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RESEARCH ARTICLE

STOCK MARKET DEVELOPMENT, CAPITAL FORMATION AND GROWTH IN NIGERIA

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ABSTRACT

This study examines the impact of stock market development on capital formation and growth in Nigeria. The main objective is to determine the relationship between gross fixed capital formations and other independent variables like market capitalization, new issues of instruments, gross domestic product and industrial production index that determine capital formation. Time series data obtained from Central Bank of Nigeria (CBN) and Nigerian Stock exchange (NSE) for the period 1981 to 2009 were analyzed using Ordinary Least Square (OLS) analysis. The result of the regression analysis shows that a positive and significant relationship exists between gross fixed capital formation and gross domestic product as well as industrial production index. However, there is an inverse relationship between gross fixed capital formation and market capitalization as well as new issues of instruments; this indicates that the Nigerian Stock Market in its many years of existence has contributed marginally to long-term capital formation in Nigeria. This study concludes with a number of recommendations and suggestions all tailored toward how the stock market regulators and policy makers can improve the effectiveness and efficiency of the Nigerian stock market in the area of long-term capital formation and real-sector financing geared toward the growth of the economy.

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INTRODUCTION

Stock market development has been an important part of financial liberalization globally. In the pro-liberalization circle, stock markets play an important role in the financial development and economic growth of emerging economies. Wherever they exist, stock markets constitute an important institution for massive capital formation geared towards economic development. The development of stock market is necessary to achieve full efficiency of capital formation and allocation if government is to liberalize the financial system. While banks finance only short-term, stock markets can finance risky, productive and innovative long-term investment projects. In principle, a well-developed stock market should increase saving and efficiently allocated capital to productive investments, which leads to an increase in the rate of economic growth. Stock markets contribute to the mobilization of domestic savings by enhancing the set of financial instruments available to savers to diversify their portfolios. In doing so, they provide an important source for investment capital at relatively low cost (Dailami and Aktin, 1990). Moreover, stock markets play a key role in allocating capital to the corporate sector, which will have a real effect on the economy on aggregate. From a monetary growth perspective, a well-developed stock market provides a means for the exercise of monetary policy through

the issue and repurchase of government securities in a liquid market. This is an important step in financial liberalization. In addition, well developed and active stock markets alter the pattern of demand for money, and booming stock markets create liquidity, and have spur economic growth (Caporale, Howells and Soliman, 2004). There are many studies (such as Demirguc-Kunt and Levine (1995); Levine and Zervos (1993,1995,1998); Atje and Jovanovic (1993); Rousseau and Wachtel (2000); Beck and Levine(2003)) supporting the positive link between stock market development, capital formation and growth globally. These studies emphasize the importance of stock market development in the growth process; they found that stock market liquidity and development predict the future growth rate of any economy. Levine and Zervos (1998) found that the development of banks and stock markets have a positive effect on growth. In another study, Levine (2001, 2003) argued that although theory provides ambiguous relationship between stock market liquidity and economic growth, the cross-country data for 49 countries over the period 1976-1993 suggest a strong and positive relationship between these variables. Rousseau and Wachtel (2000) and Beck and Levine (2003) show that stock market development is strongly correlated with growth rates of real GDP per capita. Henry (2000) studied a sample of 11 emerging economies and observed that stock market liberalizations lead to private investment boom. Recently, Bekaert and Lundblad (2005) analysed data of a large number

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of countries and observed that stock market liberalization leads to increase in annual real per capital Gross Domestic Product (GDP) growth. However, World Bank (1993) pointed out that stock markets have played little role in the post-war industrialization of some Asian economies namely Japan, Korea and Taiwan. It was argued that the recent move towards stock market liberalization is unlikely to help in achieving quicker industrialization and faster long-term economic growth in most of the emerging countries. This view was also supported by Singh (1997). This study however seeks to examine the nature of relationship between stock market development and growth through long-term capital formation in Nigeria as a classical example of emerging economy in Africa.

The major justification for the choice of Nigerian Stock Market and the period 1981 to 2009 selected for this study is based on the fact that the market is an emerging one. Also, the market played a significant role in capital formation in the recently concluded banking industry recapitalization programme (2004-2005) because most of the recapitalized banks sourced significant portion of their mandatory ₦25 billion from the stock market. Besides, Nigeria government in collaboration with its financial system regulators have embarked on several reforms (such as pension reforms 2004, corporate governance codes for public companies 2003, and the pursuance of zero tolerance for market malfeasance) in order to reposition the stock market on the path of efficiency so as to contribute significantly to the growth of the economy. This study therefore evaluate how effective the Nigerian stock market has been in long term capital formation to various sectors and the contribution made to the development of the Nigerian economy during the period under consideration. The subsequent sections of this paper are organized as follows: Section 2 reviews the Nigerian experience of stock market development. Section 3 outlines the methodology, data and model adopted for the empirical analysis. Section 4 presents data analysis and discussion of findings. Section 5 offers some concluding remarks and policy recommendations.

STOCK MARKET DEVELOPMENT: THE NIGERIA EXPERIENCE

The Nigerian stock market has grown tremendously since its inception in 1961 (though still emerging when compared to major market in the western and developed economies). This growth can be partly attributed to the various measures of government to stimulate capital formation and development through its Enterprises Promotion Acts of 1972 and 1977. These Acts marked major steps by the Federal Government to indigenize the economy resulted in the tripling of the number of listed securities and shareholders in the Nigerian Stock Market. These periods however was regarded as an important era in the history of stock market development in Nigeria, as it reposition itself primarily in the path of medium to long-term capital formation and growth in the Nigerian economy. It is a known fact that the investment that promotes economic growth and development requires long-term funding, far longer than the duration for which most savers are willing to commit their funds. Stock market is a network of specialized financial institutions, series of mechanisms, processes and infrastructure that, in various ways facilitate the bringing together of suppliers and users of medium to long-term capital

for investment in socio-economic developmental projects. As the long-term end of the financial system, it provides opportunities for investors (lenders) to provide long-term funds in exchange for long-term financial assets offered by borrowers. The origins of the Nigerian capital market dated back to colonial times when the British Government ruling Nigeria sought funds for running the local administration. As most funds derived from agricultural produce where inadequate to meet its growing financial obligation, the colonial administration saw the need to raise funds from the public sector to cover shortfalls in funds availability, by setting up the basic infrastructure for the take off of capital market operation pending the development of an organized private sector. On September 15, 1960 the Lagos Stock Exchange was incorporated as a private limited liability company, limited by guarantee under the provision of Lagos Stock Exchange Act of 1960. On June 5, 1961, the Lagos Stock Exchange opened for business with 19 listed securities made up of 3 equities, 6 Federal Government Bonds and 10 industrial loans. The Lagos Stock Exchange was transformed into Nigerian Stock Exchange on 2nd December 1977 by the Indigenization Decree of 1977 according to government desires to have a National Stock Exchange with branches established nationwide (Osaze, 2007).

The Nigerian stock market has witnessed significant developments since its inception. Some of the major developments targeted towards an efficient stock market includes: the introduction of Second Tier Security Market (SSM) in 1985 to cater for the financial needs of small and medium scale enterprises. In 1992 the Central Securities Clearing System (CSCS) was incorporated as the official central clearing and depository of the Nigerian Stock Exchange (NSE) to implement a Computerized Stock Exchange Management System (CSEMS) which emphasizes the immobilization of shares certificate in a central depository. In 1999, the Automated Trading System (ATS) came into being with its attendant transparency. Dealings and transaction on the NSE trading floors achieved T+5 (transaction day + 5 days) delivery; an improvement has been recorded as we currently have T+3 days delivery. The Abuja Stock Exchange incorporated in 1998 was converted to Abuja Securities and Commodities Exchange (ASCE) in 2001 to undertake commodities market operations. With regard to legislation, the Nigerian capital market witnessed significant legislative framework with the Lagos Stock Exchange Act of 1960 providing the legislative benchmark for the capital market, the 1979 and 1988 Securities and Exchange Commission (SEC) Decree which enhanced the function and power of SEC. However, the Investment and Securities Acts (ISA) No.45 of 1999 is the current enabling legislation regulating the operation of the Nigeria capital market. In May 2006, the Securities and Exchange Commission signed a Multilateral Memorandum of Understanding (MMOU) with the International Organization of Securities Commissions (IOSCO) becoming the 38th member and an "A" signatory (Osaze, 2007).

In term of contribution to the growth and development of Nigerian economy, the stock market has provided avenue for corporate entities to raise long-term finances to expand and modernize; also, the market assisted in financing many government infrastructural and socio-economic projects as

many states and local governments source funds for such projects through capital market. Besides, the market recorded significant strides in the privatization of state owned enterprises as part of the implementation of the Structural Adjustment Programme (SAP). The Nigerian capital market also play significant roles in the recently concluded Banking System Recapitalization Programme as most of the recapitalized banks source significant proportion of the required ₦25 billion through the capital market (Al-faki 2006).

Despite the structural developments as well as achievement recorded so far, the Nigerian stock market still has a long way to go when compared with those in developed countries. For the period of existence of the market, the number of trading floors has not covered the entire states of the federation, hence many Nigerians are ignorant of its role in capital formation. Besides, with about 300 companies listed on it, the market looks too shallow when compared to other developed markets. It may seem unfair to compare Nigerian stock market at 50 years of existence with those of London, India, Germany, and New York that has existed for decades. All the same, it suggests the need for accelerated development of the market as a major engine for long-term capital formation and growth.

DATA, METHODOLOGY AND MODEL

Data Sample and Characteristics

This study aims at establishing the nature of relationship between stock market development and long-term capital formation in emerging countries with Nigeria as a case study. Data and variables analyzed in this study relate to the Nigerian stock market and the Nigerian economy as a whole. Based on “simple and intuitive financial theory” that the development of stock market in any economy creates avenue for long-term capital formation which give firms opportunities to raise long-term capital for productivity expansion which eventually transform to the growth of the economy. Hence, there is a linkage between stock market development, capital formation and economic growth (Rousseau and Wachtel (2000); Beck and Levine (2003)). To verify this relationship in this study, we use Market Capitalization(MKCAP) and New Issues of financial instruments (NI) to indicate stock market development; Gross Fixed Capital Formation (GFCF) to indicate long-term capital formation; while Gross Domestic Product (GDP) and Industrial Production Index (INDP) indicate the growth of the economy. The main economic justifications for the inclusion of these variables (apart from the fact that they have been adopted in past research of similar nature (Sarkar, 2006)) are briefly provided below.

Gross Fixed Capital Formation (GFCF)

Capital formation basically refers to the net additions to the (physical) capital stock in an accounting period, or to the value of the amount of increase of the capital stock. Presently, it is also referred to as saving drives, setting up financial institutions, fiscal measures, development of capital markets, privatization of financial institutions etc. In this broad sense, it refers to any method in mobilizing or utilizing capital resources for investment purpose. This variable is related to stock market development because it is an investment in fixed assets (with long gestation period) which in part is financed with funds

raised through the capital market. How developed an economy's stock market is will be partly measured by the amount of fixed capital and investment in fixed investment it can generate for the economy.

Market Capitalization (MKCAP)

Market capitalization is the total value of all equity securities listed on a stock exchange. It is a function of the prevailing market price of quoted equities and the size of their issue and paid-up capital. Market capitalization is the most important measure for assessing the size of a stock market and the barometer for measuring its growth and development. The value of market capitalization at anytime is also a function of investors' perception of the worth of securities on offer, their disposable discretionary income and the willingness of fund users to see the market as a viable source of raising long-term capital.

New Issues (NI)

The total amount of new issues of securities raised in a capital market is a major indicator of how popular the market is as a source of growing funds for investment in fixed assets. This actually depends on the degree of investors' confidence and the comparative cost of raising similar funds from alternative source in the financial system (Osaze, 2007). The relationship between new issues and total investment in fixed assets measures the total amount of new investment financed by new issues of securities. New issues contribute to the stock of capital in an economy and hence to economic development.

Gross Domestic Product (GDP)

Gross Domestic Product is a measure of all currently produced final goods and services valued at market price and is thus an aggregate value of all the industries in an economy. There is evidence that stock market development should be positively related to level of real activity in the economy as measured by GDP. Besides, the level of a stock market development is further confirmed by the ratio of such market capitalization to the gross domestic product. This will further indicate the volume of growth and economic activities of a nation represented in its stock market.

Industrial Production (INDP)

The industrial production is a measure of the production sector of an economy and also indicates the national economic growth. This measure reflects the activities of all the industries in an economy. The relationship between stock market returns and industrial production is highly significant (Fama, 1981). Therefore, the direction and significance of the relationship will be a good measure of the level of the development of the stock market in term of capital formation which industries uses in capacity building and utilizations. Relevant data described above covering the period of twenty nine years from 1981 to 2009 as obtained from the Nigerian Stock Exchange Facts Book and Central Bank of Nigeria Statistical Bulletin, 2008 and 2009 editions respectively.

MATERIALS AND METHODS

This study is a correlation type of descriptive research that attempts to generate the relationship between Gross Fixed Capital Formation (GFCF) and other variables such as market capitalization, New Issues of Securities, Gross Domestic Product, and Industrial Production; which indicates the development level of the stock market. The study therefore employed a times series analysis by running a regression to verify in quantitative terms how the explanatory variables impact on the value of the dependent variable. The data obtained were fitted to the linear equation by Ordinary Least Square (OLS) technique of model estimation. The linear relationship between the dependent and independent variables were determined and inferences were drawn based on the regression analysis.

THE MODEL

Several models have been used in finance literature to empirically establish the relationship between stock market development and capital formation. They include mean adjusted return, the market model, and the modified market model. The Auto-regressive Distributive Lag (ARDL) was also adopted by Sarkar (2006) to find the same relationship. This present study uses a multiple linear regression equation model due to its predictive and informative ability about the direction of relationship between the dependent and independent variables. Besides, the OLS linear regression model by-passes the estimation issues (data generation process) faced by alternative methods to concentrate on the fundamental issue of interest, namely; the role of stock market development in capital formation and economic growth. The estimated model is as follows:

$$GFCF = f(MKCAP, NI, GDP, INDP) \dots \dots \dots \quad (I)$$

Where;
 GFCF =Gross Fixed Capital Formation
 MKCAP=Market Capitalization
 NI =New Issues of Instrument
 GDP =Gross Domestic Product
 INDP =Industrial Production Output

While the above served as the main model, the following equation was generated.

$$GFCF = \beta_0 + \beta_1 MKCAP + \beta_2 NI + \beta_3 GDP + \beta_4 INDP + e \dots \dots \dots \quad (II)$$

Where $\beta_0, \beta_1, \dots, \beta_4$ are regression coefficient measuring the partial elasticity of the dependent variable with respect to the independent variables, while e is the stochastic error or disturbance term.

DATA ANALYSIS

The yearly time series data were fitted into equation II above by Ordinary Least Square (OLS) regression method for the purpose of generating linear relationship between the dependent and the independent variables. The result below was obtained from the regression analysis:

$$GFCF = -138327.0 -0.167 MKCAP - 0.0021 NI + 0.074 GDP + 1301.3 INDP + e \dots \dots \dots \quad (III)$$

(-1.36)	(-1.83)	(-1.55)	(4.21)	(1.49)
R ²	=	0.94		
R ²	=	0.93		
F-stat	=	F(4,20) 76.20		
DW-stat	=	1.505		

The estimated regression model above possesses shortcoming in the area of Durbin Watson (D-W) statistics. This is because our D-W statistic gives a value of 1.505 which may indicate the presence of first-order auto-correlation. A value of DW Stat close to 2 suggests the absence of autocorrelation (Durbin and Watson, 1951). To get rid of this observed problem, Cochrane – Orcott Method AR (3) converged after 22 iterations was employed and the following result was obtained

$$GFCF = -56536.2 - 0.037 MKCAP - 0.0021 NI + 0.06 GDP + 568.06 NDP + e \dots \dots \dots \quad (IV)$$

(-2.43)	(-0.64)	(-0.86)	(8.46)	(2.82)
R ²	=	0.986		
R ²	=	0.979		
F-stat	=	F(7,14) 144.93		
DW-stat =	1.9359			

The estimated regression model in equation IV above is more above is more acceptable, and is therefore interpreted and analyzed in the following sections.

INTERPRETATION OF REGRESSION RESULT

The estimated regression model above revealed that the dependent variable Gross Fixed Capital Formation (GFCF) have an autonomous value of -56536.2 and a negative relationship with two of the explanatory variables namely Market Capitalization (MKCAP) and New Issues (NI) while it has positive relationship with Gross Domestic Product (GDP) and Industrial Production Index (INDP). This result signifies that each component of the explanatory variables had variant impact on the dependent variable during the period under consideration (1981-2009).

The coefficient of determination (R^2) is 0.986 and when it was adjusted for the degree of freedom, an adjusted coefficient of determination (R^2) of 0.979 was derived. This means that about 99% of the systematic mean variations of the dependent variable (GFCF) is explained by the explanatory variables (MKCAP, NI, GDP, INDP). This means that the estimated regression model line is a good fit because it was able to capture almost all the point in the scatter diagram, hence the regression result command a high predicting value. The remaining 1% variation of GFCF that was not explained by the explanatory variables used in specifying the model is accounted for by the stochastic error term (e). This percentage is insignificant and negligible. The F-statistic result reveals that the estimated regression model passed the overall significant test (F-test) at an acceptable 5% level of significance because the F-calculated (144.93) is greater than the F-critical (2.76) at (7,14) degrees of freedom. This is an indication that there is a linear relationship between the dependent variable (GFCF) and the explanatory variables (MKCAP, NI, GDP and INDP) hence none of the estimated coefficient is equal to zero. The Durbin-Watson statistic of

1.9359 (which is approximately 2) implied that there is no first or second order serial autocorrelation in the regression estimation. The T-ratio result is reported in parenthesis, the explanatory variables are tested at 5% level of significant, with a critical value of ± 1.71 . When the t-values of the explanatory variables were compared with the critical value, it was observed that only GDP and INDP pass their significance test while MKCAP and NI did not pass the t-test. This implies that the impact of GDP and INDP on capital formation is going to be more significant than that of MKCAP and NI.

Findings for Policy Implication

For the period 1981-2009, the following relationships were observed between the dependent and explanatory variables which are very significant for policy formulation. Market capitalization (MKCAP) and New Issues of Instruments (NI) both have negative or inverse relationship with the dependent variable Gross Fixed Capital Formation (GFCF). A unit change in market capitalization result in 0.04 decreases in capital formation while a unit changes in new issues lead to 0.002 decreases in capital formation. These implied that long-term capital formation in Nigeria were not majorly sourced from the capital market as the above result shows the marginal contribution of Market Capitalization and New Issues to Gross Fixed Capital Formation. Stock market capitalization which is an important indicator of stock market development do not explain the variations in the growth rates of gross fixed capital formation. This can be attributed to the dearth of innovative financial instruments (such as Mortgaged Backed Securities, Real Estate Investment Trusts, Collateralized Mortgage Obligation) in the market. Besides, the fixed income segment of the market have been dormant for virtually the entire existing period of the market due to unattractive nature of these instruments and the absence of government active participation in the market. This result is in line with the findings of Sarkar (2006) in which he concludes that there exist no meaningful relationship between stock market capitalization and gross fixed capital formation in developing countries.

In a different dimension, the regression result shows a positive relationship between Gross Fixed Capital Formation (GFCF) and Gross Domestic Product (GDP) and Industrial Production Index (INDP). A unit change in GDP results in 0.06 increases in GFCF while a unit changes in INDP results in 568.06 increases in GFCF. A growing economy which is represented by a rising GDP is expected to be positively and directly related to capital formation. Consequently, the GDP growth has predictive power to stock market development. During periods of high economic growth, there is confidence within the economy and this will stimulate demand for products and services which encourage firms to formulate and accumulate long-term capital needed for facilities and capacity expansion to meet the need of such growing economy. Similarly, INDP which is a measure of the production sector of an economy also indicates the national economic growth. As expected, increase or growth in INDP will positively influence capital formation because increase in industrial activities in an economy will also stimulate long-term capital formation. Our findings indicate that there is a positive and direct relationship between INDP and GFCF also support the findings of Fama (1981) that the relationship between stock market returns,

capital formation and industrial production is positive and significant. Thus we find a relationship between stock market developments and economic growth. This result confirms the findings by Levine and Zervos (1998) and Rousseau and Wachtel (2000) that there is a significant relationship between stock market development and economic growth. Since real sector (represented by GDP and INDP) is a significant asset of an economy, the economic growth should reflect the stock market condition which is an avenue for long-term capital formation needed for real sector financing at all time.

Summary and Conclusion

The objective of this study is to examine the nature of relationship between stock market development (measured by Market Capitalization and New Issues of Instruments) and growth (measured by Gross Domestic and Industrial Production) in Nigeria. The study covered a period of 29 years (1981-2009) and relevant data were sourced from Nigerian Stock Exchange and Central Bank of Nigeria Statistical Bulletins. The empirical estimation was based on a time series regression analysis to investigate in quantitative terms the relationship between Gross Fixed Capital Formation (dependent variable) and other variables (market capitalization, new issues, gross domestic product, industrial production index) as independent variables. Our findings show that there is positive and direct relationship between gross fixed capital formation, gross domestic product and industrial production, which indicate that increase in GDP and INDP, will bring about a corresponding increase in capital formation. It appears that GDP and INDP are able to predict positive relationship between stock market development and long-term capital formation. This result is consistent with the findings of Demirguc-Kunt (1994) that stock market gives boost to economic development.

However, the findings revealed a negative relationship between gross fixed capital formation and market capitalization and new issue of instruments. This indicates that the Nigerian stock market (like and other emerging market in the world) has contributed marginally to the formation and accumulation of long-term capital during the period under consideration. Collectively, the evidence from this study indicates that for Nigerian economy, the four explanatory variables market capitalization, new issues of instrument, gross domestic product and industrial production index, have variant impact in different dimension on gross fixed capital formation and stock market development.

The scope and variety of this study and model used is still limited, further work can also be embarked on to cover a longer period and using sufficiently long historical data that will have higher predictive relationship between capital formation, growth and stock market development with the use of other econometric models. However, the results of this study will help Nigerian stock market regulators, capital market operators as well as policy maker to understand the next direction in which stock market reforms and development should be focused in order to reposition it in the path of effectiveness and efficiency especially in long-term capital formation and accumulation.

Policy Recommendations

The following recommendations can be derived from the findings of this study:

- The primary market segment of the Nigerian Stock Exchange should find a means of relaxing some of the listing requirement to both first and second tier securities market. This will encourage more unquoted companies to get listed in the stock market thereby increasing the depth of the market.
- The requirements for sourcing long-term capital in the stock market should also be relaxed in comparison to alternative sources of funds in the financial system. This will stimulate many fund seekers to access the market for long-term capital formation, thereby enabling the development of the market as well as its contribution to capital formation.
- Infrastructural inadequacies are major hindrance affecting the pace of stock market development and investment growth in Nigeria simply because the efficiency of the market have been impeded by information dissemination. Proper monitoring and dissemination of information should be carried out in a designed manner.
- The government should favourably control interest rate in the money market so as to aid the growth of the stock market.
- New instruments different from traditional equities and bonds should be developed and traded in the Nigerian Stock Market. Instrument such as Real Estate Investment Trusts (REITs), Mortgage Back Securities (MBS), Collateralized Mortgage Obligation (CMO) should be developed and make attractive to investors in order to stimulate capital formation and make the market more vibrant than it is presently.
- There should also be active participation of government in the fixed income segment of the market by issuing gilt-edged instrument (such as Bonds) in order to make the market more liquid thereby attracting more investors (both individuals and corporate).

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Appendix

Ordinary Least Squares Estimation				

Dependent variable is GFCE				
29 observations used for estimation from 1981 to 2009				
Regressor	Coefficient	Standard Error	T-Ratio[Prob]	
C	-138327.0	101568.6	-1.3619[.188]	
MKCAP	.-16736	.091546	-1.8282[.082]	
NI	-.0020945	.0013536	-1.5473[.137]	
GDP	.074814	.017780	4.2077[.000]	
INDP	1301.3	868.8573	1.4977[.150]	

R-Squared	.93843	R-Bar-Squared .92611		
S.E. of Regression	46806.8	F-stat. F(4, 20) 76.2044[.000]		
Mean of Dependent Variable	150542.7	S.D. of Dependent Variable	172196.0	
Residual Sum of Squares	4.38E+10	Equation Log-likelihood	-301.5288	
Akaike Info. Criterion	-306.5288	Schwarz Bayesian Criterions	-309.5760	
DW-statistic	1.5052			

Diagnostic Tests				

**				
*	Test Statistics	LM Version	* F Version *	
*	*	*	*	
* A:Serial Correlation*CHSQ(1)=	5.3990[.020]*	F(1, 19)=	5.2334[.034]*	
* B:Functional Form *CHSQ(1)=	11.2685[.001]*	F(1, 19)=	15.5920[.001]*	
* C:Normality *CHSQ(2)=	5.4036[.067]*	Not applicable *		
*	*	*	*	
* D:Heteroscedasticity*CHSQ(1)=	7.7400[.005]*	F(1, 23)=	10.3140[.004]*	

A:Lagrange multiplier test of residual serial correlation				
B:Ramsey's RESET test using the square of the fitted values				
C:Based on a test of skewness and kurtosis of residuals				
D:Based on the regression of squared residuals on squared fitted values				
Cochrane-Orcutt Method AR(3) converged after 22 iterations				

Dependent variable is GFCF				
29 observations used for estimation from 1981 to 2009				
Regressor	Coefficient	Standard Error	T-Ratio[Prob]	
C	-56536.2	23240.0	-2.4327[.024]	
MKCAP	-.036558	.057312	-.63788[.531]	
NI	-.0021431	.0025063	-.85508[.403]	
GDP	.064392	.0076109	8.4605[.000]	
INDP	568.0619	201.5930	2.8179[.011]	

R-Squared	.98639	R-Bar-Squared .97958		
S.E. of Regression	25036.2	F-stat. F(7, 14) 144.9331[.000]		
Mean of Dependent Variable	150542.7	S.D. of Dependent Variable	172196.0	
Residual Sum of Squares	8.78E+09	Equation Log-likelihood	-249.0625	
Akaike Info. Criterion	-257.0625	Schwarz Bayesian Criterion	-261.9380	
DW-statistic	1.9359			

Parameters of the Autoregressive Error Specification				

U=	.35149*U(-1)+	-1.3748*U(-2)+	-1.1138*U(-3)+	
(*NONE*)	(*NONE*)	(*NONE*)		
WARNING The above autoregressive process is unstable!				
T-ratio(s) are not calculated.				

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