5.792073	-0.096898	-2.72E-06	0.177987
	(1.6E-05)	(1.16227)	(0.22859)	(7.2E-05)	(0.08749)
D(IRS)	-2.00E-06	0.680809	-0.012276	-4.58E-05	-0.040942
	(4.0E-06)	(0.29343)	(0.05771)	(1.8E-05)	(0.02209)
D(M2GDP)	1.05E-05	-0.931365	-0.116067	3.99E-05	-0.007350
	(6.8E-06)	(0.50330)	(0.09899)	(3.1E-05)	(0.03789)
D(PDUM)	1.66E-07	-0.018213	0.000715	1.11E-07	0.001472
	(3.2E-07)	(0.02358)	(0.00464)	(1.5E-06)	(0.00178)

6 Cointegrating Equation(s): Log likelihood -1325.454

Normalized cointegrating coefficients (standard error in parentheses)

BSCE	CCPSGDP	EXR	GDF	GDP	IFL	IRS
1.000000	0.000000	0.000000	0.000000	0.000000	0.000000	5933241.
						(918922.)
0.000000	1.000000	0.000000	0.000000	0.000000	0.000000	3.902119
						(0.67023)
0.000000	0.000000	1.000000	0.000000	0.000000	0.000000	260.2069

						(41.0462)
0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	200423.9
						(29380.8)
0.000000	0.000000	0.000000	0.000000	1.000000	0.000000	-52.44955
						(8.68800)
0.000000	0.000000	0.000000	0.000000	0.000000	1.000000	365.6056
						(56.2917)

Adjustment coefficients (standard error in parentheses)

D(BSCE)	0.574604	-22666.35	-6399.098	1.380223	-105.5595	-5279.168
	(0.25370)	(23284.0)	(3728.90)	(1.16469)	(1400.47)	(1965.18)
D(CCPSGDP)	3.23E-06	-0.941653	-0.005000	4.57E-05	-0.023677	-0.066327
	(4.3E-06)	(0.39041)	(0.06252)	(2.0E-05)	(0.02348)	(0.03295)
D(EXR)	6.57E-05	1.032698	-1.244273	-0.000334	-0.045042	-0.011243
	(1.2E-05)	(1.11326)	(0.17829)	(5.6E-05)	(0.06696)	(0.09396)
D(GDF)	-0.171857	-531.8186	3592.988	0.273774	533.8608	137.0119
	(0.04347)	(3989.43)	(638.900)	(0.19955)	(239.952)	(336.710)
D(GDP)	-3.19E-06	1.272637	0.122971	-0.000282	-0.846256	-0.032957
	(4.7E-05)	(4.32142)	(0.69207)	(0.00022)	(0.25992)	(0.36473)
D(IFL)	5.56E-05	-6.647863	-0.141152	-9.28E-06	0.175936	-0.699949
	(1.6E-05)	(1.42453)	(0.22814)	(7.1E-05)	(0.08568)	(0.12023)
D(IRS)	-1.73E-06	0.461568	-0.023614	-4.75E-05	-0.041468	0.056684
	(3.9E-06)	(0.35941)	(0.05756)	(1.8E-05)	(0.02162)	(0.03033)
D(M2GDP)	1.05E-05	-0.944777	-0.116761	3.97E-05	-0.007382	-0.096373
	(6.9E-06)	(0.63008)	(0.10091)	(3.2E-05)	(0.03790)	(0.05318)
D(PDUM)	1.31E-07	0.009635	0.002155	3.25E-07	0.001539	-0.003778
	(3.0E-07)	(0.02790)	(0.00447)	(1.4E-06)	(0.00168)	(0.00235)

7 Cointegrating Equation(s): Log likelihood -1319.008

Normalized cointegrating coefficients (standard error in parentheses)

BSCE	CCPSGDP	EXR	GDF	GDP	IFL	IRS
1.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
0.000000	1.000000	0.000000	0.000000	0.000000	0.000000	0.000000
0.000000	0.000000	1.000000	0.000000	0.000000	0.000000	0.000000
0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	0.000000
0.000000	0.000000	0.000000	0.000000	1.000000	0.000000	0.000000
0.000000	0.000000	0.000000	0.000000	0.000000	1.000000	0.000000
0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	1.000000

Adjustment coefficients (standard error in parentheses)

D(BSCE)	0.711726	-34683.81	-6117.550	1.859880	-553.0125	-4550.363

	(0.26745)	(24372.7)	(3609.27)	(1.18588)	(1397.37)	(1982.00)
D(CCPSGDP)	-7.55E-07	-0.592583	-0.013179	3.17E-05	-0.010680	-0.087497
	(4.2E-06)	(0.37836)	(0.05603)	(1.8E-05)	(0.02169)	(0.03077)
D(EXR)	6.41E-05	1.169678	-1.247483	-0.000340	-0.039942	-0.019550
	(1.3E-05)	(1.20388)	(0.17828)	(5.9E-05)	(0.06902)	(0.09790)
D(GDF)	-0.166689	-984.7414	3603.599	0.291851	516.9968	164.4797
	(0.04735)	(4315.41)	(639.055)	(0.20997)	(247.418)	(350.933)
D(GDP)	4.12E-05	-2.615245	0.214057	-0.000126	-0.991016	0.202825
	(4.6E-05)	(4.18152)	(0.61923)	(0.00020)	(0.23974)	(0.34004)
D(IFL)	5.90E-05	-6.946605	-0.134153	2.64E-06	0.164813	-0.681832
	(1.7E-05)	(1.53491)	(0.22730)	(7.5E-05)	(0.08800)	(0.12482)
D(IRS)	-1.58E-06	0.448856	-0.023316	-4.70E-05	-0.041941	0.057455
	(4.3E-06)	(0.38935)	(0.05766)	(1.9E-05)	(0.02232)	(0.03166)
D(M2GDP)	3.41E-06	-0.326270	-0.131251	1.51E-05	0.015647	-0.133883
	(6.5E-06)	(0.59477)	(0.08808)	(2.9E-05)	(0.03410)	(0.04837)
D(PDUM)	2.29E-09	0.020948	0.001890	-1.27E-07	0.001960	-0.004464
	(3.2E-07)	(0.02960)	(0.00438)	(1.4E-06)	(0.00170)	(0.00241)

8 Cointegrating Equation(s): Log likelihood -1315.964

Normalized cointegrating coefficients (standard error in parentheses)

BSCE	CCPSGDP	EXR	GDF	GDP	IFL	IRS
1.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
0.000000	1.000000	0.000000	0.000000	0.000000	0.000000	0.000000
0.000000	0.000000	1.000000	0.000000	0.000000	0.000000	0.000000
0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	0.000000
0.000000	0.000000	0.000000	0.000000	1.000000	0.000000	0.000000
0.000000	0.000000	0.000000	0.000000	0.000000	1.000000	0.000000
0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	1.000000
0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

Adjustment coefficients (standard error in parentheses)

D(BSCE)	0.755830	-33459.29	-5162.040	2.193195	-736.5533	-4788.639
	(0.27006)	(24111.1)	(3769.45)	(1.24688)	(1399.53)	(1980.46)
D(CCPSGDP)	-1.04E-06	-0.600576	-0.019416	2.96E-05	-0.009482	-0.085941
	(4.2E-06)	(0.37832)	(0.05915)	(2.0E-05)	(0.02196)	(0.03107)
D(EXR)	6.10E-05	1.083567	-1.314676	-0.000363	-0.027035	-0.002794
	(1.3E-05)	(1.17483)	(0.18367)	(6.1E-05)	(0.06819)	(0.09650)
D(GDF)	-0.152946	-603.1739	3901.341	0.395714	459.8045	90.23156
	(0.04648)	(4150.11)	(648.817)	(0.21462)	(240.893)	(340.886)
D(GDP)	4.08E-05	-2.626404	0.205350	-0.000129	-0.989343	0.204997

	(4.7E-05)	(4.19035)	(0.65511)	(0.00022)	(0.24323)	(0.34419)
D(IFL)	5.72E-05	-6.996669	-0.173218	-1.10E-05	0.172317	-0.672090
	(1.7E-05)	(1.52990)	(0.23918)	(7.9E-05)	(0.08880)	(0.12566)
D(IRS)	-2.25E-06	0.430287	-0.037805	-5.21E-05	-0.039158	0.061068
	(4.3E-06)	(0.38567)	(0.06029)	(2.0E-05)	(0.02239)	(0.03168)
D(M2GDP)	4.32E-06	-0.301163	-0.111660	2.19E-05	0.011884	-0.138768
	(6.6E-06)	(0.59065)	(0.09234)	(3.1E-05)	(0.03428)	(0.04852)
D(PDUM)	-9.87E-08	0.018144	-0.000298	-8.90E-07	0.002380	-0.003918
	(3.2E-07)	(0.02828)	(0.00442)	(1.5E-06)	(0.00164)	(0.00232)

APPENDIX 3:

CO-INTEGRATION TEST RESULT FOR AGRICULTURAL SECTOR

Sample (adjusted): 1972 2009
Included observations: 38 after adjustments
Trend assumption: Linear deterministic trend
Series: AGRGDP BCA CEGDP CPSGDP DMR EXR IFLRATE IRS M2GDP BSCE PDUM
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 *	0.978774	525.4284	285.1425	0.0000
At most 1 *	0.911857	379.0319	239.2354	0.0000
At most 2 *	0.844445	286.7377	197.3709	0.0000
At most 3 *	0.810326	216.0289	159.5297	0.0000
At most 4 *	0.694472	152.8558	125.6154	0.0004
At most 5 *	0.653296	107.7987	95.75366	0.0057
At most 6	0.570241	67.54592	69.81889	0.0749
At most 7	0.369812	35.45377	47.85613	0.4243
At most 8	0.276686	17.90775	29.79707	0.5729
At most 9	0.136695	5.599112	15.49471	0.7423
At most 10	0.000358	0.013607	3.841466	0.9070

Trace test indicates 6 cointegrating eqn(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 *	0.978774	146.3965	70.53513	0.0000
At most 1 *	0.911857	92.29422	64.50472	0.0000
At most 2 *	0.844445	70.70883	58.43354	0.0021
At most 3 *	0.810326	63.17307	52.36261	0.0028
At most 4	0.694472	45.05714	46.23142	0.0665
At most 5 *	0.653296	40.25276	40.07757	0.0478
At most 6	0.570241	32.09215	33.87687	0.0804
At most 7	0.369812	17.54602	27.58434	0.5333
At most 8	0.276686	12.30864	21.13162	0.5175
At most 9	0.136695	5.585505	14.26460	0.6668
At most 10	0.000358	0.013607	3.841466	0.9070

Max-eigenvalue test indicates 4 cointegrating eqn(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):

AGRGDP	BCA	CEGDP	CPSGDP	DMR	EXR	IFLRATE
0.046717	-0.005682	0.137168	0.202243	-0.165114	-0.031424	-0.071250
0.473913	0.049551	0.530046	-0.071338	0.200378	0.048551	0.040190
-0.062995	-0.024912	-0.237405	-0.167043	0.197516	0.032584	-0.009667
-0.063921	0.005042	-0.123357	0.232744	0.177995	-0.035450	0.028461
0.153969	-0.006561	-0.031053	-0.190180	-0.290642	-0.016426	0.004636
-0.434363	0.027271	-0.822089	0.057168	-0.574163	-0.046725	-0.060881
-0.124185	-0.002932	-0.047430	0.351853	0.278590	0.010017	-0.007485
0.279359	0.004119	0.323304	-0.129067	0.031754	-0.028966	-0.018001
0.254291	-0.010055	0.368322	0.482253	-0.355017	0.016699	0.057490
-0.194017	0.001672	-0.117582	-0.095455	0.006797	-0.024528	-0.007748
0.046647	0.025067	0.192736	-0.371818	-0.451391	-0.002760	-0.040395

Unrestricted Adjustment Coefficients (alpha):

D(AGRGDP)	-0.036280	-1.319805	-0.544907	-1.752172	-0.563510	-0.079213
D(BCA)	1.008609	-17.88416	23.03594	-1.547671	12.78506	-15.41525
D(CEGDP)	0.129795	-0.737474	0.528463	0.949611	0.135089	1.238309
D(CPSGDP)	0.989133	-0.254560	0.228228	0.108604	0.003900	0.000724
D(DMR)	-0.265047	-0.013096	0.076860	-0.672977	-0.536955	0.589766
D(EXR)	4.260016	-5.551955	-2.786844	2.594351	-2.008200	0.830562
D(IFLRATE)	7.980839	-0.364619	4.132177	-7.074161	-0.855708	2.764282
D(IRS)	0.137327	0.008705	0.641285	-0.973051	-1.380642	0.419407
D(M2GDP)	1.660389	-1.020399	0.131050	0.594632	-0.235448	-0.047537
D(BSCE)	-3.549604	-4.677608	6.754231	-1.162012	-6.263282	1.242918
D(PDUM)	-0.012416	-0.007372	0.001497	-0.050436	0.042557	0.055188

1 Cointegrating Equation(s): Log likelihood -1050.485

Normalized cointegrating coefficients (standard error in parentheses)

AGRGDP	BCA	CEGDP	CPSGDP	DMR	EXR	IFLRATE
1.000000	-0.121635	2.936121	4.329053	-3.534306	-0.672632	-1.525119
	(0.04218)	(0.28889)	(0.52199)	(0.60948)	(0.05488)	(0.07060)

Adjustment coefficients (standard error in parentheses)

D(AGRGDP)	-0.001695
	(0.02795)
D(BCA)	0.047120
	(0.42519)
D(CEGDP)	0.006064
	(0.02197)
D(CPSGDP)	0.046210

	(0.02259)
D(DMR)	-0.012382
	(0.02137)
D(EXR)	0.199017
	(0.09158)
D(IFLRATE)	0.372845
	(0.13182)
D(IRS)	0.006416
	(0.02365)
D(M2GDP)	0.077569
	(0.02656)
D(BSCE)	-0.165829
	(0.16238)
D(PDUM)	-0.000580
	(0.00136)

2 Cointegrating Equation(s): Log likelihood -1004.338

Normalized cointegrating coefficients (standard error in parentheses)

AGRGDP	BCA	CEGDP	CPSGDP	DMR	EXR	IFLRATE
1.000000	0.000000	1.958668	1.920160	-1.406366	-0.255834	-0.659384
		(0.13613)	(0.24261)	(0.27891)	(0.02592)	(0.03291)
0.000000	1.000000	-8.035966	-19.80432	17.49450	3.426641	7.117497
		(1.29254)	(2.30356)	(2.64817)	(0.24609)	(0.31251)

Adjustment coefficients (standard error in parentheses)

D(AGRGDP)	-0.627167	-0.065192
	(0.25568)	(0.02678)
D(BCA)	-8.428411	-0.891912
	(3.98544)	(0.41742)
D(CEGDP)	-0.343435	-0.037280
	(0.21260)	(0.02227)
D(CPSGDP)	-0.074430	-0.018234
	(0.22904)	(0.02399)
D(DMR)	-0.018589	0.000857
	(0.21780)	(0.02281)
D(EXR)	-2.432124	-0.299313
	(0.76931)	(0.08057)
D(IFLRATE)	0.200047	-0.063418
	(1.34324)	(0.14068)
D(IRS)	0.010541	-0.000349
	(0.24104)	(0.02525)
D(M2GDP)	-0.406011	-0.059997
	(0.25272)	(0.02647)
D(BSCE)	-2.382606	-0.211610
	(1.59415)	(0.16696)
D(PDUM)	-0.004074	-0.000295
	(0.01388)	(0.00145)

3 Cointegrating Equation(s): Log likelihood -968.9832

Normalized cointegrating coefficients (standard error in parentheses)

AGRGDP	BCA	CEGDP	CPSGDP	DMR	EXR	IFLRATE
1.000000	0.000000	0.000000	-1.442546	1.989366	0.378946	0.126707
			(0.45356)	(0.51716)	(0.04892)	(0.06233)
0.000000	1.000000	0.000000	-6.007909	3.562595	0.822285	3.892346
			(2.11634)	(2.41312)	(0.22826)	(0.29083)
0.000000	0.000000	1.000000	1.716833	-1.733694	-0.324088	-0.401340
			(0.25839)	(0.29462)	(0.02787)	(0.03551)

Adjustment coefficients (standard error in parentheses)

D(AGRGDP)	-0.592840	-0.051617	-0.575171
	(0.25253)	(0.02931)	(0.31373)
D(BCA)	-9.879567	-1.465778	-14.80993
	(3.35616)	(0.38952)	(4.16945)
D(CEGDP)	-0.376725	-0.050445	-0.498551
	(0.20835)	(0.02418)	(0.25884)
D(CPSGDP)	-0.088807	-0.023920	-0.053434
	(0.22999)	(0.02669)	(0.28572)
D(DMR)	-0.023431	-0.001058	-0.061545
	(0.21958)	(0.02548)	(0.27279)
D(EXR)	-2.256566	-0.229888	-1.696843
	(0.72837)	(0.08454)	(0.90487)
D(IFLRATE)	-0.060261	-0.166358	-0.079547
	(1.29548)	(0.15036)	(1.60941)
D(IRS)	-0.029857	-0.016325	-0.128793
	(0.23521)	(0.02730)	(0.29221)
D(M2GDP)	-0.414266	-0.063262	-0.344218
	(0.25461)	(0.02955)	(0.31630)
D(BSCE)	-2.808091	-0.379870	-4.569730
	(1.47130)	(0.17076)	(1.82784)
D(PDUM)	-0.004168	-0.000332	-0.005966
	(0.01400)	(0.00162)	(0.01739)

4 Cointegrating Equation(s): Log likelihood -937.3967

Normalized cointegrating coefficients (standard error in parentheses)

AGRGDP	BCA	CEGDP	CPSGDP	DMR	EXR	IFLRATE
1.000000	0.000000	0.000000	0.000000	2.265846	0.170255	0.003902
				(0.65315)	(0.06164)	(0.07421)
0.000000	1.000000	0.000000	0.000000	4.714080	-0.046870	3.380891
				(2.50146)	(0.23607)	(0.28421)
0.000000	0.000000	1.000000	0.000000	-2.062745	-0.075716	-0.255185
				(0.50089)	(0.04727)	(0.05691)
0.000000	0.000000	0.000000	1.000000	0.191662	-0.144668	-0.085130
				(0.24011)	(0.02266)	(0.02728)

Adjustment coefficients (standard error in parentheses)

D(AGRGDP)	-0.480840	-0.060451	-0.359027	-0.229970
	(0.18991)	(0.02194)	(0.23881)	(0.14024)
D(BCA)	-9.780639	-1.473581	-14.61902	-2.728402
	(3.38242)	(0.39073)	(4.25342)	(2.49785)
D(CEGDP)	-0.437425	-0.045658	-0.615693	0.211601
	(0.18897)	(0.02183)	(0.23763)	(0.13955)
D(CPSGDP)	-0.095749	-0.023373	-0.066831	0.205358
	(0.23178)	(0.02677)	(0.29146)	(0.17116)
D(DMR)	0.019587	-0.004450	0.021472	-0.222140
	(0.21169)	(0.02445)	(0.26620)	(0.15633)
D(EXR)	-2.422399	-0.216808	-2.016876	2.326969
	(0.69043)	(0.07976)	(0.86822)	(0.50987)
D(IFLRATE)	0.391925	-0.202023	0.793103	-0.696648
	(1.11261)	(0.12853)	(1.39912)	(0.82164)
D(IRS)	0.032341	-0.021230	-0.008760	-0.306442
	(0.21774)	(0.02515)	(0.27381)	(0.16079)
D(M2GDP)	-0.452276	-0.060264	-0.417571	0.525101
	(0.25030)	(0.02891)	(0.31476)	(0.18484)
D(BSCE)	-2.733814	-0.385728	-4.426387	-1.782889
	(1.47999)	(0.17096)	(1.86110)	(1.09294)
D(PDUM)	-0.000944	-0.000586	0.000256	-0.013974
	(0.01325)	(0.00153)	(0.01666)	(0.00978)

5 Cointegrating Equation(s): Log likelihood -914.8681

Normalized cointegrating coefficients (standard error in parentheses)

AGRGDP	BCA	CEGDP	CPSGDP	DMR	EXR	IFLRATE
1.000000	0.000000	0.000000	0.000000	0.000000	-0.089072	0.011398
					(0.04838)	(0.05908)
0.000000	1.000000	0.000000	0.000000	0.000000	-0.586398	3.396485
					(0.27315)	(0.33358)
0.000000	0.000000	1.000000	0.000000	0.000000	0.160366	-0.262008
					(0.04622)	(0.05645)
0.000000	0.000000	0.000000	1.000000	0.000000	-0.166604	-0.084496
					(0.02051)	(0.02504)
0.000000	0.000000	0.000000	0.000000	1.000000	0.114450	-0.003308
					(0.02140)	(0.02613)

Adjustment coefficients (standard error in parentheses)

D(AGRGDP)	-0.567603	-0.056753	-0.341528	-0.122802	-0.514195
	(0.19084)	(0.02115)	(0.22902)	(0.15211)	(0.17708)
D(BCA)	-7.812133	-1.557469	-15.01603	-5.159863	-3.191505
	(3.30233)	(0.36605)	(3.96287)	(2.63202)	(3.06411)
D(CEGDP)	-0.416626	-0.046544	-0.619888	0.185910	0.064939
	(0.19780)	(0.02193)	(0.23736)	(0.15765)	(0.18353)
D(CPSGDP)	-0.095148	-0.023398	-0.066952	0.204616	-0.151052
	(0.24320)	(0.02696)	(0.29184)	(0.19383)	(0.22565)
D(DMR)	-0.063088	-0.000927	0.038146	-0.120022	0.092596

	(0.21530)	(0.02387)	(0.25837)	(0.17160)	(0.19977)
D(EXR)	-2.731600	-0.203631	-1.954515	2.708888	-1.320875
	(0.69506)	(0.07705)	(0.83409)	(0.55398)	(0.64492)
D(IFLRATE)	0.260173	-0.196408	0.819675	-0.533910	-1.585095
	(1.16418)	(0.12905)	(1.39704)	(0.92787)	(1.08020)
D(IRS)	-0.180235	-0.012171	0.034113	-0.043872	0.333809
	(0.18023)	(0.01998)	(0.21628)	(0.14365)	(0.16723)
D(M2GDP)	-0.488528	-0.058719	-0.410259	0.569879	-0.278462
	(0.26154)	(0.02899)	(0.31385)	(0.20845)	(0.24267)
D(BSCE)	-3.698166	-0.344632	-4.231893	-0.591739	2.596416
	(1.41627)	(0.15699)	(1.69956)	(1.12880)	(1.31411)
D(PDUM)	0.005608	-0.000866	-0.001066	-0.022067	-0.020478
	(0.01321)	(0.00146)	(0.01585)	(0.01053)	(0.01226)

6 Cointegrating Equation(s): Log likelihood -894.7418

Normalized cointegrating coefficients (standard error in parentheses)

AGRGDP	BCA	CEGDP	CPSGDP	DMR	EXR	IFLRATE
1.000000	0.000000	0.000000	0.000000	0.000000	0.000000	-0.222212
						(0.04852)
0.000000	1.000000	0.000000	0.000000	0.000000	0.000000	1.858526
						(0.17438)
0.000000	0.000000	1.000000	0.000000	0.000000	0.000000	0.158587
						(0.03480)
0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	-0.521452
						(0.04798)
0.000000	0.000000	0.000000	0.000000	1.000000	0.000000	0.296863
						(0.02352)
0.000000	0.000000	0.000000	0.000000	0.000000	1.000000	-2.622719
						(0.32627)

Adjustment coefficients (standard error in parentheses)

D(AGRGDP)	-0.533196	-0.058914	-0.276408	-0.127330	-0.468714	-0.005621
	(0.25078)	(0.02348)	(0.38392)	(0.15348)	(0.27867)	(0.03378)
D(BCA)	-1.116318	-1.977852	-2.343328	-6.041130	5.659356	0.415738
	(3.82269)	(0.35791)	(5.85225)	(2.33950)	(4.24795)	(0.51498)
D(CEGDP)	-0.954501	-0.012775	-1.637888	0.256702	-0.646052	-0.116407
	(0.20062)	(0.01878)	(0.30713)	(0.12278)	(0.22293)	(0.02703)
D(CPSGDP)	-0.095463	-0.023378	-0.067547	0.204657	-0.151468	-0.039953
	(0.31985)	(0.02995)	(0.48967)	(0.19575)	(0.35544)	(0.04309)
D(DMR)	-0.319261	0.015156	-0.446694	-0.086306	-0.246026	0.015317
	(0.27196)	(0.02546)	(0.41635)	(0.16644)	(0.30222)	(0.03664)
D(EXR)	-3.092365	-0.180982	-2.637310	2.756370	-1.797752	-0.592015
	(0.90737)	(0.08496)	(1.38912)	(0.55532)	(1.00831)	(0.12224)
D(IFLRATE)	-0.940529	-0.121025	-1.452810	-0.375880	-3.172242	0.001823
	(1.48582)	(0.13912)	(2.27469)	(0.90933)	(1.65112)	(0.20016)
D(IRS)	-0.362410	-0.000734	-0.310677	-0.019895	0.093001	0.054579
	(0.23031)	(0.02156)	(0.35258)	(0.14095)	(0.25593)	(0.03103)
D(M2GDP)	-0.467879	-0.060015	-0.371179	0.567161	-0.251167	-0.112438

	(0.34392)	(0.03220)	(0.52651)	(0.21048)	(0.38218)	(0.04633)
D(BSCE)	-4.238044	-0.310737	-5.253682	-0.520684	1.882779	0.190514
	(1.85526)	(0.17370)	(2.84026)	(1.13542)	(2.06165)	(0.24993)
D(PDUM)	-0.018363	0.000639	-0.046435	-0.018912	-0.052164	-0.001409
	(0.01573)	(0.00147)	(0.02408)	(0.00963)	(0.01748)	(0.00212)

7 Cointegrating Equation(s): Log likelihood -878.6957

Normalized cointegrating coefficients (standard error in parentheses)

AGRGDP	BCA	CEGDP	CPSGDP	DMR	EXR	IFLRATE
1.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
0.000000	1.000000	0.000000	0.000000	0.000000	0.000000	0.000000
0.000000	0.000000	1.000000	0.000000	0.000000	0.000000	0.000000
0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	0.000000
0.000000	0.000000	0.000000	0.000000	1.000000	0.000000	0.000000
0.000000	0.000000	0.000000	0.000000	0.000000	1.000000	0.000000
0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	1.000000

Adjustment coefficients (standard error in parentheses)

D(AGRGDP)	-0.507297	-0.058302	-0.266516	-0.200711	-0.526816	-0.007711
	(0.25348)	(0.02336)	(0.38195)	(0.20114)	(0.29577)	(0.03378)
D(BCA)	-0.590743	-1.965444	-2.142595	-7.530249	4.480302	0.373344
	(3.84518)	(0.35435)	(5.79394)	(3.05121)	(4.48663)	(0.51244)
D(CEGDP)	-0.944191	-0.012531	-1.633950	0.227489	-0.669182	-0.117239
	(0.20373)	(0.01878)	(0.30699)	(0.16167)	(0.23772)	(0.02715)
D(CPSGDP)	-0.185867	-0.025513	-0.102075	0.460799	0.051340	-0.032661
	(0.30988)	(0.02856)	(0.46693)	(0.24590)	(0.36158)	(0.04130)
D(DMR)	-0.234518	0.017157	-0.414328	-0.326408	-0.436134	0.008482
	(0.26057)	(0.02401)	(0.39263)	(0.20676)	(0.30404)	(0.03473)
D(EXR)	-2.715322	-0.172080	-2.493307	1.688089	-2.643594	-0.622428
	(0.82531)	(0.07606)	(1.24358)	(0.65489)	(0.96298)	(0.10999)
D(IFLRATE)	-1.115891	-0.125165	-1.519786	0.120973	-2.778844	0.015968
	(1.49897)	(0.13814)	(2.25866)	(1.18945)	(1.74903)	(0.19976)
D(IRS)	-0.268435	0.001485	-0.274785	-0.286156	-0.117818	0.046999
	(0.21041)	(0.01939)	(0.31705)	(0.16697)	(0.24551)	(0.02804)
D(M2GDP)	-0.670426	-0.064797	-0.448538	1.141039	0.203217	-0.096100
	(0.27043)	(0.02492)	(0.40748)	(0.21459)	(0.31554)	(0.03604)
D(BSCE)	-4.190725	-0.309620	-5.235609	-0.654753	1.776626	0.186697
	(1.88626)	(0.17383)	(2.84223)	(1.49678)	(2.20093)	(0.25138)
D(PDUM)	-0.020355	0.000592	-0.047196	-0.013268	-0.047695	-0.001248
	(0.01585)	(0.00146)	(0.02388)	(0.01258)	(0.01849)	(0.00211)

8 Cointegrating Equation(s): Log likelihood -869.9227

Normalized cointegrating coefficients (standard error in parentheses)

AGRGDP	BCA	CEGDP	CPSGDP	DMR	EXR	IFLRATE
1.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
0.000000	1.000000	0.000000	0.000000	0.000000	0.000000	0.000000
0.000000	0.000000	1.000000	0.000000	0.000000	0.000000	0.000000
0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	0.000000
0.000000	0.000000	0.000000	0.000000	1.000000	0.000000	0.000000
0.000000	0.000000	0.000000	0.000000	0.000000	1.000000	0.000000
0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	1.000000
0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

Adjustment coefficients (standard error in parentheses)

D(AGRGDP)	-0.681225	-0.060866	-0.467804	-0.120355	-0.546586	0.010324
	(0.25828)	(0.02206)	(0.37748)	(0.19493)	(0.27899)	(0.03343)
D(BCA)	-1.164168	-1.973898	-2.806224	-7.265320	4.415122	0.432802
	(4.14589)	(0.35418)	(6.05935)	(3.12895)	(4.47837)	(0.53655)
D(CEGDP)	-0.992860	-0.013249	-1.690275	0.249975	-0.674714	-0.112192
	(0.21875)	(0.01869)	(0.31971)	(0.16509)	(0.23629)	(0.02831)
D(CPSGDP)	-0.371890	-0.028255	-0.317361	0.546744	0.030195	-0.013372
	(0.32037)	(0.02737)	(0.46823)	(0.24179)	(0.34606)	(0.04146)
D(DMR)	-0.384587	0.014944	-0.588004	-0.257074	-0.453192	0.024042
	(0.27039)	(0.02310)	(0.39518)	(0.20406)	(0.29207)	(0.03499)
D(EXR)	-2.231582	-0.164948	-1.933472	1.464596	-2.588608	-0.672586
	(0.85509)	(0.07305)	(1.24974)	(0.64535)	(0.92367)	(0.11066)
D(IFLRATE)	-0.701399	-0.119054	-1.040092	-0.070527	-2.731730	-0.027009
	(1.60572)	(0.13718)	(2.34680)	(1.21185)	(1.73449)	(0.20781)
D(IRS)	-0.237992	0.001934	-0.239553	-0.300221	-0.114358	0.043842
	(0.22690)	(0.01938)	(0.33163)	(0.17125)	(0.24510)	(0.02936)
D(M2GDP)	-0.771543	-0.066288	-0.565562	1.187757	0.191723	-0.085616
	(0.28746)	(0.02456)	(0.42013)	(0.21695)	(0.31051)	(0.03720)
D(BSCE)	-4.547936	-0.314886	-5.649012	-0.489717	1.736022	0.223735
	(2.03047)	(0.17346)	(2.96760)	(1.53242)	(2.19330)	(0.26278)
D(PDUM)	-0.010243	0.000742	-0.035492	-0.017940	-0.046546	-0.002297
	(0.01629)	(0.00139)	(0.02380)	(0.01229)	(0.01759)	(0.00211)

9 Cointegrating Equation(s): Log likelihood -863.7683

Normalized cointegrating coefficients (standard error in parentheses)

AGRGDP	BCA	CEGDP	CPSGDP	DMR	EXR	IFLRATE
1.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
0.000000	1.000000	0.000000	0.000000	0.000000	0.000000	0.000000
0.000000	0.000000	1.000000	0.000000	0.000000	0.000000	0.000000
0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	0.000000
0.000000	0.000000	0.000000	0.000000	1.000000	0.000000	0.000000
0.000000	0.000000	0.000000	0.000000	0.000000	1.000000	0.000000
0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	1.000000
0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

Adjustment coefficients (standard error in parentheses)

D(AGRGDP)	-0.714991	-0.059531	-0.516712	-0.184390	-0.499445	0.008106
	(0.27251)	(0.02228)	(0.39790)	(0.25751)	(0.30472)	(0.03384)
D(BCA)	0.200840	-2.027873	-0.829112	-4.676637	2.509426	0.522440
	(4.30656)	(0.35213)	(6.28816)	(4.06951)	(4.81563)	(0.53478)
D(CEGDP)	-0.953131	-0.014820	-1.632731	0.325319	-0.730179	-0.109583
	(0.23018)	(0.01882)	(0.33610)	(0.21751)	(0.25739)	(0.02858)
D(CPSGDP)	-0.414239	-0.026581	-0.378700	0.466432	0.089318	-0.016153
	(0.33799)	(0.02764)	(0.49352)	(0.31939)	(0.37795)	(0.04197)
D(DMR)	-0.252909	0.009738	-0.397279	-0.007353	-0.637027	0.032689
	(0.27452)	(0.02245)	(0.40083)	(0.25941)	(0.30697)	(0.03409)
D(EXR)	-2.212077	-0.165719	-1.905221	1.501586	-2.615839	-0.671305
	(0.90470)	(0.07397)	(1.32099)	(0.85491)	(1.01165)	(0.11234)
D(IFLRATE)	-1.719279	-0.078805	-2.514416	-2.000898	-1.310659	-0.093852
	(1.58074)	(0.12925)	(2.30809)	(1.49373)	(1.76759)	(0.19629)
D(IRS)	-0.173030	-0.000635	-0.145461	-0.177024	-0.205051	0.048108
	(0.23678)	(0.01936)	(0.34572)	(0.22374)	(0.26476)	(0.02940)
D(M2GDP)	-0.720540	-0.068305	-0.491687	1.284483	0.120517	-0.082266
	(0.30256)	(0.02474)	(0.44178)	(0.28591)	(0.33833)	(0.03757)
D(BSCE)	-5.005628	-0.296788	-6.311945	-1.357713	2.375009	0.193679
	(2.13013)	(0.17417)	(3.11028)	(2.01288)	(2.38193)	(0.26451)
D(PDUM)	-0.012747	0.000841	-0.039120	-0.022690	-0.043049	-0.002461
	(0.01717)	(0.00140)	(0.02506)	(0.01622)	(0.01919)	(0.00213)

10 Cointegrating Equation(s): Log likelihood -860.9756

Normalized cointegrating coefficients (standard error in parentheses)

AGRGDP	BCA	CEGDP	CPSGDP	DMR	EXR	IFLRATE
1.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

0.000000	1.000000	0.000000	0.000000	0.000000	0.000000	0.000000
0.000000	0.000000	1.000000	0.000000	0.000000	0.000000	0.000000
0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	0.000000
0.000000	0.000000	0.000000	0.000000	1.000000	0.000000	0.000000
0.000000	0.000000	0.000000	0.000000	0.000000	1.000000	0.000000
0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	1.000000
0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

Adjustment coefficients (standard error in parentheses)

D(AGRGDP)	-0.787581	-0.058906	-0.560704	-0.220104	-0.496902	-0.001071
	(0.27437)	(0.02177)	(0.39079)	(0.25367)	(0.29769)	(0.03411)
D(BCA)	1.471016	-2.038818	-0.059335	-4.051723	2.464926	0.683019
	(4.31248)	(0.34225)	(6.14234)	(3.98720)	(4.67910)	(0.53608)
D(CEGDP)	-0.943485	-0.014903	-1.626885	0.330065	-0.730517	-0.108364
	(0.23710)	(0.01882)	(0.33770)	(0.21922)	(0.25726)	(0.02947)
D(CPSGDP)	-0.302771	-0.027541	-0.311146	0.521273	0.085413	-0.002061
	(0.33594)	(0.02666)	(0.47848)	(0.31060)	(0.36450)	(0.04176)
D(DMR)	-0.179021	0.009101	-0.352500	0.028999	-0.639616	0.042030
	(0.27625)	(0.02192)	(0.39347)	(0.25542)	(0.29974)	(0.03434)
D(EXR)	-2.164959	-0.166125	-1.876665	1.524767	-2.617490	-0.665349
	(0.93160)	(0.07393)	(1.32689)	(0.86133)	(1.01079)	(0.11581)
D(IFLRATE)	-1.682766	-0.079120	-2.492287	-1.982933	-1.311939	-0.089236
	(1.62887)	(0.12927)	(2.32002)	(1.50601)	(1.76734)	(0.20248)
D(IRS)	-0.195092	-0.000445	-0.158832	-0.187878	-0.204279	0.045319
	(0.24334)	(0.01931)	(0.34660)	(0.22499)	(0.26403)	(0.03025)
D(M2GDP)	-0.642768	-0.068975	-0.444554	1.322746	0.117792	-0.072434
	(0.30513)	(0.02422)	(0.43460)	(0.28211)	(0.33107)	(0.03793)
D(BSCE)	-4.140562	-0.304243	-5.787680	-0.932108	2.344702	0.303043
	(2.07565)	(0.16473)	(2.95639)	(1.91909)	(2.25211)	(0.25802)
D(PDUM)	-0.010782	0.000824	-0.037929	-0.021723	-0.043118	-0.002213
	(0.01762)	(0.00140)	(0.02509)	(0.01629)	(0.01911)	(0.00219)

APPENDIX 4:

CO-INTEGRATION TEST RESULT FOR MANUFACTURING SECTOR

Sample (adjusted): 1972 2009
Included observations: 38 after adjustments
Trend assumption: Linear deterministic trend
Series: MANGDP BCMS CEGDP CPSGDP DMR EXR IFLRATE IRS M2GDP BSCE PDUM
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 *	0.966415	485.9524	285.1425	0.0000
At most 1 *	0.947357	356.9928	239.2354	0.0000
At most 2 *	0.816426	245.1121	197.3709	0.0000
At most 3 *	0.691508	180.6969	159.5297	0.0021
At most 4 *	0.667721	136.0066	125.6154	0.0099
At most 5	0.531358	94.13901	95.75366	0.0643
At most 6	0.480395	65.33818	69.81889	0.1081
At most 7	0.425198	40.46010	47.85613	0.2065
At most 8	0.270802	19.41838	29.79707	0.4631
At most 9	0.171129	7.417590	15.49471	0.5296
At most 10	0.007481	0.285336	3.841466	0.5932

Trace test indicates 5 cointegrating eqn(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 *	0.966415	128.9596	70.53513	0.0000
At most 1 *	0.947357	111.8807	64.50472	0.0000
At most 2 *	0.816426	64.41518	58.43354	0.0116
At most 3	0.691508	44.69030	52.36261	0.2451
At most 4	0.667721	41.86762	46.23142	0.1365
At most 5	0.531358	28.80083	40.07757	0.5053
At most 6	0.480395	24.87808	33.87687	0.3933
At most 7	0.425198	21.04172	27.58434	0.2737
At most 8	0.270802	12.00079	21.13162	0.5476

At most 9	0.171129	7.132255	14.26460	0.4736
At most 10	0.007481	0.285336	3.841466	0.5932

Max-eigenvalue test indicates 3 cointegrating eqn(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):

MANGDP	BCMS	CEGDP	CPSGDP	DMR	EXR	IFLRATE
-0.138250	0.015608	-0.106592	-0.169710	0.309535	0.037847	0.075377
-0.412760	0.053729	-0.012905	-0.163119	0.195292	0.040892	-0.037714
-0.448153	0.035763	0.092825	0.027455	-0.289936	-0.031681	-0.019561
0.090708	0.025228	-0.090196	0.001333	-0.226279	-8.55E-05	-0.020961
-0.201184	0.096965	-0.257640	0.176809	-0.294397	-0.038045	-0.017095
-0.469358	0.093763	0.229692	0.231336	0.497612	-0.005398	0.013217
-0.236890	-0.033892	-0.148370	-0.472095	0.018927	-0.019624	-0.002504
-0.376898	-0.064692	0.025967	-0.297590	0.222261	-0.029457	-0.053271
0.715516	0.006968	-0.000687	-0.444775	0.019372	0.010455	-0.037813
0.456499	0.014494	-0.012374	0.002168	0.142167	-0.025609	0.006791
0.138548	-0.035340	0.130217	-0.337728	-0.462457	-0.010093	-0.013528

Unrestricted Adjustment Coefficients (alpha):

D(MANGDP)	0.121839	0.240585	-0.049835	-0.173029	0.079911	0.133732
D(BCMS)	-0.319496	-5.465109	-1.272729	-1.845229	-3.160844	-8.560838
D(CEGDP)	0.044219	-0.319772	-0.341380	-0.432147	1.543108	-0.462432
D(CPSGDP)	-0.912917	-0.075409	-0.607188	0.172690	-0.176254	-0.053237
D(DMR)	0.103783	0.591037	0.596129	-0.234527	-0.210244	-0.940523
D(EXR)	-4.631996	-2.160427	4.793854	-3.765695	2.631813	0.362056
D(IFLRATE)	-6.589684	6.266757	-3.828349	3.140718	3.331358	-4.157010
D(IRS)	0.006519	1.741833	1.003044	-0.695575	0.010734	-0.393956
D(M2GDP)	-1.625344	-0.798649	-1.004321	0.169576	-0.122922	-0.057689
D(BSCE)	4.858288	3.490842	0.104232	-3.756373	0.190942	-5.815817
D(PDUM)	0.008449	0.020283	0.044119	0.070784	0.005003	-0.028990

1 Cointegrating Equation(s): Log likelihood -978.9307

Normalized cointegrating coefficients (standard error in parentheses)

MANGDP	BCMS	CEGDP	CPSGDP	DMR	EXR	IFLRATE
1.000000	-0.112898	0.771005	1.227557	-2.238947	-0.273757	-0.545221
	(0.04483)	(0.11623)	(0.23165)	(0.24787)	(0.02352)	(0.03061)

Adjustment coefficients (standard error in parentheses)

D(MANGDP)	-0.016844
	(0.02661)
D(BCMS)	0.044170
	(0.41513)

D(CEGDP)	-0.006113
	(0.07233)
D(CPSGDP)	0.126211
	(0.06706)
D(DMR)	-0.014348
	(0.06191)
D(EXR)	0.640375
	(0.25112)
D(IFLRATE)	0.911026
	(0.41883)
D(IRS)	-0.000901
	(0.06986)
D(M2GDP)	0.224704
	(0.08114)
D(BSCE)	-0.671660
	(0.46212)
D(PDUM)	-0.001168
	(0.00418)

2 Cointegrating Equation(s): Log likelihood -922.9904

Normalized cointegrating coefficients (standard error in parentheses)

MANGDP	BCMS	CEGDP	CPSGDP	DMR	EXR	IFLRATE
1.000000	0.000000	5.606109	6.668098	-13.78068	-1.415546	-4.706132
		(0.92719)	(1.65916)	(1.98522)	(0.18871)	(0.24499)
0.000000	1.000000	42.82737	48.19008	-102.2320	-10.11350	-36.85564
		(7.26102)	(12.9932)	(15.5468)	(1.47784)	(1.91861)

Adjustment coefficients (standard error in parentheses)

D(MANGDP)	-0.116148	0.014828
	(0.08114)	(0.01043)
D(BCMS)	2.299951	-0.298622
	(1.21741)	(0.15648)
D(CEGDP)	0.125876	-0.016491
	(0.22604)	(0.02905)
D(CPSGDP)	0.157337	-0.018301
	(0.21104)	(0.02713)
D(DMR)	-0.258304	0.033376
	(0.18800)	(0.02416)
D(EXR)	1.532114	-0.188374
	(0.76799)	(0.09871)
D(IFLRATE)	-1.675642	0.233854
	(1.20059)	(0.15432)
D(IRS)	-0.719861	0.093689
	(0.15931)	(0.02048)
D(M2GDP)	0.554355	-0.068279
	(0.24582)	(0.03160)
D(BSCE)	-2.112542	0.263388
	(1.42294)	(0.18289)

D(PDUM)	-0.009540	0.001222	
	(0.01303)	(0.00168)	

3 Cointegrating Equation(s): Log likelihood -890.7828

Normalized cointegrating coefficients (standard error in parentheses)

MANGDP	BCMS	CEGDP	CPSGDP	DMR	EXR	IFLRATE
1.000000	0.000000	0.000000	-0.080442	0.891040	0.173854	-0.473510
			(0.43701)	(0.51991)	(0.05046)	(0.06562)
0.000000	1.000000	0.000000	-3.364786	9.851353	2.028580	-4.520902
			(3.68896)	(4.38878)	(0.42598)	(0.55391)
0.000000	0.000000	1.000000	1.203783	-2.617096	-0.283512	-0.755002
			(0.26498)	(0.31525)	(0.03060)	(0.03979)

Adjustment coefficients (standard error in parentheses)

D(MANGDP)	-0.093815	0.013046	-0.020718
	(0.11629)	(0.01236)	(0.02642)
D(BCMS)	2.870328	-0.344139	-0.013556
	(1.74003)	(0.18494)	(0.39530)
D(CEGDP)	0.278867	-0.028700	-0.032275
	(0.32161)	(0.03418)	(0.07306)
D(CPSGDP)	0.429450	-0.040016	0.041921
	(0.29324)	(0.03117)	(0.06662)
D(DMR)	-0.525461	0.054695	0.036646
	(0.25934)	(0.02756)	(0.05892)
D(EXR)	-0.616266	-0.016930	0.966601
	(0.92529)	(0.09835)	(0.21021)
D(IFLRATE)	0.040044	0.096940	0.266167
	(1.65542)	(0.17595)	(0.37608)
D(IRS)	-1.169378	0.129561	0.069933
	(0.19125)	(0.02033)	(0.04345)
D(M2GDP)	1.004444	-0.104197	0.090329
	(0.32974)	(0.03505)	(0.07491)
D(BSCE)	-2.159254	0.267116	-0.553228
	(2.04223)	(0.21706)	(0.46395)
D(PDUM)	-0.029312	0.002799	0.002933
	(0.01787)	(0.00190)	(0.00406)

4 Cointegrating Equation(s): Log likelihood -868.4377

Normalized cointegrating coefficients (standard error in parentheses)

MANGDP	BCMS	CEGDP	CPSGDP	DMR	EXR	IFLRATE
1.000000	0.000000	0.000000	0.000000	0.575916	0.136994	-0.446464
				(0.46158)	(0.04471)	(0.05487)
0.000000	1.000000	0.000000	0.000000	-3.329943	0.486745	-3.389620
				(2.78490)	(0.26978)	(0.33106)
0.000000	0.000000	1.000000	0.000000	2.098634	0.268093	-1.159728
				(1.21056)	(0.11727)	(0.14391)

0.000000	0.000000	0.000000	1.000000	-3.917424	-0.458227	0.336212
				(0.96029)	(0.09303)	(0.11416)

Adjustment coefficients (standard error in parentheses)

D(MANGDP)	-0.109510	0.008681	-0.005111	-0.061520		
	(0.11546)	(0.01299)	(0.03075)	(0.04334)		
D(BCMS)	2.702951	-0.390691	0.152877	0.908282		
	(1.74277)	(0.19609)	(0.46423)	(0.65423)		
D(CEGDP)	0.239668	-0.039602	0.006703	0.034708		
	(0.32036)	(0.03605)	(0.08534)	(0.12026)		
D(CPSGDP)	0.445115	-0.035659	0.026345	0.150792		
	(0.29551)	(0.03325)	(0.07872)	(0.11093)		
D(DMR)	-0.546735	0.048779	0.057799	-0.097968		
	(0.26038)	(0.02930)	(0.06936)	(0.09775)		
D(EXR)	-0.957845	-0.111933	1.306254	1.265100		
	(0.80507)	(0.09059)	(0.21445)	(0.30222)		
D(IFLRATE)	0.324932	0.176175	-0.017115	-0.004810		
	(1.62509)	(0.18285)	(0.43289)	(0.61005)		
D(IRS)	-1.232472	0.112013	0.132672	-0.258621		
	(0.17214)	(0.01937)	(0.04586)	(0.06462)		
D(M2GDP)	1.019826	-0.099919	0.075034	0.378765		
	(0.33251)	(0.03741)	(0.08857)	(0.12482)		
D(BSCE)	-2.499986	0.172349	-0.214417	-1.396068		
	(2.00840)	(0.22598)	(0.53499)	(0.75394)		
D(PDUM)	-0.022891	0.004585	-0.003451	-0.003437		
	(0.01569)	(0.00177)	(0.00418)	(0.00589)		

5 Cointegrating Equation(s): Log likelihood -847.5039

Normalized cointegrating coefficients (standard error in parentheses)

MANGDP	BCMS	CEGDP	CPSGDP	DMR	EXR	IFLRATE
1.000000	0.000000	0.000000	0.000000	0.000000	0.098363	-0.389411
					(0.03701)	(0.04612)
0.000000	1.000000	0.000000	0.000000	0.000000	0.710104	-3.719503
					(0.24400)	(0.30402)
0.000000	0.000000	1.000000	0.000000	0.000000	0.127325	-0.951826
					(0.05263)	(0.06558)
0.000000	0.000000	0.000000	1.000000	0.000000	-0.195461	-0.051870
					(0.07411)	(0.09234)
0.000000	0.000000	0.000000	0.000000	1.000000	0.067076	-0.099066
					(0.03655)	(0.04555)

Adjustment coefficients (standard error in parentheses)

D(MANGDP)	-0.125586	0.016429	-0.025699	-0.047391	0.114774	
	(0.12071)	(0.02190)	(0.05605)	(0.05387)	(0.10868)	
D(BCMS)	3.338863	-0.697181	0.967235	0.349415	0.550902	
	(1.78051)	(0.32300)	(0.82676)	(0.79455)	(1.60308)	
D(CEGDP)	-0.070782	0.110025	-0.390863	0.307544	-0.306285	
	(0.26691)	(0.04842)	(0.12393)	(0.11911)	(0.24031)	

D(CPSGDP)	0.480574	-0.052749	0.071755	0.119629	-0.108449
	(0.30927)	(0.05610)	(0.14361)	(0.13801)	(0.27845)
D(DMR)	-0.504437	0.028392	0.111966	-0.135141	0.089674
	(0.27186)	(0.04932)	(0.12624)	(0.12132)	(0.24477)
D(EXR)	-1.487324	0.143260	0.628194	1.730429	-3.168293
	(0.76963)	(0.13962)	(0.35737)	(0.34344)	(0.69293)
D(IFLRATE)	-0.345285	0.499199	-0.875405	0.584205	-1.397337
	(1.64749)	(0.29887)	(0.76499)	(0.73519)	(1.48331)
D(IRS)	-1.234632	0.113054	0.129906	-0.256723	0.205599
	(0.18067)	(0.03277)	(0.08389)	(0.08062)	(0.16266)
D(M2GDP)	1.044556	-0.111838	0.106704	0.357031	-0.370066
	(0.34861)	(0.06324)	(0.16187)	(0.15556)	(0.31387)
D(BSCE)	-2.538401	0.190864	-0.263611	-1.362307	2.949100
	(2.10776)	(0.38237)	(0.97871)	(0.94058)	(1.89771)
D(PDUM)	-0.023898	0.005070	-0.004740	-0.002552	-0.023705
	(0.01646)	(0.00299)	(0.00764)	(0.00734)	(0.01482)

6 Cointegrating Equation(s): Log likelihood -833.1034

Normalized cointegrating coefficients (standard error in parentheses)

MANGDP	BCMS	CEGDP	CPSGDP	DMR	EXR	IFLRATE
1.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.655534
						(0.13551)
0.000000	1.000000	0.000000	0.000000	0.000000	0.000000	3.824146
						(0.86835)
0.000000	0.000000	1.000000	0.000000	0.000000	0.000000	0.400788
						(0.14883)
0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	-2.128313
						(0.33164)
0.000000	0.000000	0.000000	0.000000	1.000000	0.000000	0.613503
						(0.05243)
0.000000	0.000000	0.000000	0.000000	0.000000	1.000000	-10.62330
						(1.32591)

Adjustment coefficients (standard error in parentheses)

D(MANGDP)	-0.188355	0.028968	0.005018	-0.016454	0.181321	0.012281
	(0.14633)	(0.02747)	(0.06919)	(0.06765)	(0.14000)	(0.01347)
D(BCMS)	7.356965	-1.499869	-0.999124	-1.631017	-3.709072	-0.028628
	(1.68172)	(0.31573)	(0.79520)	(0.77754)	(1.60895)	(0.15478)
D(CEGDP)	0.146264	0.066666	-0.497080	0.200567	-0.536396	-0.056761
	(0.31835)	(0.05977)	(0.15053)	(0.14719)	(0.30458)	(0.02930)
D(CPSGDP)	0.505562	-0.057741	0.059526	0.107313	-0.134940	-0.011420
	(0.37891)	(0.07114)	(0.17917)	(0.17519)	(0.36251)	(0.03487)
D(DMR)	-0.062995	-0.059794	-0.104065	-0.352718	-0.378342	0.022306
	(0.29608)	(0.05559)	(0.14000)	(0.13689)	(0.28327)	(0.02725)
D(EXR)	-1.657258	0.177208	0.711356	1.814186	-2.988129	-0.517287
	(0.94132)	(0.17673)	(0.44510)	(0.43522)	(0.90059)	(0.08663)

D(IFLRATE)	1.605843	0.109426	-1.830238	-0.377462	-3.465914	0.023582
	(1.90275)	(0.35723)	(0.89971)	(0.87974)	(1.82042)	(0.17512)
D(IRS)	-1.049725	0.076115	0.039417	-0.347859	0.009562	0.041474
	(0.21196)	(0.03979)	(0.10022)	(0.09800)	(0.20279)	(0.01951)
D(M2GDP)	1.071633	-0.117247	0.093453	0.343685	-0.398773	-0.057381
	(0.42711)	(0.08019)	(0.20196)	(0.19747)	(0.40862)	(0.03931)
D(BSCE)	0.191302	-0.354444	-1.599460	-2.707717	0.055080	0.347770
	(2.40414)	(0.45136)	(1.13680)	(1.11156)	(2.30011)	(0.22127)
D(PDUM)	-0.010291	0.002352	-0.011399	-0.009259	-0.038131	-0.000288
	(0.01961)	(0.00368)	(0.00927)	(0.00907)	(0.01876)	(0.00181)

7 Cointegrating Equation(s): Log likelihood -820.6644

Normalized cointegrating coefficients (standard error in parentheses)

MANGDP	BCMS	CEGDP	CPSGDP	DMR	EXR	IFLRATE
1.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
0.000000	1.000000	0.000000	0.000000	0.000000	0.000000	0.000000
0.000000	0.000000	1.000000	0.000000	0.000000	0.000000	0.000000
0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	0.000000
0.000000	0.000000	0.000000	0.000000	1.000000	0.000000	0.000000
0.000000	0.000000	0.000000	0.000000	0.000000	1.000000	0.000000
0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	1.000000

Adjustment coefficients (standard error in parentheses)

D(MANGDP)	-0.256267	0.019252	-0.037517	-0.151796	0.186747	0.006655
	(0.14451)	(0.02668)	(0.07032)	(0.10305)	(0.13276)	(0.01320)
D(BCMS)	7.098566	-1.536838	-1.160964	-2.145975	-3.688426	-0.050033
	(1.74208)	(0.32164)	(0.84777)	(1.24228)	(1.60047)	(0.15913)
D(CEGDP)	0.221283	0.077399	-0.450094	0.350070	-0.542390	-0.050547
	(0.32727)	(0.06042)	(0.15926)	(0.23337)	(0.30066)	(0.02989)
D(CPSGDP)	0.572458	-0.048170	0.101425	0.240629	-0.140285	-0.005879
	(0.39180)	(0.07234)	(0.19067)	(0.27939)	(0.35995)	(0.03579)
D(DMR)	-0.030972	-0.055212	-0.084008	-0.288900	-0.380900	0.024959
	(0.30758)	(0.05679)	(0.14968)	(0.21934)	(0.28258)	(0.02810)
D(EXR)	-1.697585	0.171438	0.686098	1.733819	-2.984907	-0.520627
	(0.98014)	(0.18096)	(0.47698)	(0.69894)	(0.90047)	(0.08953)
D(IFLRATE)	1.910485	0.153011	-1.639434	0.229654	-3.490254	0.048818
	(1.97009)	(0.36374)	(0.95873)	(1.40488)	(1.80995)	(0.17996)
D(IRS)	-0.929132	0.093368	0.114947	-0.107532	-7.30E-05	0.051464
	(0.20331)	(0.03754)	(0.09894)	(0.14498)	(0.18678)	(0.01857)
D(M2GDP)	1.353769	-0.076882	0.270161	0.905949	-0.421314	-0.034010
	(0.39668)	(0.07324)	(0.19304)	(0.28287)	(0.36443)	(0.03624)

D(BSCE)	0.874610	-0.256683	-1.171489	-1.345963	0.000486	0.404374
	(2.45636)	(0.45352)	(1.19537)	(1.75164)	(2.25670)	(0.22438)
D(PDUM)	-0.015280	0.001638	-0.014524	-0.019201	-0.037733	-0.000702
	(0.02012)	(0.00371)	(0.00979)	(0.01435)	(0.01848)	(0.00184)

8 Cointegrating Equation(s): Log likelihood -810.1435

Normalized cointegrating coefficients (standard error in parentheses)

MANGDP	BCMS	CEGDP	CPSGDP	DMR	EXR	IFLRATE
1.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
0.000000	1.000000	0.000000	0.000000	0.000000	0.000000	0.000000
0.000000	0.000000	1.000000	0.000000	0.000000	0.000000	0.000000
0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	0.000000
0.000000	0.000000	0.000000	0.000000	1.000000	0.000000	0.000000
0.000000	0.000000	0.000000	0.000000	0.000000	1.000000	0.000000
0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	1.000000
0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

Adjustment coefficients (standard error in parentheses)

D(MANGDP)	-0.320278	0.008265	-0.033107	-0.202337	0.224494	0.001652
	(0.15504)	(0.02830)	(0.06906)	(0.11261)	(0.13533)	(0.01385)
D(BCMS)	6.313255	-1.671631	-1.106860	-2.766039	-3.225318	-0.111411
	(1.86775)	(0.34094)	(0.83188)	(1.35660)	(1.63022)	(0.16678)
D(CEGDP)	0.060836	0.049859	-0.439040	0.223385	-0.447773	-0.063087
	(0.34950)	(0.06380)	(0.15567)	(0.25385)	(0.30505)	(0.03121)
D(CPSGDP)	0.521735	-0.056877	0.104920	0.200580	-0.110373	-0.009843
	(0.42821)	(0.07817)	(0.19072)	(0.31102)	(0.37375)	(0.03824)
D(DMR)	0.249785	-0.007022	-0.103351	-0.067221	-0.546466	0.046902
	(0.30717)	(0.05607)	(0.13681)	(0.22311)	(0.26811)	(0.02743)
D(EXR)	-2.609783	0.014865	0.748945	1.013569	-2.446973	-0.591922
	(0.97493)	(0.17797)	(0.43423)	(0.70812)	(0.85095)	(0.08706)
D(IFLRATE)	0.952159	-0.011480	-1.573409	-0.527017	-2.925117	-0.026082
	(2.10479)	(0.38421)	(0.93746)	(1.52877)	(1.83711)	(0.18795)
D(IRS)	-0.843933	0.107992	0.109077	-0.040260	-0.050316	0.058123
	(0.21860)	(0.03990)	(0.09736)	(0.15878)	(0.19080)	(0.01952)
D(M2GDP)	1.069917	-0.125604	0.289717	0.681826	-0.253923	-0.056195
	(0.41127)	(0.07507)	(0.18317)	(0.29871)	(0.35896)	(0.03672)
D(BSCE)	-0.065200	-0.417996	-1.106740	-2.088015	0.554704	0.330921
	(2.64924)	(0.48360)	(1.17995)	(1.92422)	(2.31232)	(0.23657)
D(PDUM)	-0.027101	-0.000391	-0.013709	-0.028534	-0.030762	-0.001626
	(0.02124)	(0.00388)	(0.00946)	(0.01543)	(0.01854)	(0.00190)

9 Cointegrating Equation(s): Log likelihood -804.1431

Normalized cointegrating coefficients (standard error in parentheses)

MANGDP	BCMS	CEGDP	CPSGDP	DMR	EXR	IFLRATE
1.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
0.000000	1.000000	0.000000	0.000000	0.000000	0.000000	0.000000
0.000000	0.000000	1.000000	0.000000	0.000000	0.000000	0.000000
0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	0.000000
0.000000	0.000000	0.000000	0.000000	1.000000	0.000000	0.000000
0.000000	0.000000	0.000000	0.000000	0.000000	1.000000	0.000000
0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	1.000000
0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

Adjustment coefficients (standard error in parentheses)

D(MANGDP)	-0.511190	0.006406	-0.032924	-0.083663	0.219326	-0.001137
	(0.18572)	(0.02685)	(0.06545)	(0.12797)	(0.12831)	(0.01323)
D(BCMS)	5.408099	-1.680447	-1.105991	-2.203382	-3.249825	-0.124637
	(2.34171)	(0.33854)	(0.82531)	(1.61355)	(1.61781)	(0.16678)
D(CEGDP)	-0.292260	0.046420	-0.438701	0.442874	-0.457332	-0.068246
	(0.42631)	(0.06163)	(0.15025)	(0.29375)	(0.29452)	(0.03036)
D(CPSGDP)	0.747097	-0.054682	0.104703	0.060492	-0.104272	-0.006550
	(0.53610)	(0.07750)	(0.18894)	(0.36940)	(0.37038)	(0.03818)
D(DMR)	0.204114	-0.007467	-0.103307	-0.038831	-0.547703	0.046235
	(0.38790)	(0.05608)	(0.13671)	(0.26728)	(0.26799)	(0.02763)
D(EXR)	-3.067058	0.010412	0.749384	1.297818	-2.459353	-0.598604
	(1.22295)	(0.17680)	(0.43102)	(0.84267)	(0.84490)	(0.08710)
D(IFLRATE)	3.705929	0.015339	-1.576051	-2.238800	-2.850561	0.014155
	(2.50275)	(0.36182)	(0.88207)	(1.72451)	(1.72906)	(0.17825)
D(IRS)	-0.946163	0.106997	0.109176	0.023287	-0.053084	0.056629
	(0.27423)	(0.03964)	(0.09665)	(0.18896)	(0.18945)	(0.01953)
D(M2GDP)	1.239129	-0.123956	0.289555	0.576641	-0.249342	-0.053722
	(0.51678)	(0.07471)	(0.18213)	(0.35608)	(0.35702)	(0.03681)
D(BSCE)	3.304343	-0.385180	-1.109973	-4.182571	0.645932	0.380156
	(3.16132)	(0.45703)	(1.11417)	(2.17830)	(2.18405)	(0.22516)
D(PDUM)	-0.040158	-0.000518	-0.013697	-0.020417	-0.031115	-0.001816
	(0.02651)	(0.00383)	(0.00934)	(0.01826)	(0.01831)	(0.00189)

10 Cointegrating Equation(s): Log likelihood -800.5770

Normalized cointegrating coefficients (standard error in parentheses)

MANGDP	BCMS	CEGDP	CPSGDP	DMR	EXR	IFLRATE
1.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
0.000000	1.000000	0.000000	0.000000	0.000000	0.000000	0.000000
0.000000	0.000000	1.000000	0.000000	0.000000	0.000000	0.000000
0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	0.000000
0.000000	0.000000	0.000000	0.000000	1.000000	0.000000	0.000000
0.000000	0.000000	0.000000	0.000000	0.000000	1.000000	0.000000
0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	1.000000
0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

Adjustment coefficients (standard error in parentheses)

D(MANGDP)	-0.587567	0.003981	-0.030854	-0.084026	0.195540	0.003147
	(0.19487)	(0.02634)	(0.06401)	(0.12509)	(0.12735)	(0.01353)
D(BCMS)	5.696310	-1.671296	-1.113804	-2.202013	-3.160067	-0.140805
	(2.50857)	(0.33910)	(0.82404)	(1.61034)	(1.63936)	(0.17413)
D(CEGDP)	-0.438377	0.041781	-0.434740	0.442181	-0.502838	-0.060049
	(0.45048)	(0.06089)	(0.14798)	(0.28918)	(0.29439)	(0.03127)
D(CPSGDP)	0.396593	-0.065810	0.114205	0.058828	-0.213429	0.013113
	(0.54216)	(0.07329)	(0.17809)	(0.34803)	(0.35430)	(0.03763)
D(DMR)	0.025647	-0.013133	-0.098469	-0.039678	-0.603283	0.056247
	(0.40462)	(0.05470)	(0.13291)	(0.25974)	(0.26442)	(0.02809)
D(EXR)	-3.081489	0.009953	0.749775	1.297749	-2.463847	-0.597794
	(1.31268)	(0.17744)	(0.43120)	(0.84266)	(0.85784)	(0.09112)
D(IFLRATE)	4.681499	0.046313	-1.602496	-2.234167	-2.546739	-0.040572
	(2.63223)	(0.35582)	(0.86466)	(1.68973)	(1.72018)	(0.18272)
D(IRS)	-0.891750	0.108724	0.107701	0.023546	-0.036138	0.053577
	(0.29283)	(0.03958)	(0.09619)	(0.18798)	(0.19136)	(0.02033)
D(M2GDP)	0.969007	-0.132532	0.296877	0.575359	-0.333466	-0.038569
	(0.53441)	(0.07224)	(0.17555)	(0.34306)	(0.34924)	(0.03710)
D(BSCE)	1.841721	-0.431618	-1.070326	-4.189516	0.190428	0.462207
	(3.29649)	(0.44561)	(1.08286)	(2.11614)	(2.15427)	(0.22883)
D(PDUM)	-0.042884	-0.000604	-0.013623	-0.020430	-0.031964	-0.001664
	(0.02841)	(0.00384)	(0.00933)	(0.01824)	(0.01857)	(0.00197)

APPENDIX 5:

CO-INTEGRATION TEST RESULT FOR SERVICES SECTOR

Sample (adjusted): 1972 2009
Included observations: 38 after adjustments
Trend assumption: Linear deterministic trend
Series: BCS CEGDP EXR GDF IFL IRS PDUM SGDP
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 *	0.993163	479.9447	159.5297	0.0000
At most 1 *	0.921809	290.5018	125.6154	0.0000
At most 2 *	0.816054	193.6551	95.75366	0.0000
At most 3 *	0.771658	129.3169	69.81889	0.0000
At most 4 *	0.636427	73.19432	47.85613	0.0000
At most 5 *	0.513617	34.74682	29.79707	0.0124
At most 6	0.167986	7.357997	15.49471	0.5364
At most 7	0.009678	0.369574	3.841466	0.5432

Trace test indicates 6 cointegrating eqn(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 *	0.993163	189.4429	52.36261	0.0001
At most 1 *	0.921809	96.84669	46.23142	0.0000
At most 2 *	0.816054	64.33820	40.07757	0.0000
At most 3 *	0.771658	56.12260	33.87687	0.0000
At most 4 *	0.636427	38.44750	27.58434	0.0014
At most 5 *	0.513617	27.38882	21.13162	0.0058
At most 6	0.167986	6.988423	14.26460	0.4905
At most 7	0.009678	0.369574	3.841466	0.5432

Max-eigenvalue test indicates 6 cointegrating eqn(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):

BCS	CEGDP	EXR	GDF	IFL	IRS	PDUM

-9.89E-08	-0.040913	-0.014152	-1.03E-05	-0.009432	-0.048840	0.253390
4.17E-06	0.370588	0.093361	4.04E-05	-0.001705	-0.120052	0.688057
-1.32E-05	-0.929939	-0.112611	-2.91E-05	0.003764	0.389854	-1.886923
5.23E-06	1.773525	-0.086400	-3.77E-05	0.004408	0.428129	-1.766202
5.06E-06	-3.913874	0.089229	1.69E-05	-1.61E-05	-0.020873	-0.553197
2.46E-06	3.346562	0.002198	-4.21E-05	-0.001194	-0.645297	1.279604
2.30E-06	-1.682342	0.061410	2.21E-05	-0.004232	-0.028638	2.869774
5.55E-06	2.980052	0.110894	4.24E-05	0.003846	0.208604	-2.124022

Unrestricted Adjustment Coefficients (alpha):

D(BCS)	-4251.975	-81726.35	154535.0	-156047.9	22679.97	-35895.71
D(CEGDP)	0.009248	-0.033926	-0.029297	0.060242	-0.079417	-0.015647
D(EXR)	0.561189	-0.142232	1.815505	5.142804	-5.216998	0.957133
D(GDF)	2238.079	-65972.06	-911.3215	-23225.15	27898.35	3638.164
D(IFL)	103.0317	9.178159	-2.479590	-3.081520	-1.753091	-3.363059
D(IRS)	-1.004382	0.598200	0.164706	-0.626583	-0.891619	1.399608
D(PDUM)	0.005450	0.001067	-0.011727	-0.023004	0.013191	0.009101
D(SGDP)	5132.892	4505.474	29860.78	19330.41	46921.31	14142.06

1 Cointegrating Equation(s): Log likelihood -1788.931

Normalized cointegrating coefficients (standard error in parentheses)

BCS	CEGDP	EXR	GDF	IFL	IRS	PDUM
1.000000	413536.1	143046.8	104.1919	95334.95	493652.8	-2561182.
	(1006595)	(26894.9)	(13.2450)	(1989.44)	(137946.)	(730788.)

Adjustment coefficients (standard error in parentheses)

D(BCS)	0.000421
	(0.00506)
D(CEGDP)	-9.15E-10
	(2.8E-09)
D(EXR)	-5.55E-08
	(1.7E-07)
D(GDF)	-0.000221
	(0.00153)
D(IFL)	-1.02E-05
	(2.8E-07)
D(IRS)	9.94E-08
	(4.8E-08)
D(PDUM)	-5.39E-10
	(2.9E-09)
D(SGDP)	-0.000508
	(0.00150)

2 Cointegrating Equation(s): Log likelihood -1740.508

Normalized cointegrating coefficients (standard error in parentheses)

BCS	CEGDP	EXR	GDF	IFL	IRS	PDUM
1.000000	0.000000	-10625.06	-16.17126	-26582.52	-171576.8	910068.5
		(7455.78)	(3.61144)	(563.164)	(40102.8)	(208058.)
0.000000	1.000000	0.371604	0.000291	0.294817	1.608638	-8.394070
		(0.07858)	(3.8E-05)	(0.00594)	(0.42264)	(2.19271)

Adjustment coefficients (standard error in parentheses)

D(BCS)	-0.340721	-30112.87
	(0.20346)	(18167.9)
D(CEGDP)	-1.43E-07	-0.012951
	(1.1E-07)	(0.01023)
D(EXR)	-6.49E-07	-0.075670
	(7.3E-06)	(0.65240)
D(GDF)	-0.275602	-24540.05
	(0.03835)	(3424.17)
D(IFL)	2.81E-05	-0.814034
	(9.3E-06)	(0.82784)
D(IRS)	2.60E-06	0.262778
	(2.0E-06)	(0.17714)
D(PDUM)	3.91E-09	0.000172
	(1.2E-07)	(0.01105)
D(SGDP)	0.018299	1459.673
	(0.06311)	(5635.12)

3 Cointegrating Equation(s): Log likelihood -1708.339

Normalized cointegrating coefficients (standard error in parentheses)

BCS	CEGDP	EXR	GDF	IFL	IRS	PDUM
1.000000	0.000000	0.000000	-12.91221	-34840.80	-214376.9	1172464.
			(2.90718)	(826.989)	(56541.5)	(303028.)
0.000000	1.000000	0.000000	0.000177	0.583645	3.105544	-17.57119
			(5.4E-05)	(0.01538)	(1.05127)	(5.63415)
0.000000	0.000000	1.000000	0.000307	-0.777246	-4.028226	24.69593
			(0.00011)	(0.03039)	(2.07752)	(11.1343)

Adjustment coefficients (standard error in parentheses)

D(BCS)	-2.376564	-173821.0	-24972.20
	(0.53907)	(39081.1)	(5732.57)
D(CEGDP)	2.43E-07	0.014293	8.69E-07
	(3.7E-07)	(0.02693)	(0.00395)
D(EXR)	-2.46E-05	-1.763979	-0.225666
	(2.4E-05)	(1.71909)	(0.25216)
D(GDF)	-0.263596	-23692.57	-6088.283
	(0.12690)	(9199.83)	(1349.47)
D(IFL)	6.08E-05	1.491835	-0.322025
	(3.0E-05)	(2.17446)	(0.31896)
D(IRS)	4.27E-07	0.109612	0.051515
	(6.6E-06)	(0.47499)	(0.06967)

D(PDUM)	1.58E-07	0.011078	0.001343
	(4.1E-07)	(0.02960)	(0.00434)
D(SGDP)	-0.375087	-26309.04	-3014.650
	(0.19377)	(14047.6)	(2060.56)

4 Cointegrating Equation(s): Log likelihood -1680.277

Normalized cointegrating coefficients (standard error in parentheses)

BCS	CEGDP	EXR	GDF	IFL	IRS	PDUM
1.000000	0.000000	0.000000	0.000000	11036.01	1399.544	-100117.7
				(490.439)	(23155.5)	(175871.)
0.000000	1.000000	0.000000	0.000000	-0.045500	0.146432	-0.119271
				(0.00242)	(0.11446)	(0.86932)
0.000000	0.000000	1.000000	0.000000	-1.867061	-9.154050	54.92642
				(0.05814)	(2.74479)	(20.8473)
0.000000	0.000000	0.000000	1.000000	3552.981	16711.05	-98556.51
				(95.7079)	(4518.72)	(34320.7)

Adjustment coefficients (standard error in parentheses)

D(BCS)	-3.192321	-450575.9	-11489.61	-1.871432
	(0.37725)	(52007.5)	(4352.64)	(1.61534)
D(CEGDP)	5.58E-07	0.121133	-0.005204	-2.88E-06
	(3.6E-07)	(0.04959)	(0.00415)	(1.5E-06)
D(EXR)	2.32E-06	7.356909	-0.670006	-0.000258
	(2.1E-05)	(2.88034)	(0.24106)	(8.9E-05)
D(GDF)	-0.385008	-64882.94	-4081.624	-1.783938
	(0.11917)	(16429.1)	(1374.99)	(0.51028)
D(IFL)	4.47E-05	-3.973316	-0.055781	-0.000503
	(3.1E-05)	(4.25878)	(0.35643)	(0.00013)
D(IRS)	-2.85E-06	-1.001648	0.105652	5.33E-05
	(6.8E-06)	(0.93509)	(0.07826)	(2.9E-05)
D(PDUM)	3.82E-08	-0.029720	0.003331	1.20E-06
	(4.3E-07)	(0.05953)	(0.00498)	(1.8E-06)
D(SGDP)	-0.274035	7973.916	-4684.802	-1.468690
	(0.20001)	(27573.8)	(2307.72)	(0.85643)

5 Cointegrating Equation(s): Log likelihood -1661.053

Normalized cointegrating coefficients (standard error in parentheses)

BCS	CEGDP	EXR	GDF	IFL	IRS	PDUM
1.000000	0.000000	0.000000	0.000000	0.000000	94849.87	-424567.3
					(13926.1)	(98557.5)
0.000000	1.000000	0.000000	0.000000	0.000000	-0.238850	1.218388
					(0.03736)	(0.26438)
0.000000	0.000000	1.000000	0.000000	0.000000	-24.96387	109.8165
					(3.37986)	(23.9199)
0.000000	0.000000	0.000000	1.000000	0.000000	46796.84	-203011.2
					(6993.39)	(49493.6)

0.000000	0.000000	0.000000	0.000000	1.000000	-8.467761	29.39917
					(2.75520)	(19.4991)

Adjustment coefficients (standard error in parentheses)

D(BCS)	-3.077541	-539342.4	-9465.911	-1.487770	72.92591	
	(0.39310)	(111054.)	(4843.08)	(1.64835)	(281.931)	
D(CEGDP)	1.56E-07	0.431960	-0.012290	-4.23E-06	0.000127	
	(3.0E-07)	(0.08457)	(0.00369)	(1.3E-06)	(0.00021)	
D(EXR)	-2.41E-05	27.77558	-1.135512	-0.000346	0.024537	
	(1.6E-05)	(4.47243)	(0.19504)	(6.6E-05)	(0.01135)	
D(GDF)	-0.243818	-174073.6	-1592.293	-1.312001	-14.89320	
	(0.09533)	(26930.8)	(1174.46)	(0.39973)	(68.3691)	
D(IFL)	3.58E-05	2.888062	-0.212207	-0.000533	-1.010327	
	(3.2E-05)	(9.10831)	(0.39722)	(0.00014)	(0.02312)	
D(IRS)	-7.36E-06	2.488038	0.026094	3.82E-05	0.006326	
	(6.7E-06)	(1.88410)	(0.08217)	(2.8E-05)	(0.00478)	
D(PDUM)	1.05E-07	-0.081347	0.004508	1.42E-06	-0.000199	
	(4.5E-07)	(0.12847)	(0.00560)	(1.9E-06)	(0.00033)	
D(SGDP)	-0.036573	-175670.2	-498.0789	-0.674954	140.7592	
	(0.15975)	(45128.8)	(1968.08)	(0.66984)	(114.568)	

6 Cointegrating Equation(s): Log likelihood -1647.359

Normalized cointegrating coefficients (standard error in parentheses)

BCS	CEGDP	EXR	GDF	IFL	IRS	PDUM
1.000000	0.000000	0.000000	0.000000	0.000000	0.000000	90240.48
						(41872.3)
0.000000	1.000000	0.000000	0.000000	0.000000	0.000000	-0.077999
						(0.10272)
0.000000	0.000000	1.000000	0.000000	0.000000	0.000000	-25.67764
						(10.4246)
0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	50983.67
						(17018.1)
0.000000	0.000000	0.000000	0.000000	1.000000	0.000000	-16.56051
						(7.34113)
0.000000	0.000000	0.000000	0.000000	0.000000	1.000000	-5.427607
						(1.07047)

Adjustment coefficients (standard error in parentheses)

D(BCS)	-3.165722	-659469.6	-9544.798	0.023725	115.7992	26146.57
	(0.38321)	(134226.)	(4664.17)	(1.88716)	(273.038)	(21254.1)
D(CEGDP)	1.18E-07	0.379598	-0.012325	-3.57E-06	0.000146	0.029745
	(3.0E-07)	(0.10487)	(0.00364)	(1.5E-06)	(0.00021)	(0.01661)
D(EXR)	-2.17E-05	30.97869	-1.133408	-0.000387	0.023393	2.390490
	(1.6E-05)	(5.52327)	(0.19193)	(7.8E-05)	(0.01124)	(0.87458)
D(GDF)	-0.234881	-161898.2	-1584.298	-1.465196	-19.23857	-5417.845
	(0.09589)	(33585.9)	(1167.06)	(0.47220)	(68.3191)	(5318.16)
D(IFL)	2.75E-05	-8.366624	-0.219598	-0.000391	-1.006310	-6.213082
	(3.1E-05)	(10.8766)	(0.37795)	(0.00015)	(0.02212)	(1.72226)

D(IRS)	-3.92E-06	7.171912	0.029170	-2.07E-05	0.004654	-1.111360
	(5.3E-06)	(1.85648)	(0.06451)	(2.6E-05)	(0.00378)	(0.29396)
D(PDUM)	1.27E-07	-0.050891	0.004528	1.04E-06	-0.000210	-0.020963
	(4.6E-07)	(0.16096)	(0.00559)	(2.3E-06)	(0.00033)	(0.02549)
D(SGDP)	-0.001832	-128342.9	-466.9992	-1.270447	123.8681	9020.466
	(0.15609)	(54673.5)	(1899.83)	(0.76868)	(111.215)	(8657.29)

7 Cointegrating Equation(s): Log likelihood -1643.865

Normalized cointegrating coefficients (standard error in parentheses)

BCS	CEGDP	EXR	GDF	IFL	IRS	PDUM
1.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
0.000000	1.000000	0.000000	0.000000	0.000000	0.000000	0.000000
0.000000	0.000000	1.000000	0.000000	0.000000	0.000000	0.000000
0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	0.000000
0.000000	0.000000	0.000000	0.000000	1.000000	0.000000	0.000000
0.000000	0.000000	0.000000	0.000000	0.000000	1.000000	0.000000
0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	1.000000

Adjustment coefficients (standard error in parentheses)

D(BCS)	-3.126006	-688563.6	-8482.789	0.405394	42.61760	25651.31
	(0.38370)	(139002.)	(4851.21)	(1.94360)	(289.004)	(21071.2)
D(CEGDP)	1.71E-07	0.341026	-0.010917	-3.06E-06	4.88E-05	0.029089
	(2.9E-07)	(0.10670)	(0.00372)	(1.5E-06)	(0.00022)	(0.01617)
D(EXR)	-2.14E-05	30.70709	-1.123494	-0.000383	0.022710	2.385867
	(1.6E-05)	(5.76981)	(0.20137)	(8.1E-05)	(0.01200)	(0.87464)
D(GDF)	-0.230906	-164809.7	-1478.022	-1.427003	-26.56191	-5467.406
	(0.09675)	(35050.4)	(1223.27)	(0.49009)	(72.8744)	(5313.25)
D(IFL)	2.91E-05	-9.498799	-0.178270	-0.000377	-1.009158	-6.232354
	(3.1E-05)	(11.3436)	(0.39589)	(0.00016)	(0.02358)	(1.71956)
D(IRS)	-3.16E-06	6.611275	0.049635	-1.33E-05	0.003244	-1.120904
	(5.3E-06)	(1.90571)	(0.06651)	(2.7E-05)	(0.00396)	(0.28888)
D(PDUM)	8.28E-08	-0.018332	0.003339	6.08E-07	-0.000128	-0.020408
	(4.6E-07)	(0.16689)	(0.00582)	(2.3E-06)	(0.00035)	(0.02530)
D(SGDP)	0.026782	-149304.1	298.1423	-0.995468	71.14330	8663.652
	(0.15318)	(55491.9)	(1936.68)	(0.77591)	(115.375)	(8411.95)

Appendix 6: CORRELATION COEFFICIENTS OF VARIABLES USED IN MODEL ESTIMATION

	MANGDP	BCMS	CEGDP	CPSGDP	DMR	EXR	IFLRATE	IRS	M2GDP	BSCE	PDUM
MANGDP	1	0.140085	0.390681	-0.216746	-0.25363	-0.66763	-0.088222	-0.66424	0.014741	-0.133565	-0.662950
BCMS	0.140085	1	0.106942	-0.240006	-0.050934	-0.169744	0.223081	-0.203883	-0.219439	0.533361	-0.133110
CEGDP	0.39068	0.10694	1	-0.0804488	-0.375622	-0.485539	0.015577	-0.477125	0.133402	-0.018881	-0.399723
CPSGDP	-0.216746	-0.24000	-0.080448	1	0.213907	0.351497	-0.006940	0.160694	0.868363	-0.032261	0.250941
DMR	-0.25363	-0.05093	-0.375622	0.213907	1	0.355261	0.033178	0.569058	-0.052964	0.341971	0.385001
EXR	-0.66763	-0.16974	-0.485539	0.351497	0.355261	1	-0.195919	0.859737	0.026480	0.137440	0.586840
IFLRATE	-0.088222	0.22308	0.015577	-0.006940	0.033178	-0.195919	1	-0.087718	0.119473	0.180804	0.223215
IRS	-0.66424	-0.20388	-0.477125	0.160694	0.569058	0.859737	-0.087718	1	-0.193794	0.135855	0.688890
M2GDP	0.014741	-0.21943	0.133402	0.868363	-0.052964	0.026480	0.119473	-0.193794	1	-0.147298	-0.011799
											0.041180
BSCE	-0.133565	0.5333	-0.018881	-0.0322617	0.341971	0.137440	0.180804	0.135855	-0.147298	1	
PDUM	-0.66295	-0.13311	-0.399728	0.250941	0.385002	0.586840	0.223215	0.688890	-0.011799	0.041180	1

Appendix 6: Data Set

Year	MPR	SAVRATE	BSCE	BCS	BCMS	BCA	EXR	IFLRATE	IRS	M2/GDP
1970	4.5	3	62.7907	32.3746	82.3389	43.48923	0.7143	1.3	4	18.5
1971	4.5	3	42.73528575	42.06008584	56.67539267	32.85714286	0.6956	2.7	4	15.7
1972	4.5	3	25.23904382	87.00906344	20.30075188	106.4516129	0.6579	3	4	16.9
1973	4.5	3	19.86639097	-30.53311793	11.11111111	12.5	0.6579	18.5	4	17.6
1974	4.5	3	28.27760085	45.11627907	61.5625	25.92592593	0.6299	9.5	4	12.5
1975	4	4	72.93886418	35.8974359	58.87814313	37.5	0.6159	43.5	2	19.7
1976	3.5	4	47.40997727	16.15566038	48.28341855	112.8342246	0.6265	12.1	2	22.2
1977	4	4	54.5366012	-13.0964467	37.56978654	74.74874372	0.6466	31.3	2	25.1
1978	5	5	18.50120786	44.74299065	35.8319408	64.62976276	0.606	6.2	2	23.1
1979	5	5	19.64546865	12.83292978	19.27065026	43.930131	0.5957	8.3	2.5	24.4
1980	6	6	38.11763834	29.9713877	44.16856996	40.23058252	0.5464	16.1	1.5	30.4
1981	6	6	29.66960766	31.31535498	35.92600164	27.78018174	0.61	17.4	1.75	33.9
1982	8	7.5	20.07031694	224.5599329	14.20407549	33.18658991	0.6729	6.9	2.75	36.9
1983	8	7.5	5.394698314	-10.16270661	0.510271267	19.55250445	0.7241	38.8	2.5	39.3
1984	10	9.5	5.372697707	5.505246514	0.995709279	11.87792429	0.7649	22.6	3	39.2
1985	10	9.5	9.644599195	4.659400545	4.82244203	24.5318886	0.8938	1	-0.25	38.7
1986	10	9.5	29.42853101	66.94871127	38.45677866	39.69622958	2.0208	13.7	1	39.6
1987	12.75	14	19.63180127	-51.07992203	10.85984984	32.6066765	4.0179	9.7	3	32.0
1988	12.75	14.5	16.35263218	-3.251514186	22.5106829	26.35243706	4.5367	61.2	5	32.7
1989	18.5	16.4	16.37609186	7.331136738	9.768015795	13.16724818	7.3916	44.7	10.4	21.7
1990	18.5	18.8	19.54095109	72.21795856	18.16628446	21.63665178	8.0378	3.6	6.7	25.7
1991	14.5	14.29	18.74446194	22.78074866	38.4032878	18.74496612	9.9095	23	2.7	28.0
1992	17.5	16.1	90.02096965	42.30545877	41.17382897	39.2243701	17.2984	48.8	13.7	24.2
1993	26	16.66	19.47345805	171.3170781	50.03083635	54.07872301	22.0511	61.3	1.33	29.0
1994	13.5	13.5	58.06635396	539.0400271	50.68064005	66.36101553	21.8861	76.8	7.5	29.7
1995	13.5	12.61	39.97230469	-12.66317347	66.81608813	41.31020527	21.8861	51.6	7.97	16.5
1996	13.5	11.69	23.30394883	-46.48197617	24.35398437	31.58944091	21.8861	14.3	8.05	13.7

1997	13.5	4.8	22.60005717	49.68553301	14.65293246	-16.00764788	21.8861	10.2	8.74	15.3
1998	14.31	5.49	16.60712279	305.2157115	16.79434844	-2.715171819	21.8861	11.9	12.8	19.4
1999	18	5.33	22.17843237	37.50364504	19.66987379	14.2196485	92.6934	0.2	15.99	21.9
2000	13.5	5.29	30.93029403	102.547327	22.05850212	32.15646611	102.1052	14.5	12.69	22.6
2001	14.31	5.49	43.45590154	59.63041554	46.42364758	36.11405619	111.9433	16.5	12.8	27.8
2002	19	4.15	11.78512919	31.74573275	12.85022403	7.168987629	120.9792	12.1	20.7	23.1
2003	15.75	4.11	26.80910867	28.12626013	26.0563136	3.764596982	129.3565	23.8	16.6	23.4
2004	15	4.19	26.60529166	32.33107971	12.84501083	9.074953142	133.5004	10	14.99	19.8
2005	13	3.83	30.81942882	43.90486483	5.999330952	-28.31044633	132.147	11.6	14.12	19.3
2006	12.25	3.14	32.05538593	25.25476491	26.63184659	1.713085469	128.6516	8.6	14.12	21.7
2007	8.75	3.55	90.76052174	109.8074174	9.372833914	202.8317548	125.8331	6.6	13.39	28.1
2008	9.81	2.84	59.38291068	-30.30807722	50.96681338	-13.5564575	117.7772	15.1	12.3	37.7
2009	9.5	2.94	26.63347298	16.18068341	34.82072109	-13.09539811	147.2718	12.1	15.6	43.6

DATA SET – cont'd

Year	GDP at Current BP	Money supply	agdp	mgdp	sgdp
1970	5,281.1	978.2	2,576.4	378.4	851.9
1971	6,650.9	1,041.8	3,033.7	415.8	979.2
1972	7,187.5	1,214.9	3,092.7	511.1	1,031.3
1973	8,630.5	1,522.5	3,261.2	622.4	1,252.2
1974	18,823.1	2,352.3	4,378.0	1,589.0	2,782.3
1975	21,475.2	4,241.2	5,872.9	1,170.4	3,619.8
1976	26,655.8	5,905.1	6,122.0	1,464.3	4,164.6
1977	31,520.3	7,898.8	7,401.6	1,695.6	4,755.6
1978	34,540.1	7,985.4	8,033.6	2,915.8	5,105.5
1979	41,974.7	10,224.6	9,213.1	3,815.6	5,478.3
1980	49,632.3	15,100.0	10,011.5	5,162.2	6,157.8
1981	47,619.7	16,161.7	13,580.3	4,700.0	9,005.0
1982	49,069.3	18,093.6	15,905.5	5,047.6	9,633.2
1983	53,107.4	20,879.1	18,837.2	5,543.0	10,109.2
1984	59,622.5	23,370.0	23,799.4	4,847.5	10,849.5
1985	67,908.6	26,277.6	26,625.2	6,422.6	12,338.3
1986	69,147.0	27,389.8	27,887.5	6,591.1	13,455.9
1987	105,222.8	33,667.4	39,204.2	7,468.5	14,550.5
1988	139,085.3	45,446.9	57,924.4	11,017.8	16,745.3
1989	216,797.5	47,055.0	69,713.0	12,475.5	21,265.5
1990	267,550.0	68,662.5	84,344.6	14,702.4	27,425.6
1991	312,139.7	87,499.8	97,464.1	19,356.0	31,355.5
1992	532,613.8	129,085.5	145,225.3	27,004.0	44,227.3
1993	683,869.8	198,479.2	231,832.7	38,987.1	60,863.3
1994	899,863.2	266,944.9	349,244.9	62,897.7	98,336.2
1995	1,933,211.6	318,763.5	619,806.8	105,289.6	151,822.9

1996	2,702,719.1	370,333.5	841,457.1	132,897.1	194,941.2
1997	2,801,972.6	429,731.3	953,549.4	144,107.0	221,391.9
1998	2,708,430.9	525,637.8	1,057,584.0	141,496.4	299,450.1
1999	3,194,015.0	699,733.7	1,127,693.1	150,946.5	373,576.2
2000	4,582,127.3	1,036,079.5	1,192,910.0	168,037.0	471,814.6
2001	4,725,086.0	1,315,869.1	1,594,895.5	199,079.3	572,666.2
2002	6,912,381.3	1,599,494.6	3,357,062.9	236,825.5	692,179.5
2003	8,487,031.6	1,985,191.8	3,624,579.5	287,739.4	843,690.5
2004	11,411,066.9	2,263,587.9	3,903,758.7	349,316.3	1,246,723.7
2005	14,572,239.1	2,814,846.1	4,773,198.4	412,706.6	1,620,112.0
2006	18,564,594.7	4,027,901.7	5,940,237.0	478,524.1	2,143,487.4
2007	20,657,317.7	5,809,826.5	6,757,867.7	520,883.0	2,502,832.0
2008	24,296,329.3	9,166,835.3	7,981,397.3	585,573.0	2,785,654.8
2009	24,712,669.9	10,767,377.8	9,193,851.7	612,614.1	3,106,821.2

KEY:
GDP – Gross domestic product at current basic prices
SGDP – Services gross domestic product
MGDP – Manufacturing gross domestic product
AGDP – Agricultural gross domestic product
M2 – Broad money supply
SAVRATE – savings deposit rate
BSCE – Banking system credit to the economy
BCS – Banking system credit to services sector
BCMS – Banking system credit to manufacturing sector
BCA – Banking system credit to agricultural sector
MPR – Monetary policy rate
EXR – Exchange rate
IFLRATE- Inflation rate