ASSESSMENT OF THE RELATIONSHIP BETWEEN MARKET-BASED FINANCIAL SYSTEM AND GROSS DOMESTIC PRODUCT PAR CAPITA, KENYA.

Mukholi Gabriel Tenesi[1*], Joshua Wafula Chesoli[2], Andrew Songoro Nyangau[2]

[1]Department of Agricultural resource economics and management, Kisii University, P.O.Box 408-40200 Kisii, Kenya.*
Email: gabrieltenesi@gmail.com; gabrieltenesi@kisiiuniversity.ac.ke
[2]Department of Accounting and Finance, Kisii University, Kenya.

Corresponding Author:
gabrieltenesi@gmail.com, gabrieltenesi@kisiiuniversity.ac.ke

Abstract

This study assessed the relationship of market-based financial system development indicators and Gross Domestic Product par capita in Kenya. for the period running from 1997 to 2007. The Gross Domestic Product was as low as 1.2% in the first macroeconomic stability in the period running from 1997 to 2001 and was as high as 7.0% in the second macroeconomic stability in the period running from 2002 to 2007. Data capture was by census technique and checking of secondary material on Kenya National Bureau of Statistics (KNBS), Nairobi Security Exchange(NSE), and Capital Market Authority(CMA), Data analysis and interpretation was through descriptive statistics and inferential statistics. The financial indicators of a market-based financial system were characterised as size, activity and efficiency indicators. Stock market capitalization/GDP, private bond market capitalization/GDP, public bond market capitalization/ GDP were size indicators. Stock market total value traded / GDP was activity indicator. Stock market turn- over ratio was efficiency indicator. This study was in relation to literature review which depicts some financial indicators as being counterproductive to each other and in their contribution to GDP per capita. In the first macroeconomic stability (1997-2001), the bank based financial system was79% against 21% of the market based financial system. In the second macroeconomic stability (2002-2007), the bank based financial system was 54% against 46% of the marked based financial system. Financial indicators (Public bond capitalization Ksh.bn/GDP, Market Capitalization Ksh.bn/GDP, turnover ratio and total value traded) as significant predictor of GDP per capita and significantly correlated to GDP par capita in Kenya.

Keywords: *Market based financial system, Gross Domestic Product, Market based financial system development indicators.*

INTRODUCTION

Financial market comprises of bond market, stock market, foreign exchange and derivatives markets. Countries with developed financial systems are more focused towards the development of financial markets as compared to banks. In bond markets investors lend money to government or some company in return for a pre-settled interest rate. Stock markets bring together buyers and sellers to trade. In turn the investments help traders to generate more funds and expand their business. Stock markets are the most key source that companies use to generate funds. Liquidity is considered as the main reason which attracts the investors to invest their funds in stock markets. Liquid stock markets enable firms to acquire much needed capital quickly (Adjasi & Biekpe, 2006). The measure of size, depth and access basically reflects the output of a financial system. It measures that how large and deep is the financial system. The size and depth of the financial system reflects the size of savings and investments. Large financial systems reduce the limitation related to credit and improve the process of savings. Efficient allocation of credit is the main feature of a developed financial system. To study the depth of financial system the proxy of liquid liabilities to GDP is employed, banks overhead costs, net interest margin. Access of financial system refers to the greater availability of financial services. If a financial system offers greater accessibility to financial services, that is considered as one of the important step towards financial development. Impact of stock market on financial development – stock market capitalization, total value traded, turnover ratio is indicator of financial development.

The market-based financial system theory (Arestic *et al.,* 2004 & Levine, 2002) highlights the positive roles of market-based financial system in promoting GDP growth and also highlights the negatives of bank-based financial system. The positives include: fostering greater incentives to research firms since it is easier to profit from this information by trading in big and liquid markets; enhancing corporate governance by easing takeovers and making it easier to tie managerial compensation to firm performance; facilitating risk management. The negatives highlighted of bank-based financial system include: powerful banks can hinder innovation by extracting information and protecting established firms; powerful banks with few regulatory restriction may collude with firm managers against other creditors and impede efficient corporate governance. The financial indicators of a market-based financial system were characterised as size, activity and efficiency indicators. Stock market capitalization/GDP, private bond market capitalization/GDP, public bond market capitalization/ GDP were size indicators. Stock market total value traded / GDP was activity indicator .Stock market turn- over ratio was efficiency indicator. When the income of the country grows, and all the three market based financial system (size, activity and efficiency) indicators show a positive correlation with GDP per capita (Levine & Zervos,1998).

Financial services theory (World Bank, 2000, 2001) supports the creation of an environment in which intermediaries and markets provide sound financial services. The financial services theory use contracts, markets and intermediaries to ameliorate market imperfections. The financial services include: potential investment opportunities, corporate control, risk management, liquidity and mobilisation of savings to promote GDP growth of a country. The financial services theory do not subscribe to either bank-based or market based financial system but lay emphasis on either of the financial system to provide optimal financial services in a country. Liquid security markets reduced disincentives in investing in long term projects because investors could easily sell their stake in the project if they needed their savings before the project matured. This enhanced turnover due to enhanced liquidity in long term projects boosted productivity growth. Levine (1991) and Benecivenga *et al.* (1995) did works on liquid securities and GDP growth.

Kenya is a low income country and has about 45 banks, 44 insurance companies and 55 listed companies on Nairobi Security Exchange (KNBS, 1997-2007). Nairobi Security Exchange is considered the best in East and Central Africa. Kenya's GDP ranges between 1.2% and 5.8% in the period 1997 to 2007.

Economic growth has traditionally been attributed to the accumulation of human and physical capital and increased productivity arising from technological innovation. Long term sustainable GDP growth depends on the ability to raise the rates of accumulation of physical and human capital, to use the resulting productive assets more efficiently and to ensure the access of the whole population to these assets. Financial intermediation supports this investment process by mobilizing household and foreign savings for investment by firms, ensuring that these funds are allocated to the most productive use and spreading risk and providing liquidity so that firms can operate the new capacity efficiently.

MATERIALS AND METHODS

Research design

This study was conducted through a correlation research design. The researcher collected indicators' market development data and Gross Domestic Product par capita in Kenya. from NSE/KNBS/CMA.

Sampling design

This study involved not more than 55 listed companies on Nairobi Security Exchange and the KNBS. Data collection from through census technique of secondary material.

Data management

Data was collected on market based financial systems and on their derived financial development indicators and entered into Ms excel before being exported to SPSS program for developing descriptive statistics and inferential statistics

Data analysis

The market-based financial system development indicators were five (5) independent variables and all entered in the multivariate regression model against dependent variable real par capita GDP growth. The multivariate regression analysis model was used to analyse the quantitative data of the study. The model format was $Y= \beta_0 + \beta_1X_1 ++ \beta_2X_2 + \text{----------} \beta_6X_6+\varepsilon$ where: Y was the dependent variable (real per capita GDP growth); β_0 was the constant value of real par capita GDP growth in all the different regressions; X_j were the independent variables (market-based financial system); β_i were the coefficients of the independent variables X_j and ε was the error term. The Karl Pearson's co-efficient of correlation was used to determine the strength and nature of relationship among Gross Domestic Product par capita and market-based financial system development indicators.

The data collected were tabulated in units and percentages, from various documents collected during the study. The researcher used tables to give averages of market-based financial systems and analysis of variance tables used to determine the significance of these market-based financial systems. The financial systems were identified based on the level of activity, size and liquidity. The multivariate regression equations were developed stepwise with size and liquidity of the market. The dependent variable in the multivariate regression equations was Gross Domestic Product par capita. All the assumptions of multivariate regression analysis were observed: Symmetry of histogram depicts constant variance, Collinearity statistics depict multicollinearity and ANOVA significance depicts the model fit. The multivariate regression analysis results were subsequently subjected to The Karl Pearson's co-efficient of correlation. Emphasis was placed on the trends, linear regressions and correlations. The data analysis assisted the researcher to reach an amicable conclusion of the study.

RESULTS AND DISCUSSION

The Kenyan financial system has largely been bank – based but supported with a marginal market – based financial system. During the period 1997 and 2001, the bank – based financial system tremendously rose from 79% to 86% of the total financial systems. In the subsequent period (2002 – 2007), the bank based financial system and market – based financial systems almost reached equal proportions of the total financial systems (Figure 1). The Kenyan financial system can be said to be of mixed type (Has both bank-based and market-based financial system).

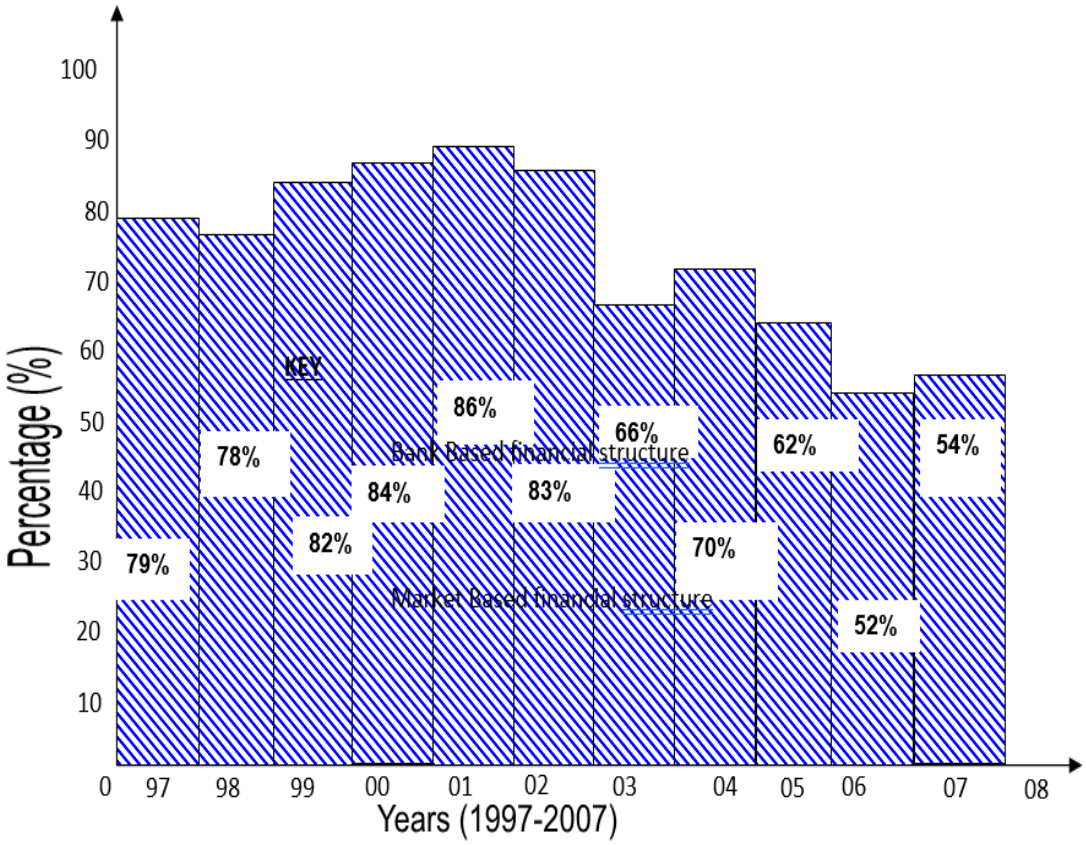

Figure 1: Percentage Bars for bank based financial system in Kenya

The results in Figure 2 and Table 1 show that Kenyan economy has been growing upward although not so fast in the market based financial system for the period running from 1997 to 2007. The trend has seen Nairobi security exchange which solely forms the market-based financial system grow from 21% of total financial systems in 1997 to 46% of total financial systems in 2007. The robust growth of NSE is usually an indication of middle income status of a country (Harris, 1997).

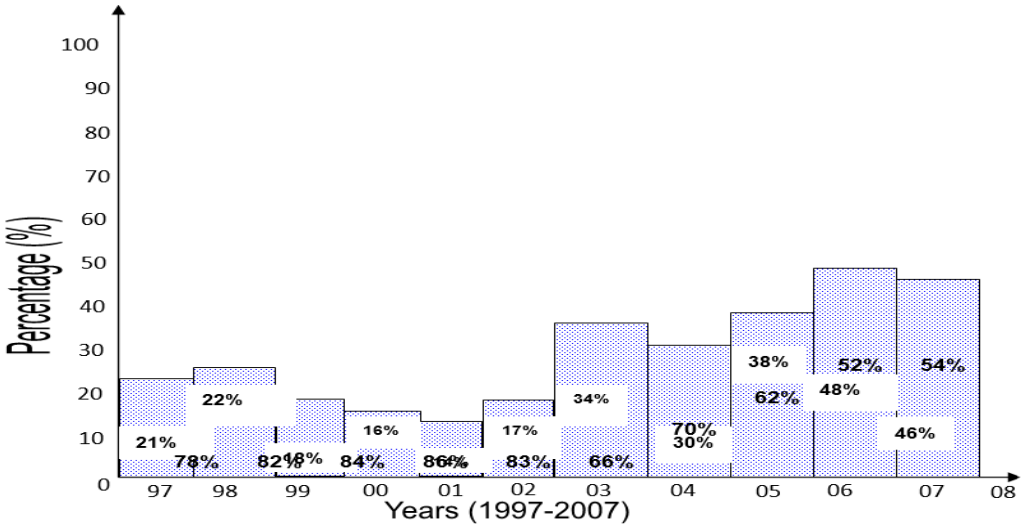

Figure 2: Percentage bars for market based financial system in Kenya

Table 1: Summary statistics on financial institutions and financial systems

The table below contains the descriptive statistics of the financial institutions and financial systems**.**

	N	Minimum	Maximum	Mean	Std. Deviation
BANKS	11	.4601	.7260	.541700	.0900255
NBFI	11	.0135	.0775	.033800	.0233939
INSURANCE	11	.0211	.0357	.027254	.0051443
NSE	11	.0839	.4822	.244765	.1366086
Bank-based financial system	11	.5046	.8393	.602755	.1166974
Market based financial system	11	.0839	.4822	.244765	.1366086
Real GDP per capita kshs.	11	$17,760	$37,943	$27,509.50	$6,584.378

The results in Table 1 show that Kenya basically has a bank-based financial system with a mean of 60% of the Country's GDP While NSE forms 24% of country's GDP. The banking institutions have the lion share of 54% of GDP.

Table 2: Summary statistics on financial indicators of financial systems development

The table below contains the descriptive statistics of financial indicators of financial systems development.

	N	Minimum	Maximum	Mean	Std. Deviation
Total Value Traded	11	.0028	.0578	.016890	.0195706
Turn over ratio	11	.0171	.1199	.053306	.0353572
Market Capitalization Ksh.bn/GDP	11	.0839	.4822	.244765	.1366086
Public bond capitalization Ksh.bn/GDP	11	.0344	.1679	.109811	.0461134
Overhead cost Ksh.bn	11	26.8000	59.1000	42.771909	8.2247894
Net interest margin	11	.0757	.2351	.130015	.0487503
Deposit money bank assets/total financial assets	11	.8357	.9520	.904421	.0426758
Other financial institutional assets/totat financial assets	11	.0480	.1643	.095579	.0426758
Deposit money bank assets/GDP	11	.0196	.4042	.237394	.1151002
Private credit by deposit money banks,ksh bn/GDP	11	.0182	.3349	.183701	.0909643
Private credit by deposit money banks and other financial institution,ksh bn/GDP	11	.0207	.3730	.198520	.0998664
life penetration % GDP	11	.5410	.8367	.731252	.0762879
Non-life penetration % GDP	11	1.5695	2.8893	1.994157	.5013403
Private bond capitalization Ksh.bn/GDP	11	.0013	.0082	.004287	.0026812

The results in Table 2 show that market capitalization, public bond capitalization and deposit money bank assets form 24%, 11% and 24% of GDP respectively. Deposit money bank assets forms 90% of the total financial assets. The financial indicators such as private credit by deposit money banks/GDP, private credit by deposit money banks and other financial institutions/GDP turnover ratio and total value traded known to accelerate economic growth (Levine & Servos, 1998) are conspicuously not developed.

Table 3: model summary

The table below shows regression model findings of the five development financial indicators of market based financial systems as independent variables and GDP par capita as dependent variable.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.968	.937	.875	ksh2,329.515

a. Predictors: (Constant), Total Value Traded, Private bond capitalization Ksh.bn/GDP, Public bond capitalization Ksh.bn/GDP, Turn over ratio, Market Capitalization Ksh.bn/GDP

b. Dependent Variable: Real GDP per capita kshs.

In Table 3, the five financial indicators of market-based financial system entered together in the same regression model represented 94% of the variation in real GDP per capita as shown by R-square measure.

Table 4: ANOVA

The table below shows the ANOVA results for five development financial indicators of market-based financial systems in a regression model with GDP par capita in Kenya

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	406407163.896	5	81281432.779	14.978	.005
	Residual	27133195.844	5	5426639.169		
	Total	433540359.740	10			

a. Dependent Variable: Real GDP per capita kshs.
b. Predictors: (Constant), Total Value Traded, Private bond capitalization Ksh.bn/GDP, Public bond capitalization Ksh.bn/GDP, Turn over ratio, Market Capitalization Ksh.bn/GDP

The ANOVA Table 4 tests the hypothesis of whether the regression coefficients are zero in the population. The five financial indicators of market-based financial system have linear relationship with real GDP par capita. Hence the null hypothesis that there is no relationship between financial indicators of market-based financial system and real GDP par capita is rejected and the alternate hypothesis accepted that there is a relationship between financial indicators of market-based financial system and real GDP per capita.

Table 5: regression coefficients

The table below shows the regression coefficients of the five development financial indicators of market based financial system.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	17995.592	4735.892		3.800	.013
	Public bond capitalization Ksh.bn/GDP	108259.521	53054.245	.758	2.041	.097
	Private bond capitalization Ksh.bn/GDP	-450388.993	631496.871	-.183	-.713	.508
	Market Capitalization Ksh.bn/GDP	-44883.662	35437.910	-.931	-1.267	.261
	Turn over ratio	161056.750	99560.245	.865	1.618	.167
	Total Value Traded	115878.683	283636.772	.344	.409	.700

a. Dependent Variable: Real GDP per capita kshs.

The results in Table 5 shows that Gross Domestic Product par capita regressed slightly on public bond capitalization Ksh.bn/GDP. All the other financial indicators of market-based financial system development were not significant. However, all the five financial indicators of market-based financial system development were good predictor of GDP per capita. The null hypothesis is therefore rejected. These findings agree with the views of Dermirgu-Kunt and Levine (1999).

Table 6: Collinear statistics for independent variables

The table below shows the Collinearity statistics for five independent variables of market based financial system.

Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	Public bond capitalization Ksh.bn/GDP	.091	11.030
	Private bond capitalization Ksh.bn/GDP	.189	5.283
	Market Capitalization Ksh.bn/GDP	.023	43.188
	Turn over ratio	.044	22.835
	Total Value Traded	.018	56.781

Dependent Variable: Real GDP per capita kshs.

In Table 6, the five variables of financial indicators of market based financial system have independent relationship with real GDP per capita. They can therefore be included at the same time in the regression model that predicts real GDP per capita.

Table 7: Residuals analysis

The table below shows the residual analysis of the regression model

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	ksh18,921.88	ksh36,681.14	ksh27,509.50	ksh6,375.007	11
Residual	-ksh3,483.260	ksh2,814.723	ksh0.000	ksh1,647.216	11
Std. Predicted Value	-1.347	1.439	.000	1.000	11
Std. Residual	-1.495	1.208	.000	.707	11

Dependent Variable: Real GDP per capita kshs

The results in Table 7 shows that real GDP per capita was under predicted by Kshs.6,375.007 which will increase the minimum to kshs.25,296 and the maximum increased to kshs.43,056.

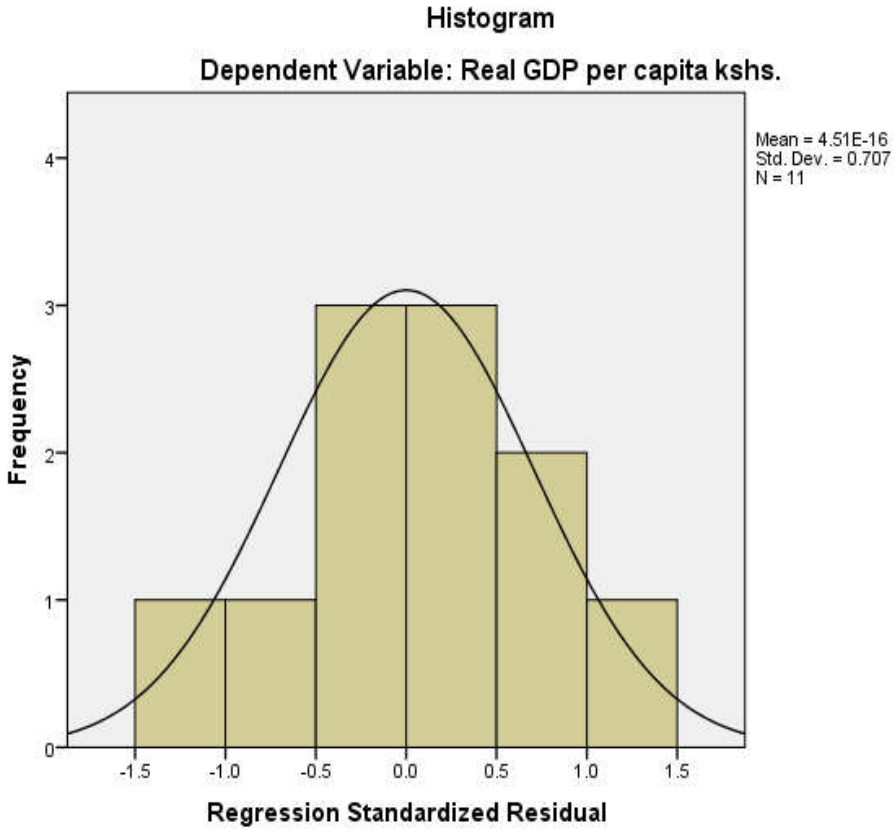

Figure 3 Histogram of residuals

The histogram above demonstrates almost a normal curve.

The results in Figure 3 show a curve with almost normality and homogeneity of residuals. Hence the assumptions of multi-linear regression have been met.

Table 8: Correlations of significant financial indicators of market-based financial system development and GDP per capita in Kenya.

The table below shows a correlation matrix for five development financial indicators of market based, financial systems and GDP par capita.

		Real GDP per capita kshs.	Market Capitalization Ksh.bn/GDP	Private bond capitalization Ksh.bn/GDP
Real GDP per capita kshs.	Pearson Correlation	1	.735**	.404
	Sig. (2-tailed)		.010	.218
	N	11	11	11
Market Capitalization	Pearson Correlation	.735**	1	-.107
Ksh.bn/GDP	Sig. (2-tailed)	.010		.754
	N	11	11	11
Private bond	Pearson Correlation	.404	-.107	1
capitalization	Sig. (2-tailed)	.218	.754	
Ksh.bn/GDP	N	11	11	11
Public bond capitalization	Pearson Correlation	.842**	.745**	.443
Ksh.bn/GDP	Sig. (2-tailed)	.001	.009	.172
	N	11	11	11
Turn over ratio	Pearson Correlation	.897**	.875**	.165
	Sig. (2-tailed)	.000	.000	.627
	N	11	11	11
Total Value Traded	Pearson Correlation	.817**	.943**	.025
	Sig. (2-tailed)	.002	.000	.941

Correlations

		Public bond capitalization Ksh.bn/GDP	Turn over ratio	Total Value Traded
Real GDP per capita kshs.	Pearson Correlation	.842	.897**	.817
	Sig. (2-tailed)	.001	.000	.002
	N	11	11	11
Market Capitalization Ksh.bn/GDP	Pearson Correlation	.745**	.875	.943
	Sig. (2-tailed)	.009	.000	.000
	N	11	11	11
Private bond capitalization Ksh.bn/GDP	Pearson Correlation	.443	.165	.025
	Sig. (2-tailed)	.172	.627	.941
	N	11	11	11
Public bond capitalization Ksh.bn/GDP	Pearson Correlation	1**	.719**	.689
	Sig. (2-tailed)		.013	.019
	N	11	11	11
Turn over ratio	Pearson Correlation	.719**	1**	.964
	Sig. (2-tailed)	.013		.000
	N	11	11	11
Total Value Traded	Pearson Correlation	.689**	.964**	1
	Sig. (2-tailed)	.019	.000	
	N	11	11	11

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

The result in Table 8 shows the financial indicators in market-based financial system development that were found significant and correlating to GDP per capita were: public bond capitalization Ksh.bn/GDP, turnover ratio and total value traded. Market capitalization/GDP correlated with turnover, public bond capitalization Ksh.bn/GDP and total value traded. The null hypothesis is therefore rejected. These findings agree with the views of Dermirgu-Kunt and Levine(1999).

CONCLUSIONS AND RECOMMENDATION

The study of the assessment of the relationship of market-based financial system development indicators and Gross Domestic Product par capita in Kenya and showed that Public bond capitalization Ksh.bn/GDP, Market Capitalization Ksh.bn/GDP, turnover ratio and total value traded) as significant predictor of GDP per capita and significantly correlated to GDP par capita in Kenya. The Government of Kenya should provide enabling environment to support the flourishing of both bank-based and market-based financial systems. financial services.

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