# THE EFFECT OF CAPITAL MARKET DEEPENING ON ECONOMIC GROWTH IN KENYA

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## Abstract

*The capital market is important since it connects the financial sector with other non-financial sectors of the economy. This study examines the effect of Capital Market Deepening on economic growth in Kenya. Controversy exists among researchers on the role of deep capital markets in growth. Finance growth nexus suggested by various researchers suggests that finance has a supply leading effect on growth while others such as. The finance growth nexus forms the basis of the research with the capital market assumed to have a supply leading effect on economic growth. Empirical evidence on the role of capital market has been inconclusive on the effect on economic growth .Very few empirical studies have tackled the issue of bond market development as part of the capital market and its effect on growth. This study aimed at addressing the issue by incorporating a measure of bond market turnover. The research objective was to determine the effect of capital market deepening on economic growth in Kenya. The study used data from the Nairobi Securities Exchange from 1992-2011 and GDP data from The Kenya National Bureau of Statistics. Using correlational design, a multivariate regression model was used to regress the independent variables against the dependent variable with the dependent variable being Real GDP of Kenya and the independent variables being Stock Market Turnover Ratio, Bond Market Turnover Ratio, Value Traded Ratio, Market Capitalization Ratio and Stock Market Size. The findings indicate that three out of the five deepening variables have a significant positive effect on GDP. The study therefore concludes that Capital Market Deepening has a positive effect on GDP growth in Kenya and therefore lends support to the finance growth nexus. The Capital market plays an important role in economic growth and therefore the study recommends the government should take policy initiatives to foster growth of the capital market and especially so the bond market which is instrumental in providing finance for development of the Vision 2030 socio economic blue print.*

**Key words**: *Capital Market Deepening, Economic Growth& Kenya.*

## Introduction

According to Sessional paper No. 1 of 1986 on Economic management for economic reforms in Kenya; The Capital Market is key in achieving meaningful economic growth and development. Capital markets assists in liquidity provision, price discovery, general reduction in transactions costs, and risk transfer. They reduce information cost through generation and dissemination of information on firms leading to efficient markets in which prices incorporate all available information (Yartey and Adjasi 2007).The Capital market in Kenya dates back to 1922 when the Stock exchange was started, however, there was little activity until the late 1980s when the government adopted reforms that were aimed at reviving the financial sector. The Capital markets in Sub Saharan Africa, Kenya included displayed extreme thinness and illiquidity compared with other emerging markets of South East Asia (Ziorklui, 2001).In 1986, The Government of Kenya made a deliberate policy effort to foster growth of the Capital Markets through adoption of The Sessional paper No.1 of 1986, which recognized the Capital markets as key in achieving meaningful economic growth and development.

The Government through the policy; recommended that a regulatory framework be set up to regulate and facilitate the development of the Capital Market in Kenya. The birth of The Capital Markets Authority in

December 1989 was a step forward following the deliberations of The Sessional paper No.1 of 1986.The Capital Markets Authority Act (Chapter 485 a) facilitated the setup of The Capital Markets Authority and its functions, but even after the establishment of the Capital Markets Authority, Kenya still lagged behind with thin and illiquid capital market (Ngugi, 2003).While Kenya's financial sector is viewed as substantially diversified, it is dominated by banking institutions which have not evolved to provide long term capital adequately (Ngugi, Amanja and Maana, 2008).

## Literature Review

According to Trew, (2006) theoretical models of finance growth nexus differ along three aspects; type of endogenous growth, the finance mechanism, and treatment of asymmetric information.

*Finance Led Growth Hypothesis:* The positive view of finance led growth focuses on the role played by finance in mobilizing domestic savings and investments through a more open and liberalized financial system and promoting productivity through creation of efficient capital markets. Schumpeter, (1911) is viewed to have laid the foundation for the finance led growth hypothesis. He contends that a well-functioning financial system will spur technological innovations through efficiency of resource allocation from unproductive sector to productive sector.

According to Choong, Yusop, Siong, Sen, (2004), the "finance-led growth" hypothesis postulates the supply-leading relationship betweenfinancial and economic developments. They argue that the existence of financial sector, as well-functioning financialintermediations in channeling the limited resources from surplusunits to deficit units would provide efficient allocation of resources thereby leading the othereconomic sectors in their growth process. In their study, (Choong et al, 2004), conducted in Malaysia, a small emerging economy, their findings indicate that stock market development is cointergratedwith economic growth they conclude that stock market development has a significant positive long run impact on economic growth. Goldsmith (1969) builds on the finance led growth hypothesis. He contends that evolution of domestic financial markets may enhance and lead to high level of capital accumulation. Ansari (2002) analyzing impact of financial development, money and public spending on Malaysian national income argues that Malaysian experience has shown unambiguous support for the supply leading view of financial development, implying importance of financial sector development.

Fukuda and Dahalan, (2008) in a study on the finance-growth crisis on 5 Asian economies conclude that there is a positive impact of finance on growth but the finance led growth has the adverse effect of financial crisis as the substantial cost of financial deepening would lead to a crisis. Several other authors have built on the finance led growth and have conducted tests to assert the theory. Studies done by Greenwood and Smith (1996), Bencivenga, Smith, and Starr (1996) and Levine (1991), argue that stock market liquidity; the ability to trade equity easily is important for growth.

*Growth Led Finance Hypothesis:* Robinson (1952) challenged the finance led growth hypothesis. She argues that the relationship should start from growth to finance. She contends that a high rate of economic growth leads to a high demand and a well-developed financial sector will automatically respond to this type of demand. According to Miles (2005), financial development follows economic development. He argues that economic growth causes financial institutions to change and develop and financial as well as credit markets to grow. In his argument financial development is demand driven and a lack of financial development is simply a manifestation of the lack of demand for financial system. Demand for financial services rises thus will be met by financial sector as the real sector of the economy grows.

*Bi Directional Hypothesis between Financial Development and Economic Growth:* This theory can also be referred to as the feedback hypothesis. The advocates of bi directional hypothesis argue that there is a two way relationship between financial development and economic growth. This means that financial market develops as a consequence of economic growth which in turn feeds back as a stimulant to real growth. Several studies have equally noted this type of feedback (Akinlo and Egbetunde, 2007).

Al Yousif, (2002) using time series and panel data from 30 developing economies to examine causal relationship between financial development and economic growth. He found that financial development and economic growth are mutually causal, the causality being bidirectional. Tamimi, Awad, Charif, (2001) found no clear evidence that financial development affects/is affected by economic growth while Luintel and Khan

(1999) in the finance-growth nexus found bidirectional causality between financial development and economic growth in all sample countries.

According to Oya and Damar (2006) there is no obvious relationship between financial development indicator and economic growth, neither of the two has considerable effects on the other and the observable correlation established between them are merely results of historical peculiarity. He goes on to use granger causality test to conclude that there is bicausality between financial development and economic growth on the Turkish economy. He contends that financial development follows economic growth as economic growth causes financial institutions to change and develop and financial as well as credit markets to grow, meaning financial development is demand driven.

On the other hand, he argues that financial development is a determinant of economic growth, the line of causation running financial development to real development; services provided by financial system are base for economic growth, as financial system develops then quantity and quality of investment will be special determinant for growth. This means that financial market develops as a consequence of economic growth which in turn feeds back as a stimulant to real growth. Several studies have equally noted this type of feedback. These include Patrick (1966), Greenwood and Jovanovic (1990), Liu (2003)who reported two-way causality between financial development and economic growth; moreover, they showed that financial development impact is more pronounced in the case of developing countries than in developed countries. In their study, they used decomposition test on panel data for the period of1960 to 1994 of 109 developing and developed countries. In this study, they tested for three different cases of causality; financial development causes economic growth, economic growth causes financial system development, and instantaneous causality between economic growth and financial system development.

*Capital Market Deepening and Economic Growth:* Ngugi et al, (2008) undertake a study on the impact of capital market deepening on economic growth in Kenya. They argue that when capital market develops, it offers an opportunity to investors to diversify their financial assets basket and firms to diversify their financing sources. They find a positive correlation between capital markets, financial access and depth, meaning capital markets facilitate depth of the financial sector as well as improved access to finance by investors. They find that the impact is more pronounced for stock markets than bond markets. They argue that development of capital markets has a complementary effect on the banking sector. In their model they assume financial sector development affects growth through amount of savings put in investments and technological development, similar to the findings of King and Levine (1993), thereforewell-functioning markets lower costs of transactions increasing amount of savings put into investments and allowing capital to be allocated to projects yielding highest returns, resulting in economic growth.

Using regression results, their results indicate significant relationship between economic growth and capital market and bank variables but not with non-banking variables. They conclude that policy and institutional factors play a key role in development of capital markets. Similar to Dimitri, (2005) ,Ngugi et al, (2008) also emphasize on the preconditions for successful market reform program, among them; sound fiscal and monetary policy, effective legal and regulatory framework, secure and efficient settlement and custodial system, effective information disclosure and for Treasury bonds, sound and prudent debt management and a credible and stable government. Dimitri, (2005) also argues that the most important feasibility precondition is a strong and lasting commitment of authorities to maintain macro financial stability. Atje and Jovanovic (1989) on the other hand compare the impact of the level of stock market development and bank development on subsequent economic growth and their findings indicate a large effect of stock market development as measured by the value traded divided by GDP on subsequent development, but fail to find a similar effect for bank lending.

Akinlo and Egbetunde, (2007) examine the long run and causal relationship between financial development and economic growth for 10 countries in Sub Saharan Africa. They find that financial development is cointergrated with economic growth in selected countries in the sample. Using Granger causality, he finds that financial development Granger causes economic growth in Central

African Republic, Congo, Gabon, Nigeria, while economic growth Granger causes financial development in Zambia. He finds bidirectional relationship between financial development and economic growth in Kenya, Chad, South Africa, Sierra Leone and Swaziland.

Abduh, Brahim, Omar, (2012) conduct a study on the relationship between Islamic finance and economic growth; they investigate the long run and short run causality between economic growth and financial development in a dual financial system country. They use quarterly time series data of GDP,ITF (Islamic total finance), ITD (Islamic total deposits), CTL(Conventional total loans) and CTD (Conventional total deposits).Using cointegration tests and vector error correction model, their findings indicate that the relationship between total financing and total deposits for both Islamic and conventional sector are positively and significantly affecting growth movement and therefore they conclude that financial deepening in the two sectors will stimulate economic growth.

Onwumere et al, 2012 conduct a study on stock market development and economic growth in Nigeria, similar to Robinson (1952), they use the demand-following hypothesis which claims that it is the growth of theeconomy that causes increased demand for financial services which, in turn, leads to the development of financialmarkets the impact of stock market development on economicgrowth they use time series data from the period 1996-2010.Using Ordinary Least Square(OLS) regression, their findings indicate that economic growth has positive and non-significant impact on market capitalizationratio and turnover ratio of the Nigerian stock exchange but had a negative on the Nigerian stock market value tradedratio. Their study however falls short on testing for causation, while correlation may imply that the growth of the economy has high correlation with capital market development indicators, it does not necessarily mean that there is causation. Their study also falls short of controlling for other variables that may affect the economic growth and capital market indicators.Caporale G, Howelts A and Soliman M (2004) on the other hand examine the causal linkage between stock market development, financial development and economic growth. They argue that any previous inference that financial liberalization causes savings or investment or growth, or that financial intermediation causes growth, drawn from bi variate causality tests may be invalid, because of omitting important variables. They test for causality and emphasize the possibility of omitted variable bias. They obtain evidence from a sample of seven countries and conclude that a well-developed stock market can foster economic growth in the long run through faster capital accumulation and by turning it through better allocation of resources.

*Problem of Research*

The existing theories indicate different kind of finance growth nexus; including the supply leading hypothesis which seeks to suggest that finance contributes to economic growth, as well as growth led finance that suggests that the economy leads and finance follows through demand driven by the economy, as well bi directional hypothesis that suggests that the effect is both ways. The empirical literature suggests that capital market development has a positive significant effect on the economy; however the literature focuses mainly on the stock market without considering the bond market. It has also been identified that various authors have addressed the issue of financial deepening with a bias to the role of the banking sector in financial deepening and economic growth.

Capital market deepening is defined as growth of stock markets and the resultant increase in the volume of long term investments (Richard, 1996).According to Applegarth, (2004), capital market deepening can be determined by the ability to list more companies to the bourse as well as increased liquidity; that is the volume of active trading. Capital market deepening can therefore be said to be the ability to effectively mobilize the domestic savings for a broad array of institutions and in Kenya; this will include the ability of the Capital markets to mobilize savings for the various institutions including the equities market, bond market and money market; allocate them and provide available investment sources for the investing public.

Capital market deepening is synonymously used with capital market development by various authors including King and Levine, (1993) and Dahou et al, (2009).According to Ngugi et al, (2008), capital market

development offers an opportunity to investors to diversify their financial assets basket and also serves as an opportunity to diversify sourcing for finance. Investors get a chance to diversify their asset basket with a risk free asset. Capital market deepening was measured by the turnover ratio; that is Value of shares traded as a percentage of capitalization, both for equity and bond market. According to Onwumere et al, 2012 turnover ratio measures liquidity of the market and high turnover ratio is an indication of low transaction cost in the stock market. A relatively small but active capital market will have low capitalization but a comparably high turnover. Turnover also complements the value traded ratio.

It is important to note that previous literature apart from tackling the issue of capital market development, also address overall financial sector development since the capital markets play a role in deepening the financial sector.

The study intended to measure economic growth as the measure of growth in the Gross Domestic product of Kenya. A change in Real GDP of Kenya was of interest in this paper which will indicate the effect of deepening. Similar to King and Levine (1993) this paper considered Real GDPas the measure of economic growth. According to CMA 2012, for sustainable growth and development; funds must be effectively mobilized and allocated. The capital markets are important in allocating savings among competing uses and would thus allocate larger proportions to firms with higher prospects as indicated by risk return levels. The capital resources channeled by demand and supply forces to firms with high and increasing productivity enhancing economic growth and expansion. In the study it was important to establish what effect, if any Capital market deepening had on the economy as a whole by examining the impact on the GDP of Kenya.

The capital market deepening was the independent variable while economic growth was the dependent variable. Capital market deepening adopted five variables as explained above; stock market turnover ratio, stock market size and bond market turnover ratio, value traded ratio and market capitalization ratio. It was expected that capital market deepening will impact positively the economic growth similar to findings of King and Levine (1993), Fuchs and Funke, (2001),Levine and Zervos (1998), Onumwere et al (2012).

Studies conducted in respect to capital market deepening concentrated on stock market development and its impact on economic growth. Owiti, (2012) findings indicate that there is a positive relationship between stock market development indicators and economic growth in Kenya. Kimani and Olweny (2011) findings indicate that causality between economic growth and stock market runs unilaterally/entirely in one direction from the NSE 20-share index to the GDP.Ngugi et al, (2008) findings also indicate that capital market deepening plays a complementary role in the banking sector to contribute to economic growth. However Al Yousif, (2002) finds bidirectional relationship between financial development and economic growth in Kenya, Chad, South Africa, Sierra Leone and Swaziland. The issue of capital market deepening is key since the vision 2030 secretariat identifies the Capital market as key in providing the capital necessary for achieving the social economic blueprint.

*Research Focus*

The capital market connects the financial sector with other non-financial sectors of the country's economy and in the process, facilitates economic development and growth (Onwumere et al, 2012). The vision 2030 secretariat will also benefit from the study because of the special function of the Capital Markets in the development agenda. The secretariat will be interested in the extent of capital market development and whether the capital markets will be able to provide the necessary capital to finance the long term development projects which will be addressed in the study.

According to Bekaert G and Harvey C, (1997) economic growth in a modern economy hinges on an efficient financial sector that pools domestic savings and mobilizes foreign capital for productive investments. The findings from Caporale G, Howelts A, Soliman M (2004) indicate that a well-developed stock market can foster economic growth in the long run through faster capital accumulation, similar to findings of King and Levine (1993 a),Levine and Zervos (1998).

Much of the empirical work on the finance growth nexus that has been undertaken so far has built on the role of the banking sector in economic growth. Oya and Damar,(2007) identify that previous studies focused mostly on the size of the financial sector as commercial bank deposits as a percentage of GDP without making much inference on the role of the capital market as a major contributor to financial sector growth in the economy. A considerable amount of empirical work has been conducted on the effect of stock

market on the level of economic growth. (Atje and Jovanovich, (1993); Demirgue-Kunt and Maksimovic, (1996); Levine and Zervos, (1998).However according Fink G.,Haiss P, Sirma H,(2003) previous literature on the finance growth nexus has largely ignored the bond market despite it being an essential source of external finance.

In Kenya, several studies have been conducted on the finance growth nexus with a bias to the role of commercial banks mobilizing deposits in the economy.Odhiambo (2011) using a multivariate model examines the dynamic causal relationship between financial deepening and economic growth in Tanzania his findings indicatea unidirectional causal flow from economic growth to financial depth in Tanzania. Owiti, (2012) findings indicate that there is a positive relationship between stock market development indicators and economic growth in Kenya. Ngugi, Amanja and Maana, (2008) while undertaking a study on Capital market deepening in Kenya try to link capital market deepening and financial deepening and the effect on the economy, their findings indicate line of causation from capital market deepening, to financial deepening which influences economic growth.

Given the important role of the capital market in mobilizing capital for growth and the fact that previous empirical literature concentrates mainly on the role of stock market development in economic growth, this study intended to reduce the resource gap by incorporating a measure of bond market turnover on the study of the finance growth nexus in Kenya, to analyze the effect of capital market deepening on the growth of the Kenyan economy. The main objective of the study was to determine the effect of capital market deepening on economic growth in Kenya.

## Methodology of Research

### *General Background of Research*

This section elaborates the methodology adopted in the study. It will describe the research design adopted in the research, data that was used, method of data collection and analysis that were used. Correlation research design was used to identify the effect of capital market deepening on economic growth. Previous research done by several authors such as Levine and Zervos (1998), Mogaka (2010), Njenga (2012) also adopted correlation design, the use of a similar design enabled consistency and comparability even though most of the previous literature concentrated only on stock market variables.

### *Instrument and Procedures*

The study focused on data from the Nairobi Securities Exchange and Kenya National Bureau of Statistics. Time series data on stock market turnover, stock market size and bond market size were obtained from period 1992-2011. The research used quarterly data on economic growth indicators as provided by The Government of Kenya through the Kenya Bureau of Statistics as well as World Bank development indicators.

### *Data Analysis*

Data analysis, data analysis, data analysis, data analysis, data analysis, data analysis, data analysis, data analysis, data analysis, data analysis, data analysis. The study will adopt the following model for data analysis;

$$Y = F (SMTR, SMS, BMTR, VTR, MCR)$$

$$Y = \alpha_0 + \alpha_1 VTR + \alpha_2 SMTR + \alpha_3 MCR + \alpha_4 SMS + \alpha_5 BMTR + \varepsilon$$

Where:

    Y= Real GDP
    SMTR = Stock Market Turnover Ratio
    SMS = Stock Market Size

BMTR= Bond Market Turnover Ratio
GDP = Gross Domestic Product
VTR= Value Traded Ratio
BMTR= Bond Market Turnover Ratio
MCR=Market Capitalization Ratio

Market capitalization ratio equal market capitalization divided by GDP. The reason behind this measure is that the overall market size is positively correlated with the ability of the market to mobilize capital and diversify risk on economy wide basis (Levine and Zervos, 1996).

Turnover ratio measures liquidity of the market and high turnover ratio is an indication of low transaction cost in the capital market. A small but active market will have low capitalization but high turnover. Turnover ratio also complements the total value traded ratio. In the study, the turnover ratio will be used in line with the works of Onwumere et al,(2012), Levine (1996) and Levine and Zervos (1996), and these will be measured by total volume of trade in both stock and bond market traded divided by the total market capitalization.

The value traded ratio complements the market capitalization. It's a measure which equals the total value of bonds and shares traded divided by the Gross domestic product of the economy. This indicator of growth indicates the liquidity observed in the capital market. In this research this ratio will be used to compliment the market capitalization rate as a measure of growth of the capital market in line with the work of Donwa and Odia (2010).

STATA version10 was used to analyze the data. Tests of significance included the $R^2$ tests as well as F-statistics which tested the significance of the relationship between the five independent variables of capital market deepening and the one dependent variable of economic growth.

## Results of Research

This section presents analysis and findings of the study as set out in the research methodology. The results were presented on the effects of capital market deepening variables on economic growth in Kenya. Data in this section was analyzed and presented in tables.

*Description and Summary for Research Variables*

This subsection provides the description of the data that was used in determining the effect of capital market deepening on economic growth in Kenya.

**Table 1 Data Description**

```
. edit
(6 vars, 20 obs pasted into editor)

. des gdp vtr smtr mcr sms bmtr

                storage  display    value
variable name    type    format    label      variable label

gdp             double  %10.0g                GDP
vtr             float   %9.0g                 VTR
smtr            float   %9.0g                 SMTR
mcr             float   %9.0g                 MCR
sms             float   %9.0g                 SMS
bmtr            float   %9.0g                 BMTR
```

Source: Research Data (2013)

The following table provides summary of data. The information is presented using the number of observations used, means and standard deviations. Data summary for research variables is presented in Table 2 below.

**Table 1: Data Summary**

```
. summ gdp vtr smtr mcr sms bmtr

    Variable |        Obs        Mean    Std. Dev.        Min         Max
-------------+--------------------------------------------------------------
         gdp |         20     1166608     720453.6      262044     2738342
         vtr |         20    1.253036     1.368721    .0463415    4.458667
        smtr |         20     3.90593     3.269533    .4194552    13.48568
         mcr |         20    .0896992     .1565195    .0028049    .4489159
         sms |         20    5468.794     10333.36    52.07036    28567.99
-------------+--------------------------------------------------------------
        bmtr |         20    6.870562     9.667707           0    39.86795
```

From the summary, there were 20 observations representing 20 years which were used for this study for all the variables. Mean scores for GDP, VTR, SMTR, MCR, SMS and BMTR were 1166608, 1.253, 3.906, 0.090, 5468.794 and 6.871 respectively. The standard deviations for the variables were 720453.6, 1.369, 3.27, 0.157, 10333.36 and 6.871 in that order.

*Correlation Analysis between Capital Market Deepening and Economic Growth*

This subsection assessed the relationship between the capital market deepening and economic growth in Kenya as variables under study. The variables used include GDP, VTR, SMTR, MCR, SMS and BMTR. It is important to note that at 0, there is no correlation. At 1 there is a strong positive correlation and at -1 there is a strong negative correlation. The more the value approaches 1 the stronger it becomes and the opposite is true. Table 3 presents correlation matrix between variables.

**Table 2 Correlation Matrix**

```
. corre gdp vtr smtr mcr sms bmtr
(obs=20)

             |      gdp      vtr     smtr      mcr      sms     bmtr
-------------+------------------------------------------------------
         gdp |   1.0000
         vtr |   0.6755   1.0000
        smtr |  -0.1755   0.3907   1.0000
         mcr |   0.8795   0.6018  -0.4629   1.0000
         sms |   0.8935   0.5871  -0.4689   0.9974   1.0000
        bmtr |   0.0102  -0.1259   0.1611  -0.2345  -0.2251   1.0000
```

From the results, VTR, MCR, SMS and BMTR have a positive relationship with GDP at 0.6755, 0.8795, 0.8935 and 0.0102 respectively. The positive relationship indicates that there is a

correlation between the variables and GDP with SMS having the stronger positive correlation value and BTR having a weaker positive correlation. The variables influence GDP positively. However, there is a negative relationship between GDP and SMTR at − 0.1755. This indicates that there is a negative correlation between SMTR and GDP which means according to the finding that SMTR does not influence GDP positively.

*The Relationship between Capital Market Deepening and Economic Growth*

A multiple regression analysis was conducted so as to test relationship among variables (independent) on GDP (dependent). The researcher used Strata, a data analysis and statistical software, to code, enter and compute the measurements of the multiple regressions for the study. The researcher assumed 95% confidence interval and 5% confidence level. Table 4 a & b presents the raw data and regression model summary respectively.

**Table 3a: Raw Data**

| YEAR | GDP PER CAPITA US $ | REAL GDP US $ | REAL GDP KSH | VTR | SMTR | MCR | SMS | BMTR |
|---|---|---|---|---|---|---|---|---|
| 1992 | 441.71 | 8,200.00 | 297,086.00 | 0.05 | 1.65 | 0.00 | 52.07 | - |
| 1993 | 424.14 | 8,200.00 | 560,962.00 | 0.10 | 1.14 | 0.01 | 169.76 | - |
| 1994 | 412.40 | 5,800.00 | 262,044.00 | 0.53 | 2.25 | 0.02 | 331.79 | - |
| 1995 | 410.60 | 7,100.00 | 396,180.00 | 0.47 | 3.12 | 0.02 | 261.08 | - |
| 1996 | 416.46 | 9,000.00 | 496,350.00 | 0.44 | 4.01 | 0.01 | 236.95 | - |
| 1997 | 421.94 | 12,000.00 | 756,600.00 | 0.51 | 5.38 | 0.01 | 270.92 | - |
| 1998 | 412.92 | 13,100.00 | 809,842.00 | 0.35 | 3.55 | 0.01 | 312.26 | 6.38 |
| 1999 | 415.71 | 14,100.00 | 1,042,554.00 | 0.36 | 4.80 | 0.01 | 256.77 | 7.56 |
| 2000 | 414.60 | 12,900.00 | 1,015,617.00 | 0.28 | 3.58 | 0.01 | 244.62 | 6.38 |
| 2001 | 406.52 | 12,700.00 | 999,363.00 | 0.25 | 3.62 | 0.01 | 211.80 | 10.99 |
| 2002 | 411.07 | 13,000.00 | 1,033,890.00 | 0.16 | 2.42 | 0.01 | 202.64 | 39.87 |
| 2003 | 402.63 | 13,100.00 | 995,862.00 | 0.57 | 4.16 | 0.01 | 448.67 | 20.10 |
| 2004 | 403.68 | 14,900.00 | 1,152,431.56 | 1.37 | 7.42 | 0.02 | 679.77 | 17.63 |
| 2005 | 413.32 | 16,100.00 | 1,165,103.87 | 1.37 | 5.24 | 0.03 | 1,017.86 | 3.40 |
| 2006 | 426.52 | 18,700.00 | 1,297,718.29 | 3.22 | 9.67 | 0.03 | 1,461.13 | 6.90 |
| 2007 | 442.02 | 22,500.00 | 1,407,174.75 | 4.46 | 13.49 | 0.03 | 1,682.96 | 8.14 |
| 2008 | 461.02 | 27,360.00 | 2,126,175.70 | 3.58 | 0.80 | 0.45 | 26,641.66 | 0.76 |
| 2009 | 456.25 | 30,460.00 | 2,309,477.20 | 1.25 | 0.42 | 0.30 | 19,944.99 | 2.12 |
| 2010 | 456.77 | 30,580.00 | 2,469,393.10 | 3.32 | 0.78 | 0.43 | 28,567.99 | 3.61 |
| 2011 | 470.58 | 32,190.00 | 2,738,342.14 | 2.43 | 0.63 | 0.39 | 26,380.21 | 3.58 |

**Table 4b: Regression Model Summary**

```
. reg  gdp vtr smtr mcr sms bmtr

      Source |       SS       df       MS              Number of obs =      20
-------------+------------------------------           F(  5,    14) =   50.52
       Model |  9.3441e+12     5   1.8688e+12          Prob > F      =  0.0000
    Residual |  5.1791e+11    14   3.6993e+10          R-squared     =  0.9475
-------------+------------------------------           Adj R-squared =  0.9287
       Total |  9.8620e+12    19   5.1905e+11          Root MSE      =  1.9e+05


         gdp |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         vtr |    -210599   133419.1    -1.58   0.137    -496754.4     75556.4
        smtr |   143005.2    49427.6     2.89   0.012     36993.56    249016.9
         mcr |   -5768229    4757495    -1.21   0.245     -1.60e+07    4435582
         sms |   189.7673   64.07415     2.96   0.010     52.34188    327.1926
        bmtr |   12977.08   4758.568     2.73   0.016     2770.971     23183.2
       _cons |   262375.5   159998.3     1.64   0.123    -80786.64    605537.6
```

Source: Research Data (2013)

Coefficient of determination explains the extent to which changes in the dependent variable can be explained by the change in the independent variables or the percentage of variation in the dependent variable (GDP) that is explained by all the five independent variables (VTR, SMTR, MCR, SMS and BMTR).

The five independent variables that were studied explain 94.75% of the gross domestic product as represented by the R – squared ($R^2$). This indicates that other factors not studied in this research contribute 5.25% of GDP.

From the coefficient of determination, the study model or equation:

$$(Y = \alpha_0 + \alpha_1 VTR + \alpha_2 SMTR + \alpha_3 MCR + \alpha_4 SMS + \alpha_5 BMTR + \varepsilon),$$ becomes:

$$Y = 262375.5 - 210599 VTR + 143005.2 SMTR - 5768229 MCR + 189.767 SMS + 12977.08 BMTR$$

According to the model, when all independent variables are at zero, the dependent variable (GDP) will be Kshs. 262375.5. At 5% level of significance and 95% level of confidence, VTR had a 0.137 level of significance, SMTR had a 0.012 level of significance, MCR had a 0.245 level of significance, SMS had a 0.010 level of significance and BMTR had a 0.016 level of significance. This is seen that the most significant variable is SMS. This indicates that GDP has a significant relationship with SMTR, SMS and BMTR. It is also seen that GDP has no significant relationship with VTR and MCR.

**Discussion**

The research objective that was set out was to determine the effect of Capital Market deepening on the economic growth of Kenya. The study adopted five independent variables for capital market deepening and one dependent variable. The independent variables that were adopted to represent Capital Market Deepening were divided into size variables and liquidity variables. According to Levine and Zervos (1998), Size and liquidity indicators are good predictors of a deep market. The size variables included; the market capitalization ratio (MCR) and stock market size (SMS) while liquidity indicators included the value traded ratio (VTR), stock market turnover ratio (SMTR) and bond market turnover ratio (BMTR).Real Gross Domestic Product (GDP) was the dependent variable adopted for the study. The study adopted time series data for 20 years. The model specified in the previous chapter has been used by other researchers including Onwumere et al (2012) ,the study however differs because the researcher introduces a variable to measure liquidity in the bond market since the Bond market has become vibrant in Kenya and is a key source of funding for key infrastructure projects.

From the correlation analysis findings the size variables, that is Stock Market Size (SMS) and Market Capitalization Ratio (MCR) have a significant positive correlation with GDP, with Stock Market Size having a correlation coefficient of 0.8935, while Market Capitalization Ratio having a coefficient of 0.8795.The liquidity variables on the other hand also exhibit significant positive correlation with GDP with Value traded ratio (VTR) having a coefficient of 0.6755, BMTR having a very low correlation of 0.0102 while Stock Market turnover ratio having a negative correlation of – 0.1755.

The regression results indicate that 94.75 % (represented by $R^2$) change in the dependent variable, which is GDP, could be explained by changes in the independent variables, that is Value traded ratio, Stock Market turnover ratio, Market Capitalization Ratio, Stock Market Size, and Bond Market Turnover Ratio. The Value Traded Ratio (VTR) and Market Capitalization Ratio (MCR) however have no significant effect on GDP or cannot be said to be good predictors of GDP.According to Onwumere et al (2012) the turnover

ratio is an indicator of liquidity of the market and a high turnover in the stock and bond market will be taken to mean high liquidity of the market and indicator of low transaction cost and efficiency in the market. The liquidity variables in this study were Value traded ratio(VTR), the stock market turnover ratio(SMTR), and Bond market turnover ratio(BMTR); the Stock market turnover ratio and Bond market turnover ratio have a significant positive coefficient which means they are good predictors of the GDP of Kenya, this supports the work of Osamwonyi I and Kasimu A (2013) whose findings indicate bi directional causal relationship between Stock market turnover ratio and GDP in Kenya, that is; GDP is a good predictor of the growth of the stock market turnover ratio and Stock market turnover ratio is a good predictor of GDP growth. Owiti (2012) while examining the relationship between stock market development and economy growth also finds a positive relationship between liquidity indicators and the economic growth in Kenya, her findings also lend support to the bidirectional hypothesis between market development and the economic growth. Njenga (2012) while examining the relationship between stock market development and economic growth, using the Harrod-Domar growth model, also finds that in the short run, equity turnover had positive effect on economic growth.

The negative coefficient of the Value traded ration can be explained partly due to the volatility in the stock market due to macroeconomic factors that affect the investors demand and supply for stocks .For example the negative effects on the stock market as a result of the political environment in Kenya. From the data observation it can be seen that in the periods covered by disputed election period such as 1997 and 2007 the Value tradedration is affected significantly by the effects of the electioneering periods especially the 1997-1998 and 2007-2008.From the observations, the Value traded ration dropped by 0.16 percentage points from 0.51 to 0.35 in the period following the 1997-1998 general election in Kenya and by 0.88 percentage points from 4.46 to 3.58 in the period following the disputed 2007 December general election. Another possible explanation may be that value traded as measured in the study does not necessarily foster resource allocation in the economy and therefore the negative coefficient, which is consistent with empirical growth literature.

The size variables included the Stock Market Size and the Market Capitalization Ratio. The regression results indicate the Stock market size is a good predictor of the GDP growth while the Market capitalization ratio is not a good predictor of the GDP growth since it has a negative coefficient. The stock market size is a good predictor of GDP growth however the findings of Levine and Zervos (1998) indicate that the stock market size cannot be a good predictor of GDP growth, arguing that the number of listings in itself, which is the main component of stock market size; does not imply efficiency of the securities market, Osamwonyi I and Kasimu A (2013) finding also using listed securities find that the listed securities has a weak non-significant granger causality on economic growth in Kenya but GDP does not granger cause listed securities to increase in Kenya, howeverBekaert G and Harvey C (1997) using six market development indicators; number of stocks listed, market capitalization, total value trade, turnover ratio, market capitalization ratio, value traded ratio find a positive correlation across countries, similar to Owiti (2012). Seetanah et al (2009) using panel Vector auto regression also find positive significant relationship between Market capitalization ratio, value traded ration with both having a significant positive relationship with GDP.It is worth noting that the stock market size has been significantly influenced by new listings in the Nairobi Securities Exchange which may have played a significant role in increasing the variables for example Safaricom Kenya listing in 2008.

## Conclusions

Using correlation design the research focused on data from a 20 year period, that is 1992 to 2011, correlation analysis and regression results were used to determine the effect of the capital market deepening variables on economic growth variable, which was real GDP of Kenya. The Capital market deepening variables were divided into size variables and liquidity variables.

From the results obtained from the multivariate regression, three out of five variables for capital market deepening have a significant positive relation with GDP it can therefore be concluded that indeed capital market deepening has a significant positive effect on economic growth in Kenya. The results are consistent with previous research conducted by Owiti (2012), Levine and Zervos (1998),Osamwonyi I and

Kasimu A (2013), Bekaert G and Harvey C (1997) on the stock market deepening variables and economic growth.

The research further lends support to the finance-growth nexus which suggest the positive role played by finance in mobilizing savings and investments through creation of efficient capital markets. The supply leading relationship between finance and growth was first advocated by Schumpeter (1911) in which he suggests that a well-functioning financial system will stimulate economic growth. The study however fails to find a bidirectional relationship between economic growth and finance in Kenya as suggested by some researchers including Owiti (2012) and Osamwonyi I and Kasimu A (2013).In conclusion it can be said that a deep market will act as a spur to economic growth in Kenya. It is important to note that previous research only focused on the stock market deepening on growth, without considering the effect of the bond market in contribution to growth.

Given that in Kenya, more individual and institutional investors are investing in the bond market and the specific role of the bond market in providing the capital necessary for long term infrastructure projects, the study also included a proxy for bond market. The bond market turnover ratio was found to have a significant positive relationship with the economic growth, suggesting that the bond market is essential contributor to economic growth in Kenya and important for providing financing for key infrastructure projects necessary for Kenya to attain Vision 2030.

## Recommendations and Implications

The study adopted time series data for a 20 year period from 1992-2011using single country evidence because of limited resources to conduct cross country evidence. According to Onumwere (2008) cross country evidence is essential for time series data in order to eliminate country specific variants and enhance validity of the findings. The study failed to control for other factors that may have been taking place contemporaneously and that may have influenced the real economic growth. Previous studies such as Levine and Zervos (1998) have used controlling variables such as secondary school enrollment, inflation and so on as control variables. The study used data for 20 year period which can be considered to be relatively small in order to make inference on studying the variables, this is a limitation that may affect the validity of the research, and however this was necessitated by the limited existence of the data prior to Capital Markets Authority enactment in 1990. Very little empirical finance literature exists on bond market deepening in Kenya and therefore the area of bond market deepening can be explored further given its critical importance in the economy of Kenya. A critical component of capital market is derivatives which are a new concept in Kenya; the issue of viability of the derivatives to contribute to capital market deepening is also an area of further research. Majority of the research on empirical capital markets and growth emphasize on the finance growth nexus where finance is found to contribute to growth through the supply leading hypothesis suggested by Schumpeter (1911), there have however been little empirical research to test the demand following hypothesis as suggested by Robinson (1952) that suggests that growth precedes finance, it is therefore an area that requires more exploration.

Given the significant contribution of the capital market in the growth of the economy, the government should provide tax incentives to investors in order to facilitate more investors' to pool their savings in form of capital market instruments such as stocks, bonds and treasury bills. For example, reducing the tax charged on bond interest income, double taxation relief. The Capital markets authority should tighten the grip in terms of supervision in order to protect investors and instill confidence in the capital market since some stock brokerage firms such as Francis Thuo and partners, Discount securities collapsed running the reputation of the investors on the capital market. The government should raise more money through treasury bills and bonds since it has a direct effect on the economic growth. This will have a double effect of influencing economic growth and also reducing inflation that would otherwise be caused by excess money in the hands of individuals in the economy.

The government should fast track the implementation of reform program to enable the growth of the capital market and especially so; the bond market. The government should provide incentives to Small and Medium Enterprises in order for them to list on the capital market. The recent launch of the Growth Enterprises Market Segment (GEMS) was a step forward in terms of bringing in more companies to list in the

stock market but the requirements are still stringent especially for startups, more should be done in order to encourage startup companies to raise capital in the capital market. The Capital Markets Authority should also fast track the introduction of new products into the capital markets, such as derivative instruments commodity futures, swaps, swapotions, options and has the necessary regulatory framework to facilitate supervision. Using correlation design the research focused on data from a 20 year period, that is 1992 to 2011, correlation analysis

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