Macroeconomic Determinants of Stock Market Development in Cameroon

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Abstract-Using the Calderon-Rossell model modified, this paper examines the macroeconomic factors that affect the stock market development in Cameroon. We find that: stock market liquidity and financial openness represented by foreign direct investment and private capital flows are important determinants of stock exchange development in Cameroon. Contrary to the results found in many other African States, Economic Growth and the Banking sector development still do not have a positive and significant impact in the Stock Market development of Cameroon.

 Index Terms- Douala Stock Exchange, Market Capitalization, Stock Market Liquidity, Financial Openness, Calderon-Rossell Model.

I. INTRODUCTION

Many researchers have tried to find out the macroeconomic determinants of Stock Market development in developed and emerging countries. Calderon and Rossell proposed a model that includes macroeconomic and institutional variables that might influence the Stock Market Capitalization; as we know macroeconomic factors are important in stock market development. Garcia and Liu (1999) showed that macroeconomic factors such as real income, savings rate, financial intermediary development, and stock market liquidity are important determinants of stock market development. Pagano (1993) shows that regulatory and institutional factors may influence the efficient functioning of stock markets. For example, mandatory disclosure of reliable information about firms may enhance investor participation, and regulations that instill investor's confidence in brokers should encourage investment and trading in the stock market. La Porta et al (1996) also find that institutional variables such as rule of law, anti-director rights, and one share one vote are important predictors of stock market development. So the question we might ask ourselves is: are these theories verified in the Cameroonian Stock Market? This is why we undertake this research paper, focusing our study only on the macroeconomic variables that influence the Cameroonian Stock Market development. At the end of the day our very objective will be to find the macroeconomic determinants of the Cameroonian Stock Market Development, in other words we will be answering the question: What are the macroeconomic variables that influence the development of national stock market of Cameroon.

II. LITERATURE REVIEW

Stock Market and Economic growth

 Levine (1991) showed a positive relation between financial stock market and economic growth by issuing new financial resources to the firms. The financial stock market facilitates higher investments and the allocation of capital, and indirectly the economic growth. Sometimes investors avoid investing directly to the companies because they cannot easily withdraw their money whenever they want. But through the financial stock market, they can buy and sell stocks quickly with more independence. An efficient stock market contributes to attract more investment by financing productive projects that lead to economic growth, mobilize domestic savings, allocate capital proficiency, reduce risk by diversifying, and facilitate exchange of goods and services (Mishkin 2001; and Caporale et al, 2004). Further, Levine and Zervos (1998) found strong statistically significant relationship between stock market development and economic growth. The result of Filer et al. (1999)' studies show that there is positive causal correlation between stock market development and economic activity. Many other researchers argue that there is a positive correlation between financial development and economic growth (Goldsmith, 1969; Shaw, 1973; McKinnon, 1973 and King & Levine, 1993). They found that financial development is an important determinant of future economic growth of a country. Atje and Jovanovic (1989) found also a significant impact of the level of stock market development and bank development. Joseph Schumpeter (1912)'s book was the most important and thorough one of the earlier contribution on financial development and economic development. For him, financial development causes economic development – that financial markets promote economic growth by funding entrepreneurs and in particular by channeling capital to the entrepreneurs with high return projects.

Determinants of Stock Market Development in Africa

The previous section has provided enough evidence to make a convincing case that stock market development at least creates the enabling environment for a successful economic growth. The important question, therefore, is what determines stock market development? The literature suggests that sound macroeconomic environment, well developed banking sector transparent and

accountable institutions, and shareholder protection are necessary preconditions for the efficient functioning of stock markets in Africa.

Macroeconomic Stability

A stable macroeconomic environment is crucial for the development of the stock market. Macroeconomic volatility worsens the problem of informational asymmetries and becomes a source of vulnerability to the financial system. Low and predictable rates of inflation are more likely to contribute to stock market development and economic growth. Both domestic and foreign investors will be unwilling to invest in the stock market where there are expectations of high inflation. Garcia and Liu (1999) finds that sound macroeconomic environments and sufficiently high income levels—GDP per capita, domestic savings, and domestic investments—are important determinants of stock market development in emerging markets.

Banking Sector Development

The development of the banking sector is important for stock market development in Africa. At the early stages of its establishment the stock market is a complement rather than substitute for the banking sector. Developing the financial intermediary sector can promote stock market development. Many East Asian countries are successful examples. Support services from the banking system contribute significantly to the development of the stock market. Consequently, liquid inter-bank markets, largely supported by an efficient banking system, are important for the development of the stock market. Conversely a weak-banking system can constrain the development of the stock market. On the empirical front, Demirguc-Kunt and Levine (1996) found that most stock market indicators are highly correlated with banking sector development. Countries with well-developed stock markets tend to have well developed financial intermediaries. Yartey (2007) finds that a percentage point increase banking sector development increases stock market development in Africa by 0.59 percentage point controlling for macroeconomic stability, economic development and the quality of legal and political institutions.

Institutional Quality

Institutional quality is important for stock market development because efficient and accountable institutions tend broaden appeal and confidence in equity investment. Equity investment thus becomes gradually more attractive as political risk is resolved over time. Therefore, the development of good quality institutions can affect the attractiveness of equity investment and lead to stock market development. Yartey (2007) finds good quality institutions such as law and order, democratic accountability, bureaucratic quality as important determinants of stock market development in Africa because they reduce political risk and enhance the viability of external finance. Bekaert (1995) provides evidence that higher levels of political risk are related to higher degrees of market segmentation and consequently low level of stock market development. Erb et al (1996) show that expected returns are related to the magnitude of political risk. They find that in both developing and developed countries, the lower the level of political risk, the lower is required returns. The evidence in the literature suggests that political risk is a priced factor for which investors are rewarded and that it strongly affects the local cost of equity, which may have important implications for stock market development.

Shareholder Protection

Another key determinant of stock market development is the level of shareholder protection in publicly traded companies, as stipulated in securities or company laws (Shleifer and Vishny, 1997). Stock market development is more likely in countries with strong shareholder protection because investors do not fear expropriation as much. In addition, ownership in such markets can be relatively dispersed, which provides liquidity to the market. La Porta et al (1999) provide evidence for the importance of minority rights protection by using indicators of the quality of shareholder protection as written in laws. They demonstrate that the quality of shareholder protection is correlated with the capitalization and liquidity of stock markets in 49 countries around the world. Laporta et al (1997) find that countries with lower quality of legal rules and law enforcement have smaller and narrower capital markets and that the listed firms on their stock markets are characterized by more concentrated ownership. Demirguc-Kunt and Maksimovic (1998) show that firms in countries with high ratings for the effectiveness of their legal systems are able to grow faster by relying more on external finance.

III. METHODOLOGY

Calderon-Rossell Model Modified

In the Calderon-Rossell model, economic growth and stock market liquidity are considered as the main determinants of stock market development represented by the Stock Market Capitalization. Market capitalization is defined as follows:

$Y = PV$ (1)

Where:

Y is market capitalization in local currency;

P is the number of listed companies in the stock market; and

V is the local currency average price of listed companies.

The model can be presented formally as follows:

$Y = PV = Y (G, T)$ (2)

$V = V (G, P), P = P(T, V)$ (3)

The exogenous variable G represents per capita GNP in local currency and variable T represents the turnover ratio. The endogenous variables are V, P. The structural equations are then expressed in the following reduced behavioral model:

$$LogY = \theta_1 LogG + \theta_2 LogT \tag{4}$$

The component of the reduced form model is expressed as follows:

$$LogV = \alpha_1 LogG + \alpha_2 LogT \tag{5}$$

$$LogP = \varpi_1 LogG + \varpi_2 LogT \tag{6}$$

Equation 4 can be written as:

$$LogY = Log(PV) = \alpha_1 \log G + \alpha_2 \log T + \varpi_1 \log G + \varpi_2 \log T \tag{7}$$

Factorizing we have:

$$LogY = (\alpha_1 + \varpi_1)\log G + (\alpha_2 + \varpi_2)\log T \tag{8}$$

Where:

$$\theta_1 = \alpha_1 + \varpi_1 \tag{9}$$

and

$$\theta_2 = \alpha_2 + \varpi_2 \tag{10}$$

Equation 8 shows the impact of economic growth, *G,* and stock market liquidity, *T* on stock market development, *Y.* The model shows that stock market development is the result of the combined effect of economic growth and liquidity on both stock prices and the number of listings.

To examine the validity of this model, Calderon-Rossell used data from 42 countries from the main active stock markets in the world with annual observations from 1980–87. The analysis shows that stock market liquidity and economic growth are important determinants of stock market growth.

As we know macroeconomic factors are important in stock market development. Garcia and Liu (1999) showed that macroeconomic factors such as real income, savings rate, financial intermediary development, and stock market liquidity are important determinants of stock market development. Pagano (1993) shows that regulatory and institutional factors may influence the efficient functioning of stock markets. For example, mandatory disclosure of reliable information about firms may enhance investor participation, and regulations that instill investor's confidence in brokers should encourage investment and trading in the stock market. La Porta et al (1996) also find that institutional variables such as rule of law, anti-director rights, and one share one vote are important predictors of stock market development.

The Calderon-Rossell model was modified to incorporate other financial and economic variables that might affect stock market development. In particular, the modified model examines the role of banking sector development, and private capital flows in explaining stock market development in Emerging Countries. The modified model consisted of estimating the following regression:

$$Y_{it} = \alpha_i + \delta Y_{it-1} + \beta M_{it} + \varepsilon_{it}$$

Where:

Y is stock market capitalization relative to **GDP**.
α_i is the unobserved country specific fixed effect.
ε_{it} is the usual white noise.
M_{it} is a matrix of macroeconomic variables made up of GDP per capita, credit to the private sector as a percentage of GDP and its square, gross domestic investment as a percentage of GDP, stock market value traded as a percentage of GDP, private capital flows as a percentage of GDP, foreign direct investment as a percentage of GDP, macroeconomic stability (measured by current inflation and the real interest rate), and gross domestic savings.

Dependent Variable: Stock Market Development
The dependent variable of interest is stock market development. We measure stock market development using market capitalization as a proportion of GDP. This measure equals the value of listed shares divided by GDP. The assumption behind this measure is that overall market size is positively correlated with the ability to mobilize capital and diversify risk on an economy-wide basis.

Independent variables:
- Income Level
Real income has been found to be highly correlated with the size of the stock market. We use the log GDP per capita in US dollars to measure the income level.

- Banking Sector Development

To determine whether stock market development is significantly correlated with banking sector development, we include a measure of banking sector development in the regression. Most studies use M2 relative to GDP as a measure of financial depth. However, according to King and Levine (1993), this measure does not tell us whether the liabilities are those of the central bank, commercial banks or other depository institutions. As a result, this research uses the value of domestic credit provided by the banking system to the private sector relative to GDP as a measure of banking sector development.

- Savings and Investment

Stock markets, like financial intermediaries, intermediate savings to investment projects. Usually the larger the savings, the higher the amount of capital flows through the stock market. However, savings and investment may not be highly correlated with income in our sample. Thus, we expect savings and investment to be important determinants of stock market development. We use gross domestic savings as percentage of GDP and gross domestic investment as a percentage of GDP.

- Stock Market Liquidity

Liquidity is the ease and speed at which economic agents can buy and sell securities. We measure stock market liquidity using value traded as a percentage of GDP. This ratio measures the value of equity transactions relative to the size of the economy. This measure does not directly measure how easily investors can buy and sell shares at posted prices. However, it does measure the degree of trading relative to the size of the economy. It, therefore, reflects stock market liquidity on an economy wide (Levine and Zervos, 1998).

- Macroeconomic Stability

Macroeconomic stability may be an important factor for the development of the stock market. We expect that the higher the macroeconomic stability the more incentive firms and investors have to participate in the stock market. Furthermore, corporate profitability can be affected by changes in monetary, fiscal, and exchange rate policies. Therefore, we expect the stock market in countries with stable macroeconomic environment to be more developed. To determine the impact of macroeconomic stability on market capitalization, we use two measures of macroeconomic stability: real interest rate and current inflation mainly because of their importance in previous studies (for instance, Garcia and Liu, 1999). Regarding inflation, the conventional wisdom about the role of stocks is that they provide a hedge against inflation or that the nominal equity returns should be positively related to inflation (the Fisherian hypothesis). McCarthy et al (1990), however, suggest a negative relationship between stock returns and inflation.

- Private Capital Flows

In the last few decades, foreign investors have emerged as major participants in emerging stock markets. Errunza (1982) argued that the long term impact of foreign capital inflows on the development of the stock market is broader than the benefits from initial flows and increased investor participation. Foreign investment is associated with institutional and regulatory reform, adequate disclosure and listing requirements and fair trading practices. The increase in informational and operational efficiency is expected to inspire greater confidence in domestic markets. This increases the investor's base and participation and leads to more capital flows. Capital flows is measured in this paper using foreign direct investment as a percentage of GDP and net private capital flows as a percentage of GDP.

Estimation Method

Arellano and Bond (1991) propose using a dynamic panel data estimator based on Generalized Method of Moments (GMM) methodology that optimally exploits the linear moment restrictions implied by the dynamic panel growth model. The dynamic GMM estimator is an instrumental variable estimator that uses lagged values of all endogenous regressors as well as lagged and current values of all strictly exogenous regressors as instruments. Equations can be estimated using the levels or the first differences of the variables. For the difference estimator, the variables are measured as first differences and the lagged value of the levels of the variables are used as appropriate instruments. However, before proceeding with the Generalized Method of Moments the following identifying assumption is necessary. We assume that there is no second order serial correlation in the first differences of the error term. The consistency of the Generalized Method of Moments (GMM) estimator requires that this condition be satisfied. Given the construction of the instruments as lagged variables the presence of second order serial correlation will render such instruments invalid.

The GMM method and the classical 2SLS method are considered for the estimation of mixed regressive, spatial autoregressive models. These methods have computational advantage over the conventional quasi maximum likelihood method. The proposed GMM estimators are shown to be consistent and asymptotically normal. Within certain classes of GMM estimators, best ones are derived. The proposed GMM estimators improve upon the 2SLS estimators and are applicable even if all regressors are irrelevant.

So for this research paper we will use the 2-Stages Least Squares and employ the t-Statistics and F-Statistics in order to see the influence of our macroeconomic variables over the Stock Market Capitalization.

Since the Cameroon Stock Exchange has started to operate in 2006, we are using the data for the period going from 2006 up to 2011. We will use for our analysis the 9 macroeconomic variables mentioned in the Calderon-Rossell Model.

IV. ESTIMATED MODEL AND FINDINGS

Estimated Model Results
MKT$_{t-1}$: Stock Market Capitalization Lagged
DCP: Domestic Credit to the Private Sector
VAR: Stock Market Value Added Ratio
GDP/Capita: Gross Domestic Product per Capita
GDI: Gross Domestic Investment
GDS: Gross Domestic Saving
CI: Current Inflation Rate
RI: Real Interest Rate
FDI: Foreign Direct Investment
Kpt Flows: Net Capital Flows

Table1 Cameroon Macroeconomic Determinants of Stock Market Development
2- Stages Least Squares Estimation Method - Dependent Variable: Stock Market Capitalization/GDP

Variables	MKTt-1	DCP	VAR	GDP Capita	GDI	GDS	CI	RI	FDI	Kpt Flows
MODEL 1	-.505861 **-1.557**	.001819 **1.617**	.776361 **3.112**	-.066203 **-.795**						
MODEL 2	-.002793 -.008		.942230 **-1.000**	-.156389 1.375	.003297 **3.505**					
MODEL 3	2.092231 3.276		-5.390131 4.067	.405184 -3.686		-.00756 -3.153				
MODEL 4	-.346137 -.602		1.072915 .728	.074447 .415				.000145 1.791		
MODEL 5	-.194150 -.362		.896253 .544	.046443 .090			5.46667043E-5 . 1.985			
MODEL 6	-.064488 -.148		.429751 .936	.065637 .804					.001085 .634	
MODEL 7	.198526 **.371**		.061224 **1.003**	.001059 **1.024**						.416776 **.739**
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7			
Constant	.202607 .756	.463322 .962	-1.222412 -4.098	-.249375 -.728	-.154889 -.545	-.218721 -.936	-.203999 **-1.004**			
F-Statistic	13.58173	10.81043	55.55383	4.23586	3.60780	6.05060	17.40098			

Source: Author with Data from the World Bank and African Development Bank

In Model 1, we have our baseline regression model, which includes variables such as GDP per capita, bank credit, stock market liquidity, the results show that the lagged variable, the GDP per Capita have a negative effect on the Stock Market development, but that negative effect is not significant. The <u>Value Traded Ratio</u> that measures the Stock Market liquidity has a significant and positive effect on the Stock Market Capitalization in Cameroon with 20% level of significance. So through this model we see that the banking sector in Cameroon is not enough affecting the Stock Market Development and so doing does not promote Stock Market Development of the Country. When value traded as a percentage of GDP increases by 1 percentage point, stock market capitalization increases by 0.776 percentage points.

To examine the effect of the Investment on stock market development we use Gross Domestic Investment in **Model 2**. The results show that lagged capitalization ratio, GDP per capita, bank credit, are all not significant and negative. Investment is not significant even though it has the expected positive sign, in Model 2 the Value Added Ratio is still significant and positively affecting the Stock Market Development. Percentage point increase in gross domestic investment as a percentage of GDP increases stock market development by .003297 percentage points.

In **Model 3**, we look at the effect of gross domestic savings on stock market development. We use gross domestic savings as a percentage of GDP instead of gross domestic investment. The results show that the Lagged capitalization ratios, the GDP per capita, are all positive and statistically significant. Savings is negative and statistically significant.

To examine the effect of real interest rate on stock market development we use real interest rate instead of inflation in **Model 4**. The results show that GDP per capita, stock market value traded are positive but not significant. Real interest rate has the unexpected positive sign even though it is not statistically significant.

Model 5 helps us to look at the effect of Current Inflation on the Stock Exchange Development. Here we found out that except the lagged capitalization ratio that has insignificant and negative value, the Inflation rate, the Value Added Ration and the GDP per capita are all positively but not significant enough to affect the Market Capitalization.

In Model 6, we investigate the effects of Foreign Direct Investment on the Cameroonian Stock Market Development. The result shows that except the Lagged Capitalization Ratio, the GDP per Capita, Value Added Ratio and the Foreign Direct Investment have all a positive impact on the stock market capitalization in Cameroon, but that impact is still not significant.

Finally with **Model 7,** the effect of private capital flows on stock market development is investigated. Private capital flows as percentage of GDP replaces FDI in the equation. The result shows that private capital flows is positive and significant. In particular, a percentage point increase in capital inflows induces a 0.25 percentage points increase in stock market development. Again, lagged capitalization ratio, GDP per capita, private credit and stock market liquidity are all positive and statistically significant.

CONCLUSION

In this research paper we have being looking at the macroeconomic determinants of the Stock Market development in Cameroon. In our literature review we have presented first of all the relationship between Stock Market development and Economic Growth as viewed by many researchers; we have then showed the determinants of Stock Market development in Africa. Later, after presenting briefly the Calderon Rossell modified model, we have estimated a model using the data collected from 2006 to 2011. The results show that mainly, Stock Market liquidity (Stock Market Value Traded Ratio) and Financial Openness (Foreign Direct Investment and Private Capital Flows) have a positive and significant influence on the Stock Market development in Cameroon.

APPENDIX

MODEL 1-DSX

Dependent variable.. MKTT

Multiple R   .99092
R Square   .98193
Adjusted R Square   .90963
Standard Error   .00116

Analysis of Variance:

	DF	Sum of Squares	Mean Square
Regression	4	.00007326	.00001831
Residuals	1	.00000135	.00000135

F =   13.58173   Signif F = .2004

----------------- Variables in the Equation -----------------

Variable	B	SE B	Beta	T	Sig T
MKTT-1	-.505861	.324971	-.498363	-1.557	.3635
LOG_GDPC	-.066203	.083286	-.360191	-.795	.5724
DCP	.001819	.001125	.998188	1.617	.3526
VAR	.776361	.249471	.801140	3.112	.1979
(Constant)	.202607	.268104		.756	.5880

Actual Computer Output to estimate model 1

MODEL 2-DSX

Dependent variable.. MKTT

Multiple R   .98863
R Square   .97740
Adjusted R Square   .88698
Standard Error   .00130

Analysis of Variance:

	DF	Sum of Squares	Mean Square
Regression	4	.00007292	.00001823
Residuals	1	.00000169	.00000169

F =   10.81043   Signif F = .2238

----------------- Variables in the Equation -----------------

Variable	B	SE B	Beta	T	Sig T
MKTT-1	-.002793	.335806	-.002751	-.008	.9947
LOG_GDPC	-.156389	.156410	-.850861	-1.000	.5000
GDI	.003297	.002398	.939201	1.375	.4003
VAR	.942230	.268805	.972304	3.505	.1769
(Constant)	.463322	.481456		.962	.5122

Actual Computer Output to estimate model 2

MODEL 3-DSX

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Dependent variable.. MKTT

Multiple R   .99776
R Square   .99552
Adjusted R Square   .97760
Standard Error   .00058

Analysis of Variance:
DF   Sum of Squares   Mean Square

Regression   4   .00007427   .00001857
Residuals   1   .00000033   .00000033

F =   55.55383   Signif F = .1002

------------------ Variables in the Equation ------------------
Variable   B   SE B   Beta   T Sig T

MKTT-1   2.092231   .638722 2.061216   3.276 .1886
LOG_GDPC   .405184   .099620 2.204477   4.067 .1535
GDS   -.007560   .002051 -3.833506   -3.686 .1687
VAR   -5.390131   1.709501 -5.562168   -3.153 .1955
(Constant)   -1.222412   .298280   -4.098 .1524

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Actual Computer Output to estimate model 3

MODEL 4-DSX

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Dependent variable.. MKTT

Multiple R   .97174
R Square   .94427
Adjusted R Square   .72135
Standard Error   .00204

Analysis of Variance:

DF   Sum of Squares   Mean Square

Regression   4   .00007045   .00001761
Residuals   1   .00000416   .00000416

F =   4.23586   Signif F = .3475

------------------ Variables in the Equation ------------------

Variable   B   SE B   Beta   T Sig T

MKTT-1   -.346137   .574651 -.341006   -.602 .6549
LOG_GDPC   .074447   .102218   .405041   .728 .5993
RI   .000145   .000349   .229859   .415 .7495
VAR   1.072915   .598920 1.107159   1.791 .3241
(Constant)   -.249375   .342584   -.728 .5994

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Actual Computer Output to estimate model 4

MODEL 5-DSX

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Dependent variable. MKTT

Multiple R	.96706
R Square	.93520
Adjusted R Square	.67598
Standard Error	.00220

Analysis of Variance:

	DF	Sum of Squares	Mean Square
Regression	4	.00006977	.00001744
Residuals	1	.00000483	.00000483

F = 3.60780   Signif F = .3736

------------------ Variables in the Equation ------------------

Variable	B	SE B	Beta	T	Sig T
MKTT-1	-.194150	.536659	-.191272	-.362	.7790
LOG_GDPC	.046443	.085384	.252680	.544	.6829
CI	5.46667043E-05	.000605	.026235	.090	.9426
VAR	.896253	.451609	.924859	1.985	.2971
(Constant)	-.154889	.284031		-.545	.6822

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Actual Computer Output to estimate model 5

MODEL 6-DSX

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Dependent variable. MKTT

Multiple R	.97996
R Square	.96032
Adjusted R Square	.80161
Standard Error	.00172

Analysis of Variance:

	DF	Sum of Squares	Mean Square
Regression	4	.00007164	.00001791
Residuals	1	.00000296	.00000296

F = 6.05060   Signif F = .2948

------------------ Variables in the Equation ------------------

Variable	B	SE B	Beta	T	Sig T
MKTT-1	-.064488	.436825	-.063532	-.148	.9067
LOG_GDPC	.065637	.070150	.357109	.936	.5211
FDI	.001085	.001350	.351854	.804	.5689
VAR	.429751	.678054	.443468	.634	.6404
(Constant)	-.218721	.233617		-.936	.5210

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Actual Computer Output to estimate model 6

MODEL 7-DSX

Equation number: 1

Dependent variable.. MKTT

Multiple R   .98393
R Square   .96811
Adjusted R Square   .84056
Standard Error   .00154

Analysis of Variance:

DF   Sum of Squares   Mean Square

Regression   4   .00007223   .00001806
Residuals   1   .00000238   .00000238

F =   7.59014   Signif F = .2650

------------------ Variables in the Equation ------------------

Variable   B   SE B   Beta   T Sig T

MKTT-1   .198526   .534810   .195583   .371 .7737
LOG_GDPC   .061224   .061011   .333102   1.003 .4989
PRIVATEKFlow   .001059   .001034   .336090   1.024 .4924
VAR   .416776   .564303   .430079   .739 .5950
(Constant)   -.203999   .203160   -1.004 .4987

Actual Computer Output to estimate model 7

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