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Capital Market and Economic Growth in Nigeria

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ABSTRACT

This study seeks to evaluate the contribution of capital market to the growth of Nigeria's economy. To achieve this objective, an error correction model was estimated for economic growth in Nigeria, using Vector Error Correction techniques on an annual time series data spanning from 1981 to 2014. The data were subjected to Phillip Perron Unit Root Test at level and first difference. The result shows that, at one percent significance level, all the variables were stationary at first differencing. The result of the normalized cointegrated series further reveals that market capitalization rate, total value of listed securities, labor force participation rate, accumulated savings and capital formation are significant macroeconomic determinants factors of economic growth in Nigeria. It was then recommended that, for the capital market to realizes its full potentials, its environment must be enabled to promote and encourage investment opportunities for both local and international investors, since the stock market operates in a macroeconomic environment. Consequently, an improvement in the Nigerian trading system with the aim of increasing the ease with which investors can purchase and sell shares, could guarantee the stock market liquidity.

KEYWORDS: ***Capital Market, Economic Growth, Market Capitalization, Capital Formation***

1.0 Background to the Study

The capital market is a subset of the financial system that is involved in the provision of long-term funds for productive use. The capital market drives any economy's economic growth and development because it is necessary for long term growth capital formation (Osaze, 2000) but evidences from past studies have revealed a growing concern and controversies on the role of the capital markets on economic growth and development. While some (Atje & Jovanovic, 1993; Demirgue-Kunt & Levine, 1996; Levine & Zervos, 1996) supported a positive link, some others (Harrris, 1997; Levine & Zervos, 1998; Ariyo & Adelegan, 2005; Ewah, Esang & Bassey, 2009; Donwa & Odia, 2010) do not find any empirical evidence to support such conclusion. Nyong (1997) found a negative link but Sudharshan and Rakesh (2011) saw, instead, economic growth playing a role in stock market development.

The neoclassical growth model made three important predictions:

1. Increasing capital relative to labour creates economic growth, because people can be more productive given more capital.

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2. Poor countries with less capital per person will grow faster because each investment in capital will produce a higher return than rich countries with ample capital.
3. As a result of diminishing return to capital, an economy will eventually reach a point at which any increase in capital will no longer create economic growth. However, it can overcome this steady state and grow by investing on new technology.

Solow (1956) explains that if there were no technological progress, then the effects of diminishing returns would finally cause economic growth to die down, however, economies that achieve large increases in output over extended periods of time, not only enable rapid increases in standards of living, but also have serious changes in their economic, political and social landscape. Therefore, for a country to attain a sustainable economic growth and development, it requires both local and foreign capitals made available by the opportunities provided by the capital market (Ekundayo, 2002). However, non-availability of long-term funds for investment financing has constituted a barrier to the development and growth of most African countries, particularly in many developing countries such as Nigeria, wherein capital has become a major constraint to economic development.

Despite the significant financial reforms experienced in the financial sector over the years, there has been an underdevelopment of the real sector as a result of lack of funds from the financial sector (Oluwole, 2014). The Nigeria capital market has grown to being capable of providing facilities both to the private and public sectors to raise long term capital used in executing development programmes as well as finance the expansion and modernization of projects. However, how these reforms have influenced economic growth over the years still remains unexplored by previous studies. Any economy that is financially underdeveloped is usually characterized by under-employment of resources. Zuvekas (1978) puts it that development is a progress towards the reduction of the incidence of poverty, unemployment and income inequalities (cited in Oluwole, 2014, p.232) but these incidences are still evident in the Nigerian economy.

2.0 Review of Literature

There has been considerable interest in the development of capital markets in many developing countries in the last twenty years or so. In a study on emerging stock markets performance and economic growth in Iran, Seyyed (2010) presented a systematic investigation of the relationship between the two variables within the Vector Autoregressive (VAR) model and deduced that macroeconomic activity was a main cause for the movement of stock prices in the long run and that the stock market plays a role as a leading economic indicator of future economic growth in the short run. Relative to Nigeria, Atoyebi, Ishola, Kadiri, Adekunjo and Ogundeji (2013) study the impact of capital market on economic growth using annual data of 1981 to 2010. Employing the Ordinary Least Square test and Vector Auto Regression technique, a percentage increase in market index and market capitalization was found to bring about respectively, an average of 33.7% and 44.8% increase in real GDP. Kolapo and Adaramola (2012), applying Johansen co-integration and Granger causality tests, also examined the impact of the Nigerian capital market on its economic growth but from 1990 to 2010. Results show that a long run relationship exists between capital market (measured by market capitalization, total new issues, value of transactions, and total listed equities and government stocks) and economic growth (proxy by GDP) in Nigeria. The evidences from these studies reveal that the activities of the capital market tend to impact positively on the Nigerian

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economy. Similarly, Abu (2009) utilized the error correction approach to examine whether stock market development increases economic growth in Nigeria and it was found to be true. However, Donwa and Odia (2010) empirically analyzed the impact of the Nigeria's capital market on her socio-economic development from the period of 1981to 2008 and it was discover that capital market indices (market capitalization, total new issues, volume of transactions, total listed equities and government stock) have no significant impact on socio-economic growth.

To a great extent, the positive relationship between capital market activities and real economic growths has long been affirmed in previous empirical studies but in country specific studies, the structural variations among economies may not have been adequately accounted for. Success in capital accumulation and mobilization for economic growth and development varies among nations and largely dependent on domestic savings and inflows of foreign capital but the omission of these core variables that accounts for country specific differences in the specification of the growth models possibly could have introduced some bias and inconclusiveness in the result of these previous studies. In a bid to fill this gap in literature, this study incorporates these vital variables in the investigation of both the short run and long run relationship between capital market development and economic growth in Nigeria. It therefore contributes to the body of existing knowledge by evaluating the contribution of the Nigerian capital market to the growth of its economy but specifically looking at the relationships between capital market development indicators such as deposit mobilization, capital accumulation, labour supply, total listed stock market securities with economic growth in Nigeria. A country specific study that incorporates the effect of these structural differences that characterize the development of the capital market among economies was provided, as well as the dynamic nature of capital market in developing countries, such as Nigeria where the financial system is still highly undeveloped.

2.1 The Nigerian Capital Market

The capital market is the complex of institution and mechanisms through which economic units desirous to invest their surplus fund, interact directly or through financial intermediaries with those who wish to procure funds for their businesses. Okereke (2000) describes the capital market as constituting of market and institutions that facilitates the issuance and secondary trading of long-term financial instruments. Unlike the money market that represents the short-end of financial system that provides facilities for claims and obligations with maturity vary from one day to a year, the capital market provides government at all levels an effective way of financing public projects; thus playing a vital role in stimulating industrial as well as economic growth and development.

Assuming the role of the major supplier and user of capital market funds, the government has a lot of pervading influence on the capital market. In Nigerian, the government influences the capital market through the Nigerian Securities and Exchange Commission (SEC) and the Nigerian Stock Exchange (NSE). SEC has the primary objective of being in charge of the overall regulation of the entire capital market while NSE supervises the operations of the formal quoted market (as a self- regulatory organization). However, the Nigerian financial markets are experiencing challenges such as poor infrastructural facilities, low level of public awareness as to the benefits derivable from the operation of the capital market, inadequacy of supply of securities, stringent stock exchange listing requirements limiting mostly the smaller

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companies, illiquid market and unfavorable government policies.

2.1.1 Structure of the Nigerian Capital Market

The capital market operations are structured into three broad categories: the primary, secondary and derivatives markets.

The Primary Market: it is responsible for the issue of new shares through the stock exchange or by private placement. Their operations are conducted through the following methods: offer for subscription, offer for sale, right issue, private placing and listing by introduction.

The Secondary Market: also referred to as the stock market, it provides the forum for capital market activities (trading in stock and shares, bonds, debentures and other long-term securities) and is usually accessible to all category of investors – small or big, government institution or individuals. The major participant in the Nigerian capital market includes development banks, private firms, the treasury and the CBN while the minor ones includes commercial and merchant banks, individuals, states and local governments. This market comprises of the organized stock exchange and the over-the-counter (OTC) market but presently, there is no organized OTC market in Nigeria. Secondary market transactions are carried out by licensed stock brokers on the seven trading floors of the Nigerian Stock Exchange located in Lagos, Kaduna, Benin, Port Harcourt, Kano, Onitsha, Ibadan, Yola, and Abuja.

The Derivatives Market: This is the market that trades, not in the issued securities, but on the right to title on the underlying security or on the basis of the future title to the security. The derivatives market in Nigeria is still in its infancy and the only derivative presently being actively traded on the Nigerian Stock Exchange is right offer issue options.

Nigeria, like many countries, has a formal capital market symbolized by the existence of a stock exchange and an active new issues market. According to Okereke (2000) the Nigerian capital market constituencies can be broadly classified into four categories:

1. Providers of funds (Individuals, Unit Trusts, Pension Trust, Insurance Companies)
2. Users of funds (Companies, Government at all tiers, etc)
3. Intermediaries (Stock broking Firms, Issuing houses, Registrars, Auditing Firms)
4. Regulators (SEC, NSE, CBN)

Similarly, the financial instruments in use can broadly be classified into the following:

1. Equity (Ordinary shares, Preference shares)
2. Debt (Government bonds such as federal, state and local government bonds, Industrial loans/debenture stock and bonds)
3. Derivatives (Options rights, swaps, Futures, etc)

In addition, the NSE has upgraded its stock market towards the internationalization of its operations and one of such development, that has increased the appeal of the Nigerian stock market internationally, is the establishment of the Central Security Clearing System limited (CSCS), which started operations in April 1997. The CSCS operates an automated clearing and settlement system, i.e. the transfers of stock ownership from one shareholder to another and the transfer of sales proceeds from the buying shareholder to the selling shareholder. The transfer of shares is now done on a T + 3 (Trading day + three working days) time frames under the automated CSCS, while transactions are executed on the basis of delivery versus payment.

2.2 The Role of the Capital Market in Economic Development

The capital market is an essential agent for economic growth because of its ability to facilitate

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and mobilize savings and investment. However economic growth relates to increases over time in a country's real output of goods and services or more appropriately real output per capita (usually measured with GNP/GDP). It has been argued that the yardstick of measuring economic growth, as well as development is inadequate because the widely accepted national income indicators – GNP, GDP and NNI tend to be inappropriate due to the differing of computation and parameters used. Consequently, it is difficult to make any generalization from comparing the per capita income figure, as it being a basis for classifying a country as developed or underdeveloped may be misleading.

Following the attainment of political independence, developing countries were preoccupied with development strategies. Initially, the development plans focused on the provision of necessary infrastructure with a view to ensuring a smooth industrial take-off in the respective countries. However, McKinnon (1973) argued that developing countries may achieve better economic development via a viable financial system rather than through inefficient and counterproductive state invention. Accordingly, he concluded that a vigorous capital market, centered on the monetary system, can be a more efficient engine of economic development. A financial system provides an intermediation mechanism for transferring savings from savers to investors for capital accumulation through a network of institutions known as financial intermediaries or institutions. These institutions serve as catalysts for economic growth and development by way of mobilizing savings, from the surplus sector for economic progress.The characteristic difference between the financial institutions and capital markets lies in the premise that the latter unlike the former cannot create additional financial assets or liabilities apart from what is supplied to it by the savers and investors. The capital market provides an avenue for the sale and purchase of new financial assets or instruments, as well as an exchange floor for 'second-hand' securities.

3.0 Methodology and Methods

3.1 Model Specification

The notion of growth as increased stocks of capital goods (means of production) involved a series of equations which showed the relationship between labour-time, capital goods, output, and investment. Therefore, economic growth (measured by real gross domestic product)is estimated as a function of savings by deposit mobilization, capital accumulation, labour supply, total listed stock market securities and the contribution of the stock market. These were measured respectively by deposit money banks, gross fixed capital formation, active labor force participation, total listed assets and stock market capitalization.

$$RGDP = f(MCAP, SAV, GFCF, LABF, TLA) \quad \ldots\ldots\ldots\ldots (1)$$

Where:

RGDP = Real Gross Domestic Product at constant factor cost

MCAP = Stock Market Capitalization

SAV = Savings Accumulation

GFCF = Gross Fixed Capital Formation

LABF = Labour Force

TLA = Total Listed Securities

Given that equation (1) is a non-linear, its logarithmic form is indicated below

$$Log(RGDP)=a_0+ a_1*log(MCAP) +a_2*Log(SAV)+ a_3*Log(GFCF)+a_4*log(LABF)+a_5*log(TLA)+ U_t \quad ----------(2)$$

Where

a_i are the parameters to be estimated (i = 0, 1, 2, 3, 4, 5)

U_t is the error term, assumed to be normally distributed with the zero mean and constant variance.

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3.2 Source of Data

Secondary data was collected on each of the above stated variables, covering the period of 1981 to 2014. The choice of this period is to make room for a broad coverage of the capital market indicators, as well as the investigation of both the short run and long run relationship between capital market development and economic growth in Nigeria. These annual data series were collected majorly from CBN Statistical Bulletin of 2014, CBNAnnual Report and Statement of Accounts (various issues), NSEbooks, and SECMarket Bulletins.

3.2 Data Analysis Technique

In order to ensure variables used in this study are not spurious, the stationarity of variables was initially tested using the Phillip Perron (PP) test. This was followed with a co integration test after the stationarity of variables have been established. The estimation technique used, drawn from developments in the co-integration theory, is the Vector Error Correction Mechanism (VECM). Granger and Newbold (1974) and Engle & Granger (1987) have proved that co-integration is a sufficient condition for an ECM formulation.The estimation was done with the aid of the E-views7.0.

4.0 Empirical Analysis and Results

4.1 Econometric Analysis

4.1.1 Unit root test

Table 1: Unit Root Test Results

1st Difference			Levels	
Variables	PP-Statistic	Critical Value at 5%	PP-Statistic	Critical Value at 5%
LRGDP	-5.394077*	-2.957110	-0.183246	-2.954021
LMCAP	-4.395043*	-2.957110	0.056414	-2.954021
LSAV	-4.136575*	-2.957110	0.417036	-2.954021
LGFCF	-5.247791*	-2.957110	1.880315	-2.954021
LLABFP	-3.399938**	-2.957110	-1.570106	-2.954021
LTLA	-4.901126*	-2.957110	-0.329174	-2.954021

** Stationary at 1% significance level*

*** Stationary at 5% significance level*

Source: Author's Compilation from E-views 7.0

A variable is stationary when PP value is greater than the critical value. In table 1 above, the test statistics for the log levels of real gross domestic product, market capitalization, saving deposit, gross fixed capital formation, labour force participation rate and total listed assets indicate that these variables are statistically insignificant.

Hence, this study further applied the unit root tests at the first differences for the six variables. A stationary series was obtained for all the variables at first difference. At this level the PP test rejects the unit root null hypothesis for all the variables at the 5 per cent level. Thus, from all of the tests, the unit roots tests indicate that all the variables were integrated of order one process

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4.1.2 Cointegration Test

Table 2: Unrestricted Cointegration Rank test

Hypothesized No. of CE(s)	Eigen Value	Trace Statistics	0.05 Critical Value	Prob.**	Hypothesized No. of CE(s)	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.787811	143.0374	117.7082	0.0005	None *	49.60885	44.49720	0.0128
At most 1 *	0.664050	93.42852	88.80380	0.0222	At most 1	34.90534	38.33101	0.1175
At most 2	0.605809	58.52318	63.87610	0.1299	At most 2	29.78946	32.11832	0.0937
At most 3	0.317318	28.73372	42.91525	0.5780	At most 3	12.21526	25.82321	0.8591
At most 4	0.284519	16.51847	25.87211	0.4516	At most 4	10.71359	19.38704	0.5431
At most 5	0.165900	5.804872	12.51798	0.4855	At most 5	5.804872	12.51798	0.4855

Source: Author's Compilation from E-views 7.0

The test for co integration relationship was verified using Johansen co integration. In determining whether there is co-integration or not among the variables included in the growth model, the maximum Eigen value and trace statistics are compared with their corresponding critical values. An Eigen value or trace statistics greater than the critical value indicates a co integrated series and the identification of the presence of at least one co integrated equation signifies that there is a long-run equilibrium relationship among the variables. In other words, Granger causality exists among the variables in at least one way (Engle & Granger, 1987). A detailed analysis of the co integration result in table 2 above indicates the maximum Eigen values of 49.60885and trace statistics of 143.0374 and 93.42852;suggesting the existence of a co integrating equation at 1 percent significance level for the maximum Eigen values and trace statistics respectively. This further reveals the existence of a long-run equilibrium relationship among the variables captured in the economic growth model.

4.1.3 Error Correction Model

The Vector Error Correction Model was employed to determine the error correction mechanism in the co integration relationship, as well as to test for long and short-run causality among cointegrated variables. The error correction process within the system is obtained by the mean of the Error Correction Term (ECT)

Table 3: Long run coefficient estimates

Normalized co integrating coefficients (Standard error in parenthesis)					
LRGDP	LMCAP	LSAV(-1)	LGFCF(-1)	LLABFP	LTLA
C	0.451389	0.503318	0.329890	-47.39522	-2.023221
202.0478	(0.17367) [2.59911]	(0.16150) [3.11643]	(0.04368) [7.55298]	(3.05476) [-15.5152]	(0.31337) [-6.45643]

Note: Standard error and t-statistics are stated in parenthesis () and [] respectively
Source: Author's Compilation from E-views 7.0

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Table 4: Vector Error Correction estimates

Variable	D(LRGDP1)	D(LMCAP(1))	D(LSAV)	D(LGFCF)	D(LLABFP(1))	D(LTLA(1))
ECM (-1)	-0.524164	-0.266008	0.023304	-0.741225	0.013039	0.162446
Standard Error	0.17685	0.33865	0.13312	0.62581	0.00594	0.23285
t-Statistic	-2.96394	-0.78549	0.17506	-1.18443	2.19627	0.69765

Source: Author's Compilation from E-views 7.0

Table 3 shows the result of the normalized cointegration coefficients of the variables for the case of a cointegrated equation with respect to the standard error and t-statistic result associated with each variable. The value of the t-statistic is used to indicate the significance or otherwise of the independent variable in the long run. Generally using the rule of thumb, if the t-Statistics is 2 or greater than two, the variable is considered to be significant but if otherwise, it is insignificant.

Thus the result of the normalized co integrated relationship reveals a significant relationship between market capitalization, savings deposit, gross fixed capital formation, labour force, total listed asset and real economic growth in Nigeria. A significant relationship between market capitalization and economic growth was found at 5 percent level of significance and furthermore reveals that, a percentage change in market capitalization results to a corresponding 0.451 percent change in real GDP holding other variables at a constant. The elasticity estimate reveals that the degree of responsiveness of economic growth to the change per time in market capitalization is less than one and therefore inelastic. This shows that market capitalization plays a significant role in economic growth in Nigeria.

Similarly, saving deposit mobilization with deposit money banks was found to have a significant long run relationship with economic growth at 5 percent level of significance. A percentage change in savings deposit indicates 0.503 percentage change in real economic growth. The above evidence further implies that the degree of the responsiveness of economic growth to the lagged effects of the variations in savings with Nigerian deposit money bank is less than a unit elasticity and thus inelastic. Likewise for capital formation and economic growth; a detailed analysis of the cumulative effect of capital formation shows that the variations in previous year capital accumulation still accounted for significant changes in economic growth in the current period over the period under consideration. Hence, capital accumulation could be considered a significant determinant of the variations in economic growth within this period.

A significant relationship was also seen between active labour force and economic growth, with a percentage change in active labour force bringing about a 47.39 percentage change in economic growth holding other variables at constant. The estimated elasticity suggests a higher elasticity greater than 1, thus the degree of responsiveness of economic growth to the variations in active labour force is seen to be strongly elastic. However labour force participation rate apparently appears to have significantly retarded the growth process within the economy. In the same vein, the results show significant support for the existence of a relationship between total listed assets in capital market and economic growth. Also, a percentage change in listed assets reveals 2.023 percent change in economic growth. Therefore the degree of responsiveness of economic growth to total listed market securities is observed to be

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elastic and statistically significant. However, economically the listed securities appear not to be growth supportive as expected.

In table 4, the result shows that the coefficient of the normalized growth model has the right sign (-) and magnitude (between zero and one) at5 percent significance level. It is therefore statistically significant. The significance of the error correction model provides further confirmation to the co integration evidence, giving the impression of a long run movement between economic growth and the explanatory variables. Implying that in the incidence of the presence of external shock resulting to disequilibrium of the system, the model can still converge with time to its normal state with a relatively average speed of adjustment of 52.41 percent per time.

4.2 Discussion of Results

The study investigated empirically the impact of stock market performance on economic growth in Nigeria, using an annual time series of a period of 1981 - 2014. To achieve this objective, an error correction model was estimated for economic growth using Vector Error Correction techniques. It was revealed that market capitalization rate, total value of listed securities, labor force participation rate, accumulated savings and capital formation are significant macroeconomic determinants factors of economic growth in Nigeria within the scope covered. Findings from the study are consistent with previous studies such as Levine & Zervos (1998), Minier (2003), Abdullahi (2005), Liu & Hsu (2006) and Muhammed, Nadeem & Liaquat (2008).

The result of the normalized co integrated relationship reveals a significant relationship between market capitalization, savings deposit, gross fixed capital formation, labor force, total listed asset and real economic growth; with market capitalization, savings deposit and capital accumulation having a direct effect on economic growth in Nigeria while that of lab our force participation and total listed securities in the market is inverse.This signifies that higher stock market capitalization increases the ability of firms to raise capital in order to increase investment spending and expand production of goods and services and this translates to higher growth rate in the long run. Similarly, increase in savings accumulation will significantly increase the volume of credit availability and further facilitate easy access to funds and investment. Therefore, the higher the physical capital made available for investors, the greater the likelihood of attracting prospective local and international investors that will boast capital investments within the economy. The negative impact of total value traded ratio on economic growth may be due to the difficulties involved in trading shares such as high transaction costs, delay in the issuance of shares certificate to mention just few and that of labor force participation can be attributed to the high level of low skilled and semi-skilled labor that dominated the informal sector which actually account for a larger proportion of economic activities in Nigeria.

5.0 Conclusion and Recommendation

5.1 Conclusion

This study examined the contribution of capital market to economic growth and it was found to be positive. This suggests that for a significant growth to be achieved in an economy, the main focus of policy makers should be on measures to promote growth in the stock market. This is a very pertinent and prerequisite consideration for any economy desiring increase rapid economic growth.

5.2 Recommendations

The findings from this study raise the following policy issues and recommendations

In order to enhance the development of the Nigerian capital market as the engine of economic

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growth, it is recommended that government should remove impediments to stock market development in the form of tax, legal and regulatory barriers because they are sometimes disincentives to investment.

In order to increase the ease with which investors can purchase and sell shares, thus guaranteeing liquidity on the stock market, the Nigerian Security and Exchange Commission should improve on the trading system.

Given that the stock market operate in a macroeconomic environment, it is therefore necessary that the environment must be an enabling one that will promote and encourage investment opportunities for local and international investors.

To significantly enhance labor force participation especially in capital market activities, more priority should be accorded to human capital development through more educational funding, scholarship programmes and educational grants. Other programmes such as vocational training and skill acquisition could also be built into the educational system to improve on the quality of labor force and professionals.

The value of the total traded securities and equities revealed no direct relationship with economic growth indicator-gross domestic product growth rate. This suggests that companies listed on the Stock Exchange should be mandated to provide timely electronic information on their operations such as quarterly and annual financial statements, in order to enable the market learn, absorb and act on information quickly leading to market efficiency and precise pricing of securities.

With the existence of a positive relationship between stock market development and economic growth, it is pertinent to recommend that there should be sustained effort to stimulate productivity in both the public and private sectors.

The Nigerian government should employ appropriate trade policies that promote the inflow of international capital and foreign investment, so as to enhance the production capacity of the nation.

Capital Market regulators especially the Securities and Exchange Commission should be more open to innovations and be flexible without jeopardizing the interest and protection of investors as well as the efficiency of the market. The Commission needs to encourage more companies to list in the market so as to expand it and give investors better options for investment. Recent experience has shown that the confidence of many shareholders is waning due to the declining fortune of the stock market and many are reluctant to invest in shares and other securities.

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Appendix 1

Years	RGDP1	MCAP	SAV	LABFP	GFCF	TLA
1981	94.33	5	6.56	56.7	133.2	8582.9
1982	101.01	5	7.51	56.7	103.3	10275.3
1983	110.06	5.7	9.44	56.7	67.8	11093.9
1984	116.27	5.5	10.99	56.5	43.4	11503.6
1985	134.59	6.6	12.52	56.3	40.9	12170.2
1986	134.60	6.8	13.93	55.9	35.5	15701.6
1987	193.13	8.2	18.68	55.9	27.2	17531.9
1988	263.29	10	23.25	55.9	28.4	19561.2
1989	382.26	12.8	23.80	55.9	28.9	22008
1990	472.65	16.3	29.65	57	40.1	26000.1
1991	545.67	23.1	37.74	56.9	40.0	31306.2
1992	875.34	31.2	55.12	56.9	38.8	42736.8
1993	1,089.68	47.5	85.03	56.9	45.0	65665.3
1994	1,399.70	66.3	110.97	56.8	40.4	94183.9
1995	2,907.36	180.4	108.49	56.7	29.8	144569.6
1996	4,032.30	285.8	134.50	56.6	35.2	169437.1
1997	4,189.25	281.9	177.65	56.5	38.3	385550.5
1998	3,989.45	262.6	200.07	56.3	36.4	272895.5
1999	4,679.21	300	277.67	56.2	35.3	322764.9
2000	6,713.57	472.3	385.19	56	41.3	508302.2
2001	6,895.20	662.5	488.05	55.7	6.3	796164.8
2002	7,795.76	764.9	592.09	55.5	7.9	954628.8
2003	9,913.52	1359.3	655.74	55.1	13.0	1210033
2004	11,411.07	2112.5	797.52	54.8	44.4	1519243
2005	14,610.88	2900.1	1,316.96	54.9	39.8	1976711
2006	18,564.59	5121	1,739.64	55.1	63.4	2524298
2007	20,657.32	13294.6	2,693.55	55.2	89.9	4813489
2008	24,296.33	9563	4,118.17	55.4	89.2	7799400
2009	24,794.24	7030.8	5,763.51	55.5	120.3	8912143
2010	54,612.26	9918.2	5,954.26	55.6	142.3	7706431
2011	62,980.40	10275.3	6,531.91	55.8	126.9	7400028
2012	71,713.94	14800.9	8,062.90	55.9	101.7	7800899
2013	80,092.56	19077.4	8,656.12	56.1	123.6	9122200
2014	89,043.62	19091.59	10,801.00	57	117.4	8461550

Source: WDI, 2014 and CBN Statistical Bulletin, 2014 edition

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Appendix II

Null Hypothesis: LRGDP has a unit root
Exogenous: Constant
Bandwidth: 3 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-0.183246	0.9311
Test critical values:	1% level	-3.646342	
	5% level	-2.954021	
	10% level	-2.615817	

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

Residual variance (no correction)	0.033735
HAC corrected variance (Bartlett kernel)	0.030533

Phillips-Perron Test Equation
Dependent Variable: D(LRGDP)
Method: Least Squares
Date: 03/23/16 Time: 08:23
Sample (adjusted): 1982 2014
Included observations: 33 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LRGDP(-1)	-0.003022	0.015296	-0.197552	0.8447
C	0.231313	0.124590	1.856586	0.0729

R-squared	0.001257	Mean dependent var	0.207578
Adjusted R-squared	-0.030960	S.D. dependent var	0.186637
S.E. of regression	0.189504	Akaike info criterion	-0.430117
Sum squared resid	1.113269	Schwarz criterion	-0.339420
Log likelihood	9.096936	Hannan-Quinn criter.	-0.399600
F-statistic	0.039027	Durbin-Watson stat	1.924748
Prob(F-statistic)	0.844685		

Null Hypothesis: D(LRGDP) has a unit root
Exogenous: Constant
Bandwidth: 4 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-5.394077	0.0001
Test critical values:	1% level	-3.653730	
	5% level	-2.957110	
	10% level	-2.617434	

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

Residual variance (no correction)	0.034192
HAC corrected variance (Bartlett kernel)	0.026010

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Phillips-Perron Test Equation
Dependent Variable: D(LRGDP,2)
Method: Least Squares
Date: 03/23/16 Time: 08:24
Sample (adjusted): 1983 2014
Included observations: 32 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LRGDP(-1))	-0.977560	0.181756	-5.378421	0.0000
C	0.207198	0.051060	4.057964	0.0003

R-squared	0.490899	Mean dependent var	0.001173
Adjusted R-squared	0.473929	S.D. dependent var	0.263302
S.E. of regression	0.190975	Akaike info criterion	-0.412886
Sum squared resid	1.094145	Schwarz criterion	-0.321277
Log likelihood	8.606172	Hannan-Quinn criter.	-0.382520
F-statistic	28.92741	Durbin-Watson stat	2.003625
Prob(F-statistic)	0.000008		

Null Hypothesis: LMCAP has a unit roo
Exogenous: Constant
Bandwidth: 0 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		0.056414	0.9572
Test critical values:	1% level	-3.646342	
	5% level	-2.954021	
	10% level	-2.615817	

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

Residual variance (no correction)	0.080049
HAC corrected variance (Bartlett kernel)	0.080049

Phillips-Perron Test Equation
Dependent Variable: D(LMCAP)
Method: Least Squares
Date: 03/23/16 Time: 08:27
Sample (adjusted): 1982 2014
Included observations: 33 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LMCAP(-1)	0.001009	0.017882	0.056414	0.9554
C	0.244463	0.109364	2.235325	0.0327

R-squared	0.000103	Mean dependent var	0.249926
Adjusted R-squared	-0.032152	S.D. dependent var	0.287331
S.E. of regression	0.291914	Akaike info criterion	0.433974

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Sum squared resid	2.641620	Schwarz criterion	0.524671
Log likelihood	-5.160569	Hannan-Quinn criter.	0.464491
F-statistic	0.003183	Durbin-Watson stat	1.562848
Prob(F-statistic)	0.955374		

Null Hypothesis: D(LMCAP) has a unit root
Exogenous: Constant
Bandwidth: 3 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-4.395043	0.0015
Test critical values:	1% level	-3.653730	
	5% level	-2.957110	
	10% level	-2.617434	

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

Residual variance (no correction)	0.077324
HAC corrected variance (Bartlett kernel)	0.064730

Phillips-Perron Test Equation
Dependent Variable: D(LMCAP,2)
Method: Least Squares
Date: 03/23/16 Time: 08:28
Sample (adjusted): 1983 2014
Included observations: 32 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LMCAP(-1))	-0.800018	0.178872	-4.472566	0.0001
C	0.206198	0.068575	3.006920	0.0053

R-squared	0.400046	Mean dependent var	2.32E-05
Adjusted R-squared	0.380048	S.D. dependent var	0.364748
S.E. of regression	0.287192	Akaike info criterion	0.403131
Sum squared resid	2.474380	Schwarz criterion	0.494740
Log likelihood	-4.450097	Hannan-Quinn criter.	0.433497
F-statistic	20.00385	Durbin-Watson stat	1.905041
Prob(F-statistic)	0.000103		

Null Hypothesis: LSAV has a unit root
Exogenous: Constant
Bandwidth: 1 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		0.417036	0.9807
Test critical values:	1% level	-3.646342	
	5% level	-2.954021	

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	10% level	-2.615817

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

Residual variance (no correction)	0.015612
HAC corrected variance (Bartlett kernel)	0.019694

Phillips-Perron Test Equation
Dependent Variable: D(LSAV)
Method: Least Squares
Date: 03/23/16 Time: 08:30
Sample (adjusted): 1982 2014
Included observations: 33 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LSAV(-1)	0.005004	0.009823	0.509477	0.6140
C	0.197811	0.056875	3.477974	0.0015

R-squared	0.008304	Mean dependent var	0.224436
Adjusted R-squared	-0.023687	S.D. dependent var	0.127414
S.E. of regression	0.128914	Akaike info criterion	-1.200652
Sum squared resid	0.515183	Schwarz criterion	-1.109955
Log likelihood	21.81076	Hannan-Quinn criter.	-1.170135
F-statistic	0.259567	Durbin-Watson stat	1.466023
Prob(F-statistic)	0.614026		

Null Hypothesis: D(LSAV) has a unit root
Exogenous: Constant
Bandwidth: 3 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-4.136575	0.0029
Test critical values:	1% level	-3.653730	
	5% level	-2.957110	
	10% level	-2.617434	

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

Residual variance (no correction)	0.014804
HAC corrected variance (Bartlett kernel)	0.013356

Phillips-Perron Test Equation
Dependent Variable: D(LSAV,2)
Method: Least Squares
Date: 03/23/16 Time: 08:31
Sample (adjusted): 1983 2014
Included observations: 32 after adjustments

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Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LSAV(-1))	-0.731078	0.174347	-4.193233	0.0002
C	0.166842	0.045010	3.706765	0.0008

R-squared	0.369525	Mean dependent var	0.002691
Adjusted R-squared	0.348510	S.D. dependent var	0.155685
S.E. of regression	0.125661	Akaike info criterion	-1.249989
Sum squared resid	0.473724	Schwarz criterion	-1.158381
Log likelihood	21.99983	Hannan-Quinn criter.	-1.219624
F-statistic	17.58320	Durbin-Watson stat	1.893647
Prob(F-statistic)	0.000224		

Null Hypothesis: LGFCF has a unit root
Exogenous: Constant
Bandwidth: 1 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-2.829112	0.0651
Test critical values:	1% level	-3.646342	
	5% level	-2.954021	
	10% level	-2.615817	

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

Residual variance (no correction)	0.037871
HAC corrected variance (Bartlett kernel)	0.041656

Phillips-Perron Test Equation
Dependent Variable: D(LGFCF)
Method: Least Squares
Date: 03/23/16 Time: 08:36
Sample (adjusted): 1982 2014
Included observations: 33 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LGFCF(-1)	-0.232590	0.082012	-2.836041	0.0080
C	0.540766	0.202813	2.666324	0.0121

R-squared	0.206006	Mean dependent var	-0.025815
Adjusted R-squared	0.180394	S.D. dependent var	0.221782
S.E. of regression	0.200784	Akaike info criterion	-0.314480
Sum squared resid	1.249744	Schwarz criterion	-0.223782
Log likelihood	7.188913	Hannan-Quinn criter.	-0.283963
F-statistic	8.043126	Durbin-Watson stat	1.759916
Prob(F-statistic)	0.007976		

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Null Hypothesis: D(LGFCF) has a unit root
Exogenous: Constant
Bandwidth: 1 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-4.857897	0.0004
Test critical values:	1% level	-3.653730	
	5% level	-2.957110	
	10% level	-2.617434	

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

Residual variance (no correction)	0.048292
HAC corrected variance (Bartlett kernel)	0.049630

Phillips-Perron Test Equation
Dependent Variable: D(LGFCF,2)
Method: Least Squares
Date: 03/23/16 Time: 08:37
Sample (adjusted): 1983 2014
Included observations: 32 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LGFCF(-1))	-0.878001	0.181144	-4.846982	0.0000
C	-0.020188	0.040436	-0.499247	0.6212

R-squared	0.439181	Mean dependent var	0.004218
Adjusted R-squared	0.420488	S.D. dependent var	0.298141
S.E. of regression	0.226962	Akaike info criterion	-0.067607
Sum squared resid	1.545352	Schwarz criterion	0.024001
Log likelihood	3.081719	Hannan-Quinn criter.	-0.037242
F-statistic	23.49324	Durbin-Watson stat	1.885464
Prob(F-statistic)	0.000036		

Null Hypothesis: LLABFP has a unit root
Exogenous: Constant
Bandwidth: 3 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-1.570106	0.4862
Test critical values:	1% level	-3.646342	
	5% level	-2.954021	
	10% level	-2.615817	

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

Residual variance (no correction)	2.75E-05
HAC corrected variance (Bartlett kernel)	4.57E-05

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Phillips-Perron Test Equation
Dependent Variable: D(LLABFP)
Method: Least Squares
Date: 03/23/16 Time: 08:43
Sample (adjusted): 1982 2014
Included observations: 33 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LLABFP(-1)	-0.095048	0.083546	-1.137674	0.2640
C	0.382853	0.336383	1.138145	0.2638

R-squared	0.040078	Mean dependent var	0.000160
Adjusted R-squared	0.009113	S.D. dependent var	0.005432
S.E. of regression	0.005407	Akaike info criterion	-7.543442
Sum squared resid	0.000906	Schwarz criterion	-7.452744
Log likelihood	126.4668	Hannan-Quinn criter.	-7.512925
F-statistic	1.294302	Durbin-Watson stat	1.205363
Prob(F-statistic)	0.263974		

Null Hypothesis: D(LLABFP) has a unit root
Exogenous: Constant
Bandwidth: 3 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-3.399938	0.0184
Test critical values:	1% level	-3.653730	
	5% level	-2.957110	
	10% level	-2.617434	

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

Residual variance (no correction)	2.70E-05
HAC corrected variance (Bartlett kernel)	3.01E-05

Phillips-Perron Test Equation
Dependent Variable: D(LLABFP,2)
Method: Least Squares
Date: 03/23/16 Time: 08:41
Sample (adjusted): 1983 2014
Included observations: 32 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LLABFP(-1))	-0.661023	0.204695	-3.229302	0.0030
C	0.000278	0.000952	0.291676	0.7725

R-squared	0.257947	Mean dependent var	0.000497
Adjusted R-squared	0.233212	S.D. dependent var	0.006133
S.E. of regression	0.005370	Akaike info criterion	-7.555479
Sum squared resid	0.000865	Schwarz criterion	-7.463870

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Log likelihood	122.8877	Hannan-Quinn criter.	-7.525113
F-statistic	10.42839	Durbin-Watson stat	1.856094
Prob(F-statistic)	0.003003		

Null Hypothesis: LGFCF has a unit root
Exogenous: Constant
Bandwidth: 0 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-1.880315	0.3371
Test critical values:	1% level	-3.646342	
	5% level	-2.954021	
	10% level	-2.615817	

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

Residual variance (no correction)	0.183589
HAC corrected variance (Bartlett kernel)	0.183589

Phillips-Perron Test Equation
Dependent Variable: D(LGFCF)
Method: Least Squares
Date: 03/23/16 Time: 11:07
Sample (adjusted): 1982 2014
Included observations: 33 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LGFCF(-1)	-0.197267	0.104912	-1.880315	0.0695
C	0.749102	0.407754	1.837140	0.0758

R-squared	0.102375	Mean dependent var	-0.003826
Adjusted R-squared	0.073420	S.D. dependent var	0.459259
S.E. of regression	0.442078	Akaike info criterion	1.264033
Sum squared resid	6.058434	Schwarz criterion	1.354730
Log likelihood	-18.85654	Hannan-Quinn criter.	1.294550
F-statistic	3.535586	Durbin-Watson stat	1.739207
Prob(F-statistic)	0.069490		

Null Hypothesis: D(LGFCF) has a unit root
Exogenous: Constant
Bandwidth: 5 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-5.247791	0.0001
Test critical values:	1% level	-3.653730	
	5% level	-2.957110	
	10% level	-2.617434	

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

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Residual variance (no correction)	0.208455
HAC corrected variance (Bartlett kernel)	0.166319

Phillips-Perron Test Equation
Dependent Variable: D(LGFCF,2)
Method: Least Squares
Date: 03/23/16 Time: 11:08
Sample (adjusted): 1983 2014
Included observations: 32 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LGFCF(-1))	-0.954150	0.181536	-5.255973	0.0000
C	0.004106	0.083359	0.049252	0.9610

R-squared	0.479395	Mean dependent var	0.006336
Adjusted R-squared	0.462041	S.D. dependent var	0.642904
S.E. of regression	0.471542	Akaike info criterion	1.394846
Sum squared resid	6.670567	Schwarz criterion	1.486455
Log likelihood	-20.31754	Hannan-Quinn criter.	1.425212
F-statistic	27.62525	Durbin-Watson stat	2.006089
Prob(F-statistic)	0.000011		

Null Hypothesis: LTLA has a unit root
Exogenous: Constant
Bandwidth: 1 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-0.329174	0.9098
Test critical values:	1% level	-3.646342	
	5% level	-2.954021	
	10% level	-2.615817	

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

Residual variance (no correction)	0.048701
HAC corrected variance (Bartlett kernel)	0.052832

Phillips-Perron Test Equation
Dependent Variable: D(LTLA)
Method: Least Squares
Date: 03/23/16 Time: 11:29
Sample (adjusted): 1982 2014
Included observations: 33 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LTLA(-1)	-0.005250	0.016374	-0.320641	0.7506
C	0.274154	0.207353	1.322164	0.1958

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R-squared	0.003306	Mean dependent var	0.208894
Adjusted R-squared	-0.028846	S.D. dependent var	0.224477
S.E. of regression	0.227691	Akaike info criterion	-0.062959
Sum squared resid	1.607144	Schwarz criterion	0.027738
Log likelihood	3.038832	Hannan-Quinn criter.	-0.032443
F-statistic	0.102811	Durbin-Watson stat	1.785274
Prob(F-statistic)	0.750634		

Null Hypothesis: D(LTLA) has a unit root
Exogenous: Constant
Bandwidth: 0 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-4.901126	0.0004
Test critical values:	1% level	-3.653730	
	5% level	-2.957110	
	10% level	-2.617434	

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

Residual variance (no correction)	0.050021
HAC corrected variance (Bartlett kernel)	0.050021

Phillips-Perron Test Equation
Dependent Variable: D(LTLA,2)
Method: Least Squares
Date: 03/23/16 Time: 11:30
Sample (adjusted): 1983 2014
Included observations: 32 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LTLA(-1))	-0.915479	0.186790	-4.901126	0.0000
C	0.191392	0.057637	3.320637	0.0024

R-squared	0.444661	Mean dependent var	-0.007973
Adjusted R-squared	0.426149	S.D. dependent var	0.304925
S.E. of regression	0.230990	Akaike info criterion	-0.032426
Sum squared resid	1.600687	Schwarz criterion	0.059183
Log likelihood	2.518815	Hannan-Quinn criter.	-0.002060
F-statistic	24.02103	Durbin-Watson stat	1.956728
Prob(F-statistic)	0.000031		

Date: 03/23/16 Time: 11:34
Sample (adjusted): 1983 2014
Included observations: 32 after adjustments
Trend assumption: Linear deterministic trend (restricted)
Series: LRGDP1 LMCAP LSAV LGFCF LLABFP LTLA

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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 *	0.787811	143.0374	117.7082	0.0005
At most 1 *	0.664050	93.42852	88.80380	0.0222
At most 2	0.605809	58.52318	63.87610	0.1299
At most 3	0.317318	28.73372	42.91525	0.5780
At most 4	0.284519	16.51847	25.87211	0.4516
At most 5	0.165900	5.804872	12.51798	0.4855

Trace test indicates 2 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 *	0.787811	49.60885	44.49720	0.0128
At most 1	0.664050	34.90534	38.33101	0.1175
At most 2	0.605809	29.78946	32.11832	0.0937
At most 3	0.317318	12.21526	25.82321	0.8591
At most 4	0.284519	10.71359	19.38704	0.5431
At most 5	0.165900	5.804872	12.51798	0.4855

Max-eigenvalue test indicates 1 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):

LRGDP1	LMCAP	LSAV	LGFCF	LLABFP	LTLA	@TREND(82)
-3.661145	-4.940651	-11.63884	2.289280	101.6293	10.90135	2.346938
3.597250	-4.450395	7.526046	-0.931001	-3.069022	2.597508	-1.988966
5.039783	-2.605039	4.869099	1.635911	-177.9854	-3.717468	-0.724068
4.135095	-0.320444	-0.930078	0.985260	-32.95786	0.283487	-0.786084
3.505826	-3.433281	-3.878296	0.397429	-95.01909	3.859299	0.123621
1.407882	0.164830	2.706376	0.041715	-40.15367	1.123338	-1.289552

Unrestricted Adjustment Coefficients (alpha):

D(LRGDP1)	0.037646	0.058624	0.008349	-0.061341	-0.031962	-0.039762
D(LMCAP)	-0.042941	0.099844	0.047860	-0.036474	0.067306	-0.072504
D(LSAV)	0.016255	-0.074617	-0.015195	0.016058	0.007940	-0.017071
D(LGFCF)	-0.142141	-0.082030	-0.155067	-0.189087	0.067327	0.015757
D(LLABFP)	-0.000215	-0.002413	0.002462	-0.001196	-0.000666	0.000106
D(LTLA)	-0.094291	-0.013934	-0.016536	0.036661	-0.016695	-0.036482

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1 Cointegrating Equation(s): Log likelihood 187.0218

Normalized cointegrating coefficients (standard error in parentheses)

LRGDP1	LMCAP	LSAV	LGFCF	LLABFP	LTLA	@TREND(82)
1.000000	1.349483	3.179016	-0.625291	-27.75890	-2.977579	-0.641039
	(0.21634)	(0.36918)	(0.09092)	(4.51527)	(0.34574)	(0.06748)

Adjustment coefficients (standard error in parentheses)

D(LRGDP1)	-0.137826
	(0.13084)
D(LMCAP)	0.157215
	(0.19926)
D(LSAV)	-0.059512
	(0.08058)
D(LGFCF)	0.520400
	(0.32176)
D(LLABFP)	0.000786
	(0.00373)
D(LTLA)	0.345212
	(0.09563)

2 Cointegrating Equation(s): Log likelihood 204.4745

Normalized cointegrating coefficients (standard error in parentheses)

LRGDP1	LMCAP	LSAV	LGFCF	LLABFP	LTLA	@TREND(82)
1.000000	0.000000	2.611995	-0.434093	-13.72188	-1.047426	-0.595063
		(0.27650)	(0.06699)	(3.86869)	(0.14410)	(0.05187)
0.000000	1.000000	0.420177	-0.141682	-10.40178	-1.430291	-0.034070
		(0.21068)	(0.05105)	(2.94773)	(0.10979)	(0.03952)

Adjustment coefficients (standard error in parentheses)

D(LRGDP1)	0.073061	-0.446896
	(0.17284)	(0.22391)
D(LMCAP)	0.516380	-0.232189
	(0.25902)	(0.33557)
D(LSAV)	-0.327928	0.251766
	(0.08156)	(0.10566)
D(LGFCF)	0.225319	1.067335
	(0.44282)	(0.57369)
D(LLABFP)	-0.007894	0.011801
	(0.00458)	(0.00593)
D(LTLA)	0.295088	0.527870
	(0.13328)	(0.17266)

3 Cointegrating Equation(s): Log likelihood 219.3692

Normalized cointegrating coefficients (standard error in parentheses)

LRGDP1	LMCAP	LSAV	LGFCF	LLABFP	LTLA	@TREND(82)
1.000000	0.000000	0.000000	0.819105	-63.03169	-1.832682	0.198005

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			(0.13703)	(10.4181)	(0.30885)	(0.07505)
0.000000	1.000000	0.000000	0.059913	-18.33397	-1.556611	0.093506
			(0.05546)	(4.21625)	(0.12499)	(0.03037)
0.000000	0.000000	1.000000	-0.479786	18.87822	0.300635	-0.303625
			(0.06290)	(4.78231)	(0.14177)	(0.03445)

Adjustment coefficients (standard error in parentheses)

D(LRGDP1)	0.115137	-0.468645	0.043711
	(0.24191)	(0.24018)	(0.49405)
D(LMCAP)	0.757586	-0.356867	1.484259
	(0.35615)	(0.35358)	(0.72734)
D(LSAV)	-0.404506	0.291349	-0.824745
	(0.11210)	(0.11130)	(0.22894)
D(LGFCF)	-0.556187	1.471291	0.281963
	(0.57733)	(0.57318)	(1.17905)
D(LLABFP)	0.004512	0.005388	-0.003676
	(0.00530)	(0.00526)	(0.01083)
D(LTLA)	0.211748	0.570948	0.912049
	(0.18520)	(0.18387)	(0.37822)

4 Cointegrating Equation(s): Log likelihood 225.4768

Normalized cointegrating coefficients (standard error in parentheses)

LRGDP1	LMCAP	LSAV	LGFCF	LLABFP	LTLA	@TREND(82)
1.000000	0.000000	0.000000	0.000000	6.277960	0.380262	-0.339778
				(12.2435)	(0.35345)	(0.08831)
0.000000	1.000000	0.000000	0.000000	-13.26437	-1.394747	0.054171
				(3.32799)	(0.09607)	(0.02401)
0.000000	0.000000	1.000000	0.000000	-21.71950	-0.995584	0.011378
				(7.66397)	(0.22125)	(0.05528)
0.000000	0.000000	0.000000	1.000000	-84.61633	-2.701661	0.656550
				(20.7061)	(0.59775)	(0.14936)

Adjustment coefficients (standard error in parentheses)

D(LRGDP1)	-0.138514	-0.448989	0.100763	-0.015177
	(0.25898)	(0.22313)	(0.45945)	(0.09748)
D(LMCAP)	0.606765	-0.345179	1.518183	-0.148901
	(0.40613)	(0.34992)	(0.72051)	(0.15287)
D(LSAV)	-0.338106	0.286203	-0.839680	0.097645
	(0.12641)	(0.10892)	(0.22427)	(0.04758)
D(LGFCF)	-1.338077	1.531883	0.457828	-0.689007
	(0.58386)	(0.50305)	(1.03582)	(0.21978)
D(LLABFP)	-0.000434	0.005771	-0.002563	0.004604
	(0.00577)	(0.00497)	(0.01024)	(0.00217)
D(LTLA)	0.363345	0.559200	0.877951	-0.193817
	(0.20439)	(0.17611)	(0.36262)	(0.07694)

5 Cointegrating Equation(s): Log likelihood 230.8336

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Normalized co integrating coefficients (standard error in parentheses)

LRGDP1	LMCAP	LSAV	LGFCF	LLABFP	LTLA	@TREND(82)
1.000000	0.000000	0.000000	0.000000	0.000000	0.231545	-0.301964
					(0.27330)	(0.07104)
0.000000	1.000000	0.000000	0.000000	0.000000	-1.080530	-0.025724
					(0.15281)	(0.03972)
0.000000	0.000000	1.000000	0.000000	0.000000	-0.481076	-0.119444
					(0.12761)	(0.03317)
0.000000	0.000000	0.000000	1.000000	0.000000	-0.697204	0.146885
					(0.55257)	(0.14362)
0.000000	0.000000	0.000000	0.000000	1.000000	0.023689	-0.006023
					(0.00958)	(0.00249)

Adjustment coefficients (standard error in parentheses)

D(LRGDP1)	-0.250568	-0.339253	0.224722	-0.027880	7.218710
	(0.27494)	(0.24206)	(0.46463)	(0.09610)	(6.96917)
D(LMCAP)	0.842729	-0.576261	1.257149	-0.122151	-18.38228
	(0.42317)	(0.37257)	(0.71514)	(0.14791)	(10.7266)
D(LSAV)	-0.310271	0.258944	-0.870472	0.100800	3.301747
	(0.13646)	(0.12014)	(0.23061)	(0.04770)	(3.45892)
D(LGFCF)	-1.102039	1.300729	0.196712	-0.662249	13.24023
	(0.62163)	(0.54731)	(1.05054)	(0.21728)	(15.7574)
D(LLABFP)	-0.002771	0.008059	2.12E-05	0.004339	-0.349818
	(0.00614)	(0.00541)	(0.01038)	(0.00215)	(0.15573)
D(LTLA)	0.304815	0.616519	0.942699	-0.200452	-6.218626
	(0.21976)	(0.19348)	(0.37139)	(0.07681)	(5.57052)

Vector Error Correction Estimates
Date: 03/23/16 Time: 11:44
Sample (adjusted): 1984 2013
Included observations: 30 after adjustments
Standard errors in ( ) & t-statistics in [ ]

Cointegrating Eq:	CointEq1
LRGDP1(-1)	1.000000
LMCAP	0.451389
	(0.17367)
	[2.59911]
LSAV(-1)	0.503318
	(0.16150)
	[3.11643]
LGFCF(-1)	0.329890
	(0.04368)
	[7.55298]
LLABFP	-47.39522

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	(3.05476)					
	[-15.5152]					
LTLA	-2.023221					
	(0.31337)					
	[-6.45643]					
C	202.0478					

Error Correction:	D(LRGDP1)	D(LMCAP(1))	D(LSAV)	D(LGFCF)	D(LLABFP(1))	D(LTLA(1))
CointEq1	-0.524164	-0.266008	0.023304	-0.741225	0.013039	0.162446
	(0.17685)	(0.33865)	(0.13312)	(0.62581)	(0.00594)	(0.23285)
	[-2.96394]	[-0.78549]	[0.17506]	[-1.18443]	[2.19627]	[0.69765]
D(LRGDP1(-1))	0.210733	0.479430	-0.135436	-0.101394	-0.006896	-0.172523
	(0.22085)	(0.42291)	(0.16624)	(0.78151)	(0.00741)	(0.29078)
	[0.95420]	[1.13364]	[-0.81469]	[-0.12974]	[-0.93016]	[-0.59331]
D(LRGDP1(-2))	0.158616	0.287275	-0.137462	-0.055367	0.003791	-0.293805
	(0.19911)	(0.38129)	(0.14988)	(0.70459)	(0.00668)	(0.26216)
	[0.79662]	[0.75344]	[-0.91714]	[-0.07858]	[0.56710]	[-1.12070]
D(LMCAP)	0.700958	0.504452	-0.096052	0.760665	-0.008432	0.305209
	(0.16709)	(0.31996)	(0.12577)	(0.59126)	(0.00561)	(0.21999)
	[4.19522]	[1.57662]	[-0.76369]	[1.28651]	[-1.50336]	[1.38735]
D(LMCAP(-1))	0.271691	-0.028275	-0.025347	0.677812	0.001648	0.299795
	(0.19911)	(0.38128)	(0.14988)	(0.70458)	(0.00668)	(0.26216)
	[1.36454]	[-0.07416]	[-0.16912]	[0.96200]	[0.24661]	[1.14356]
D(LSAV(-1))	0.674120	1.317472	-0.134223	0.415423	0.010671	-0.097771
	(0.42898)	(0.82147)	(0.32291)	(1.51803)	(0.01440)	(0.56482)
	[1.57145]	[1.60380]	[-0.41566]	[0.27366]	[0.74103]	[-0.17310]
D(LSAV(-2))	-0.290110	-0.600155	-0.089657	-0.906205	0.015215	0.181720
	(0.32296)	(0.61845)	(0.24311)	(1.14285)	(0.01084)	(0.42523)
	[-0.89829]	[-0.97042]	[-0.36880]	[-0.79293]	[1.40341]	[0.42735]
D(LGFCF(-1))	0.109893	-0.017050	0.054032	0.129742	0.000869	-0.086976
	(0.07463)	(0.14291)	(0.05618)	(0.26408)	(0.00251)	(0.09826)
	[1.47254]	[-0.11931]	[0.96183]	[0.49129]	[0.34687]	[-0.88516]
D(LGFCF(-2))	0.073183	0.179995	0.093285	0.041923	-0.002794	0.089149
	(0.08499)	(0.16276)	(0.06398)	(0.30077)	(0.00285)	(0.11191)
	[0.86103]	[1.10590]	[1.45804]	[0.13939]	[-0.97914]	[0.79662]
D(LLABFP)	-1.157815	-6.943858	3.375351	11.77738	0.425958	-3.041453
	(8.13020)	(15.5688)	(6.12000)	(28.7702)	(0.27293)	(10.7047)
	[-0.14241]	[-0.44601]	[0.55153]	[0.40936]	[1.56069]	[-0.28412]
D(LLABFP(-1))	-13.71372	-23.52432	1.004815	-8.237810	0.171209	5.731666

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	(8.08114)	(15.4749)	(6.08307)	(28.5966)	(0.27128)	(10.6401)
	[-1.69700]	[-1.52016]	[0.16518]	[-0.28807]	[0.63111]	[0.53868]
D(LTLA)	-1.016236	-0.777778	0.396402	-1.405652	0.006775	-0.018638
	(0.34492)	(0.66050)	(0.25964)	(1.22056)	(0.01158)	(0.45414)
	[-2.94631]	[-1.17756]	[1.52675]	[-1.15165]	[0.58509]	[-0.04104]
D(LTLA(-1))	-0.552973	-0.533927	0.122355	-0.659914	-0.000789	0.092802
	(0.25137)	(0.48136)	(0.18922)	(0.88952)	(0.00844)	(0.33097)
	[-2.19983]	[-1.10920]	[0.64663]	[-0.74187]	[-0.09351]	[0.28039]
C	0.129971	0.085967	0.257514	0.240525	-0.004274	0.125345
	(0.11984)	(0.22948)	(0.09021)	(0.42406)	(0.00402)	(0.15778)
	[1.08458]	[0.37462]	[2.85472]	[0.56719]	[-1.06240]	[0.79441]
R-squared	0.591793	0.353963	0.517824	0.161001	0.472832	0.516730
Adj. R-squared	0.260124	-0.170942	0.126056	-0.520685	0.044507	0.124072
Sum sq. resids	0.435053	1.595338	0.246515	5.447863	0.000490	0.754209
S.E. equation	0.164896	0.315767	0.124126	0.583516	0.005536	0.217113
F-statistic	1.784291	0.674337	1.321763	0.236181	1.103910	1.315981
Log likelihood	20.93410	1.443524	29.45479	-16.97855	122.7579	12.68110
Akaike AIC	-0.462273	0.837098	-1.030319	2.065236	-7.250527	0.087927
Schwarz SC	0.191619	1.490990	-0.376427	2.719129	-6.596635	0.741819
Mean dependent	0.219664	0.271742	0.227369	0.020016	0.000294	0.220021
S.D. dependent	0.191704	0.291809	0.132776	0.473188	0.005663	0.231981

Determinant resid covariance (dof adj.)	2.07E-12
Determinant resid covariance	4.76E-14
Log likelihood	204.7258
Akaike information criterion	-7.648384
Schwarz criterion	-3.444791

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