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Macroeconomic Determinants of Stock Market Development in Emerging Markets: Evidence from Kenya

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Abstract

We examine macro-economic determinants of stock market development in Kenya for the period 2000 to 2009, using quarterly secondary data. The hypothesis on the existence of a co-integrated relationship between stock market development and macro-economic determinants is tested using Johansen-Julius co-integration technique. While an error correction model is used in estimating the relationship between macroeconomic variables, on the one hand, and stock market development on the other. The results indicate that macro-economic factors such as income level, banking sector development and stock market liquidity are important determinants of the development of the Nairobi Stock market. The results also show that macro-economic stability is not a significant predictor of the development of the securities market.

Keywords: Stock market, macroeconomic factors, Kenya

1.0 Introduction

There is a general consensus among scholars that stock market plays an important role in the development of an economy (Hearn and Piesse, 2010; Adjasi and Biekpe, 2006; Levine and Zervos, 1998). Since the seminal work of McKinnon (1973) research has emphasized the significant role of capital markets. For instance, it accelerates economic growth by enhancing mobilization of domestic and foreign resources and facilitating investment (Bencivenga *et al.,* 1996), provides an avenue for growth oriented companies to raise capital at low cost (Marone, 2003) and reduces reliance on bank finance which is susceptible to interest rate fluctuations as well as providing a channel for foreign capital inflows (Yartey, 2008). It also presents an opportunity for venture capital firms to exit and liquidate their investments in domestic start-up ventures (Black and Gilson, 1999).

Critics of securities market, however, argue that markets characterized by weak corporate control mechanisms may jeopardize investor wealth (Khanna, 2009; La Porta *et al.,* 1998; 1997), more so for foreign investors (World Bank, 2005) who are likely to dispose their shares at discount prices. This phenomenon is more pervasive in developing economies because they are characterized by weak regulatory institutions and poor systems of corporate governance (Hearn and Piesse, 2010).

Although considerable attention has been devoted to the relationship between stock markets and economic growth, there is little empirical work on the determinants of stock market development in developing economies. In cognizance of existing research, Yartey (2008) used a panel of 42 emerging economies to establish the determinants of stock market development. This paper, however, uses country specific data to determine the relationship between macroeconomic factors and securities market development because it is presumed that the determinants of securities market development vary from country to country depending on nature of regulatory mechanisms, economic policies, as well as institutional structures.

1.1 The Kenyan Stock Market Development

The history of Nairobi Stock Exchange (NSE) can be traced back to the 1920's when trading of shares began. At the time, the transactions were conducted in an informal market with no rules and regulations to govern trading activities. During this time, foreign investors dominated stock trading largely because of prior knowledge emanating from their mother countries as well as their high income levels thus allowing them to save and invest

in shares. It was in 1954 when the Nairobi stock exchange was constituted as a voluntary association of stock brokers registered under Societies Act (Ngugi, 2003a) with the mandate to develop and regulate trading activities. The establishment of the NSE as a formal organization was occasioned by the need to facilitate private firms to access long–term capital as well as Governments desire to float Governments loans in the market (Ngugi, 2003a).

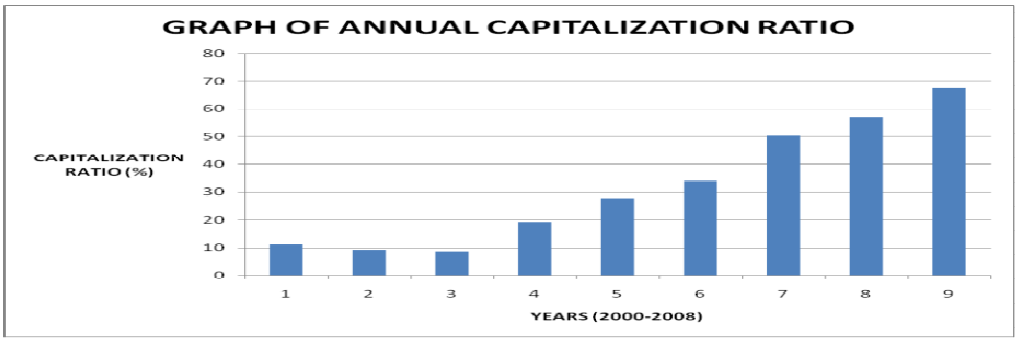
Indeed, the establishment of NSE saw the introduction of rules and regulations which was borrowed heavily from London Stock Exchange, spelling out guidelines for primary issue of securities, secondary market trading activities, as well as operations of stock brokers. It was after independence in 1963 that the Government made efforts to promote growth of the capital market by granting loans to indigenous Kenyans to buy shares in foreign owned entities, tightening of taxation policies to reduce repatriation of funds by foreign investors and the establishment of Capital Issue Committee (CIC) in 1971 to regulate stock market activities. Even with these measures, the development of capital market was viewed as unsatisfactory and so the Government initiated reforms in the sector.

Among the reforms initiated include the establishment of a regulatory authority to regulate the functioning of the stock market and removal of tax differences between debt and equity to achieve diversity in the stock market (Ngugi, 2003b). Following these initiatives, legislation was adopted to facilitate the formation of Capital Markets Authority (CMA) which became operational in 1990 through the Capital Markets Authority Act (Cap 485A) (Ngugi and Njiru, 2005). The mandate of CMA being to develop the capital market by way of creating incentives for long term investment as well as protect investor interest by operating a fund to cushion investors from loss occasion by failure of a broker or a dealer to meet their part of contractual obligation.

In its efforts to deepen the capital market, the CMA initiated a raft of measures, for instance in 1995 it established investor compensation fund aimed to compensate investors from losses arising from failure of the brokers and dealers to meet their contractual obligation; provided the guidelines on take-over, mergers and delisting to protect minority investors in 1996; and issued guidelines in 1997 to govern the issuance of corporate bonds and commercial paper. In addition, the CMA published guidelines on the disclosure requirements of listed firms in 1998; and implemented a Central Depository system in 2000 aimed at enhancing liquidity and efficiency in trading systems by reducing the period of delivery and settlement. It also issued guidelines outlining significant changes to listed firms' corporate governance systems in 2000 (Barako *et al.,* 2006) which was intended to build investor confidence in the securities market.

Even with all these developments, the Kenyan stock market is still at its infancy, but has experienced phenomenal growth in the recent past with its market capitalization rising from Kshs 34 billion in 1991 to Kshs 80 billion by the end of 1994. It went to Kshs 240 billion by the end 2003 and rose to over Kshs 1 trillion in June 2008. There has also been an increase in investors from Kenya and Diaspora patronizing the stock market.

Table 1: Capitalization of Nairobi Stock Exchange



2.0 Literature Review

Extant literature indicates that the worlds' stock market has witnessed a surge over the past few decades, and emerging markets account for the most amount of the boom (Yartey and Adjasi, 2007; Claessens *et. al.,* 2006). Several factors have been attributed to this increase, for instance, improved macroeconomic fundamentals, such as monetary stability, and higher economic growth (Claessens *et al.,* 2006). Earlier research emphasizes the role of financial sector particularly stock market in enhancing economic growth (Demirguc-Kunt and Levine, 1996 a;

Levine and Zervos, 1998). Given the widely recognized view of the role of the stock market in economic growth, an important question that needs to be further addressed is what determines stock market development. In this paper, we study the macroeconomic determinants of stock market development in an emerging economy.

2.1 Income Levels

According to the demand driven hypotheses, the increase in income will create new demand for financial services. In support of this theory, Garcia and Liu (1999) found that income level have positive effect on stock market development in a sample of Latin America and Asian countries. In the same vein, Yartey (2008) using the modified Calderon – Rossell model on a panel of data of 42 emerging market countries for the period 1990-2004 found that income level determine stock market development in emerging markets.

Other scholars argue that the effect of income levels is not direct rather higher volume of intermediation through stock markets cause higher real income growth. Higher income growth in turn promotes development in stock market. As income increases, its cyclical component impacts the size of the stock market and its price index. In addition, because of higher income usually goes hand in hand with better defined property rights, better education and better general environment for business, we expect it to have positive effect on stock market development (La Porta *et al.,* 1996). On the other hand Nacuer *et al.,* (2007) using data from Middle East and North African countries found that high income does not promote development in the stock market.

2.2 Macroeconomic Stability

Consistent with previous studies inflation has been used as a measure of macroeconomic stability (Nacuer *et al.,* 2007; Garcia and Liu, 1999). Macroeconomic stability has been found to exert effects on stock market development; however, there is no consensus on the nature of effects. For example, Nacuer *et al.,* (2007) found that macroeconomic instability has a negative and significant relationship with stock market capitalization. Boyd *et al.,* (2001) found a non linear relationship between inflation and equity market development such that as inflation rises, the marginal impact on stock market development diminishes rapidly. Garcia and Liu (1999) using a pooled data of 15 industrial and developing economies and using three measures of macro economic stability: change in inflation; current and last year change in inflation; and standard deviation of current and last years 12 months inflation rate found no significant effect on stock market development. In a similar study by Yartey (2008) no significant relationship between inflation and stock market development was found.

Although there is no agreement on the relationship between macroeconomic stability and stock market development, we argue that higher levels of macroeconomic stability encourage investors to participate in the stock market largely because the investment environment is predictable. Furthermore, macroeconomic stability influence firms profitability, and so the prices of securities in the stock market is likely to increase. Investors whose investments are experiencing a capital gain are more likely to channel their savings to the stock market by increasing their investments, and so this will enhance stock market development.

2.3 Stock Market Liquidity

Liquidity has been defined as the ease and speed at which economic agents buy and sell securities in the stock market (Levine and Zervos, 1998). Indeed, research has been conducted to determine whether stock market liquidity enhances stock market development. Some scholars support the view that liquidity in the stock market is good for the development of stock market (Levine and Servos, 1998; Yartey, 2008), while others argue to the contrary (see for example Shleifer and Vishny, 1986; Garcia and Liu, 1999). In support of positive relationship between stock market liquidity and stock market development, Yartey (2008) argues that liquid markets affords investors access to their savings, and thus boost their confidence in stock market investment. More importantly, the more liquid the stock market, the larger the amount of savings that are channeled through the stock market, thus enhancing the development of the market. In other words, with a liquid stock market, investors may not lose access to their savings during the course of the investment because investors can liquidate their investments easily, quickly and at lower costs (Ngugi, 2003b; Bencivenga and Smith, 1991). In a similar vein, Bencivenga *et*

al., (1996) argue that liquidity affect the choice of investments because liquid markets allow the ownership of capital to be transferred economically, thus reducing transaction cost which in turn favors the use of long term investments. In effect, liquid markets help improve the resource allocation and induce more investors to invest in the stock market thus increasing the capitalization of the market.

Other researchers do not support a positive relationship. For instance, Garcia and Liu (1999) argue that due to their liquidity, stock markets may hurt growth since saving rates may reduce due to externalities in capital accumulation. In addition, very liquid stock market encourage investor myopia because they can sell their shares easily which weakens their commitment and incentive to monitor managerial actions (Shleifer and Vishny, 1986). Indeed, weaker corporate governance resulting from reduced monitoring of managers by shareholders impedes the development of stock markets. It is important to point out; however, that theory is ambiguous about the exact impact of greater stock liquidity on economic growth. By reducing the need for precautionary savings, increased stock liquidity may have an adverse effect on the rate of economic growth (Yartey and Adjasi, 2007). In this study, we expect liquid markets to relate positively with stock market development.

2.4 Banking Sector Development

There is no consensus among researchers on the relationship between financial sector development and economic growth. Some argue that banking sector development has a positive effect on the economic growth (Berthelemy and Varoudakis, 1996; Christopoulos and Tsionas, 2004); while others suggest that banking sector may not be beneficial for growth (Singh, 1997). This notwithstanding, it is also not clear on the relationship between banking sector development and stock market development. Indeed, banking sector is important in the economic development and more so in the development of stock market because it affords investors with liquidity by advancing credit, and facilitating savings. Nacuer *et al.,* (2007) and Garcia and Liu (1999) found support to a positive relationship between banking sector development and stock market development. Yartey (2008) also found support to a positive relationship; however, it was found that a very high level of bank sector development may have negative effects because stock markets and banks tend to substitute one another as financing sources. Indeed, stock markets and banks are considered as competitors in providing finance and so with a well developed money market, the capital market may be overshadowed leading to a slower rate of development.

3.0 Methods

3.1 Data Sources and Analysis

We utilized secondary data collected from Nairobi Stock Exchange, Capital Markets Authority and Central Bank of Kenya. The study applies a Modified Calderon-Rossell model to test the proposed study model, while Johansen and Juselius method was used to test cointegrating relations in the context of Vector Autoregression (VAR) error correction methods in order to capture the underlying time series properties of the data.

3.2 Theoretical Specifications

We used Calderon–Rossell (1991) behavioral model of stock market development in which economic growth and market liquidity are considered as the main determinants of stock market development. Market capitalization is thus defined as follows:

$$Y = \mathrm{PV} \quad \ldots\ldots 1$$

Where:

Y is market capitalization in local currency; P is the number of listed companies in the market; and V is the local currency average price of listed companies

The model can be presented formally as follows:

$$Y = PV = Y(G, T) \quad \ldots\ldots 2$$

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

The exogenous variable G represents per capita GNP in local currency and variable T represents the turnover ratio (which is equal to the value of total shares traded divided by market capitalization and it is used for measuring stock market liquidity). The endogenous variables are V and P.

The structural equations are then expressed in the following reduced behavioral model:

$$Log\ \mathrm{Y} = \theta_1 Log\ \mathrm{G} + \theta_2 Log\ \mathrm{T} \quad \text{.....4}$$

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

$$Log\ \mathrm{V} = \alpha_1 Log\ \mathrm{G} + \alpha_2 Log\ \mathrm{T} \quad \text{....5}$$

$$Log\ \mathrm{P} = \varpi_1 Log\ \mathrm{G} + \varpi_2 Log\ \mathrm{T} \quad \text{.....6}$$

Equation 4 can be written as:

$$Log\ \mathrm{Y} = \mathrm{Log\ (PV)} = \alpha_1 LogG + \alpha_2 LogT + \varpi_1 LogG + \varpi_2 LogT \quad \text{.....7}$$

Factorizing we have:

$$LogY = (\alpha_1 + \varpi_1) LogG + (\alpha_2 + \varpi_2) LogT \quad \text{.....8}$$

Where:

$$\theta_1 = \alpha_1 + \varpi_1 \quad \text{.....9}$$

And

$$\theta_2 = \alpha_2 + \varpi_2 \quad \text{.....10}$$

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 prices and the number of listings.

3.3 Model Modification

Research has revealed that both macroeconomic and institutional factors are important determinants of stock market development. Following these developments, Yartey (2008) modified the Calderon-Rossell (1991) model to incorporate other variables that might affect stock market development. In particular, he examines the role of banking sector development, political risk and private capital flows in explaining stock market development in emerging markets.

The regression equation is

$$Y_{it} = \alpha_{\mathrm{i}} + \delta Y_{it-1} + \beta \mathrm{M}_{\mathrm{it}} + \varpi P_{it} + \varepsilon_{\mathrm{it}} \quad \text{.....11}$$

Where: Y –Stock market capitalization relative to GDP; α_i – The unobserved country specific fixed effect; ε_{it} – White noise; M –Matrix of macroeconomic variables which include income level, macro economic stability, banking sector development, private capital flows, savings, and investment; P –Measures institutional quality variables such as political risk, law and order, bureaucratic quality, democratic accountability and corruption on stock market; and Y_{it-1} – lag of dependent variables was included because stock market development is a dynamic process.

Research has shown that both institutional and macroeconomic variables are predictors of stock market development (Yartey, 2008), however, consistent with the arguments presented by Garcia and Liu (1999) there are difficulties involved in accessing accurate information on institutional variables especially in a developing countries like Kenya. Furthermore, these variables are directly reflected in macroeconomic factors. For example, some institutional measures such as legal rules are highly correlated with stock market liquidity (Demirguc–Kent

and Levine, 1996 b), in which case stock market liquidity is one of the macroeconomic determinants in this study.

The estimation and testing of cointegrating relations uses Johansen and Juselius (JJ) method as opposed to the dynamic panel estimator based on Generalized Method of Moments (GMM) methodology that was employed by Yartey (2008). The long run relationship is tested using Error Correction model. The general econometric model used in the study is as follows:

$$Y = f(Y_{t-1}, M, T) \quad \text{.....12}$$

Where: Y –Stock market capitalization relative to GDP; Y_{t-1} –One lag of dependent variable; M –Matrix of macro economic variables (income level, inflation rate, and banking sector development); T –Measures stock market liquidity variables (stock market liquidity).

The general econometric model above is then changed to logarithmic model as we are interested in growth rate (elasticity) of stock markets as shown below:

$$Y_t = AY_{t-1}^{\delta} M_t^{\beta} T_t^{\varpi} e^{u_t} \quad \text{.....13}$$

By taking the logarithms, the model becomes

$$Log\ Y_t = \text{Log A} + \delta\ \text{LogY}_{t-1} + \beta\ LogM_t + \varpi\ LogT_t + \mu_t \quad \text{.....14}$$

Where $\mu_t \sim \text{NID}(0, \sigma^2)$

Let $LogY = \text{LnY}$

$Log\ A = \alpha$

$LogY_{t-1} = \text{Ln}\ Y_{t-1}$

$LogM = \text{LnM}$

$LogT = \text{LnT}$

Thus the general econometric model used in the study turns into:

$$LnY_t = \alpha + \delta\ \text{LnY}_{t-1} + \beta\ \text{LnM}_t + \varpi\ LnT_t + \mu_t \quad \text{.....15}$$

Bringing in the specific variables in the matrix *M* and *T*, the equation (15) now becomes

$$LnY_t = \alpha + \beta LnY_{t-1} + \delta LnT_t + \phi LnTR_t + \varphi LnRI_t + \gamma LnGDPPERC_t + \eta M2_t + \lambda LnINFL_t + \mu_t \quad \text{.....16}$$

Where: *Y* - Market capitalization relative to GDP; Y_{t-1} - One lag of dependent variable; *T* - Total Value of Shares Traded Ratio; *TR*- Turnover Ratio; *RI* - Real Interest Rate; *INFL*-Current Inflation Rate; *M2*- Broad Money; and *GDPPERC*-GDP Per Capita in US dollars

3.4 Measurement of Variables

Stock Market Development: Consistent with other studies, (Levine and Zervos, 1998; Yartey, 2008) stock market development is measured using market capitalization as a proportion of GDP. In other words, market capitalization 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. *Income Level:* We use the *Log GDP per capital in US dollars* to measure the income level. *Macro Economic Stability:* Two measures of macro economic stability were used; *Real interest rate and current inflation rate* mainly because of their importance in previous studies (Garcia and Liu, 1999).

Stock Market Liquidity: We use two related measures of stock market liquidity because of our belief that a variety of measures provides a better picture of the relationship between stock market liquidity and stock market development than if we use a single measure. In this sense, we measured stock market liquidity using total value of shares traded ratio (which is equal to total value of shares traded on the stock market exchange divided by

GDP) and turnover ratio (which is equal to the value of total shares traded divided by market capitalization). *Banking Sector Development:* Was measured using M2 relative to GDP which is a proxy of banking sector development.

4.0 Empirical Results

4.1 Unit Root Tests

We commenced our analysis by testing the time series properties of variables because often, time series data exhibit non-stationary behavior. Non-stationary data poses a serious problem in econometric analysis leading to spurious results. To guard against this problem, we used Augmented Dickey-Fuller (ADF) unit root procedure to test the level of integration for the study variables. The test reveals that all variables were non-stationary at their original forms and integrated of the order one (see Table 1). Having determined the order of integration of the series, the multivariate co-integration test was conducted by applying the Johansen and Juselius maximum likelihood estimation procedure. As the selection of the correct order of ARDL is important in this type of examination, and given the medium size of the study samples, lag order selection by either the Akaike Information Criteria (AIC), or by the Schwartz Bayesian criteria (SC) may be used, and so the study adopted the Akaike Information Criteria (see Table 1). From the nature of series and results in Table 1 it is clear that any dynamic specification of the model in levels will be inappropriate and may lead to the problem of spurious regression, given that indeed some variables are non-stationary. Co-integration analysis was hence done to ascertain the appropriateness of the Error Correction Model (ECM). ECM is possible if and only if series are co-integrated.

Table 1: Unit Root Tests for Residuals

	Test Statistic	LL	AIC	SBC	HQC
DF	-3.3168	14.2766	13.2766	12.6876	13.1203
ADF (1)	-3.7426	15.6967	13.6967	12.5186	13.3841
ADF (2)	-3.0911	15.7753	12.7753	11.0082	12.3065
ADF (3)	-2.4056	15.7770	11.7770	9.4209	11.1519
ADF (4)	-1.8075	16.0214	11.0214	8.0762	10.2400
ADF (5)	-1.8565	16.2240	10.2240	6.6899	9.2864
ADF (6)	-2.3801	17.9362	10.9362	6.8131	9.8424
ADF (7)	-1.0067	20.8637	12.8637	8.1515	11.6136
ADF (8)	-.85261	20.8801	11.8801	6.5789	10.4737
ADF (9)	-1.6398	24.0104	14.0104	8.1202	12.4478
ADF (10)	-1.4925	24.0175	13.0175	6.5382	11.2986
ADF (11)	-2.1194	27.7567	15.7567	8.6884	13.8814
ADF (12)	-2.4649	29.2236	16.2236	8.5662	14.1921

95% critical value for the Dickey-Fuller statistic = *NONE*. Critical value not available for the number of regressors in the regression. LL-Maximized log-likelihood; AIC- Akaike Information Criterion; SBC- Schwartz Bayesian criteria; HQC- Hannan-Quinn Criterion

4.2 Co-integration Analysis

The Johansen-Julius co-integration technique was used mainly because of two reasons: first, the variables are integrated of order one, which is a precondition for the use of Johansen-Julius technique; and secondly, our model is multivariate model. Given these issues, there is a possibility of having more than one co-integrating vector in the model. The results indicate that when two or more lags are used, the null hypotheses of no co-integration (r=0) is rejected at 5 percent or 10 percent in both the Maximal eigenvalue test (Table 2) and trace test (Table 3). This provides evidence on the existence of a long run association between them. Having established vector co-integration, we then proceeded to estimate an error correction model to determine the relationship among the variables.

Table 2: Summary of Maximal Co-integration Test

Null	Alternative	Statistic	95% Critical Value	90% Critical Value
r = 0	r = 1	498.7432	43.6100	40.7600
r<= 1	r = 2	91.3368	37.8600	35.0400
r<= 2	r = 3	30.4331	31.7900	29.1300
r<= 3	r = 4	26.1299	25.4200	23.1000
r<= 4	r = 5	11.0591	19.2200	17.1800
r<= 5	r = 6	.19224	12.3900	10.5500

Table 3: Summary of Trace Co-integration Test

Null	Alternative	Statistic	95% Critical Value	90% Critical Value
r = 0	r>= 1	657.8943	115.8500	110.6000
r<= 1	r>= 2	159.1510	87.1700	82.8800
r<= 2	r>= 3	67.8143	63.0000	59.1600
r<= 3	r>= 4	37.3812	42.3400	39.3400
r<= 4	r>= 5	11.2513	25.7700	23.0800
r<= 5	r = 6	.19224	12.3900	10.5500

4.3 Granger Causality Test

Table 4 provides the results of the error correction regression that is used to test causal relationships between variables. The results show that bi-directional Granger causality exists between stock market development and the macroeconomics variables captured in the estimation based on the F-statistics for the joint significance of the autoregressive terms. Similarly, the Wald test of joint significance of lags is significant in the model (see Table 4), implying Granger causality, and so the null hypothesis 'Granger no-causality from stock market development to macroeconomic variables' is rejected at 5 percent level of significance.

The coefficient of error correction term is negative and statistically significant, indicating that there exists a strong long run relationships running from macroeconomic variables to stock market development. The statistical significance of the error correction terms in the model for value of shares traded, turnover, GDP per capita, and broad money indicate a long-run effect on stock market development. In other words, it is the changes in the value of shares traded, turnover, GDP per capita and broad money supply that causes changes in stock market development. Hence, the changes in the macro economic variables cause significant impact on stock market development.

Table 4: Error Correction Model

Regressors	Coefficient	Standard Error	t-Ratio	[Prob]
Constant	-1.5243	.77096	-1.9772	[.058]
One year Lag	.47038	.04480	10.4991	[.000]
Value of shares traded	41.1178	3.3566	12.2498	[.000]
Turnover ratio	-58.7776	8.6427	-6.8008	[.000]
Real Interest Rate	-.0974	.2896	-.33633	[.739]
GDP per Capita	1.1892	.3603	3.3007	[.003]
Broad Money	.4018E-3	.6885E-4	5.8358	[.000]
Current Inflation rate	.039891	.1517	.26295	[.795]
Ecm (-1)	-.86633	.03914	-22.1360	[.000]
R^2	.8611			
Adjusted R^2	.8237			
F- Statistic	110.53***			
DW-statistic	1.4862			
Wald test	2.5976***			

5.0 Discussion and Conclusion

This study examined the macroeconomic determinants of stock market development in Kenya for the period 2000-2009. The study investigated the short-run and long-run causal relationships between macroeconomic variables and stock market development, using the autoregressive distributed lag (ARDL) approach in the examination of a Granger type test of causality with an error correction. The results from Error correction model show that stock market liquidity, income level, and banking sector have positive effect on stock market development. Further, the study found that macro economic stability does not explain stock exchange development.

Both measures of stock market liquidity were found to have a positive and statistically significant effect on stock market development. These results are consistent with the earlier studies and prediction of this study because we belief that liquid market affords investors an opportunity to transact business in the market by way of buying and selling securities. Similarly, it provides an opportunity to investors to access their savings in the stock market (Yartey, 2008). The ability to access savings minimizes risks and hence increases investor confidence.

Income level was found to be positive and statistically significant in explaining the stock market development. As expected, the higher the income, the more likely it is for investors to save and invest because disposable income increase. Banking sector development was found to be positive and statistically significant. Again, these findings are consistent with previous research (Demirguc-Kent and Levine, 1996) as well as our expectation, because we belief that a well developed banking system provides funds to investors to invest in the capital market. The results of macroeconomic stability using both measures were unexpected because we hypothesized that a stable environment is conducive for stock market development. However, we did not find any significant results. We attribute this to the fact that as inflation increases, the prices of stocks will increase as it follows the general price trends, and so when inflation increases, there is a possibility of market capitalization to increase as well.

REFERENCES

Adjasi, K. C., and Biekpe, N. (2006). Stock Market Development and Economic Growth: The Case of Selected African Countries," *African Development Review*, Vol.18 (1):144-161

Barako, D. G., Hancock, P., and Izac, H. Y. (2006). Relationship between Corporate Governance Attributes and Voluntary Disclosures in Annual Reports: The Kenyan Experience. *Financial Reporting, Regulation and Governance,* Vol. 5 (1): 1-26.

Bencivenga, V. R., and Smith, B. D. (1996). Equity Markets, Transaction Costs, and Capital Accumulation: An illustration. *The World Bank Economic Review,* Vol. 10, (2): 241-265.

Bencivenga, V. R., and Smith, B. D. (1991). Financial Intermediation and Endogenous Growth, *The Review of Economics Studies,* Vol. 58, (2): 195-209.

Bencivenga, V. R., Smith, B. D. and Starr, R. M. (1996). "Equity Markets, Transactions Costs, and Capital Accumulation: An Illustration" *The World Bank Economic Review* 10 (2), 371-396.

Berthelemy, J., and Varoudakis, A. (1996). Economic Growth, Convergence Clubs, and the Role of Financial Development. Oxford Economic Papers 48, 300-328.

Black, B. S., and Gilson, R. J. (1999). Does Venture Capital require an active Stock Market? *Journal of Corporate Finance*. Winter Edition: 36-48.

Boyd, J. H., Levine, R., and Smith, B. D. (2001). The Impact of Inflation on Financial Performance, *Journal of Monetary Economics,* Vol. 47, (2): 221-248.

Calderon-Rossell, R. J. (1991), "The Determinants of Stock Market Growth," In S. Ghon Rhee and Rosita P. Chang (eds.), Pacific Basin Capital Markets Research Proceeding of the Second Annual Pacific Basin Finance Conference, Vol. II, Bangkok, Thailand, 4–6 June, (Amsterdam: North Holland).

Christopoulos, D. K., and Tsionas, E. G. (2004). Financial Development and Economic Growth: Evidence from Panel Unit Root and Cointegration Tests. *Journal of Development Economics,* Vol. 73: 55-74.

Claessens, S., Klingebiel, D., and Schmukler, S. L. (2006). Stock Market Development and Internationalization: Do Economic Fundamentals Spur both similarly? *Empirical Journal of Finance*, Vol. 13: 316-350.

Demirguc-Kunt, A., and Levine, R. (1996). Stock Market Development and Financial Intermediaries: Stylized Facts, *The World Bank Economic Review*, Vol. 10 (2): 291- 321

Dermirguc-Kunt, A., and Levine R. (1995a). Stock Markets, Corporate Finance, and Economic Growth: An Overview. *The World Bank Economic Review*, Vol. 10, No. 2: 223-239.

Garcia, F. V. and Lin, L. (1999). Macroeconomic Determinants of Stock Market Development. *Journal of Applied Economics*, Vol. 2 (1): 29-59.

Hearn, B., and Piesse, J. (2010). Barriers to the Development of Small Stock Markets: A Case Study of Swaziland and Mozambique. *Journal of International Development*, Vol. 22, 1018-1037.

Khanna, V. (2009). Law Enforcement and Stock Market Development: Evidence from India. CDDRL Working Papers.

La Porta, R, Lopez-de-Silanes, F., and Shleifer, A. (2003). What Works in Securities Laws? NBER Working Paper No. 9882, Boston: National Bureau of Economic Research.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., and Vishny, R. W. (1998). Law and Finance, *Journal of Political Economy,* Vol. 106: 1113-1155.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., and Vishny, R. W. (1997), Legal Determinants of External Finance. *Journal of Finance*, Vol. 52: 1131-1150.

Levine, R., and Zervos, S. (1998). Stock Markets Banks and Economic Growth. *American Economic Review*, Vol. 88: 537-558.

Levine, R., and Zervos, S. (1996). Stock Market Development and Long-Run Growth. *World Bank Economic Review*, Vol.10 (2): 323-340.

Marone, H. (2003). Small African Stock Markets-The Case of the Lusaka stock exchange. *IMF Working Paper*, WP/03/6.

McKinnon, R. I. (1973). Money and Capital in Economic Development. Washington, DC: The Brooking Institution.

Misati, R. N, (2007). Liberalization, Stock Market Development and Investment Efficiency in Africa. *International Review of Business Research Papers* Vol. 3 No.4, 183-191.

Nacuer, S. B., Ghazouani, S., and Omran, M (2007). The Determinants of Stock Market Development in the Middle-Eastern and North African Region. *Managerial Finance*, Vol. 33, (7): 477-489.

Ngugi, R. W. (2003a). Development of the Nairobi Stock Exchange: A Historical Perspective. Kenya Institute for Public Policy Research and Analysis (KIPPRA) Discussion Paper No. 27, Nairobi.

Ngugi, R. W. (2003b). What Defines Liquidity of the Stock Market? The case of Nairobi Stock Exchange. Kenya Institute for Public Policy Research and Analysis (KIPPRA) Discussion Paper No. 29, Nairobi.

Ngugi, R. W., and Njiru, R. (2005). Growth of the Nairobi Stock Exchange Primary Market. Kenya Institute for Public Policy Research and Analysis (KIPPRA) Discussion Paper No. 47, Nairobi.

Pesaran, M.H. (1999), An autoregressive Distributed Lag Modeling: Approach to Cointegration Analysis, In S. Storm, (Eds) Econometrics and Economic Theory in 20th Century, The Rannar Frish Centennial Symposium, Cambridge, Cambridge University.

Singh, A. (1997). Financial Liberalization, Stock Markets, and Economic Development. *The Economic Journal*, Vol. 107: 771-782.

Singh, A. (1999). Should Africa Promote Stock Market Capitalism? *Journal of International Development*, Vol.11, 1999: 343-365.

Shleifer, A., and Vishny, R. W. (1986). Large Shareholders and Corporate Control. *Journal of Political Economy,* Vol. 96 (3), pp 461-88.

World Bank Report (2005), India. Role of Institutional Investors in the Corporate Governance of their Portfolio Companies.

Yartey, C. A. (2008). Determinants of Stock Market Development in Emerging Economies: Is South Africa Different? *IMF working Paper-WP/08/32* Washington, International Monetary Fund.

Yartey, C. A. (2007). Stock Market, Development in Sub-Saharan Africa: Critical Issues and Challenges. *IMF Working Paper-WP/07/209*, Washington, International Monetary Fund.

Yartey, C. A., and Adjasi, C. K. (2007). Stock Market Development in Sub Saharan Africa: Critical Issues and Challenges, IMF Working Paper, WP/07/209.