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## ECONOMICS AND POLICY

### EFFECTS OF SECTORAL BUDGETARY ALLOCATION ON ECONOMIC GROWTH: CASE STUDY OF KENYA

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#### Abstract

*The objective of this study was to investigate the effect of sectoral government expenditures on economic growth of Kenya over the period between 1970 and 2011, with particular focus on key sectors namely: Agriculture, Defense, Education, Health, Manufacturing, Transportation and Communication. The study employed use of annual Kenyan data from 1970 to 2011 for all the variables. These were tested for stationarity using the ADF test and Breusch-Godfrey Serial Correlation test used to test for autocorrelation amongst the variables. OLS regression was performed and the results differenced with the intercept being eliminated to control for serial auto correlation within the model and to obtain an estimate of the long run relationship between the dependent and independent variables. Results show in the long-run, expenditure on agriculture was positively and significantly related to economic growth. Spending on education was also positive and significant. Expenditure on health was found to be positively related to economic growth albeit insignificantly. Expenditures on defense and transportation and communication with roads as proxy were positively related to economic growth, although statistically insignificant. To further grow economy, the government should consider increased spending in agriculture and education since they are key drivers to growth. Adoption of stringent controls on expenditures in manufacturing is imperative for it to have a positive impact on the economy. The results of the study will generate vital information that developing countries like Kenya, which are resource constrained, can use to inform policy and therefore allocate her limited resources optimally.*

**Key words:** Agriculture, health defence, education, manufacture, roads

#### Introduction

Policy makers are divided as to whether government expansion helps or hinders economic growth. Advocates of bigger government argue that government programs provide valuable "public goods" such as education, infrastructure, military defence, enforcement of contracts, and police services that markets generally do not due to the nature of these goods. (M Amanja and Morrissey 1999)

Standard economic theory holds that individuals have little incentive to provide these types of goods because others tend to use them without paying. John Maynard Keynes, one of the most significant economists of the 20th century, advocated government spending, even if government has to run a deficit to conduct such spending. He hypothesized that when the economy is in a downturn and unemployment of labour and capital is high, governments can spend money to create jobs and employ capital that have been unemployed or underutilized. Keynes's theory has been one of the implicit rationales for the current federal stimulus spending in that it is needed to boost economic output and promote growth. (Mudaki and Masaviru 2012)

These views of spending assume that government knows exactly which goods and services are under produced which public goods will be value adding and where to redirect resources. However, there is no source of information that allows the government to know where goods and services can be most productively employed. Federal spending is less likely to stimulate growth when it cannot accurately target the projects where it would be most productive. (Alexiou 2009)

As justification for the study, there are some components of government expenditures that are productive while some are unproductive. Government expenditures on health and education raise the productivity of labour and increase the growth of national output. Education is one of the important factors that determine the quality of labour and manpower and has been considered to be an independent factor of production that is indispensable to achieve high and sustainable economic growth rates (Hartshorne, 1985).. Expenditures on infrastructure such as transportation and communication will bring about reduction in production costs, which will surely increase private sector investment and profitability of firms and thereby fostering economic growth. Good health promotes hard work and productivity. Capital in the form of national defense is a necessity for safeguarding and protecting the nation from outside aggression, while agriculture in the form of food production is a necessity for human existence.

### ***Kenyan scenario***

Kenya is the largest economy in East Africa and is a regional financial and transportation hub. After independence, Kenya promoted rapid economic growth through public investment, encouragement of smallholder agricultural production, and incentives for private (often foreign) industrial investment. Gross domestic product (GDP) grew at an annual average of 6.6% from 1963 to 1973. Agricultural production grew by 4.7% annually during the same period, stimulated by redistributing estates, diffusing new crop strains, and opening new areas to cultivation.

After experiencing moderately high growth rates during the 1960s and 1970s, Kenya's economic performance during the 1980s and 1990s was far below its potential. From 1991 to 1993, Kenya had its worst economic performance since independence. Growth in GDP stagnated, and agricultural production shrank at an annual rate of 3.9%. Inflation reached a record 100% in August 1993. In the mid-1990s, the government implemented economic reform measures to stabilize the economy and restore sustainable growth, including lifting nearly all administrative controls on producer and retail prices, imports, foreign exchange, and grain marketing. Nevertheless, the economy grew by an annual average of only 1.5% between 1997 and 2002, which was below the population growth estimated at 2.5% per annum, leading to a decline in per capita incomes. The poor economic performance was largely due to inappropriate agricultural, land, and industrial policies compounded by poor international terms of trade and governance weaknesses. Increased government intrusion into the private sector and import substitution policies made the manufacturing sector uncompetitive. The policy environment, along with tight import controls and foreign exchange controls, made the domestic environment for investment unattractive for both foreign and domestic investors.

The overall performance of Kenya's economy since independence thus has remained "mixed." Upon attainment of independence in 1963, the economic aims of the new government were carefully set out in Sessional Paper No. 10 of 1965 on African Socialism and its Application to Planning in Kenya. The objectives set out were seen to be articulate enough to achieve high and growing per capita incomes. The main thrust of this strategy was to promote rapid economic

growth through public sector programs, encouragement of both smallholder and large-scale farming and the pursuit of accelerated growth of private sector investment.

In the 1964-73 period, Kenya's economy grew steadily and rapidly at an average rate of 6.5 percent. However, in the decade between 1973 and 1983, the oil crisis slackened growth to 5% per annum with little change in per capita incomes. The country encountered a serious balance of payment deficit as a result of OPECs decision to increase oil prices. This period heralded the beginning of intensive economic policy discussions between Kenya and the Bretton Woods institutions. The period 1980-86 witnessed the intensification of these problems, which culminated in the drawing up of Sessional Paper No. 1 of 1986 on Economic Management for Renewed Growth. This policy document set to renew the economic recovery and growth through a process of liberalization. The Sessional Paper proposed a number of fiscal and monetary policy reforms that were far reaching in terms of further opening up of the economy. It set off the process of undertaking far reaching institutional and structural reforms in the economy.

In 2000, the economy registered a negative growth of 0.2 per cent but recovered to a modest growth of 1.2 per cent in 2001. All sectors save for construction and building, recorded positive growth. Transport, storage and communication had the highest growth of 3.1 per cent while agriculture and manufacturing recorded 1.2 per cent and 0.8 per cent growth rates respectively. Government investment in education, health and other social services rose from a total US\$ 900 million

Bearing in mind this mixed performance, there is often intense debate on the most appropriate way of allocating public funds during budgetary cycles in Kenya and most other developing countries thus requiring the need to investigate the effect of the distribution, quantity and composition of public expenditure on economic growth. The results for the economic impact of sectoral public expenditures will give rise to information that is critical for developing countries like Kenya which are resource constrained and therefore need to allocate the limited resources optimally. In view of the issues raised, the main objective of this study is to investigate the effects of government sectoral expenditures on economic growth in Kenya. It focuses on economic growth effects of sectoral expenditures in six sectors namely agriculture, education, health, defence, Manufacturing and transport and communication in Kenya using time series data for the period 1970-2011.

### **Justification of the study**

The debate over the impact of government spending on economic growth in the developing countries has continued with no consensus although there is theoretical and empirical evidence that supports both sides of the debate. On the one hand, Singh and Sahni (1984), Ram (1995), and Holmes and Hutton (1990) conclude that government expansion has a positive effect on economic growth. On the other hand, Landau (1983, 1986), Barth et al (1990) find the opposite is true that government expansion tends slow economic growth for many developed and less developed countries. According to the former, it is the differences in the set of conditioning variables and initial conditions across studies that are responsible for the lack of consensus in the results (Levine and Renalt 1992). In contrast, latter category consists of a handful of studies (Helms 1985; Mofidi and Stone 1990; Kneller et al. 1999) that suggest this variation in the results, in part at least, reflects the wide spread tendency among researchers to ignore the implications of the government budget constraint. It is in this regard that this study was undertaken to observe the trends in Kenya with regard to government spending and economic

growth in the major sectors including spending in health, agriculture, education, defense, manufacturing and transport and communication.

### **Theoretical perspectives**

The theoretical relationship between government expenditure and economic growth is well-documented in the literature and therefore it will only be briefly discussed here. The major theories in economics concerning the relationship between government expenditure and economic growth will be Niskanen's theory of bureaucracy that emphasizes the role of self-interest of the bureaucrats in government. The bureaucrats are interested in maximizing their own utility. Their utility function consists of salary, perks, prestige, power etc. Peacock and Wiseman's Theory of Expenditure argues that under normal conditions of peace and economic stability, changes in public expenditure are rather limited. These changes are bounded by tolerable limits of taxation. Moreover, Ernest Engel's Theory of Public Expenditure points out that the composition of the consumer budget changes as family income increases. As the average income increase, smaller charges in the consumption pattern for the economy occur. Wagner Law of increasing state activities has it that three main reasons for the increase in the government's role are industrialization, an increase in real income leading to an expansion of the income elastic expenditure and natural monopolies such as the railroads have to be taken over by the government because private companies would be unable to run these undertakings efficiently and lastly the Keynesian theory that argues that increases in government spending boost growth by injecting purchasing power into the economy. According to Keynes, government could reverse economic downturns by borrowing money from the private sector and then returning the money to the private sector through various spending programs.

### **Empirical Literature Review**

There has been growing empirical evidence of the impact of sectoral spending on economic growth. However, the results that have emerged show mixed results and subject to criticism due various reasons including the use of different empirical techniques. A summary is presented herein of some of the empirical literature that has emerged since the beginning of 1990s. Beginning in 1990, Atesoglu (2002) used a two sector Feder-Ram model for the US economy. They noted a positive effect from transport and infrastructure sector spending on the overall growth in national output. Similarly, Smith (2000) investigated a group of LDC's using the Keynesian demand function model and from the empirical analysis, Stewart reported that sectoral spending including expenditures in Transport, defense and military, health, education and agriculture were positively linked with economic growth although non-defense spending was stronger. In the Sri Lankan economy, Wijeweera and Webb (2009) used Keynesian model to investigate relationship between sector spending and economic growth in the presence of defense expenditures and real interest. Their results indicated a positive effect of defense spending on economic growth. Gupta et al. (2010) re-investigated the relationship between defense and non defense expenditures and aggregate output for US economy using factor augmented vector autoregressive (FAVAR) model and they reported positive impact of military spending which outdid the non defense sector spending on aggregate output. Narayan and Singh (2007) undertook an investigation for Fiji Islands by incorporating education as a variable in production function within multivariate framework model. They found that education spending has positive impact on economic growth through labour-enhancing multiplier effect. Similarly, Ando (2008) found positive and significant effect of government in the education and health sector spending on economic growth for 109 countries, including 30 OECD and 40 SSA countries. Further, literature also provides studies which reported positive impact of government

spending on economic growth. For instance, Mintz and Huang (1990) used three equation models based on the Feder-Ram model for the US economy and noted that a rise in health spending is positively linked with economic growth through labour-enhancing effect. Ward and Davis (1992) re-investigated the relationship between government spending and economic growth by using a three sectors Feder-Ram model in the case of United States. Their empirical exercise revealed a positive effect of health and education spending on economic growth although spending on defense retarded the economy. Further, Atesoglu (2002) probed the role of health, education and defense spending in economic performance of US economy by applying models developed by Romer (1986). In case of South Africa, Birdi and Dunne (2002) investigated the effect of government spending in agriculture and defense on economic growth using model developed by Feder-Ram based on the Keynesian Model and reported that a rise in agriculture spending promotes the economic performance for short span of time with significant feedback affect while defense had a negative effect as well in the short run.

In case of Peru, Ando (2008) conducted a study to investigate the impact of spending in agriculture, education and health on economic growth using the Barrow model and reported positive effect of the agriculture and education sectors spending on the pace of economic growth although health displayed a negative effect. Karagol and Palaz (2004) re-examined the association between 3 sector government spending and economic growth for Turkish economy by using Johansen multivariate approach to cointegration. Their empirical evidence confirmed long run relationship between the variables and noted that a rise in agriculture, defense, and health spending retards economic growth. Galvin (2003) applied 2SLS and 3SLS to investigate demand and supply side models for 64 LDCs. Results indicated that manufacturing, health and agriculture spending has negative effect on economic growth by declining public savings. Fujita et al (2003) investigated the relationship between manufacturing spending, government military expenditures and economic growth for Egypt, Israel and Syria. Their analysis based on augmented Solow model reported that both manufacturing and military expenditures promote economic growth. Pieroni (2009) investigated the relationship between manufacturing, health and education spending and economic growth using cross-country data for top 100 economies globally. Results showed that a rise in manufacturing and health spending were promoting economic growth while education spending was retarding economic growth. Based on these arguments, the paper will aim at establishing the relationship between a six sector government expenditure and economic growth in Kenya for the purpose of growing the available literature on the subject for Kenya

## **Research Methodology**

### ***Model specification***

Data was collated for the spending in the agricultural sector, defense, education, health, manufacturing and transport and communication with roads as the proxy and GDP from 1970 to 2012. In the model, economic growth was the dependent variable and proxied by Gross Domestic Product (GDP). The independent variables are spending in agricultural sector, defense, education, health, manufacturing and roads as proxy for transport and communication with roads as the proxy. The development of empirical research lead us to use Feder (1983) government spending model to test the relationship between government spending in agriculture, defense, education, health, manufacturing as well as roads and economic growth (GDP). Feder's model has been used by Ram (1995), Biswas and Ram (1986) and latter on, Ward et al. (1991) and Yildrin et al. (2005) to investigate the effect of government sectoral spending on economic growth. The series was transformed into natural logarithms since simple

linear specification provides inefficient and unreliable empirical results due to sharpness in time series data in developing economies like Kenya (Karagol, 2006) and in such a situation use of log-linear specification is better option for time series analysis which directly produces elasticity. Also, log-linear specification provides better and unbiased empirical evidence (Sezgin, 2004). In the light of above discussion, our empirical equation was modelled as follows:

GDP = f (Expenditures in: Agriculture, Defense, Education, Health, Manufacturing, Roads)

With a linear relationship such that:

RGDP = F (EXPEAGRIC, EXPEDEFE, EXPEDUC, EXPEHEAL, EXPEMANU, EXPEROAD)

The log-linear form the model is specified as:

$$\text{LnRGDP}_t = \text{Ln}\beta_0 + \beta_1 \text{LnEXPEAGRIC}_t + \beta_2 \text{LnEXPEDEFE}_t + \beta_3 \text{LnEXPEDUC}_t + \beta_4 \text{LnEXPHEAL}_t + \beta_5 \text{LnEXPMANU}_t + \beta_6 \text{LnEXPROAD}_t + \varepsilon_t$$

**Where:**

RGDP -Real Gross Domestic Product

EXPAGRIC -Expenditure on Agriculture

EXPEDEFE -Expenditure on Defense

EXPEDUC -Expenditure on Education

EXPHEAL -Expenditure on Health

EXPMANU -Expenditure on manufacturing

EXPROAD -Expenditure on Roads (Proxy for spending in Transport and communication)

$\varepsilon_t$  -Error term. The error term is assumed to be normally and independently distributed with zero mean and constant variance, which captures all other explanatory variables which influence economic growth but are not captured in the model.

### Unit root tests

OLS regression was used. Because OLS regression sometimes gives spurious results especially when there is auto and serial correlation among the variables, it is imperative to test for the presence of unit roots using the Augmented Dickey Fuller approach. The study tested for stationarity of the endogenous and exogenous variables within the framework of Augmented-Dickey-Fuller (ADF) test procedure. This test is important in order to avoid spurious regression which is a common problem when estimating a regression line with data whose generated process follows a time trend. The ADF test requires estimating an equation of the form of:

$$\Delta Y_t = \beta_0 + \beta_1 Y_{t-1} + \beta_2 t + \sum_{i=1}^p A_i \Delta Y_{t-i} + Z_t$$

Where:

Y<sub>t</sub>: Vector for all-time series variables under consideration in a particular regression model (our variables of interest)

t: is a time trend variable

Δ: Denotes the first difference operator

Z: Error term

p: Optimal lag length of each variable chosen automatically by E-views Version 4.0 according to the Schwarz Information Criteria (SIC) such that first-differenced terms make Z<sub>t</sub> the error term.



The ADF test is principally concerned with the estimate of  $\beta_1$ , that is, the study tests the hypothesis  $H_0: \beta_1 = 0$ . The rejection of the null hypothesis in favor of the alternative hypothesis implies that  $Y_t$  is stationary and integrated of order zero, that is,  $I(0)$ . If the null hypothesis of unit root for the first difference is rejected, then the first difference is stationary and the variable is integrated of order one, that is,  $I(1)$  (Lucas 1988; Krugman 1991). The objective of this unit root test is to check whether the macroeconomic variables of interest are integrated of order one  $I(1)$  before proceeding to the estimation procedure.

### ***Breusch-Godfrey Serial Correlation***

For cointegration analysis the Breusch-Godfrey Serial Correlation testing approach developed by Breusch and Godfrey (1978), as a serial correlation diagnostic statistic was used because of its numerous advantages over traditional techniques of cointegration. It is based on the regression of the OLS residuals  $e_t$  on the  $k$  regressors and the lagged residuals between the variables in equation. For example, it has better properties for small sample data sets; secondly, a dynamic AR model can be derived through a simple linear transformation (Banerjee and Newman, 1993) which integrates the short-run dynamics with the long-run equilibrium without losing information about long run.

## **Research Findings and Discussions**

### ***Augmented dickey-fuller test***

Using the Augmented Dickey Fuller (ADF) test, it was found that all the variables were non-stationary at levels, thus leading us to test for stationarity at 1st differences, which showed that the variables were stationary at first difference at 1% level of significance as seen in Table 1.

### ***Regression equation***

The results of the regression using natural logs of the dependent (DV) and the independent variables (IV) is shown in Table 2

Results from the long run equation indicate that the coefficient of the LN\_EDUC has a coefficient of 0.0159 and a T-statistic of 0.9363 which is insignificant and can be interpreted that as expenditure on income grows by 0.02 percent GDP grows by 1 percent. LN\_DEFE has a significant T-statistic of 6.77 and a coefficient of 0.475 meaning that as net spending on defense increases by 0.475% the GDP grows by 1 percent. LN\_AGRIC has a coefficient of 0.8595 and a significant T-statistic of 3.9038 meaning that as spending on agriculture grows by 0.85% GDP grows by 1 percent. LN\_HEAL has a coefficient of 0.0011 and a T-statistic of 0.0760 meaning that as spending on health increases by 0.001% the GDP will increase by 1% although it is insignificant. LN\_MANU had a coefficient of -0.4239 and a T-statistic of -1.1519 indicating that as spending on manufacturing increases by 1%, GDP reduces by 0.4%. LN\_ROAD had a coefficient of 0.0641 and a T-statistic of 2.4141 meaning that as spending on roads increases by 0.06%, GDP increases by 1% and was a significant contributor to GDP. The Probability F-statistic is 0.000000 which is less than 0.05 which is significant implying a good model. Adjusted R-squared is 0.9085 implying that 90% of variations in GDP are explained by the model. The Durbin-Watson statistic is 1.0182 implying the presence of positive serial autocorrelation in the model hence requiring further data analysis.

**Table 1: Results of the ADF test showing results of the ADF stat with intercept and intercept with trend**

Variable	ADF-Test Statistic (Intercept)	ADF-Test Statistic (Trend and Intercept)	Level of Integration
<b>GDP (DLN_GDP)**</b>	-5.415143* 1% Critical Value: -3.6117 5% Critical Value: -2.9399 10% Critical Value: -2.6080	-5.200379* 1% Critical Value: -4.2165 5% Critical Value: -3.5312 10% Critical Value: -3.1968	I(1)
<b>AGRICULTURE (DLN_AGRIC)**</b>	-6.288421* 1% Critical value: -3.7117 5% Critical Value: -2.8015 10% Critical Value: -2.4012	-6.185447* 1% Critical Value: -4.2165 5% Critical Value: -3.5312 10% Critical Value: -3.1968	I(1)
<b>DEFENCE (DLN_DEFE)**</b>	-6.390144* 1% Critical Value: -3.6117 5% Critical Value: -2.9399 10% Critical Value: -2.4980	-6.227837* 1% Critical Value: -4.1165 5% Critical Value: -3.9312 10% Critical Value: -3.0960	I(1)
<b>EDUCATION (DLN_EDUC)**</b>	-6.490144* 1% Critical Value: -3.7117 5% Critical Value: -2.9099 10% Critical Value: -2.6180	-6.267837* 1% Critical Value: -4.2165 5% Critical Value: -3.5312 10% Critical Value: -3.1968	I(1)
<b>HEALTH (DLN_HEAL)**</b>	-5.527712* 1% Critical Value: -3.6117 5% Critical Value: -2.9399 10% Critical Value: -2.6080	-5.485662* 1% Critical Value: -4.2345 5% Critical Value: -3.3312 10% Critical Value: -3.2018	I(1)
<b>MANUFACTURING (DLN_MANU)**</b>	-5.527712* 1% Critical Value: -3.6117 5% Critical Value: -2.9399 10% Critical Value: -2.6080	-5.485662* 1% Critical Value: -4.2165 5% Critical Value: -3.5312 10% Critical Value: -3.1968	I(1)
<b>ROADS (DNL_ROAD)**</b>	-6.688482* 1% Critical Value: -3.6117 5% Critical Value: -2.9399 10% Critical Value: -2.6080	-6.592714* 1% Critical Value: -4.2165 5% Critical Value: -3.5312 10% Critical Value: -3.1968	I(1)

\* ADF test statistic \*\* First difference of the natural log of Variables

**Table 2: Results regression equation using natural log of GDP as the DV and natural logs of education, defense, agriculture, health, manufacturing and roads as the IV**

Dependent Variable: LN\_GDP  
 Independent Variables: LN\_EDUC, LN\_DEFE, LN\_AGRIC, LN\_HEAL, LN\_MANU, LN\_ROAD  
 Regression Model:  $LN\_GDP_t = \beta_0 + \beta_1 LN\_EDUC_t + \beta_2 LN\_DEFE_t + \beta_3 LN\_AGRIC_t + \beta_4 LN\_HEAL_t + \beta_5 LN\_MANU_t + \beta_6 LN\_ROAD_t + \varepsilon_t$

Variable	Coefficient	Std. Error	T-Statistic	Prob.
<b>LN_EDUC</b>	0.015987	0.017064	0.936866	0.3552
<b>LN_DEFE</b>	0.474885	0.070124	6.772113	0.0000
<b>LN_AGRIC</b>	0.859546	0.220180	3.903839	0.0004
<b>LN_HEAL</b>	0.001170	0.015381	0.076063	0.9398
<b>LN_MANU</b>	-0.423932	0.368021	-1.151924	0.2572
<b>LN_ROAD</b>	0.064197	0.026593	2.414109	0.0211
<b>C</b>	23.59726	1.051949	22.43194	0.0000
<b>R-squared</b>	<b>0.921960</b>			
<b>Adjusted R-squared</b>	<b>0.908582</b>			
<b>Durbin-Watson stat</b>	<b>1.018267</b>	Probability (F stat)		<b>0.00000</b>

**Correcting for serial autocorrelation using First difference method without intercept**

There are various methods to correct for serial autocorrelation and in our study we employed the first difference method while eliminating the intercept.

**Table 3: Regression results of the first differences of the variables (DLN)**

Dependent Variable: DLN_GDP				
Method: Least Squares				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
DLN_AGRIC	0.8209	0.1010	8.127727	0.0001
DLN_DEFE	0.1201	0.2939	0.408642	0.4330
DLN_EDUC	0.4375	0.1119	3.909740	0.0004
DLN_HEAL	0.3913	0.3523	1.110701	0.2353
DLN_MANU	-0.0508	0.5009	0.101417	0.9215
DLN_ROAD	0.2832	0.6015	0.470822	0.4828

R-squared **0.890599**  
 Adjusted R<sup>2</sup> **0.864970**  
 Durbin-Watson stat **1.940796**

The findings showed that public expenditure on agriculture was significant and positive determinant of economic growth with a probability of 0.0001 which is less than 0.05 and a coefficient of 8.12. This conforms to studies by Mudaki and Masaviru (2012) who undertook a study of public expenditure composition for Kenya between 1972 and 2008 and in their study they found that agriculture spending played a positive and significant role in GDP growth of Kenya. Expenditure on education was also positive with a coefficient of 0.4375 and a probability of 0.0004. Mudaki and Masaviru (2012) also found that spending in education was positive and significant to economic growth. Sennoga and Matovu (2010) in his study of public spending composition in Uganda that spanned between 1979 and 2010 concluded that spending in education was the biggest and most significant driver for Uganda’s GDP. A positive relationship between health sector spending and economic growth exists such that a unit percentage increase in expenditure on health would increase real gross domestic product by about 0.3948% although it was insignificant, this might be caused by the poor targeting of these resources.

**Breusch-Godfrey serial correlation test for the 1st differences**

**Table 4: Results of the Breusch-Godfrey serial correlation test for the first differences**

F-statistic	9.684529		
<b>Observed R-squared</b>	<b>1.318493</b>	<b>Probability (Chi square)</b>	<b>0.517241</b>

Dependent Variable: RESID (of the First differences)  
 Method: OLS

After differencing the data once, the probability become 51.72% and therefore we accept the H0 that serial auto correlation is absent in the model and reject H1 that there is presence of autocorrelation in the data.

Spending on roads which was a proxy for expenditure on transport and communication was found to be insignificant and positively, albeit, weakly related to GDP growth such that a unit spending in the sector led to a paltry 0.28% growth in GDP. This finding corresponds to those of Mudaki and Masiviru (2012), Shahbaz and Shahbaz (2011) which find spending in this sector insignificant. This might be due to the different channels through which economic infrastructure investment impacts economic growth may take longer term to realize than the one period lag considered in the model or poor uptake of technology such that the benefits of investment in transport and communication take long to be realized.

The value of R-Squared was sufficiently high (0.8905) suggesting that the variables included in the model collectively explained 89.05% of all the determinants of economic growth. The Durbin Watson statistic was 1.94 which is close to the usually recommended value of 2.0 which pointed towards non existence of serial correlation among the variables in the model.

### **Summary of findings**

The findings show that spending on agriculture had a significant net influence on economic growth. Further it had the highest coefficient at 0.8209 of the six variables tested meaning that a percentage point in spending on agriculture grew the economy by 0.8%. On the whole, the agricultural sector contributes significantly to Kenya's GDP. The findings of this paper is that reallocating government expenditure to the education sector will in the long-run lead to substantial growth of the economy. This impact is strong and statistically significant with a coefficient of 0.4375 meaning that the GDP grows by 0.43% when the government spends 1% of its resources. Although spending in the health sector was positively correlated to economic growth, it was found to be insignificant. Spending on roads was used as proxy for transport and communication. The results show a positive relation of the said sector to economic growth although it was insignificant with T -Stat of 0.47 which is below the absolute value of 2.0

### **Conclusion**

Results from the empirical analyses provide strong evidence indicating that agriculture is an engine of economic growth. Based on the results of this study, it can be concluded that government expenditure on functions of agriculture affects economic growth positively and significantly. The positive association found between government expenditure on agriculture and economic growth further strengthens the call for African States under the Maputo Declaration to allocate at least 10 percent of the budgetary resources to agriculture in support of accelerated implementation of national agricultural investments to grow economies and reduce poverty. According to the 2012 FAO report indicating that most Sub Sahara Africa countries have increased their expenditure in the agricultural sector by 3.5 % in the last decade, this goes to show that most SSA countries have realized the importance of Agriculture and are making strides to further bolster the sector to maximize on the sectors impressive positive multiplier effect. As regards education, it is generally considered that a learned economy is likely to grow its wealth faster. As the results indicate, spending on education has a significant and positive effect on Kenya's economy and therefore prudent for the government to further invest in the education sector.

### **Recommendations**

The economy of Kenya can expect to grow by investing in agriculture and education at a greater extent. Therefore the study suggests that Kenya government should increase its public spending on agriculture and education as well as develop quality assurance mechanisms for both. It is

also prudent for the government to improve efficiency on resource targeting, monitoring and evaluation for spending in health, defense, transport and communication as well as manufacturing for them to have any meaningful impact on the economy.

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## THE IMPACT OF MACROECONOMIC FACTORS ON NONPERFORMING LOANS IN THE KENYAN BANKING INDUSTRY.

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### Abstract

*This study aimed to investigate the effect of macroeconomic factors on the performance of nonperforming loans in the Kenyan commercial Banking industry. The research methodology adopted was a simple time series analysis design that assisted in providing a reliable assessment of the determinants of NPLs in Kenya. The paper employs a number of tests, that is, stationarity of each variable and the residual series from the regression equation, univariate analysis, bivariate analysis to test the correlation and multiple regression analysis to look at the relationship between the dependent and independent variables. Granger causality was also employed to test for possible existence of causality in the data. The impact of gross domestic product (GDP), capital inflows on nonperforming loans in Kenya was found to be negatively related. While CPI was found to have a negative relation in short run and positive relation in long run to NPLs. An increase in M2 leads to decrease in NPLs*

**Key words**-Macroeconomic factors, Nonperforming loans, Kenyan Banking Industry, Error correction model, Granger causality, Cointegration test.

### Introduction

Given the recent turbulence in banking and the rise in non-performing loans (NPLs) there is renewed interest in the impact of internal and external factors on NPLs of banks. Financial institutions and more specifically the banking industry are faced with an array of risks such as liquidity risk, market risk, and operational risk credit risk among others. Credit risk is identified as one of the major oldest risk factors that banks and other financial institutions have been facing from time to time. Karumba and Wafula (2012) default risk is as a result of the probability that borrowers fail or unable to repay the loans hence affecting the performance of an institution. Inoguchi (2012) identified that non-performing loans are known to paralyze institutions performance and also lead to financial crises. Akrani (2011) defined nonperforming loans as loans whose principal payment and interest are not met by the borrower/customer, and observes the period for determining whether a loan has become non-performing under international guides to be 45 to 90 days but this may differ in different countries like in India it is 180days. Louzis, Vouldis and Metaxas (2010) and Ng'etich and Wanjau(2011) in their theoretical and empirical literature stipulates various factors to be the cause of emergence and trend of nonperforming loans in financial institutions this includes macroeconomic factors, financial factors and bank specific factors.

### *Kenyan Banking System*

Karumba and Wafula (2012) observed that Kenyan banks undergo the same risks and problems emanating from such risks faced by other institutions all in different locations and use security lending as a risk measurement tool against loan advances. Nonperforming loans are as a result of loan defaults, that is, they are of no interest to an institution because no cash flow is

generated from them. Ng'etich and Wanjau(2011) stated that the aspect of non-performing loans has been receiving a lot of attention because of the impact brought about by a large number of NPLs is failure or collapse of banks.

Failure of the banking industry in Kenya as observed by Waweru and Kalani (2009) was caused by a lot of factors. Kenyan banks during the immediate post-colonial period constituted both foreign banks, local commercial banks and some privately owned NBFIs. The regulatory framework governing local financial institutions that period was not well defined. Brownbridge(1998) in his study on causes of financial distress in local banks in Africa and implications for prudential policy found that the insider lending was one of the largest contributor to bad loans, for instance, in Kenya failure of banks such as Continental bank, Trade bank, and Pan African bank was due to insider lending that was made often to politicians. Another factor identified was banks extended loans to high risk borrowers who had been declined by foreign banks hence local banks were willing to lend at higher costs. Waweru and Kalani(2009) stated that the activities of commercial bank activities expose them to credit risk, and techniques such as provision for debts and credit screening and monitoring provide a temporary cover to level of NPLs. But they further state that increase in the level of NPLs to a certain level cannot be covered by the allocated provisions.

Karumba and Wafula(2012) in their article on alternatives for Kenyan banking industry identified that credit risk is one of the oldest and most challenging risk faced by banks, which results due to the probability that borrowers may default terms of their debt and hence putting an institutions capital into risky positions. Increase in defaults leads to piling of non-performing loans in an institutions balance sheet. Musyoki and Kadubo(2011) in their paper on credit risk management on financial performance of banks concluded that default rate is the most important factor as it influences 54% in total credit risk influence on bank performance. Irungu(2011) on property Kenya stated that the total outstanding loan portfolio for commercial banks in Kenya was 1.2 trillion and a statistic by index mundi show the total non-performing loans was 5.4% in 2011. Nonperforming loans impacts on a bank's performance by reducing its revenue as they become expenses. They are usually transferred to the income statement as expenses to the institution.

The current status of non-performing loans in the commercial banks of Kenya, as shown by World Bank database, has been decreasing more specifically from 2003 to 2011. The trend shows a rise from 2002 to 2003 and the drops consistently. Hypothetically one can explain the rise in 2002 due to political factors (elections) that affected the economic environment of the nation therefore this might have led to the observed trend but the trend is not observed in 2007 despite the severity of the post-election violence. This study investigates the root cause and explanatory power of factors that influence or cause variation in the level of non-performing loans in Kenyan banking industry by looking macroeconomic variables (GDP, CPI, MONEY SS, and CAPITAL INFLOW).

### **Study Objectives**

To investigate the impact of macroeconomic factors on nonperforming loans in the Kenyan banking industry during the period of (2002- 2011). The specific objectives are:

1. To determine the impact of gross domestic product (GDP) on nonperforming loans in Kenya
2. To establish the influence of capital inflows on nonperforming loans in Kenya



3. To assess the impact of money supply on nonperforming loans in Kenya
4. To evaluate how changes in inflation impact on nonperforming loans in Kenya

### **Data and Methodology**

The study considered secondary data sources to acquire data. The main data sources for this study included central bank of Kenya's annual reports, surveys and publications on commercial banks performance, Kenya National Bureau of Statistics (KNBS) and World Bank data base. The study used high frequency quarterly data (monthly) for all period of 6 years from 2006 to 2011 to achieve the stated objectives.

#### ***Augmented Dickey–Fuller test (ADF)***

The study used ADF to test for unit root in the variables. The Augmented-Dickey-Fuller (ADF) statistic used in the test is a negative number. The more negative it is the stronger the rejection of the hypothesis that there is a unit root at some level of confidence.

#### ***Granger causality test***

The variables would be checked for any causal relationship between them either bidirectional or unidirectional. The researcher aimed to determine whether any of the variables had explanatory power or were significant in explaining changes in the other variables.

#### ***Cointegration test***

Cointegration test involves determining whether there is a long run relationship among the variables and the number of cointegrating equations involved. In this study an ECM (error correction model) was considered in modeling the short run components of the model plus the error correction term.

The ECM equation;

$\Delta \log\_NPL_t = \alpha_0 + \alpha_1 \Delta \log\_M2_t + \alpha_2 \Delta \log\_CPI_t + \alpha_3 \Delta \log\_CI_t + \alpha_4 \Delta \log\_GDP_t + ECT (-1) \dots$  short run equation

#### ***Johansen cointegration test***

The researcher used the Johansen cointegration test to estimate the number of cointegrating equation in the model. This test involves two analyses; the trace test and the Max-Eigen test which are both used to determine the equations.

#### ***Vector error correction test***

A vector error correction (VEC) model is a restricted VAR that has cointegration restrictions built into the specification, so that it is designed for use with non-stationary series that are known to be cointegrated. Vector error correction model is used to construct the test statistics and the appropriate critical values for the tests applied. After identifying presence of cointegrating equations the researcher sought to determine the estimates and adjustment parameters of the cointegrating relation between the dependent and the independent variables.

**Results and findings**

***Unit root test with first level differencing***

In order to obtain stationarity of the variables under ADF statistics, first differencing is done. The researcher tested for unit root at first level of differencing and at a lag difference of 1 at different levels that is with intercept, intercept and trend and without either. The results show that all variables are integrated of order one hence stationary upon differencing at all observed critical values. The table gives a summary of ADF test.

**Table 1: ADF statistics Unit root test with first level differencing**

VARIABLE		ADF Statistic	Test Cv at 1%	Cv at 5%	Cv 10%	at Remarks
Log_CPI	None	-3.758512	-2.603423	-1.946253	-1.613346	I(1)
	Intercept	-5.306035	-3.542097	-2.910019	-2.592645	I(1)
Log_GDP	None	-4.603423	-2.603423	-1.946253	-1.613346	I(1)
	Intercept	-4.648757	-3.542097	-2.910019	-2.592645	I(1)
Log_FDI	None	-8.414061	-2.598416	-1.945525	-1.613760	I(1)
	Intercept	-8.792973	-3.527045	-2.903566	-2.589227	I(1)
Log_M2	None	-5.833485	-2.603423	-1.946253	-1.613346	I(1)
	Intercept	-10.60242	-3.542097	-2.910019	-2.592645	I(1)
Log_NPL	None	-9.225241	-2.603423	-1.946253	-1.613346	I(1)
	Intercept	-9.249112	-3.542097	-2.910019	-2.592645	I(1)

***Correlation analysis***

Correlation analysis is the initial statistical technique employed to analyze the relationship between the dependent and explanatory variables. The researcher tested for possible degrees of multicollinearity among the variables by including a correlation matrix of the variables. Multicollinearity is a case of multiple regression in which the predictor variables are themselves highly correlated. From the correlation table it's evident that no variables are highly correlated hence no multicollinearity. The highest correlation is between DlnCPI and DlnFDI (0.1710).

***Pairwise Granger Causality test***

The researcher sought to determine whether any of the variables had an explanatory power on the other variables. Thus granger causality was carried out and a lag interval of 8 was imposed.

**Table 2: Granger causality**

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Sample: 2006M01 2011M12

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Lags: 8

Null Hypothesis:	Obs	F-Statistic	Prob.
DLNFDIS does not Granger Cause DLNNPL	54	2.00882	0.0725
DLNNPL does not Granger Cause DLNFDIS		0.44623	0.8851
DLNCPI does not Granger Cause DLNNPL	54	3.17938	0.0076
DLNNPL does not Granger Cause DLNCPI		1.61340	0.1544
DLNCPI does not Granger Cause DLNM2	54	2.51994	0.0269
DLNM2 does not Granger Cause DLNCPI		0.72066	0.6721

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From the test, the researcher came to a conclusion that there was causality between DLNNPL and DLNGDP at 10% significance level, which is an implication that changing levels of NPLs would influence the movement of the GDP; DLNFDI granger causes DLNNPL at 10% significance level meaning that foreign direct investments causes the non-performing loans to react either by increasing or decreasing depending on the direction of the impact. Finally DLNCPI granger causes DLNNPL at 0.01significance level which is in line with economic theory that changes in non-performing loans can be as a result of changes in inflation.

From the below Table 3, long run equation the relationship between LNNPL and LNM2 is positive which implies that an increase in money supply in an economy leads to an increase in level of non-performing loans. LNGPD has a negative relation to LNNPL these points out that if the GDP is increasing in an economy the level of non-performing loans are declining. Finally LNFEDI and LNCPI have a positive relation to LNNPL which is an implication that if the two variables increase the level of non-performing loan will also increase.

**Table 3: Johansen cointegration test**

Series: LNNPL LNM2 LNGDP LNFDIS LNCPI  
 Lags interval (in first differences): 1 to 5  
 Unrestricted Cointegration Rank Test (Trace)

Hypothesized	Trace	Statistic	0.05 Critical Value	Prob.**
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.731607	162.8148	76.97277	0.0000
At most 1 *	0.545093	87.84264	54.07904	0.0000
At most 2 *	0.437677	42.94586	35.19275	0.0060
At most 3	0.120646	10.13220	20.26184	0.6268
At most 4	0.047999	2.803811	9.164546	0.6180

Trace test indicates 3 cointegrating eqn(s) at the 0.05 level

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized	Max-Eigen	Statistic	0.05 Critical Value	Prob.**
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.731607	74.97220	34.80587	0.0000
At most 1 *	0.545093	44.89678	28.58808	0.0002
At most 2 *	0.437677	32.81366	22.29962	0.0012
At most 3	0.120646	7.328392	15.89210	0.6293
At most 4	0.047999	2.803811	9.164546	0.6180

Max-eigenvalue test indicates 3 cointegrating eqn(s) at the 0.05 level

Long run Equation;

$$LNNPL - 0.496938* LNM2 + 20.39798* LNGDP -0.638452*LNFDI- 4.981084* LNCPI - 188.31 = 0$$

$$LNNPL = LNM2*0.496938 - LNGDP*20.39798 + LNFDI*0.638452 +LNCPI*4.981084 + 188.31$$

**Regression analysis of the ECM**

$$\Delta \log\_NPL_t = \alpha_0 + \alpha_1 \Delta \log\_M2_t + \alpha_2 \Delta \log\_CPI_t + \alpha_3 \Delta \log\_CI_t + \alpha_4 \Delta \log\_GDP_t + ECT (-1)$$

After having found cointegration the researcher built an Error Correction Model including short term and long term relationships. The results are shown in table below:

The following model considered a lag of 8 because the impact of macroeconomic factors on non-performing loans is not immediate. The error correction term obtained from the cointegration equation was used for purposes of accuracy and reliability of the results. In order

to obtain significant variables the researcher removed those variables that had the highest probabilities. After all the above considerations the following results were obtained.

**Table 4: Regression analysis of the Error correction model.**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DLNNPL(-1)	-0.699115	0.115143	-6.071693	0.0000
DLNNPL(-2)	-0.376864	0.114981	-3.277635	0.0031
DLNNPL(-5)	-0.361708	0.098658	-3.666276	0.0012
DLNNPL(-6)	-0.420100	0.107413	-3.911058	0.0006
DLNNPL(-7)	-0.402744	0.117575	-3.425430	0.0021
DLNM2(-1)	-0.710749	0.341562	-2.080879	0.0478
DLNGDP	-1.015013	0.489088	-2.075316	0.0484
DLNFDIS(-2)	-0.084930	0.054890	-1.547271	0.1344
DLNFDIS(-4)	-0.048746	0.036283	-1.343523	0.1912
DLNCPI	-0.915236	0.631379	-1.449584	0.1596
ECT(-1)	-0.170520	0.019846	-8.592038	0.0000
C	4.681412	0.546219	8.570576	0.0000
R-squared	0.881874	Mean dependent var	-0.005872	
Adjusted R-squared	0.749572	S.D. dependent var	0.056101	
S.E. of regression	0.028074	Akaike info criterion	-4.003955	
Sum squared resid	0.019704	Schwarz criterion	-2.935797	
Log likelihood	137.1068	Hannan-Quinn criter.	-3.592008	
F-statistic	6.665641	Durbin-Watson stat	2.343973	
Prob(F-statistic)	0.000004			

The results indicate that the model is correct because the coefficient at error correction is negative and statistically significant at 1%. The value of Durbin Watson statistic is good (2.3), suggesting that there is no presence of autocorrelation in the residuals. The R-squared is 88% and the adjusted R-squared is 75% which is an implication that the model is good enough.

The coefficients obtained were all statistically significant in explaining the movement in the level of non-performing loans. DLNGDP had a negative relation (-1.015013) which implied that an improvement of the gross domestic product brought about a decrease in the level of non-performing loans. DLNFDIS has a negative relation with DLNNPL all through the time as indicated by the lags. At lag 2 and lag 4 the results indicate a weak relation between the two variables of -0.084930 and -0.048746 respectively. This indicates that foreign direct investments are a weak predictor of non-performing loans and that an increase in foreign direct

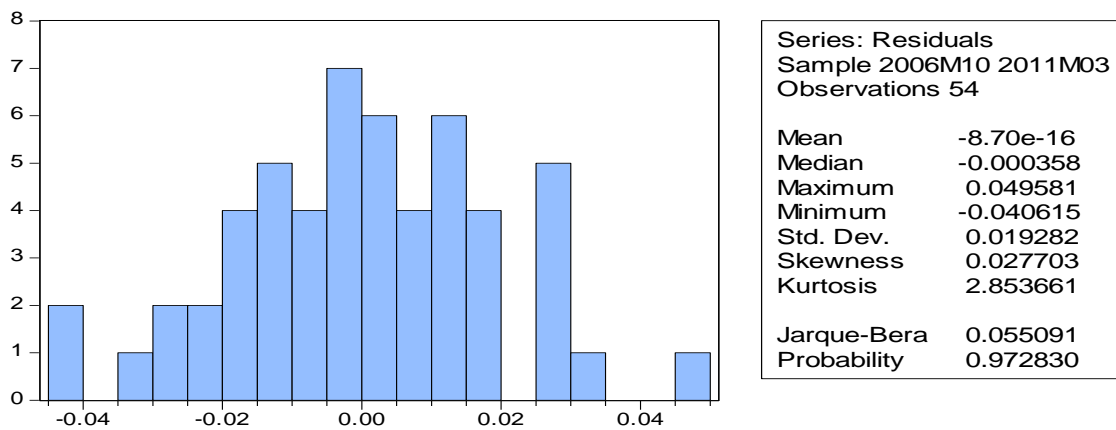
investment decreases the level of non-performing loans. Inflation is negatively related to non-performing loans in the short run as indicated by the coefficient -0.915236. This is an indication that in the short-run an increase in inflation leads to a decrease in level of non-performing loans. Money supply has a negative relation all through the lags which implies that an increase in money supply leads to a decrease in levels of non-performing loans.

**Tests on the ECM**

This test was done to ensure that the results of the ECM were substantial, authentic and reliable in explaining the relationship between the dependent and independent variables.

**Histogram- normality test**

The graph below depicts presence of normality in the error correction model residuals as the probability is greater than 0.1, skewness is approximately 0 and kurtosis is almost 2.9 approximately 3.



**Figure 1: Histogram- normality test**

**Heteroskedasticity test**

This test was used to assess whether there was heteroskedasticity and the results below indicated that, based on the probability, there was no statistical significance hence no equal variances of the error term in all observations.

**Table 5: Heteroskedasticity Test: Breusch-Pagan-Godfrey**

F-statistic	0.546846	Prob. F(28,25)	0.9384
Obs*R-squared	20.51094	Prob. Chi-Square(28)	0.8451
Scaled explained SS	4.074539	Prob. Chi-Square(28)	1.0000

## Summary of findings

Using the Kenya banking and financial sector non-performing loans ratio and a set of Kenya's macroeconomic indicators as key drivers of financial stability, the aim of this study was to investigate the relationship between the above mentioned variables. Looking at other studies Lu and Yang (2012); Vogiazas and Nikolaidou (2011); Eren and Dube (2012) whose findings indicated a strong relationship between these macroeconomic factors and non-performing loans.

The study employed various techniques to analyze the above mentioned relationship; ordinary least square method was used to conduct a regression analysis to evaluate the relationship between GDP, CPI, M2 and FDI (CF) on NPLs for a period of 6 years (2006-2011) using high frequency data. The significant findings from the regression analysis measuring the effect of a macroeconomic shock on the non-performing loans show that the NPLs react negatively to an increase in GDP. A significant change in GDP, whether up or down, usually have an impact on the entire economy. For example, when the economy is healthy, you will typically see low unemployment and wage increases as businesses demand labor to meet the growing economy. Therefore an improvement in economic performance implies a reduction in levels of NPLs. FDI (CF) also has a negative relation with NPLs as observed in the findings. This is attributed to the fact that Increase in the level of inflows improves the living standards of people hence reduction in borrowing and a rise in repayment of loans Odongo (2008).

The study found an increase in M2 leads to decrease in NPLs, this can be attributed to the fact that an increase in money supply creates inflationary pressure which in turn affects loan repayment and also an increase in money supply means people have more money in their hands hence no need for loans or ease of repayment. Despite these findings all variables are statistically significant at different lags. Findings from other countries for instance Eren and Dube (2012) study of the Turkish financial system also found some level of significance of macroeconomic variables in relation to NPLs. Although different economic environment's pose different reactions to levels of NPLs. Findings on CPI was found to have a negative relation in short run and positive relation in long run to NPLs which is in line with findings of Lu and Yang (2012) in their study on stress testing of commercial banks' exposure to credit risk they found that among macroeconomic variables a slump in CPI led to short term increase in the level of nonperforming loans. Results of the Error correction model were finally tested for normality, serial correlation and heteroskedasticity. The researcher concluded that the results were authentic and reliable.

## Conclusion

The objective of this study was to investigate the impact of macroeconomic factors on nonperforming loans in the Kenyan banking industry. The impact of gross domestic product (GDP) on nonperforming loans in Kenya was found to be negatively related. This implies that when the economy is performing well the level of problem loans decreases, which is a 1% change in GDP leads to a 101% change in NPLS. The influence of capital inflows on nonperforming loans was found to be very weak and negatively related. Therefore the researcher concludes that, due to this weak relation, FDI's play a very insignificant role in predicting movement of non-performing loans in Kenya, a 1% increase in FDI leads to 8% decrease in NPLs at lag 2 and 4.8% decrease at lag 4. The results show that the impact of money supply on nonperforming loans is negatively related which implies that as the level of money supply increases by 1% the level of non-performing loans decrease by approximately 70% at 1, 3, and 4. Final objective was to evaluate how changes in consumer price index

impacts on nonperforming loans in Kenya. The results show that consumer price index has the highest relation to NPLs that is a 1% increase in CPI leads to a 91% decrease in NPLs in short run and a 178% increase in long run. Therefore in conclusion the level of inflation, money supply and gross domestic product play a major role in determining the movement of NPLs.

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## THE EFFECT OF DEMOGRAPHIC FACTORS ON LOAN REPAYMENT IN AGRIBUSINESS ENTERPRISES IN KENYA

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### Abstract

*This study was conducted to determine the effect of demographic factors on loan repayment in agribusiness enterprises. These factors affect the productivity level and loan repayment. The trend of credit servicing by the agribusiness traders has continued to decline. Productivity is a function of Age, Gender, Level of education, Number of dependents, Loan borrowing experience, Occupation of the borrower and off farm Income. Research findings will lead institutions to diagnose areas that need further attention in formulation of policies and procedures. Identify Gaps in loan application, disbursement, use and recovery. Provide information to stakeholders, agencies and other financial institutions to create a working protocol and design intervention programs. The study used descriptive survey, Cross-sectional survey and Snowballing Technique. The population was divided into strata to ensure sample was representative. The study revealed that, 57.8% of the respondents have at one time failed to repay their loans as agreed. 78.9% are between the ages of 26-55yrs. About 25% are between 56% and above. Age provides the likelihood of loan default as they face declining profitability and lowered debt use. Reductions in productivity affect loan repayment capacity. Household with a greater number of dependents are less credit worth. Over 70% of respondents had more than 4 dependents. Only 25.8% have less than 3 dependents. High levels of education significantly contribute to a person's ability to perform better. Attainment of education raises productivity, increases ability to appreciate credit. 7.8% had secondary education, 56.3% had college education and 35.9% had university education. Institutions should develop models for lending, management of credit and address weaknesses in disbursement procedures, recovery and general loan management while factoring in the imperfections in the market.*

**Keywords:** Loan repayment, Demographic Effect, Agribusiness, Credit

### Introduction

The Agricultural sector contributes to about 24 percent of the GDP and provides about 70 percent of the total employment in Kenya. About 19 percent of the formally employed workers are in the agriculture. (KARI; Food Security Report, 2012), Over 50% of the activities in the agricultural sector are agribusiness related. The activities include farming, Transportation of agricultural produce, Storage and provision of agriculture related services among others. Majority of these traders are constantly faced with financial constraints (WB; World Economic Forum Report, 2011) Lack of credit have motivated them to look credit in banks.

Lending institutions advanced loans to the agribusiness traders under conditions of imperfection whereby they cannot say with certainty that the borrowers would repay loans under the agreed terms. The trend of credit servicing by the agribusiness traders has continued to decline (Ifeanyi A. Ojiako and Blessings Ogbukwa, 2012). Agribusiness credit has played vital roles in the socio-economic transformation. However the acquisition and repayment of the loans were characterized by the challenges including high levels of loan default among beneficiaries. The study was conducted to analyze the effect of demographic factors on loan repayment in

agribusiness. Agribusiness credit helps to enhance production, food sufficiency and promotes household and national income. (Zeller and Sharma 1998).

The underlying assumptions were that every trader had the intention and willingness to repay the loans, but there are certain factors that affected the determinants on loan repayment hence frustrating their intentions. The research was conducted to bring to light the effect of demographic factors on loan repayment. The findings of the research will help lending institutions to address the perennial problems of loan default as well as management of credit and address weaknesses in disbursement procedures, recovery and general loan management while factoring in the imperfections in the market.

### Methodology

Descriptive Survey, Snowballing Technique, Cross-Sectional method, and Literature Review were used to collect data needed for the analysis. Both primary and secondary data would be used. In Descriptive Survey, Oral interviews and Questionnaires were to be used. Cross Sectional method was to conduct interviews and administer questionnaires across all categories of individuals. Other works recorded will be consulted in the literature review. The study targeted Agribusiness Traders who had accessed Agribusiness loans from AFC Kitale Branch between the years 2009-2012 and whose loans were still outstanding at the time.

### Results and discussion

#### Demographic factors

**Table 1: Age of the borrowers**

Age distribution	Class width No. percentage (%)
Below 25 years.	6 4.7
26-35 years.	32 25.0
36-45 years.	35 27.3
46-55 years	34 26.6
56-65 years.	15 11.7
Above 65 years.	6 4.7
<b>Total</b>	<b>128</b> <b>100.0</b>

According to the data collected, 25% of the respondents who accessed the loan were between the ages of 26years- 35years. 27.3% represented the ages between 36-45 years. While 26.6% represented the ages between 46-55 years. These age brackets are composed of people who were still active and energetic with ambition to still make or create wealth. Above the age 55, the number of those interested in taking the Agribusiness loan was on the decline. The

researcher established that majority of the traders who accessed these loans were between the ages 26-55years

From the table below, the research findings show that, 53.9% the traders who were in the age bracket of between the ages 26-55 years didn't have much problems in repaying back their loans as agreed and also lowered their debt use. As age of the trader increases the problems in repaying their loans seem to be on the increasing trend.

**Table 2: Repaid loan as agreed**

Age	Yes Percentage %		No percentage%	
Below 25 years	2	1.56	4	3.125
26-35years	24	18.75	8	6.25
36-46 years	25	19.53	10	7.812
46-55 year	20	15.625	14	10.937
56-65years	3	2.347	11	8.593
Above 65years	1	0.7812	5	3.906
	<b>77</b>	<b>58.5932</b>	<b>51</b>	<b>40.623</b>

These findings agreed with the findings of (Barry et.al, 2001) who found out that, the age of the trader provided some information about the likelihood of loan default and ability to repay back. Older businessmen faced declining profitability and lowered debt use since they were less productive. The reduction in productivity adversely affected loan repayment capacity.

**Table 3: Level of education of respondents**

Level Education of respondents	No Percentage (%)
Secondary	10 7.8
College	72 56.3
University	46 35.9
Total	128 100.0

The level of education of the respondents was important to the researcher because there was a direct relationship between level of education and the level of performance and success. From the findings, 7.8% of the traders interviewed and who had accessed the loan had secondary education.56.3% of the traders had college level education and 35.9% had university education. This was to mean that over 80% of the traders who accessed loans from AFC were people who were adequately educated and informed about issues and were capable of making an informed decisions.

From the findings, 46.875% of the traders with college education didn't have problems repaying back their loans. 32.8% who had university education also didn't have problems in repaying back their loans.

Therefore, education was considered to be a determinant of the ability to perfection and good performance. It was therefore noted that high levels of education made a significant contribution towards a person's ability to perform better and post good results due to self-motivation. , 56.3% had college education. About 35.9 % had university education. The above findings agreed with the research conducted by, Ollagunju and Ajiboye (2010), who agreed that, there was a direct relationship between the level of education and success in performance.

The educational attainment of a trader does not only raise productivity but also increased ability to appreciate the essence of credit and also understood and evaluated the information on new techniques and processes disseminated through extension agents. They also said that, adaptation of technology improved efficiency and profitability. Oladeepo (2008) examined the socio-economic factors influencing loan repayment among small scale traders in Ogbomosho agricultural zone of Oyo State of Nigeria. Results of multiple regression analysis showed that amount of loan obtained by traders; years of trading.

Experience with credit use and level of education were the major factors that positively and significantly influenced loan repayment.

25.8% of the respondents had less than 3 dependents, 34.4% had between 4-6 dependents, and 22.7% had between 7-9 dependents while 17.2% had above 10 dependents. These were high percentages as most of respondents could be spending far beyond the normal expenditure on Food, medication and education which were expensive issues to manage. There was a possibility that the proceeds from the Agribusiness activities could be going towards meeting expenses as mentioned above. These factors could be highly contributing towards low loan repayment by the agribusiness traders.

The trend here shows that traders with a small number of dependents tended to repay their loans as agreed. 23.43% of the traders who had below 3 dependents repaid back their loans as agreed, 19.53% who had 4-6 dependents repaid their loans as agreed. But as the number of dependents increased, the ability to repay loans is affected. Over 49% of the traders with between 4 dependents and above 10 dependents did not repay their loans as agreed. These findings agreed with the research findings conducted by Sharma and Zeller in (1997) and Udoh (2008). According to (Sharma and Zellers 1997), Households with greater number of dependents were perceived to be less credit worthy. This position was reinforced by Udoh (2008) in a study on estimation of loan default among the beneficiaries of state owned business loan scheme in Nigeria, who concluded that beneficiaries with large household size tend to default more than those with a smaller household

## **Conclusion**

It has been established from the research conducted that age, level of education and number of dependents affected loan repayment among agribusiness. The researcher had established that only the traders who are still energetic and those who still had responsibilities to handle, were those who risked taking loans from lending institutions. According to data collected, 25% of the respondents were between the ages of 26years- 35years. While between the ages of 36-45 years represented 27.1% and 26.6% represented the ages between 46-55 years.

These were the age brackets that were still responsive and ambitious to make or create wealth. Above the age 55, the numbers of those interested in taking the Agribusiness loan were on the decline. These findings agreed with the findings of (Barry et. . al, 2001) who found out that, the age of the farmer provided some information about the likelihood of loan default. Older

businessmen faced declining profitability and lowered debt use since they were less productive. The reduction in productivity adversely affected repayment capacity.

The number of dependents was also another factor that affected loan repayment among agribusiness traders. The research had established that, most those who borrowed loans from AFC had a big number of dependents. 34.4% of the respondents had between 4-6 dependents, 22.7% had between 7-9, while 17.2% had above 10 dependents. This indicated that a good size of the proceeds from the Agribusiness activities went towards meeting domestic and other expenses of up keep and other commitments. This was a contributory factor towards loan delinquency. These findings agreed with the research findings conducted by Sharma and Zeller in (1997) and Udoh (2008). According to, (Sharma and Zellers 1997, Households with greater number of dependents were perceived to be less credit worthy. This position was reinforced by Udoh (2008) in a study on estimation of loan default among the beneficiaries of state owned business loan scheme in Nigeria, who concluded that beneficiaries with large household size tended to default more than those with a smaller household. The level of education was another demographic factor considered to have an effect on the determinant factor towards ability to perfection and good performance. It was therefore found that high levels of education made significant contribution towards a person's ability to perform better and posted good results due to self-motivation. 56.3% had college education. About 35.9 % had university education. The above findings agreed with the research conducted by, Ollagunju and Ajiboye (2010), who stated that, there is a direct relationship between the level of education and success in performance. The educational attainment of a farmer does not only raise productivity but also increases ability to appreciate the essence of credit and also understand and evaluate the information on new techniques and processes disseminated through extension agents. They also said that, adaptation of technology improves efficiency and profitability.

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## EFFECT OF COUNTRY RISK ON FOREIGN DIRECT INVESTMENT IN KENYA

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### Abstract

*Despite a significant increase of FDI in the last few decades, Kenya still has had unimpressive performance in attracting FDI compared to the other East Africa countries. This performance has raised concerns and the matter has been on speculation by foreign investors, development specialists, policy makers and researchers in Kenya. In spite of this, there are only a few empirical studies that have pointed out country risk effect on foreign direct investment in Kenya, however most of them have explored on the determinants of FDI. This study aimed at exploring the relationship between corruption, exchange rate volatility, inflation and FDI inflows in Kenya using data that spans from 2003 to 2012 and establishing through causal study how these risks have had detrimental effects to FDI. FDI inflow data was sourced from UNCTAD'S FDI online database. Data on inflation was obtained from World Bank indicators, corruption from Transparency International websites, exchange rate volatility data was obtained from World Bank databank. Regression method was used to analyse data. The study results showed that inflation and corruption has a negative effect but insignificant while exchange rate volatility has a positive significant effect on FDI inflows in Kenya. The findings imply that increase in exchange rates cause increase in the inward FDI flows in Kenya while Inflation and corruption though negative they don't have significant effect on FDI inflows hence they do not influence the decisions of foreign investors and efforts to control these variables would not make any contribution towards increasing FDI inflows. Therefore to increase inflows of FDI in Kenya, the nation's monetary authorities should develop and implement measures that will ensure exchange rates are increased or sustained at levels that will ensure increase in the level of FDI in Kenya.*

**Key words:** country risk, FDI inflows, exchange rate volatility, inflation, corruption

### Introduction

Globalisation has created investment opportunities for enterprise worldwide. Foreign direct investment is one of the traditional options to expand international markets and has been an important form of private external financing for developing countries. Today FDI is regarded as the major source of foreign capital for developing countries as opposed to portfolio investment or foreign aid. FDI is playing a great role for economic development in developing and developed countries. The host country benefit as FDI create employment opportunities, promotes growth and facilitate technology transfer (UNCTAD,2004).In addition to these ,FDI is to fill the gap between domestic investments and savings in most developing countries as the income are low(Odenthal,2001).To gain this benefit most developing countries are trying to attract FDI by framing different policies such as trade liberalization and creating attractive macroeconomic investment opportunity.

Early in the 1980s when FDI inflows were becoming popular, the rate of FDI spread to Asia, this was in search for the cheapest labour which gave incentives for the increment of FDI, but these days the direction has shifted to other countries including Africa. During the 1980's worldwide FDI inflows increased by 2 percent, one of the reasons for the increased in FDI

inflows in the 1980s was the shift in raw materials to the service and the technology intensive manufacturing companies. Moreover international production through FDI is seen as a complement and substitute for international trade and it eliminates trade barriers. Due to recession in 2008, the world wide economy has declined by 4 percent, as a result the amount of FDI inflows in some parts of the countries. Based on World Investment (2010) half of the global FDI inflows go to developing and transactional economies (UNCTAD, 2010). FDI is also one of the different entry modes that are used by multinational companies to target international markets. UNCTAD (2011) the global FDI trend increased significantly in the last thirty years however in the last decade, global FDI increased from US dollar 1089 billion in 1999 to reach its peak of US dollar 1971 billion in 2007 before it was significantly affected by the financial crisis that results in reducing FDI inflows to US dollar 1185 billion in 2009

According to Kinuthia (2010), Kenya was the most favoured destination for FDI in East Africa in 1970s. However, following the collapse of East African community relationship in 1977, foreign investments became turbulent and the region lost its overall appeal to foreign investors. There was little progress between the 1970s and 1990s because of constant political instability in the Kenya's neighbouring countries particularly Uganda which drew away investment in Kenya and this affected the entire East Africa region resulting to FDI inflow decline.

Global Integrity (2004) reported that Kenya's FDI inflows in 1996 declined which was as a result of suspension of loans by the International Monetary Fund due to corruption cases by government officials following an incident where the government requested a \$50 million low interest loan which was to purchase a private jet for the president while the transaction was a non-budgeted expenditure hidden from the world bank auditor. This led to the stagnation of the sectors, such as manufacturing which were largely dominated by the foreign firms. The ensuing economic distortions caused severe structural constraints and macro-economic imbalances and firms failed to develop competitive capabilities to penetrate the international markets.

Kenya's economic stagnation affected its industrialisation in the mid-1980s and 1990s with consequent effects on labour productivity (Gachino and Rashian, 2003). This was immensely contributed by the collapse of IMF's Structural Adjustment Program (SAPs) in 1986 (Mwega and Ndungu, 2002) leading to micro economic constraints; massive destruction of infrastructure due to El Nino rains and weak institutions (Phillip and Obwana, 2000) both contributed to economic stagnation. Hence, although Kenya introduced a number of instruments to promote FDI and export oriented industrialization during this period, these efforts did not yield much. According to Dupas and Robinson (2011), before the elections in 2007, Kenya was perceived as a relatively stable country attractive for both investors and tourists. Since independence the country's economy flourished despite minor disturbances, the country was regarded as politically stable. Economic development and the political stability were two assets that made Kenya an example of a stable African country for a long time. However, the post-election crisis in 2008 led Kenya to be seen as politically unstable which made foreign exchange earning shift to relatively more stable neighbouring countries. Criminal activities in Kenya have also contributed to the low FDI inflow in the country. These include: criminal networks or crimes committed against investors. According to Larossi (2009), crime may have added significantly to the operating costs of doing business in Kenya. These costs arise directly from theft and indirectly from preventing measures like security and protection costs. On top of that, the Kenyan police force is ranked as the most corrupt organisation within Kenya. Transparency International (2011) reported that investors have to bribe officers to get any service and yet this force is just as easily bribed to tolerate crimes, risk of robbery or violence against the foreign



investors, who are perceived to be very wealthy by the locals resulting to a significant risk of violence or robbery activities against them.

According to larossi (2009), 2003 approximately 38 percent of foreign firms were asked to pay bribes to the tax inspectors, though this dropped by about 3 percent in 2007 it is still relatively high as compared to other East Africa countries. Uganda and Tanzania both recorded approximately 15 percent of the firms reporting this type of corruption. Investors identified the KRA as the most corrupt institution and since investors have to conform to this authority, this becomes the continuing challenge for the investors. They have to deal with problems such as the refund of VAT after importing products, demands of bribes after inspections and the individual power of each KRA official. Investors argued a lot KRA official are very powerful and therefore demand bribes to validated an inspection, there is no systems in place to check the decisions of the inspectors, hence making final decisions.

### Research objectives

The main objective of the study was to investigate the effect of country risk on FDI inflows in Kenya.

The specific objectives were:

1. To establish the effect of corruption on FDI inflows in Kenya
2. To find out the effect of inflation on FDI inflows in Kenya
3. To investigate the effect of interest rate volatility on FDI inflows in Kenya

### Research Methodology

This research was based on causal study, focusing on the effect of country risk on in FDI inflows in Kenya. Corruption, exchange rate volatility and inflation were the variables to constitute the country factor and FDI inflows over the period 2003-2012 was analysed to show this effect. The sample of 10 years. Data on corruption indices, corruption perception index and inflation rate and FDI inflows was obtained for the year 2003-2012. Data on corruption, exchange rate volatility and inflation was obtained and measured. To capture the effect of corruption will be measured; data on corruption indices was derived from the Transparency International website. Economic risk was represented by inflation rate because inflation is a proximate measure for various forms of macroeconomic imbalances and is closely linked to a range of policy inadequacy such as fiscal policy or monetary imbalance, inflation rate was derived from World Development Indicators. Financial risk was represented by exchange rate volatility, which will be observed on semiannual basis. Data on exchange rate volatility was obtained from World Bank (2012). Data on FDI inflows was derived from UNCTAD websites.

### Model specification and Data analysis

To test the hypothesis developed earlier, a regression model was employed. The model of the study was defined as follows:

$$\ln \text{FDI} = \beta_0 - \beta_1 \ln \text{corruption} - \beta_2 \ln \text{Inflation} - \beta_3 \ln \text{Interest rate} + e$$

#### Where

FDI = Net FDI inflows

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$  = regression coefficient for corruption, inflation, interest rates respectively

Corruption = corruption perception index

Inflation = Annual inflation rate (change in the GDP deflator in %)

Interest rate = semiannual interest rate

**Results and Discussion**

Data on effect of country risk on FDI in Kenya, it entails regression analysis where ordinary least square method was used to analyse data with the help of SPSS.

**Table 1: Regression results of ordinary least square**

Dependent variable	Foreign Direct Investment			
Independent variable	estimated coefficient	standard error	t-statistics	significant
Intercept	-813.518	—	-2.732	.034
Inflation	-14.092	-.122	-1.267	.252
Exchange rate volatility*	18.846	-.993	10.249	.000
Corruption	-.128	-.120	-1.229	.265
F value	35.458, R <sup>2</sup>	0.947, Adjusted R	0.920	

Note: \* indicate significance at 0.05 level

From the regression results, the R2 value of 0.947 show that the independent variables explain the behaviour of FDI at 95%. Exchange rate volatility coefficient of 18.85 shows that it is positive and a t value of 10.25 which is greater than 2 show that this parameter is statistically significant. These findings are supported by Golberg and Kolstad(1995) show that exchange rate volatility increases the share of risk averse, MNE’s production capacity that is located abroad if production costs are positively correlated to revenues from those foreign firms; Itagaki(1980) show that an increase in exchange rate volatility motivates MNE to invest abroad as a way of hedging against a short position; Devereux and Eger(2008) suggest that FDI can be better facilitated under flexible exchange rate particularly when firms price their investments in the currency of the local market but in contrast with Seva and Vanhule(1992) shows that the increased volatility of the exchange rate increases the returns to exports therefore reducing the levels of FDI.

On the other hand, corruption has a coefficient of -0.128 this means that it is negative though not statistically significant on FDI inflows because its t value is -1.22 which is less than 2. What finding on corruption which shows that it is negative and insignificant were in line with the results of researchers such as Wheeler and Mody(1992) study on the effect of corruption on the inward FDI inflows of the US economy found no significant effect; Hines(1995) also found no significant negative effect impact of corruption on inward FDI in a host country on the contrary Gastanaga et al.(1998) examined the link between corruption and FDI. They found out that lower corruption levels are associated with higher FDI.

Inflation has coefficient of -14.092 hence negative and a t value of -1.27 hence insignificant on FDI. Grosse and Trevino (2005) found that inflation did not add significantly to the explanations of FDI flows into CEE countries as companies operating in those high inflation environment no longer perceive inflation as problematic they adjust to remain while profitable and attractive economy contrary to Mixon(2004) increasing inflation signals an economy with internal instability with unstable monetary policies hence FDI inflows will have a decreasing effect.

## Conclusion

The results indicate that exchange rate volatility is a considerable determinant of foreign investors to Kenya which appear to have a positive and significant effect on FDI inflows in Kenya study. This means increase in exchange rate would increase FDI inflows. Inflation and corruption though negative they don't have significant effect on FDI inflows in Kenya hence they do not influence the decisions of foreign investors.

## Recommendation

The outcome of this study shows that corruption and inflation were not found to have significantly affected FDI inflows in Kenya. Therefore efforts to control these variables would not make any contribution towards increasing FDI inflows. To increase inflows of FDI in Kenya, the nation's monetary authorities should develop and implement measures that will ensure exchange rates are increased or sustained at levels that will ensure increase in the level of FDI in Kenya.

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**EFFECTS OF CORRUPTION ON ECONOMIC GROWTH IN KENYA (1995-2012)****Musyoka Denis Mutua***Jomo Kenyatta University of Agriculture and Technology /Kenya School of Monetary Studies**Email: denis.musyoka@gmail.com***Abstract**

*This study investigates the impact of corruption on economic growth in Kenya. It explores its effects on investment as one channel through which corruption may undermine economic growth. Available literature reveals paucity of quantitative studies regarding the effect of corruption on the economic growth in the Kenya. Therefore, this study aimed at contributing to this scarce quantitative evidence, especially on the relationship between corruption and public investment. A case study design was adopted for this study. The study employed the Engle and Granger two steps co-integration test, Granger causality test and time series aggregated data from the year 1995-2011 to carry out the tests. The tests revealed that there is bi-directional granger causality from corruption to public investment and vice versa. They also revealed that there is a negative long-run relationship between corruption and economic growth in Kenya. The findings support the view that corruption hampers growth, and call for reforms to improve the quality of governance as a prerequisite for achieving sustained growth.*

**Key words:** Economic Growth, Human Capital, Corruption**Introduction**

The World Bank Assessment of the investment climate in Kenya 2009 notes that corruption cost Kenya up to 4% of annual sales, and up to 12% where it involves public procurement. For instance according to Amnesty International (2013), the police in Kenya have for a long time suffered from lack of equipments like patrol cars and forensic laboratory which has led to their weak operational preparedness and poor logistical capacity. However, whenever these resources tend to be procured, corruption emerges e.g. Anglo-leasing scandal. Therefore corruption has become a major obstacle to police reforms in Kenya. Hence, local and international investors have been forced to seek out extra security from private security firms like G4S and Wells Fargo for their business which ultimately increases their running costs (Skye, 2002). This essentially affects investor confidence adversely hence reducing the economic growth of the country.

The negative effects of corruption on economic growth can be further exemplified by the case of malaria eradication in Kenya. According to the Kenya Medical Research Institute (KEMRI), malaria is one of the leading causes of morbidity and mortality in Kenya and it is estimated to cause 20% of all annual deaths of children under five years. The disease is responsible for 30% -50% of out-patient visits (requiring more than eight million out-patient treatments at health facilities each year) and 20% of all hospital admissions. Economically, 170 million working days in Kenya are lost each year because of malaria illness, yet malaria can be prevented through the use of treated bed nets. The cost of buying and distributing one of these nets is \$8. If the money lost through the Anglo-Leasing scandal alone – estimated at over \$1 billion or around 80 billion shillings by World Bank's Stolen Asset Recovery Initiative –had instead been used to provide anti-malaria nets, the entire Kenyan population could have been provided with nets. Put simply, Kenya could now be almost malaria free. This clearly shows the extent to which corruption continues to cost lives and impede economic development in Kenya.

Kenya is among the many states that began to realize the extent and effects corruption in the 1990s. This can be attributed to many factors that included: globalization; end of the Cold War; spread of democracy; and the emergence of International Non-Governmental Institutions, (Tanzi, 1998). The KANU and NARC administrations have worked hard to deal with the corruption, but unfortunately the vice seems to persist (see table 1). Corruption practices have been well documented in Kenya but the effects on the economic growth and the channels of these effects has not yet been analyzed. This study seeks to fill this gap..

**Table 1: Top Six Ranked Organizations, Kenya Bribery Index 2005-2008**

2008	2007	2006	2005
Kenya Police	Kenya Police	Kenya Police	Kenya Police
Local Auths./Min. of Local Govt	TLB	Other State Corps.	TSC
Min. of Lands	Public Universities	Local Authorities	Local Authorities
Immigration Department	Immigration Department	TSC	Judiciary
Private Universities	Min. of Local Govt.	Prisons	Min. of Lands
Provincial Admin	Min. of Public Works	Judiciary	Provincial Admn.

*Source: Transparency International-Kenya*

**Theoretical Framework**

Sherman (1972:54) viewed economic growth as increases in aggregate product either total or per capita, without changes to the economic, social and cultural systems. Eltis (1984) however saw economic growth as a long-term expansion of the productive potential of an economy. Many scholars have postulated various theories as to why and how economic growth occurs. Classical theorists like Francoise Quesnay, Adam Smith, Malthus, Ricardo, and Karl Marx had their theories centre mainly on utilization of labor and natural resources as the driver for economic output (Karz and Salvadori, 1995).

The new endogenous growth theory developed by various scholars namely: Romer (1986), Lucas (1988), Rebelo (1991)—built on the work of Arrow (1962), Sheshinski (1967), and Uzawa (1965), rejected the argument that technological advancement was the only way to sustain economic growth (Barro, 1996). It postulates that capital could sustain economic growth in the long-run. Endogenous growth models try to overcome neoclassical weaknesses by endogenising technological progress. These new growth models also incorporate other factors of production e.g. government policy, institutions, education and trade policies. Therefore according to proponents of this model factor inputs need not exhibit diminishing returns.

Most studies on the effect of corruption on economic growth have tended to use the neo-classical model, (Mauro,1995; Barro,1991; Hung,2000; Selcuk,2006; Farida & Ahmadi-Esfahani,2006). The Solow growth model is preferred because of the availability of data and the natural ability of corruption to affect the quality of financial capital and human capital. Determinants like: quantity of human capital; quality of human capital; the share of the

government consumption in GDP, annual population growth, gross domestic investment-GDP ratio and macroeconomic stability (annual inflation rate) are best used to explain neo-classical economic growth model in a given country. The growth of Corruption indexes for the last three decades has tremendously enhanced the analysis of corruption and its effects on economic growth (Selcuk, 2006).

### **Empirical Analysis.**

Different corruption models, with different perspectives- are evident in the economics literature. Murphy et al (1993) analyzed the rent- seeking effect on growth, and showed that increasing returns in rent seeking activities may generate multiple equilibria- in this case a good equilibrium with low corruption and a bad equilibrium with pervasive corruption in rent seeking and income levels. Further on the same- rent seeking effect- Krueger (1974) and North (1990) argued using the same model that weak property rights was likely to worsen a country's economic performance. Mandapaka (1995) employs three sector production models and comes up with two stable equilibria. Mauro (2002) adopts two models involving strategic complementarities and multiple equilibria to illustrate that corruption individuals do not have incentives to fight it even if everybody would be better off without it. The models listed above endogenize rent seeking and exogenize the enforcement of property rights.

### **Knowledge Gap**

According to the literature review, corruption distorts the productivity of public investment. It also can enhance the efficiency or reduce the efficiency of the economic performance of a country. However, the efficiency enhancing argument postulated by various economists seem only to apply to developed countries. The literature overwhelmingly points out that corruption has an adverse effect on the economic growth of developing countries. Furthermore, the general consensus among economists and policy analysts at the World Bank, the International Monetary Fund (IMF), and other international agencies is that corruption is a universal problem, but with more debilitating effects felt in emerging and developing countries, such as those found in Africa. This is because factors such as poverty, hunger, weak institutions and perennial conflicts already pose a challenge to their economic growth (Mauro,1997). Corruption in this case tends to exacerbate the problem. Kenya is an example of such a developing country. Githongo (2007), Mudhai (2007) Mudhai (1998), Mute(2001) have shown how every successive regime has struggled with the fight the corruption problem. They further show qualitatively how corruption has affected the country's growth both socially and economically. However the empirical analysis has not yet been done to ascertain the extent and significance of corruption on the economic growth in Kenya. This study will attempt to fill this gap using a neoclassical model that explicitly includes human capital and allow for the possibility that corruption influences economic growth through its impact on gross domestic investment in Kenya.

### **Research Design**

The research design adopted for this work is the case study design. The reason is that the study seeks to investigate the effect of corruption in Kenya and its effect on the economic growth in detail and in context of the subject country. The choice of the design is also informed by the fact that the study utilizes secondary data which is unique to Kenya.

The study seeks to investigate the effect of corruption on the economic growth of Kenyan from 1995 to 2011. The choice of 1995 as the base year was based on the fact that grand corruption

(e.g Goldenberg Scandal) became eminent during that year and also because the CPI data for Kenya is only available beginning the year 1995.

**The Model**

According to Selcuk (2006), in order to measure impact of corruption on economic growth the basic theoretical framework outlined in Barro (1991) Mauro (1995, 1997) is used for analysis. Barro's framework can be specified as follows:

$$Yy_t = -aG_t + \text{control variables} + \mu \dots\dots\dots (1)$$

Where;

Yy<sub>t</sub> = is the growth rate in period t

G<sub>t</sub> is the log of Kenya's per capita GDP in initial period. Coefficient of G<sub>t</sub> is expected to be negative (- a) due to the theory of convergence of the Solow growth model. According to this theory there is a negative relation between initial level of income and income growth. Mauro (1995) extended Barro's framework by adding corruption to the growth equation.

$$Yy_t = - a G_t + \beta \text{corruption} + \text{control variables} + \mu \dots\dots\dots (2)$$

In estimating the relationship between corruption and growth, it is important to control for other determinants of growth rate, to ensure that estimated coefficient capture the effect of corruption on growth.

In this study, pupil/teacher ratio (proxy for quality of human capita), secondary school enrollment rate (proxy for quantity of human capita) the share of the government consumption in GOP, gross domestic investment-GOP ratio are used as control variables.

The model used in this study can be specified as follows:

$$Y=f(G, CORR, SSER, PTRSC, GDI, GC,) \dots\dots\dots (3)$$

The mathematical expression of the model is as follows:

$$\log Y = a + \beta_1 G + \beta_2 \text{Corr} + \beta_3 \text{SSER} + \beta_4 \text{PTRSC} + \beta_5 \text{GDI} + \beta_6 \text{GCON} + \mu \dots\dots\dots (4)$$

E-views has been used for the regression of the time series variables in the model. The study has employed the Augmented Dicky-Fuller (ADF) test to detect and correct the problem of stationarity in the variables (Hatanaka:1995, Elliot et al:1996, Hamilton:1994, Gujarati:2007, and Dougherty:2006). The Granger Causality has been used to establish the relationship between corruption and public investment in Kenya. Finally, the Engle-Granger two step method has also been employed to determine the short and long-run relationship between corruption and the economic growth in Kenya for the period 1995-2011.

**Results and discussion**

**Stationary and Co integration Tests**

The variables tested for Stationary and Co integration properties include: Gross Domestic Product Growth, annual % (Y) as the dependent variable and Corruption (Corr); GDP per capita annual % (G); Government Consumption as % of GDP (Gcon); Gross Development Investment as % of GDP (L\_GDI); Pupil/Teacher Ration in Secondary School (PTRSC); and Secondary

School Enrollment Rate (SSER). The test showed that all the variables were not stationary (NS) at level (i.e.  $I(0)$ ), since t-statistics are less than the critical value at 5% level of significance in absolute term. We therefore conclude that all the parameters are characterized by unit root problem. So, we therefore move to first differences. At the first differences, Y, Corr, G, and GCON, are stationary, that is they contain one unit root and are integrated of order one  $\sim I(1)$ , since their t-statistics are greater than the critical values at 5% level of significance in absolute term. L\_GDI, PTRSC, and SSER are still characterized by the unit root problem. So, we therefore move to second difference. At the second difference, L\_GDI, PTRSC, and SSER were found to be stationary, since their t-statistics are greater than the critical values at 5% level of significance in absolute term. Therefore they contain two unit roots and are integrated of order two,  $I(2)$ . The generated residual also confirms the variables in the model are stationary. Its skewness value of -0.507, Kurtosis of 2.941, and probability value of 0.694 all confirm it is normally distributed (Appendix 7).

After undergoing the ADF test, the residual series generated from the model- after differencing- reveals that it is stationary,  $I(0)$ . The ADF statistic is greater than critical values at 5% significant level in absolute terms (Appendix 6). This then means that we do not reject the null hypothesis, co integration. Therefore the dependent and explanatory variables are co integrated in the long run, in other terms; there is a long-run equilibrium relationship between the dependent variables and independent variable.

**Granger Causality Test between Corruption and Gross Domestic Investment**

Based on the probability values reported in table 3, the hypothesis that Gross Domestic Investment does not cause corruption cannot be rejected. This also goes for the hypothesis that corruption does not cause gross domestic investment, which cannot also be rejected. Therefore, we see bi-directional causalities from corruption to gross domestic investment. This implies that there is a long-run unidirectional causality, as it appears that corruption causes gross domestic investment and also gross domestic investment granger causes Corruption.

**Table 3: Granger Causality Test between L\_GDI and Corr**

Pairwise Granger Causality Tests  
 Date: 04/24/13 Time: 00:04  
 Sample: 1995 2011  
 Lags: 2

Null Hypothesis:	Obs	F-Statistic	Probability
L_GDI does not Granger Cause CORR	15	0.64837	0.54354
CORR does not Granger Cause L_GDI		0.16749	0.84811

**Table 4: Result of short dynamics**

Pairwise Granger Causality Tests  
 Sample: 1995 2011  
 Lags: 3

Null Hypothesis:	Obs	F-Statistic	Probability
DLGDI does not Granger Cause DCORR	13	2.18122	0.19123
DCORR does not Granger Cause DLGDI			0.24459



Table 4 shows the result of the short run dynamics. We observe the inferences of a short run relationship between the variables after checking the causalities using the variables at first difference. We arrive at the conclusion that causality still exists in the short run.

### ***Eagle Granger Two Step Method and Error Correction Mechanism (ECM)***

The relationship between corruption perception index and GDP growth rate shows a coefficient that is negative and insignificant in the short run but positive and significant in the long run at 1% level. This implies that since corruption is responsible for the increase of capital projects that allow some unscrupulous public officials to financially benefit personally, the end result is grim as the funds meant for implementing the projects get diverted to individual's pockets hence productivity of the economy gets negatively affected. In other words corruption indirectly affects the GDP growth through adversely affecting the public domestic investment. The relationship between gross domestic investments is positively signed and significant in the short-run, but negatively signed and significant in the long-run. This implies that capita projects in the short run improve the growth of the economy as it boosts the investment environment in the country. However, in the long-run corruption sets in and projects are left incomplete as funds meant for their successful completion are siphoned out by corrupt public officials. This adversely affects the investment environment and hence the GDP growth of the country in the long run.

On the other hand, the relationship between the GDP per capita annual % (G) and the GDP growth rate is positive and significant in the short run but negative and insignificant in the long run. This is at 1 % level of significance. The short run relationship can be attributed to the fact that in that period there was less capital per worker vis-a-vis production. The relationship between Government Consumption (GCon) and GDP Growth shows a positive and significant coefficient in the short run but a negative and significant coefficient in the long run. The short run relationship can be attributed to the fact that government consumption – through the purchase of vehicles, etc, boosts the economy as it increases revenues through tax remittance. The long run relationship, can be attributed to the fact that high consumption in the long run affects the funds available for effective public domestic investment hence the GDP growth rate is negatively affected.

The relationship between the quality of human capital (PTRSC) and the GDP growth rate is negative and insignificant in the short run. The long run relationship between the two variables is positive and significant at the 1% level. This is because the increase in production of well skilled and trained workers positively affects the output of the economy. The growth of the use of technology and the increase of teachers by the Teachers Service Commission- in the period under the study- increases entrepreneurship and further improves the output of the economy through a positive growth rate. The quantity of Human Capital (SSER) is positively and significantly related to the GDP growth rate in the short run. It is however negatively and insignificantly related to the GDP growth rate in the long run. One possible explanation for the insignificance of the quantity of human capital (SSER) the GDP growth is that the country's industries are few and lack the capacity to absorb the amount of labor available in the market

**Table 5: Eagle Granger: step1 Regression**

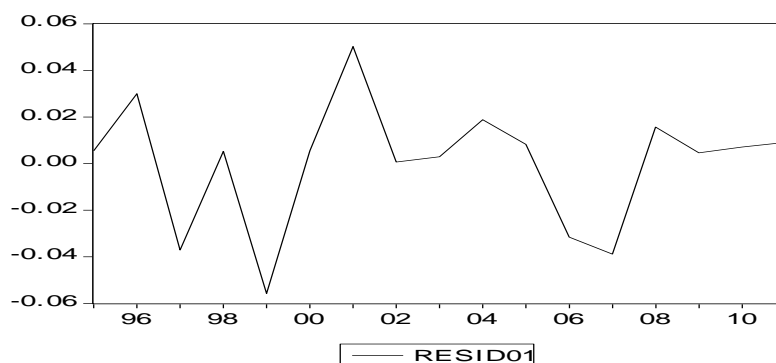
Dependent Variable: DY

Method: Least Squares

Sample(adjusted): 1996 2011

Included observations: 16 after adjusting endpoints

Variable	Coefficien t	Std. Error	t-Statistic	Prob.
DCORR	-0.117961	0.073854	-1.597214	0.3561
DG	1.015694	0.006879	147.6445	0.0043
DLGDI	0.082115	0.090387	0.908490	0.5305
DGCON	0.030174	0.015745	1.916386	0.3062
DPTRSC	-0.012256	0.005041	-2.431517	0.2484
DSSER	0.010716	0.006028	1.777826	0.3262
CORR	-0.233414	0.126126	1.850635	0.0154
G	-0.002677	0.009059	-0.295562	0.8170
GCON	-0.004714	0.010445	0.451372	0.7301
L_GDI	-0.208257	0.061783	3.370774	0.0836
PTRSC	0.012244	0.004761	2.571747	0.2361
SSER	-0.005040	0.004820	-1.045743	0.4858
C	0.021372	0.155902	0.137087	0.9133
R-squared	0.999999	Mean dependent var	-	0.001893
Adjusted R-squared	0.999980	S.D. dependent var	-	2.582525
S.E. of regression	0.011480	Akaike info criterion	-	6.994095
Sum squared resid	0.000132	Schwarz criterion	-	6.269793
Log likelihood	70.95276	F-statistic	-	54225.70
Durbin-Watson stat	2.564956	Prob(F-statistic)	-	0.003366



**Figure 2: Graph showing the Residual series is stationary**

Figure 2 above shows that the variables are cointegrated as the residual series is stationary. It clearly shows that the residual series is integrated at I(0) at 5% significant level as the ADF statistic is more than the 5% critical value in absolute terms. Hence we reject the null hypothesis of the residual series being “non-stationary”

**Table 6: The Error Correction Mechanism**

Dependent Variable: Y  
 Method: Least Squares  
 Sample(adjusted): 1996 2011  
 Included observations: 16 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
		t		
CORR(-1)	0.861385	6.496194	0.132598	0.8982
G(-1)	-0.000703	0.503357	-0.001397	0.9989
GCON(-1)	-0.688681	0.786280	-0.875873	0.4101
L_GDI(-1)	-5.787136	4.164995	-1.389470	0.2073
PTRSC(-1)	-0.184685	0.382380	-0.482989	0.6438
SSER(-1)	0.138917	0.360975	0.384838	0.7118
ECM(-1)	-0.094222	21.59492	-0.138747	0.8936
C	20.11029	19.47214	1.032772	0.3361
R-squared	0.465112	Mean dependent var		3.550885
Adjusted R-squared	-0.146188	S.D. dependent var		2.121144
S.E. of regression	2.270900	Akaike info criterion		4.776551
Sum squared resid	36.09890	Schwarz criterion		5.211132
Log likelihood	-29.21241	F-statistic		0.760857
Durbin-Watson stat	2.440940	Prob(F-statistic)		0.647379

We then proceed to test the Error Correction Mechanism (ECM) which is used to recover the lost economics. We accomplish this by introducing many lags into the equation specification- however variables with huge probabilities were removed to obey the rule of having a parsimonious model and also the adjustment helped in making the lagged ECM(-1) negative and statistically significant. The estimation output as shown in table 6, shows that the Lagged error correction term ECM (t-1) included in the model to capture the long run dynamics between the co-integrating series are correctly signed (negative) and statistically significant. The coefficient indicated adjustment of 9% for the model.

**Conclusion**

This study has sought to investigate the effects of corruption on the economic growth in Kenya. Consistent with the evidence in the empirical literature, the analysis in this paper has established a statistically significant effect of investment on growth in Kenya. It has also tried to determine the relationship between corruption and public domestic investment. The findings of the study suggest that there is a significant two-way causal relationship between corruption and public domestic investment. . The observed positive relation between public investment and corruption is indicative of rent-seeking. This supports the argument of Kibwana, et al (2002), that the concentration of public domestic investments capita projects like construction of roads, has led to the emergence of “cowboy contractors” who get contracts to build roads but instead construct sub-standard roads in order to get further contracts to maintain the same roads- this is usually with the help of unscrupulous government officials. Such behaviour effectively reduces the efficiency of public investment which in turn reduces gains in terms of long-term growth from such investment. Thus, to achieve and sustain high growth rates, it is necessary to increase not only the quantity of public investment but also its quality, which will in turn require aggressive measures to reduce corruption.

Although the results show a positive short-run relationship between corruption and growth, the empirical findings also show that there is a strong negative long run relationship. The findings support the view that corruption hampers growth, and call for institutional reforms to improve the quality of governance as a prerequisite for achieving investment-led growth

### Recommendations

Tanzi (1998) argues that the fight against corruption is long-term and requires a concerted effort. The study has shown that there is a bi-directional relationship between corruption and gross domestic investments in Kenya. In other words corruption indirectly affects the economic growth in Kenya by undermining the implementation of public investments in the country. The study findings call for improvement and commitment to improved quality of governance of public investment is to achieve long-term growth objectives desired by the Kenya's Vision 2030.

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## **FACTORS INFLUENCING CUSTOMER SATISFACTION WITHIN THE BANKING INDUSTRY IN KENYA: A CASE STUDY OF NIC BANK LIMITED, THIKA BRANCH**

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### **Abstract**

*Customer satisfaction involves giving attention to customer's needs and requirements. The main objective of this study was to determine the factors influencing customer satisfaction and the extent to which they influence customer satisfaction within the banking industry in Kenya using the case study of NIC Bank Limited. These factors were service reliability, service responsiveness and quality assurance. The study used descriptive research which entailed gathering data that describes customer perception about their satisfaction from the services rendered by NIC Bank Limited. The study relied majorly on primary data that was collected through questionnaires issued to 375 customers selected through simple random sampling. Data was analyzed and presented using frequency and percentage tables. The findings on the impact of service reliability established that the highest statement gap was failure to meet turnaround times on service delivery. The impact of service responsiveness established that the highest statement gap was related to the employees telling the customers exactly when services will be performed. The impact of quality assurance revealed that the highest statement gap was related to the fact that employees instill confidence to customers. The study concludes that the bank had inconsistencies in the quality of service and service delivery was not prompt thus loss of customer confidence. The study recommended that the bank should ensure consistency across all aspects of service delivery and act within the agreed turnaround times and keep the customers updated.*

**Key Words:** Factors of Customer Satisfaction

### **Introduction**

Customer satisfaction is very important to any business organization and it involves giving attention to customer's needs and requirements. Satisfaction is the overall customer attitude or behavior towards a service provider, or an emotional reaction towards the difference of what customers expect and what they receive, regarding fulfillment of some desire, need or goal (Kortler, 2006, Wong and Sohal, 2003). Hoyer and MacInnis (2001) say that satisfaction can be associated with feelings of acceptance, happiness relief, excitement and delight. The level of satisfaction can also vary depending on range of products or services offered by the competitors. For organizations to enhance customer satisfaction, they require building relationships based on confidence and trust (Johri, 2009) between the customer (buyer) and the company (seller). It is therefore essential to ensure that from the onset the intentions of both parties (customers and banks) are clearly understood in the provision of service quality. Service quality is defined as a form of attitude or a long run overall evaluation (Parasuraman et al., 1988). Perceived service quality refers to a general overall appraisal of service i.e. a global value judgment on the superiority of overall services that could occur at multiple levels in an organization as per Gronroos (2001).

According to Faisal et al., (2011), the importance of customer satisfaction in today's dynamic corporate environment is crucial as it greatly influences customers repurchase intentions

whereas dissatisfaction has been viewed as the primary reason for customer's intention to switch to competitors. Ordinarily satisfied customers are mostly likely to share their experiences with other five or six persons. On the contrary, dissatisfied customers are more likely to inform and share with many others about their unfortunate experiences with a particular organization. In order to enhance customer satisfaction, organizations must focus on constantly building and maintaining lasting relationships with their customers by satisfying their needs and requirements to motivate them. For organizations to enhance customer satisfaction, they require building relationships based on confidence and trust (Johri, 2009) between the customer (buyer) and the Company (seller). Hence, this study looks at the factors influencing customer satisfaction within the banking industry in Kenya using the case study of NIC Bank Limited. NIC was incorporated in Kenya in 1959. In order to effectively diversify into mainstream commercial banking, NIC Bank merged in November 1997 with African Mercantile Bank Limited (AMBank), by way of a share swap.

NIC Bank Limited and the commercial banks in Kenya as a whole have witnessed very stiff competition last few years partly due to the fact that customers have become increasingly aware of their rights and privileges demanding value for money, improved quality services and products and also due to the homogeneity nature of service and products offered by other companies in the industry. Local competition by other service providers has pushed premiums rates upwards making the company not to achieve the anticipated level of performance. Wading through the above constraints requires measures for a proactive and effective service system focusing on the needs, interest and preferences of the customers. The current practice is that organizations are increasingly adopting strategies to monitor and measure quality customer care, responsiveness, reliability and retention is achieved by ensuring that employees are customer focused and service oriented. It is with this background that the study sought to explore the impact reliability, responsiveness and quality customer care has as factors enhancing customer satisfaction in the banking industry using the case study of NIC Bank Limited, Thika Branch.

The general objective of the study was to analyze the factors influencing customer satisfaction and the extent to which they influence customer satisfaction within the banking industry in Kenya using the case study of NIC bank limited. The following specific objectives guided the study:

- i. To analyze the influence of service reliability on customer satisfaction in the banking service.
- ii. To analyze influence of service responsiveness on customer satisfaction in the banking service.
- iii. To analyze the influence of service quality assurance on customer satisfaction in the banking service.

## **Literature Review**

This chapter concentrates on literature review focusing on customer satisfaction as a whole and the factors influencing customer satisfaction in the service industry. It consists of past reviews and related articles and publications on the dimensions under study. In addition it has the conceptual framework with the dependent and independent variables on the said study outlining their relationship.

A service can be defined as a series of intangible activities throughout interactions between customers and service employees or physical resources or goods and services companies which



are presented by a company as a solution to customers' problems (Gronross, 1990 cited in Hessamaldin, 2007). One definition that is commonly used defines service quality as the extent to which a service meets customers' needs or expectations (Nduma, 2003). Service quality can thus be defined as the difference between customer expectations of service and perceived service. If expectations are greater than performance, then perceived quality is less than satisfactory and hence customer dissatisfaction occurs (Fisher, 2007). Exploratory research by Parasuraman, Zeithaml and Berry (1985 cited in Caruana and Malta, 2002) revealed that the criteria used by consumers in assessing service quality fit 10 potentially overlapping dimensions. These dimensions were tangibility, reliability, responsiveness, communication, credibility, security, competence, courtesy, understanding/knowing the customer, and access. These 10 dimensions and their descriptions served as the basic structure of the service-quality domain from which five items were derived for the current SERVQUAL scale.

### ***Customer satisfaction***

“Satisfaction is the consumer's fulfillment response. It is a judgment that a product or service feature, or the product of service itself, provided (or is providing) a pleasurable level of consumption-related fulfillment, including levels of under- or over-fulfillment...” (Oliver, 1997). First, the focus is on a consumer rather than a “customer.” Traditionally speaking, the consumer uses a product or service, whereas a customer pays for the product/service but may not be the consumer (that is, the direct user). Satisfaction with a product/service is a construct that requires experience and use of a product or service (Oliver, 1997). Individuals who pay for a product/service but who do not use this product/service should not be expected to have the type of (dis)satisfaction that a product/service user (the consumer) will have. So we need to realize that the concept of customer satisfaction is about consumer satisfaction (that is, user satisfaction), rather than about buyer satisfaction (which may include non-users). Second, satisfaction is a feeling. It is a short-term attitude that can readily change given a constellation of circumstances. It resides in the user's mind and is different from observable behaviors such as product choice, complaining, and repurchase. Third, satisfaction commonly has thresholds at both a lower level (insufficiency or under fulfillment) and an upper level (excess or over-fulfillment).

### ***Service reliability and customer satisfaction***

Customer satisfaction refers to a products perceived performance as compared to the buyers' expectation. If the products performance falls short of expectation the customer is dissatisfied and vice versa. Smart companies aim at delighting customers by exceeding their expectation (Ehigie, 2006) by providing reliable service. This makes service reliability an essential contributor to service quality. Service reliability can be defined as the extent to which the retail service provides what was promised when it was promised (Dabholkar et al., 2006). Reliability is just as important as a good first hand impression, because every customer wants to know if their supplier is reliable and fulfills the set requirements with satisfaction. Typically, service provision is described as a continuous process in the sale process (Babakus and Boller, 2002) and, service providers are expected to provide the expected level of service without interruption. The extent to which such service provision is continuous should be a good indicator of reliability. Service reliability reflects quality of the performance and realization of service specifications during the succeeding consumption stage. Service reliability relates to the instrumental aspects of service realization. Many organizations today are interested in evaluating and implementing strategies that aim at improving customer satisfaction and maximizing share of customers in view of the beneficial effects on the financial performance.

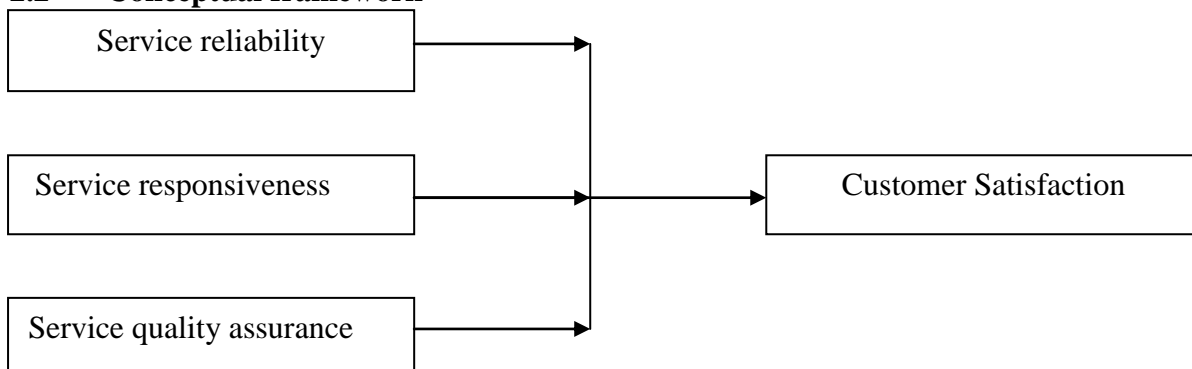
**Service responsiveness and customer satisfaction**

Service responsiveness helps in meeting customer satisfaction. Service responsiveness involves the company or employee willingness to help the customers and providing them with a good, quality and fast service to meet their expectations. When customers request for assistance and are provided with the appropriate service their expectations are met thus they become satisfied. Responsiveness refers to the process of taking action quickly to meet the specific needs of customers (Parasuraman et al., 1985). It means keeping customers informed about ongoing activity to meet their requests, and giving them a sense that fulfilling their request is important. Responsiveness is very important because if customers are provided with what they need in a timely fashion, they will be satisfied (Otuahi, 1996).

**Service quality assurance and customer satisfaction**

Customer satisfaction is achieved when the customer needs and requirements are fulfillment. Achieving service quality needs and customer requirements can be done through quality assurance. Assurance is the systematic monitoring and evaluation of the various aspects of a project, service or facility to maximize the probability that minimum standards of quality are being attained by the production process. Two principles included in quality assurance are: "Fit for purpose" - the product should be suitable for the intended purpose; and "Right first time" - mistakes should be eliminated. Quality is determined by the product users, clients or customers, not by society in general. Assurance is defined as employees' knowledge and courtesy and the ability of the service organization to inspire trust and confidence (Cronin and Taylor, 2004). Promising more than can be delivered raises initial expectations but lowers perceptions of quality when the promises are not fulfilled (Metters, King-Metters, Pullman and Walton, 2006) within the shortest time possible. Quality assurance, reliability, responsiveness and customer satisfaction have long been recognized to play a crucial role for success and survival of organizations in today's competitive market. According to Akbar and Parvez, (2009), notably, quality assurance and satisfaction concept have been linked to customer behavioral intentions like purchase responsiveness, loyalty and retention. Trends are such that organizations have become highly customer – centric, that is putting the customer at the centre of business focus in terms of strategies, actions and processes.

**2.2 Conceptual framework**



**Figure 2.2: Conceptual Framework**

The dimensions of service quality in Figure 2.2 are tools used to assess customer satisfaction. For instance, service reliability helps companies get repeat business and loyalty by their customers. It involves listening carefully to their customers and responding effectively to match

or exceed their needs and expectations. Service responsiveness emphasizes attentiveness and promptness in dealing with customer requests, questions, complaints and problems. Lastly, service quality assurance make certain that a product or service under development meets specified requirements at all stages in the process.

### **Research Methodology**

This chapter outlines the methodology and techniques that were used in data collection and analysis. It also covers research design, determination and identification of the target population, sample size sampling techniques, instruments of data collection, methods of data collection and data analysis. The design of the study was descriptive research. According to Gill and Johnson (2010), descriptive survey design refers to a set of methods and procedures that describe particular characteristics of specific population of subjects. It involves gathering data that describe events and then organizes, tabulates, depicts, and describes the data. The independent variable comprised of reliability, responsiveness and quality assurance of customer service while the dependent variable is customer satisfaction. The total population of customers at NIC bank, Thika Branch was 1,250 customers as at 31st May 2013 obtained from the Branch Manager.

### **Sample and sampling techniques**

According to Cooper and Schindler (2001), sampling is the process of selecting some elements from the large population to be a representation of the population as a whole. In this study simple random sampling was used to select various customers of NIC bank who visit the bank in the course of the month. According to Kerlinger (1989), 30% of the study population is a representative sample therefore out of the 1,250 customers only 375 were picked at random from customers who visit the bank across the month.

### **Data collection tools**

A survey questionnaire was designed to apply to a heterogeneous sample selected from the large population of customers (Burns, 2000). The questionnaire contained questions that were close ended and also a few open ended questions structured in three broad areas that included the general information, a rating on the importance company on reliability, responsiveness and assurance of customer service as well as questions on customer satisfaction. The study used both quantitative and qualitative data analysis techniques of data analysis. Quantitative data was obtained from the structured questionnaire which was analyzed using quantitative data analysis techniques such as tables, bar graphs and pie charts. Qualitative data obtained from the some of the closed ended questions such as gender and level of satisfaction and the open ended questions on opinions, views and preferences used qualitative data analysis techniques.

### **Results and Discussions**

This chapter presents the findings of the primary data collected from the field using the research questionnaire. The findings are outlined according to specific objectives of the study. The research objectives were to analyze the influence of service reliability, service responsiveness and service quality assurance on customer satisfaction in the banking service.

***Influence of reliability on customer satisfaction***

The results presented in Table 4.1 revealed that most of the respondents were of the perception that, the staff of the bank show sincere interest in solving customer problems (mean= 4.51), secondly, the bank provides the services at the time it promises to do so (mean= 4.48), thirdly, the bank insists on error-free records (mean= 4.43), fourthly employees of the bank promises to do something by a specific time frame and they do so (mean= 4.17) and lastly the staff of the bank performs the service right the first time (mean= 4.16). Thus, the findings imply that majority of the respondents had a higher perception of the bank solving customer problems than performing services right the first time.

**Table 4.1: Reliability**

<b>Reliability</b>	<b>Mean</b>
The employees of the bank promises to do something by a specific time frame and they do so	4.17
The staff of the bank show sincere interest in solving customer problems	4.51
The staff of the bank performs the service right the first time	4.16
The bank provides the services at the time it promises to do so	4.48
The bank insists on error-free records	4.43

***Influence of service responsiveness on customer satisfaction***

The results presented in Table 4.2 revealed that majority of respondents feel that the employees of the bank are willing to help the customers (mean= 4.19). Thus, the findings imply that majority of the respondents experienced a keen interest by the bank employees and are willing to help the customers and they least experienced that the employees of the bank are never too busy to respond to customer requests.

**Table 4.2: Responsiveness**

<b>Responsiveness</b>	<b>Mean</b>
The employees of the bank tell the customers exactly when services will be performed	3.77
The employees of the bank give the customers prompt service	3.82
The employees of the bank are willing to help the customers	4.19
The employees of the bank are never too busy to respond to customer requests	3.72

***Influence of quality assurance on customer satisfaction***

The results presented in Table 4.3 revealed that most respondents indicated that the employees of the bank have the knowledge to answer customers’ questions (mean= 4.02), secondly, employees of the bank give customers individual attention (mean= 3.98). Thus, the findings imply that majority of the respondents experienced a keen interest by the employees of bank have the knowledge to answer customers’ questions and they least experienced the behavior of employees of the bank instilling confidence in them.

**Table 4.3: Assurance**

<b>Assurance</b>	<b>Mean</b>
The behavior of employees of the bank instills confidence in the customers	.82
Customers of the bank feel safe in when transacting with the company	3.90
The employees of the bank are consistently courteous with the customers	3.69
The employees of the bank have the knowledge to answer customers' questions	4.02
The employees of the bank give customers individual attention	.98

*Customer satisfaction*

*Evaluation of customer satisfaction*

To evaluate the customer satisfaction from the respondents involved in the study. The findings indicated in Table 4.4 established that 51% of the respondents were satisfied with the bank's services, 34% were very satisfied and 15% were dissatisfied. Therefore, the findings shows that majority of the respondents are satisfied with services offered by the bank.

**Table 4.4: Evaluation of Customer Satisfaction**

<b>Customer Satisfaction</b>	<b>Frequency</b>	<b>Percentage</b>
Very satisfied	72	36
Satisfied	99	50
Dissatisfied	28	14
Total	199	100

*Satisfaction with services*

The findings presented in Table 4.5 established that most of the respondents were of the perception that they would continue using the services at a mean of 4.34 as compared to those who claimed that they would recommend the services to others at a mean of 4.32. The findings imply that majority of respondents plan to continue using the banks services and also recommending the same to others.

**Table 4.5: Satisfaction with Services**

<b>Satisfaction with Services</b>	<b>Mean</b>
Will you continue to use our services?	4.34
Would you recommend our services to others?	4.32

**Summary**

This chapter addresses the results and findings on the factors influencing customer satisfaction and the extent to which they influence customer satisfaction within the banking industry in Kenya using the case study of NIC bank limited. The findings are outlined according to specific objectives of the study. The findings are based on the responses from the questionnaires filled and information gathered on the research questions. The researcher provides a discussion on the findings of the research as compared to the findings in the literature review based on the specific objectives.

Customer reliability is generated when an organization is prompt to offer quality service. The third gap was related to the employees of the bank promises to do something by a specific time frame and they do so (mean=4.17). The result indicates that there was undue delay in the provision of reliable service which is an important reason for customer to lose confidence on the product or service offered (Bly, 2003). The customer is key to any business organization therefore attending to customers promptly is the prime duty of employees of any organization that values customers. Hence, a sense of care is a vital tool in achieving customer satisfaction (Nitecki, 2002). The findings indicates that majority of the respondents were less satisfied by the view that company provide services at the specific time it promises to do so and were more satisfied that staff performed the service right the first time. Generally, this indicates the key objective of the bank in enhancing customer satisfaction is not been achieved. Satisfied customers are easy to retain as a way of promoting revenue growth and profitability.

Service responsiveness helps in meeting customer satisfaction. Service responsiveness involves the company or employee willingness to help the customers and providing them with a good, quality and fast service to meet their expectations. The findings of this study indicated that the employees of the bank tell the customers exactly when services will be performed (mean=3.77). This means that the organization was failing to keep the customers informed on exactly when the services will be performed. Parasuraman et al. (1985) explains that informing the customers about the ongoing activity of service quality is important in meeting customer requests and giving them a sense of fulfillment. Customers can be quite tolerant as long as they believe the customer service staff are doing the best they can to help them.

Satisfaction is a variable which is an outcome of better service quality and in return it gives customers the seal to stay with the service provider. The findings showed that the employees of the bank are consistently courteous with the customers (mean=3.69). This indicates that the organization is not consistently courteous in providing better service quality. Kortler (2000) explains that customer satisfaction is an overall customer attitude towards service providers, or an emotional reaction towards the difference between what customers expects and what they receive toward fulfillment of some needs and requirements. Hoyer and MacInnis (2001) add that satisfaction can be associated with feelings of acceptance, happiness relief, excitement and customer delight.

## **Conclusions**

It is essential to build trust and ensure there is reliable customer service so that the intentions of the parties are clearly understood. The outcome of offering excellent service is customer satisfaction. Generally, this indicates the key objective of the bank of enhancing customer satisfaction has not been achieved as expected. Service responsiveness helps in meeting customer satisfaction. Service responsiveness involves the company or employee willingness to help the customers and providing them with a good, quality and fast service to meet their expectations. The organization failed in providing quality assurance to the customers in that they have lost trust which is reflected on the workers knowledge and experience and their ability to build self confidence as well as confidence in the customers themselves. This means that the customers do not feel safe with the organization especially when there are discrepancies in service delivery.

## **Recommendations**

The study recommends that the bank should provide services at the time it promises to do so and insist on error-free records. Employees should tell the customers exactly when services will

be performed to achieve a minimum gap score in the area. They should also always instill confidence in customers to make them feel safe when transacting business with the company; be consistently courteous with customers and give customers personalized attention.

### **Suggestions for Further Research**

The purpose of this study was to analyze the factors influencing customer satisfaction and the extent to which they influence customer satisfaction within the banking industry in Kenya using the case study of NIC Bank Limited. The study suggests that future research could use the research objectives focusing on other banks in the country to confirm or disapprove similarities of the results.

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## IMPACT OF EXCHANGE RATE VOLATILITY ON FOREIGN DIRECT INVESTMENTS TO DEVELOPING COUNTRIES: CASE OF KENYA

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### Abstract

*This study investigates the empirical evidence for the impacts of exchange rate volatility on the flow of Foreign Direct Investments to developing countries. The literature in place does not give any conclusive agreement on the nature of the relationship between exchange rate volatility and foreign direct investments. (Goldberg and Kolstad, 1995) found out that exchange rate has a positive impact on FDI while Benassy-Quere et al (2001) as well as (Urata and Kawai, 2000) found a negative impact of exchange rate volatility on flows of FDI to developing countries. The study seeks to provide empirical evidence on this relationship by analyzing the secondary data for the period 1990 - 2012. Real GDP and Interest rates were used in the study as other determinants of FDI and control variables. The long run equations for the variables were estimated and it showed that all variables have a positive influence on FDI flow. Before the variables are subjected to regression analysis, they were tested for stationarity using the Augmented-Dickey Fuller test for unit roots and Johansen's test for cointegration. This was done to check the stationarity for the data to confirm presence of cointegration. Presence of non-stationarity exposes analysis to producing spurious regressions. The measure for exchange rate volatility was estimated using the Autoregressive Conditional Heteroscedasticity (ARCH) approach whereby Volatility was measured as the mean-adjusted relative change in the exchange rate. The study adopted a longitudinal research design with use of correlation and regression models to assess the cause effect relationship between exchange rate volatility and FDI. The findings suggest, among others, that the relationship between FDI and exchange rate volatility is inconsistent and therefore inconclusive in this study and therefore the need for further research in this area. The interest rates however indicated a significant positive relationship with FDI. GDP on the other hand had a positive but insignificant relationship with FDI. The findings of the study will be useful to policy makers as it will guide them in formulating country-specific policies that respond to the external environment while maintaining internal stability to maintain FDI attractiveness.*

**Key Words:** Exchange rate volatility, Foreign Direct Investments, Real GDP

### Introduction

Foreign direct investments as an area of study have received significant attention from scholars for a long time. According to Dean (2012), this can be attributed to the increasing benefits derived from FDI both by the MNC and the recipient economies. This has been so especially on its contribution to the development in the third world countries and the emerging economic power houses in Asia. FDI discussion and studies has invited several empirical analyses as pertains to the flow patterns, contribution to economic growth in both recipient and origin economies and most significantly factors affecting or influencing its flow patterns. Factors that influence FDI flows may include taxes, market size, political stability and the 'openness' of the economy (Walsh and Yu, 2010).

OECD, on their study Foreign Direct Investments for Development (OECD, 2002) explains that given an appropriate host-country policies and basic level of development, FDI triggers

technological spillovers, assist human capital formation, contribute to international trade integration, helps create a more competitive business environment and enhances enterprise environment. There are more social benefits associated with FDI including environmental improvement through adoption of cleaner technology (OECD, 2002).

Kenya has had a long history of economic leadership in East Africa as one of the largest and most advanced economies in the region (Kinyanjui, 2010). However, inconsistent efforts at structural reforms and poor policies over the past couple of decades has resulted in a deterioration in development indicators over a prolonged period which has eroded the leadership position at a time when the rest of the countries have made significant strides (Kinyanjui, 2010). While Kenya was a prime choice for foreign investors seeking to establish a presence in Eastern and Southern Africa in the 1960s and 1970s, poor economic policies coupled with investment efforts of structural reforms, rising problems of corruption, poor governance and the deterioration of public service has discouraged investment since the early 1980s (Kinyanjui, 2010).

FDI has also the potential of enhancing growth of domestic firms through complementarity in production and productivity spillovers. Phillips et al. (2000) found that FDI stimulates domestic investment; he states that a 1% increase in the FDI/GDP (gross domestic product) ratio is followed by as much as a 0.80% increase in future domestic investment/GDP in Africa. The authors conclude that FDI provides positive externalities and spillovers, particularly to developing countries, which make private domestic investment more profitable. In a survey, Phillips et al. (2000) found that nearly all business leaders in Kenya interviewed favoured foreign investment and recognized that it offered them economic opportunities. The anticipated decline in FDI as a result of the financial crisis would therefore adversely affect the country's performance.

Studies carried out in Kenya have also shown that the level of FDI to Kenya portrays a fluctuating trend, both in absolute and relative terms. Arising from poor economic performance of past decades, Kenya has taken its place as the regional business leader amid these poor FDI inflows (Kinyanjui, 2010). It has retained regional advantages in FDI location, particularly as a result of its workforce and a central logistics location (FKE, 2002). Foreign investors in Kenya have tended to make relatively small investments but they are numerous and established across a wide variety of sectors. They have contributed significantly to some of the more dynamic sectors in the economy, including horticulture, and to export diversification (World Bank, 2004). These two studies by the World Bank and Federation of Kenya Employers do not show in any absolute terms the relationship between FDIs inflow and the exchange rate volatility.

The flow of FDI to Kenya has been influenced by various factors the leading one being political stability. In similar studies, scholars have either looked at the determinants of FDI as in (Wanjala, 2001) and (Kinyanjui 2010) impact of local private investment (King'ang'i, 2003) or researched on the greater regional implications without looking at the specific Kenyan economy or narrowing down to the extent any specific determinants influence FDI (Kayonga, 2008 and Kurui, 2008). However, Studies on the effects of Exchange rate volatility on FDI have been carried out elsewhere some including the data for Kenya. For instance: Lawrence and Watundu (2010), Osenubi et al, (2009), Jeanneret (2005), David and Sara (2008), Ogunleye (200), Kinaro (2006), Crowley and Lee (2010) and Hymer S.H (1960). These studies have given conflicting results with only a few agreeing with the other thus the need to investigate the influence of exchange rate volatility on FDI.

A survey of past studies on this topic yields negative, positive, and indeterminate effects. A positive effect can be justified with the view that FDI is export substituting. Increases in exchange rate volatility between the headquarters and the host country induce a multinational to serve the host country via a local production facility rather than exports, thereby insulating against currency risk. Justification for a negative impact of exchange rate volatility on FDI can be found in the irreversibility literature pioneered by (Dixit and Pindyck, 1994). FDI in a country with a high degree of exchange rate volatility will have a riskier stream of profits, all else being equal. As long as this investment is partially irreversible, there is some positive value to holding off on this investment to acquire more information. Given that there are a finite number of potential direct investments; countries with a high degree of currency risk will lose out on FDI to countries with more stable currencies (Foad 2005). The objective of this study is to assess the effect of exchange rate volatility has on the flow of FDI in Kenya and to what extent real GDP and Interest rate influence FDI.

The theoretical arguments linking volatility to FDI have been divided between production flexibility arguments and risk aversion arguments (Osinubi et al. 2009). Scholars have come up with various theories and models linking exchange rate and exchange rate volatility to FDI. One of the key theories highlighted is the risk aversion theory, (Goldberg and Kolstad, 1995), (Osinubi et al, 2009). According to the risk aversion theory, FDI decreases as exchange rate volatility increases. This theory postulates that the higher volatility in the exchange rates leads into a lower certainty equivalent expected exchange rate. According to Goldberg and Kolstad (1995), firms making investment decisions today in order to realize profits in future use certainty equivalent levels on their expected profit functions. Goldberg and Kolstad further argue that a distinction could be made between risk-neutral firms which are more concerned with the future expected profits whereby they postpone their investments if the exchange rate is volatile (Campa, 1993). This Campa (1993) notes may result in risk neutral firms being deterred from entering new markets due to the uncertainty posed by exchange rate. Osinubi et al (2009) further posit that the theoretical argument is confirmed when an empirical study is carried out on inward investments on wholesale investments in the US whereby sunk costs are high. In evaluating risk-aversion versus production flexibility approaches, it is critical to separate between short-term exchange rate volatility and long-term misalignments (Goldberg & Kolstad 1995), (Jayaratnam 2003). The second theory is the production flexibility theory. According to this argument, exchange rate leads to higher foreign investments because firms can adjust the use of one of their variable factors when nominal shocks are realized. This model works on the assumption that factors are variable and would not hold where factors are fixed.

Empirical literature review is done to try and demonstrate the inconclusive nature of empirical findings in this field and prove the need for more research in the area. There exist a lot of empirical findings in this area that seem to give conflicting conclusions. The literature stretches from earlier researches to most recent studies. One of the cited reasons for the diversity of findings in this area is because of the diversified methodologies and data applied in the previous studies. In Kenya several studies have been conducted on FDI determinants. Kinaro (2006) using time series analysis finds that FDI in Kenya is determined by economic openness, human capital, real exchange rate, inflation, and FDI in the previous periods. Opolot et al (2008) find using panel data for Sub Saharan African Countries, Kenya included that market potential, openness to trade, infrastructure, urbanization, and rate of return on investment positively affect foreign direct investment inflows to Sub-Saharan Africa, while macroeconomic instability is a disincentive to foreign direct investment. Other variables such as government consumption, financial development, natural resources, wage and political rights are found to be insignificant. Mwega and Rose (2007) using panel data of 43 countries with a Kenyan dummy find that

Kenya is not different from other countries and that FDI is determined by growth rates, terms of trade shocks, external debt ratio and quality of institutions.

UNCTAD (2005) observe that Kenya's inability to attract FDI is due to growing problems of corruption and governance, inconsistencies in economic policies and structural reforms, deteriorating public service and poor infrastructure. Todd et al (2005) adds that Kenya officially encourages and grants national treatment to foreigners but that the problem is Kenya's political elites who resent FDI perceiving it to lead to dependency. Himbara (1994) shares similar sentiments. Kareithi (1991) concerned with the impact of foreign-owned media upon the body politic of Kenya argues that foreign ownership undermines both national sovereignty and even the rudiments of political freedom.

### ***Exchange rate volatility***

Erick (2002) while examining the exchange rate volatility and foreign direct investment in sub-Saharan Africa with evidence from Nigeria and South Africa. Using the Generalized Autoregressive Conditional Heteroscedasticity (GARCH) model to obtain the exchange rate volatility variable, His study revealed that endogeneity exists between exchange rate volatility and FDI flows in both countries which necessitated the adoption of the two stage least squares method. The study found that exchange rate volatility has deleterious effect on FDI inflows, with FDI inflows aggravating exchange rate volatility in both countries. He concluded that exchange rate volatility is driven significantly by inflation, nominal and foreign reserve shocks in both countries. Patrick et al (2003), using the GARCH models investigated the data for 18 OECD countries including Australia, Austria, Belgium, France, Germany, Italy, Japan Mexico, New Zealand Spain, UK and others. Their study investigated how plausible is the claim that exchange volatility hampers capital flows by raising risk and uncertainty in foreign direct investment. This study concluded that despite the conventional claim regarding the adverse effects of exchange rate volatility on the FDI flow, their empirical study based on the data for 18 OECD countries over the period between 1980-1998 offers very weak support. They argued that the relationship between the exchange rate volatility and FDI differs significantly between countries perhaps due to the difference in levels of exchange rate fluctuations.

On a different study by Osinubi et al (2006) on the influence of exchange rate volatility on FDI for Nigeria, the study revealed a significant positive relationship between real inward FDI and exchange rate. This implies that depreciation of the local currency (Naira) increases FDI. The study findings highlighted that there is no need for worry about exchange rate volatility as its effects on FDI are not significant. His findings also indicated that the SAPs introduced in the 1980s had a negative impact on real inward FDI which he argued may have been as a result of the deregulation that was accompanied by exchange rate volatility.

Urata and Kiyota (2002) examined the change in exchange rate, its volatility and their effects on FDI. They concentrated on the industry level FDI from Japan and the United States to the host/recipient country. They used the costly State verification approach as explained by Townsend (1979). The study found that the depreciation of the currency of the host country attracted FDI from Japan and the United States while the volatility of the exchange rate discouraged FDI. Their study findings emphasized the need to avoid over-valuation of the exchange rate and the need to maintain a stable and flexible exchange rate regime in order to attract FDI. Holger and Catherine (2001), on their paper examined the impact of the prevailing exchange rate and its volatility in the exchange rate and exchange rate expectations. The study focused on outward US FDI in 12 developing countries and inward FDI to the US from those

countries for the period between 1983 and 1995. Their empirical analysis did not find any evidence to support the argument that exchange rate volatility has an effect on FDI either inward or outward to the US.

Oluremi et al (2010) employed the simultaneous equation approach due to the inconclusiveness of the theoretical and empirical relationship between real exchange rate and FDI flow. In their findings, they observed that there exists statistical dependence between RER movements and FDI for a few of the countries while the regression analysis shows a statistically significant relationship between RER and FDI their findings intimated that FDI flows are sensitive to RER movement in SSA. Davide and Sara (2007) in their paper analyzed the role of exchange rate in explaining the changes over time of FDI inflows in 35 EMU neighbourhood countries using the data for 1995 to 2004. They applied the cross country panel data model to estimate the regression for various macro-economic variables which they considered as robust determinants of FDI to the countries under study. The results of the paper suggested that the effect of exchange rate volatility on FDI crucially depends on a country degree of openness. While exchange rate volatility has a positive or null effect for relatively closed economies, it has a negative influence on economies that have a high degree of openness.

In the perspective of entry merger and acquisition, Russ (2011) in her paper used empirical examination to demonstrate one reason why previous studies document both positive and negative correlations between exchange rate volatility and observed levels of FDI. Russ (2011) using an empirical analysis of mergers and acquisition by individual firms reveal that first time FDI is discouraged by monetary volatility originating from the source-country, but can be encouraged by monetary volatility originating from host, especially when compared to domestic investment or expansion by existing multinationals country.

A study by Alaba (2003) on inward FDI to Nigeria confirms the lingering controversy in the literature on the direction of the effects of exchange rate volatility. His empirical analysis focuses on inward FDI to two main sectors in Nigerian economy – the agricultural sector and the manufacturing sector. This is because they are the two most important which are considered very significant in diversifying the Nigerian economy from the dominance of oil trade as suggested under SAP. Alaba’s finding reveals that exchange rate movement in the official market is significant at 1% for FDI to agricultural sector while the same is insignificant for the manufacturing sector. Also, the co-efficient of exchange volatility at the official/IFEM market is not significant at all for FDI to both sectors.

This section gives a brief discussion of the econometric model used in estimating the relationship between the exchange rate volatility and inward FDI flow to Kenya. In analyzing this relationship, the study adopted the methodology in Osinubi et al (2009) with very slight modifications. The methodology was initially used by Gorg and Wakelin (2001) while studying the impact of exchange rate volatility on Direct Investment in the US. As in Osinubi et al (2009), were (2001) other policy variables considered fundamental in influencing FDI are also incorporated in the model as control variables. While their study estimated the following equation:

$$FDI_t = \alpha_0 + \alpha_1 EXR_t + \alpha_2 EXRV_t + \alpha_3 RGDP_t + \alpha_4 INT_t + e_t \dots\dots\dots \text{(Eqn 3.1)}$$

For this study, EXR (Exchange rate) was left out to avoid the problem of autocorrelation. Therefore, the following equation was estimated in this study:

$$FDI_t = \alpha_0 + \alpha_1 EXRV_t + \alpha_2 RGDP_t + \alpha_3 INT_t + e_t \dots\dots\dots (Eqn 3.2)$$

Where:

FDI is the Real Inward Foreign Direct investment, the size of this variable is a good indicator of the attractiveness of an economy to foreign investment and it is obtained by dividing the Inward FDI (FDI Flow) at current prices by the GDP deflator.

INT is the interest rate used in the model as a control variable.

RGDP is the real GDP for Kenya. It gives a measure of the size of the home economy and it is included in this study as a control variable for the supply of FDI as was done in Blonigen (1997). The reason behind this is the assumption that growth in the host country is likely to generate a greater supply of FDI Osenube et al (2010).

EXRV is the volatility in the exchange rate. Both Erick (2000) and Patrick et al (2004) used the ARCH process to obtain the exchange rate volatility for their country of study. In obtaining the exchange rate volatility variable, the autoregressive conditional Heteroscedasticity model (ARCH) developed by Engle was used as illustrated below.

$$Y_t = \frac{KSH}{U.S.D} \dots\dots\dots \text{Equation 3.3 (the exchange rate)}$$

$$Y_t^* = \log Y_t \dots\dots\dots \text{Equation 3.4}$$

$$\partial Y_t^* = Y_t^* - Y_{t-1}^* \dots\dots\dots \text{Equation 3.5 (gives the relative change in the exchange rate)}$$

Where  $\overline{\partial Y_t^*} = \text{Mean of } \partial Y_t^*$

We obtain the exchange rate volatility

$$X_t = \partial Y_t^* - \overline{\partial Y_t^*} \dots\dots\dots \text{Equation 3.6}$$

Therefore  $X_t$  is the mean-adjusted relative change in the exchange rate. In the study, we will use  $X_t^2$  as a measure for volatility.

After the above estimation, a second analysis was done where the co-integration and error correction model was used. This approach is applied due to the need to integrate short-run dynamics with long run equilibrium. If the data exhibits existence of unit roots, the short run dynamic properties of the model can only be captured in an Error Correction Model but only after the existence of co-integration has been demonstrated (Osenubi et al, 2010). Error correction will allow the estimation of how exchange rates volatility influence FDI both in the short run, long run and also how previous levels of FDI and previous levels of exchange rate volatility affect FDI. Once co-integration between FDI and EXRV is demonstrated to exist, there exists an error correction process to estimate the long run process (Engle & Granger 1987). Engle & Granger (1987) premise that a vector time series X has an error correction representation if it can be expressed as;

$$A(B)(1 - B)X_t = -\lambda Z_{t-1} + \mu_t \dots\dots\dots \text{(Eqn 3.7)}$$

where  $\mu_t$  is a stationary multivariate disturbance, with  $A(0) = I$ ,  $A(1)$  has all elements finite  $A(B)(1 - B)X_t = -\lambda Z_{t-1} + \mu_t$

The following error correction equation will be applied to estimate the co-integration process.

$$\Delta FDI_t = \alpha_0 + \Delta \alpha_2 EXRV_t + \mathcal{J}ECT_{t-1} + \mu \dots\dots\dots \text{Equation 3.8}$$

The data will be run for a stationarity test before establishing whether a co-integration exists. The estimation is done using the data for the period between the years 1990 - 2012. The study examined the direction of real inward foreign direct investments and its volatility for the period ranging from 1990 to 2012. This shows that the impact of exchange rate volatility on real foreign direct investments is divergent. This implies that there can be no robust conclusion to be made from the findings regarding the relation. This is because, while exchange rate volatility portrayed a negative relationship with FDI in the over parameterized error correction model while it gave a positive relationship in the parsimonious error correction model. This, like in most literature in place especially the literature for developing countries, there are some inconsistencies—most econometric time series studies often fail to find robust estimates—for example wrong signs and insignificant price coefficients (Mwega, 2002). Most studies end up attributing their outcomes (low elasticities and/or insignificant results) to non-price variables and lack of reliable data. However, most of these studies do not also indicate the robustness of the methodologies used; that is time series and cointegration properties using available econometric tests.

The study concentrated on finding the relationship between exchange rate volatility and the flow of foreign direct investments in Kenya. However, the study incorporated other macroeconomic variables that have been identified as determinants of FDI in available literature. In this study, interest rates, and real GDP for Kenya were used in the modeling to see how they influence FDI.

The study estimated the long run relationship between the variables after the check for normality using the descriptive statistics estimated using Eviews 3.1. The next step was testing the variables for unit roots which indicated that all the variables do not have a unit root, since they were found to attain stationarity after being differenced once, this confirmed that the variables are indeed cointegrated of order one. The first check for unit roots was first done using the augmented Dickey-Fuller test for unit roots (ADF). This was also done using the johansen's cointegration test which indicated existence of at least two cointegration equations indicating presence of cointegration among the variables. The data was then subjected to an error correction model as the presence of cointegration confirmed the presence of a cointegration process between the variables.

The findings gave a divergent relationship between FDI and exchange rate volatility thus agreeing with other findings in literature. This study concludes that the relationship between exchange rate volatility and FDI is diverse as suggested by the literature especially using the approach used by this study is indefinite. The relationship between the Real GDP however is found to be positive though for this study, the effects of GDP was shown to be insignificant in determining the flow of FDI. Lastly, the local interest rates have a significant positive influence on the flow of FDI as foreign investors are attracted by the high returns in the local economy.

From the findings of the error correction model, the GDP of Kenya is not good proxy for the size of the local market/economy.

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## DETERMINANTS OF THE STOCK MARKET VOLATILITY IN KENYA

Nasibu Ngongo Michel

### Abstract

*Traders within the Nairobi Securities Exchange (NSE) have witnessed an increase in stock volatility in the past couple of years. This was at its worst in 2008 when the NSE lost almost 27% of its value. This stock market dip resulted in mass hysteria, which enhanced the volatility. Countless scholars have demonstrated that there are variables that affect the volatility of the market on a greater scale than human behaviour and prevailing political environment. However, they all seem to disagree on the nature of variables that have the greatest impact on the volatility of a stock market. In an attempt to establish which variables significantly affect the volatility of the NSE, this study looks at four variables (interest rate, inflation, GDP and government spending) as probable determinants of stock market volatility and uses the Ordinary Least Square Model to determine their long run relationship with the volatility rate. Given that the Augmented Dickey Fuller Test revealed that these data are not stationary, this study uses the error correction model to establish the error correction term. The tests reveal that government spending and GDP growth rates are not significant determinants of the NSE volatility while inflation and interest rates are. In the short run, a 1% increase in inflation leads to a 45% decrease in volatility levels whereas in the long run, the same increase in inflation only decreases volatility by 19%. On the other hand, the average market interest rate has a different relationship with volatility. In the short run, its increase by 1% increases stock market volatility by 14.3% in the short run and by 79% in the long run. Further tests revealed that this was a correctly specified model, we did not omit any variables and any changes in our variables explain close to 56% of the changes in the volatility of the NSE.*

**Keywords:** Volatility of the stock market; Ordinary Least Square Method; Error Correction Model; Nairobi Securities Exchange

### Introduction

In the aftermath of the global financial crisis that rocked the entire financial world from 2007, the majority of individual traders lost faith in the stock market. In Kenya, the combination of the stock market collapse together with the 2007-2008 post election violence led to the devaluation of the Nairobi Securities Exchange (between September and December 2008, the NSE lost 27 percent of its value). The erratic manner in which prices in the stock market moved up or down during very short spells created and still continues to create uneasiness in potential investors and most, to minimize the incidence of risk occurrence, choose to diversify their portfolios or altogether shift to investing in fixed – interest assets rather than in highly volatile and unpredictable ones. However, the general feeling among some financial econometricians is that if we are able to determine the factors that affect the volatility of the market with a certain degree of accuracy, then the confidence in the market will not suffer too much regardless of crises.

The possibility of singling out the variables that significantly affect the volatility of the market is exciting; and this would create significant advantages for many market consultants, investment advisors and most importantly, the investor. Research has revealed that the stock market volatility in any country is determined by many variables; and narrowing down which variables are the most significant in any stock market is key to the success of this study.

A number of scholars around the world have attempted to pinpoint the variables that affect any stock market. Studies done in Asia concluded that only macroeconomic variables affect the market. The ones done in Western Europe were adamant that only financial data and past volatility are the main determinants. Some studies done in Eastern Europe advanced the idea that only fiscal data affects the stock market. Although they have varying conclusions, the scholars are united in questioning whether the variables they had singled out for their particular markets would apply to an emerging market (like Kenya?). In this paper, we will work with all the variables mentioned in the previous studies to determine which variables affect the Kenyan market; and we will establish the extent to which the relevant variables affect the volatility of the Nairobi Securities Exchange.

### **Objectives**

The general objective of this study is to determine the variables that affect the volatility of the stock market in Kenya. To reach this objective, we needed to establish the effect of interest rate, inflation, GDP growth, and Government Spending rate on stock market volatility in Kenya; and determine which variables among the enumerated ones are most significant.

### **The data**

We have selected four groups of variables. The first group is the macroeconomic variables, which include the GDP (Y), the interest rate (R) and the inflation rate (I). These are the variables most relevant to the Kenyan Market and this particular study.

The second group of variables is the monetary policy instruments, which for this particular study is the average market interest rate. Thirdly, a number of financial econometricians have advanced the idea that financial data are the best determinants of the volatility of any stock market. Sill (Sill, 1995) mentioned that the price of a stock contains all the characteristics of the market share at that particular time; and hence, making it redundant to include in one's study the various ratios. It is for that reason that in this research, we will only focus on the share price of the companies in the NSE 20 Index.

Finally, we will consider instruments of fiscal policy. For this particular study, we will only gather government spending rates as possible determinants of the stock market volatility.

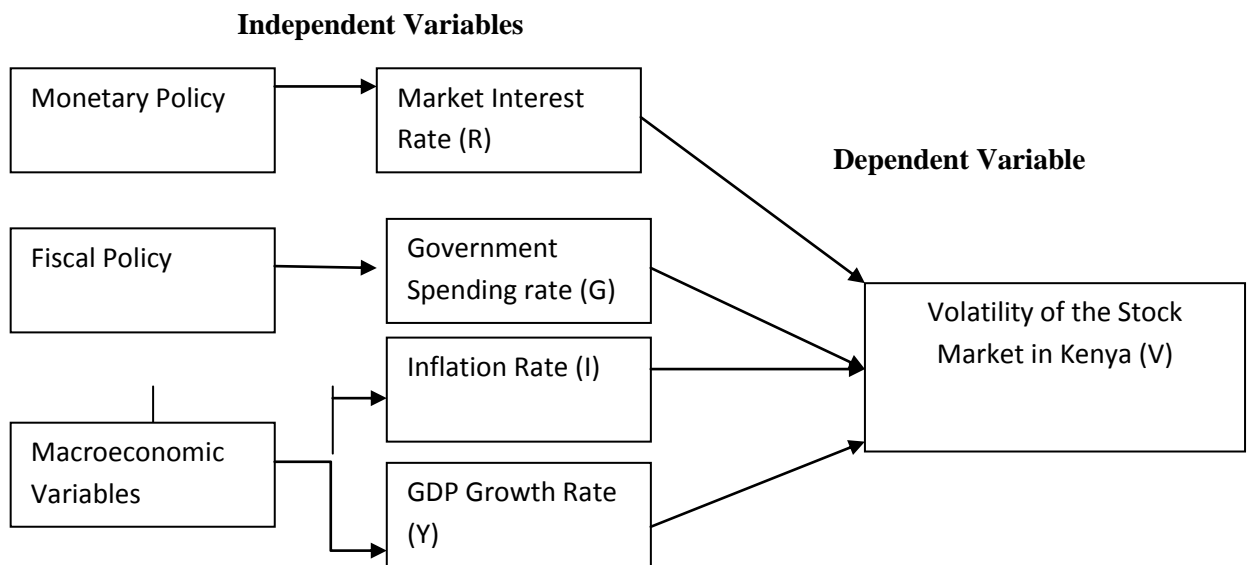
### **Method of Data collection**

The table below will show us the variables that we will use in our model, which ones are explanatory and which ones are dependent and finally the statistical tool that will be used to calculate it.

Variables	Symbol in the equation	Status	Statistical tool to measure it
Volatility	V	Dependent Variable	Standard Deviation $\sigma = \frac{1}{\sqrt{dt}} \sqrt{\frac{1}{n-1} \sum_{i=1}^n (R_i - \bar{R})^2}$
Market Interest Rate	R	Independent Variable	Census Method
Inflation Rate	I	Independent Variable	Census Method
GDP Growth Rate	Y	Independent Variable	Census Method
Government Spending Rate	G	Independent Variable	Census Method

**Data Processing Technique**

We will start by running the preliminary tests (Unit root and cointegration); then we will establish the long-term relationship between variables, estimate the error correction model and the rate at which the disequilibrium is corrected (error correction term), run the residual tests (to test for autocorrelation, heteroscedasticity, multicollinearity, normality and misspecification) and finally we will run the last test (Granger Causality Test).



**Figure 1: Conceptual Framework**

**Discussions and findings**

We collected five types of data: the stock prices of the firms that are trading in the main investment market segment of the Nairobi Securities changes; the average interest rates, the inflation rates, the government spending and finally the GDP growth rate (see table 1 in appendix).

We compiled a table of 84 observations of each set of data presented in terms of rates (we are covering the period January 2006 to December 2012). We started by computing the volatility of the stock prices using the formula cited in the previous section. We calculated the monthly standard deviation of the average stock prices and presented them as rates of changes from one month to another. We need to note that the average interest rate in our study represents the market-weighted average of the lending rate, saving rate and overdraft rate of all commercial banks as provided by the central bank.

This was followed by compiling the remaining data (inflation rates, government spending rates and GDP growth rates) from the Kenya National Bureau of Statistics. The KNBS and CBK provide the GDP growth rate on a quarterly basis. So as not to have any discrepancy in our data analysis given that all the other forms of data collected have a monthly frequency, we interpolated the GDP Growth Rate data.

After compiling the five sets of data needed for this study, we ran the Engle – Granger 2 – Step Approach (Unit Root Test and Cointegration Analysis). We used the Eviews 7 software to run the Unit Root Test to determine whether the data we have is stationary. When tested at level, the variable V is stationary because for all the 6 tests, p is equal to 0 and hence, less than all the  $\alpha$  values. This means that the Volatility rates are all stationary at level. When tested at level, the variables R, I and Y are all non-stationary because for all the 6 tests, the p values are all greater than the  $\alpha$  values. This means that the average interest rates, inflation rates and GDP growth rates are all non stationary at level (whether with 0 or when tested with the maximum number of lags 11).

The variable G has changing behaviours. It is stationary when tested at level and with 0 lag. However, when we test at level with 11 lags, then G becomes non – stationary.

In brief, the first step of the Engle Granger 2 – step approach reveals that only the NSE Volatility rates are stationary whereas the variables I, R and Y are non – stationary when tested at level and with any lag. The variable G on the other hand is stationary at level when we do the test with 0 lag; however, when we test with 11 lags, the variable becomes non – stationary. Let us however point out that when tested at first difference, all the variables are stationary at 0 lag.

Since the majority of the variables tested above are non – stationary; we, thence, proceeded to the cointegration analysis. This consisted in estimating the value of the residuals; and then subjecting the matrix of residual values to the Unit root test. The results of the Unit root reveal that our ADF statistic is greater in absolute value than all the critical values at 1%, 5% and 10%; and furthermore, our p value is smaller than all the  $\alpha$  values; this simply means that we reject the null hypothesis stating that there is a unit root. Hence, as a result, we conclude that the residuals are all stationary.

The implications are that our variables (V, R, Y, G and I) are all cointegrated and therefore we can estimate the error correction model.

### **Model Estimation**

We used the OLS Model to come up with the equation. In fact, when estimating the model, we will have two equations: the Long run relationship of the model; as well as the error correction model.



**Table 5: Results of the OLS estimation – Long Run Relationship**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
R	0.79	0.592639	1.328752	0.1878
Y	0.006	0.427324	0.013486	0.9893
G	-0.01	0.013995	-0.56952	0.5706
I	-0.19	0.122433	-1.54394	0.1266
C	-0.04	0.068229	-0.5442	0.5878

We had already established that the variables are cointegrated. This means that these variables affect the stock market volatility and the coefficients above represent the long-term coefficients of the model.

We write our long – run equation as below:

$$V_t = -0.04 - 0.19I_t + 0.79R_t - 0.01G_t + 0.006Y_t + \varepsilon_t$$

The coefficients of inflation and government spending are negative implying that inflation and government spending have an inverse relationship with the stock market volatility. This means that an increase in inflation and government spending reduces volatility; however, the big question is: are they significant?

The equation reveals that inflation is not significant at 1, 5 and even 10% level of significance; however, at 13% or more generally 15% level of significance, inflation is significant. This means that at a maximum confidence level of 87%, a 1% increase level in inflation rate leads to a 19% decrease in volatility levels.

However, government spending is not significant at up to 50% level of significance. This simply means that government spending is not significant and hence even though the equation suggests that a 1% increase in government spending will reduce volatility by close to 1%, in reality, fiscal measures in Kenya do not affect the stock market.

On the other hand, the average interest rate and the GDP growth rate affect positively the volatility of the stock market in Kenya. Interest rate is not significant at 1, 5 and 10% but is significant at 20% level of significance. So, at 80% confidence level, we can assume that a 1% increase in average interest rate leads to an increase in volatility by up to 79%. However, our GDP growth rate is not significant at up to 90% in the long run. We can only trust it confidently at 2%. However, our adjusted R squared is 0.02 (2%); this means that in the long run, the changes in our variables only explain 2% of the variations in NSE volatility. However, we should note that this model is not perfect given the non – stationary nature of the variables.

So as not to conclude our research on a sour note (given the inconclusive nature of our long run equation), we modify the data in order to deduce the error correction model. After modifying the data by getting their lags, we obtain the error correction equation as written below:

$$\square V_t = -0.001 - 0.45\square I_t + 0.14\square R_t - 0.004\square G_t + 0.94\square Y_t - 0.85\square V_t + \varepsilon_t$$

The results of our test show that the term  $\square$  is negative and is significant at 10, 5, and even 1% level of significance. This is the highest level of significance and this means that the discrepancies and disequilibrium in our model are corrected at a rate of 85% every month.

In fact, after the correction, our model has an adjusted R squared of 0.56 (56%); this means that the variations in average interest rate, inflation, government spending and GDP growth rate explained 56% of the variations in stock market volatility in Kenya. The corrected model also reveals that our model as a whole is significant (overall significant) and there is no serial correlation (the Durbin Watson statistic is equal to 1.94; hence our variables are not correlated).

After completing the main tests and deriving the central equations, we ran residual test to ensure that our model has no shortcoming. We concurrently ran the Durbin Watson Test, the White Test, the Jarque Bera test and the Ramsey RESET test. The D – statistic was 1.94. According to econometric rules, this means that our data is not autocorrelated. The White test revealed that we could not confidently reject the fact that there is no heteroscedasticity. This is because we had already established that our data has a unit root. Our p statistic when running the Jarque Bera test was less than 0.05; this means that our data is normally distributed. After running the Ramsey RESET test, we found that, at 5% level of significance, the p value is 0.0054(0.54%; this is less than 1%); this means that we do not reject the null hypothesis. This means that our model does not have omitted variables. Therefore, this is proof that there is no case of misspecification in our model. This validates the results of all the tests done above where our variables have a normal distribution and lack of serial correlation.

We finally tested whether there is a possible relationship between the various variables in the model. Finally, we performed the Granger Causality test to establish whether some of the variables Granger – cause NSE volatility. Our testing revealed that past information contained in our variables can predict the other variables except for the relationship between inflation and GDP. Given the nature of our interest in this research, it is evident that the variations in the variables chosen in this model explain the variations in stock market volatility.

## **Conclusion**

On the onset of this study, we postulated three questions: Firstly, what are the variables that affect the volatility of the stock market in Kenya? Secondly, can we derive an equation that can help us establish the magnitude by which they affect the volatility of the NSE? Thirdly, are these variables always significant?

Months of data collection, analysis and interpretation, have led us to the conclusion that average interest rate, inflation rate, GDP growth rate and government spending, as a unit, explain at least 56% of the variations in the volatility of the stock market in Kenya (F test, Adjusted R squared of the error correction model).

The objective of our research was to establish the individual impact of each variable on the NSE volatility. However, we concluded that whether in the short run or in the long run, government spending and GDP growth rate do not have a significant impact on the NSE volatility. However, interest rate and inflation cause significant variations in stock prices. These findings are consistent with studies in the United States and in Eastern Asia which concluded that in growing economies, macroeconomic variables such as inflation rates, interest rates and GDP growth rates affect the volatility of the stock market (Huang, 2003). However, what makes the case of Kenya different from those of the United States' and East Asia's is that GDP growth rate does not affect volatility of the stock market.

Implicitly, our study has also validated the fact that human behaviour and political environment do not directly affect variations in the stock market. Our results revealed that the model we used

was not misspecified, no variables were omitted and there was no need to include dummies in the study.

In addition, our study has validated the fact that the Kenyan financial market shares lots of similarities with Western and Asian economies. Most of the work reviewed by researchers who based their work in the West or in the Far East, had intimated that the variations in the stock market are caused by macroeconomic variables, ignoring the impact of fiscal policy instruments on the volatility of the stock market. This research has shown that fiscal policy instruments do not affect the volatility of the stock market.

Finally, our research reveals that an increase in inflation leads to a reduction in the volatility of the market. However, as time advances, its impact on volatility keeps reducing. A 1% increase reduces volatility by 45% in the short run; but in the long run, it only reduces volatility by 19%. This is normal because an increase in inflation reduces the purchasing power of a trader and hence, reduces activity in the stock market; hence the reduction in volatility. However, as the laws of demand and supply of money ably puts, in the long run, regardless of the increase in prices, there will always be equilibrium. In other words, people always adjust their spending and consumption to match the inflation. That is why as the months and years go by; the impact of inflation on volatility slowly fades. On the other hand, the impact of interest rates on NSE volatility worsens with time. In the short run, an increase in interest rate increases volatility by 14.3%, but in the long run, the impact is significant as a small increase (1%) leads to a 79% increase in market volatility. This is consistent with the laws of logic. We know that average interest rates are composed of lending rates, overdraft and saving rates. Whenever the lending rates and overdraft rates increase, people react by trading in the stock market to raise funds instead of turning to commercial banks. This increases activity in the sector as due to the forces of demand and supply, the stock prices will go up because of the excess demand. This means that some shares will be sold at prices that are higher than their real values (this will create “inflation of share prices” in the stock market and hence, volatility); however, the market will correct itself and soon shares will go back to their real value which will be perceived by traders as a drop in the value of shares leading to offloading their shares and possibly creating panic in the market. This explains the 79% impact in the long run. Buyers and sellers react to impulse buying or impulse offloading of shares based on the current or perceived status of the macroeconomic variables.

Although the NSE was very volatile in Kenya during elections or during election crises, this can be attributed to the fact that due to the risky nature of potential clients, banks charge higher interest and consequently, the volatility of the market is affected. This is why the human factor and the political environment have not been included as variables.

### **Recommendations**

Increased volatility is never good for an economy as, in the long run, it deters potential investors, encouraging them to reduce the stock component in their portfolio. However, it is important to point out that as much as inflation is a significant variable in reducing volatility, we should work to stabilise the inflation rate and not increase it like the research would suggest. This is because in the long run, its impact becomes significantly lower. The focus should therefore be on the impact of an increase in interest rate on volatility.

It is evident in Kenya that the average interest rate continues to rise; this is because commercial banks keep setting their lending and overdraft rates at progressively higher values, despite their already ridiculous profit margins. This greed is negatively affecting the financial market as a

constant increase in average interest rates leads to a higher increase in market volatility. So our recommendation is that the government, in conjunction with the central bank and commercial banks should develop a way of regulating the lending and overdraft rates so as to reduce the volatility of the Nairobi Securities Exchange. This, in turn, will reduce the perception of the stock market as being risky.

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## RELATIONSHIP BETWEEN MACROECONOMIC VARIABLES AND STOCK PRICES IN KENYA: THE CAUSAL LINKAGE

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### Abstract

*The aim of this paper was to analyze the long-run effect and causal relationship between macroeconomic variables and stock prices in the VAR modeling framework using secondary time series quarterly data from 1996 to 2012. Sim's causality test based on Granger definition of causality was used to test the causality relationship while VECM is used to test dynamics from short-run to long-run. According to Granger causality test results, it is evident that movement in the macroeconomic variables had no significant effect on stock prices except for inflation rate, exchange rate and change in stock prices also seem to be an insignificant factor explaining part of the movement in the macroeconomic variables except for market interest rates. Also, the error correction test results shows a feedback mechanism suggesting that there are departures from equilibrium in the previous period indicating there is a dynamic adjustment from short-run to long-run equilibrium. Hence, the findings imply that the causality between macroeconomic variables and stock prices runs unilaterally or entirely in one direction from inflation rate and exchange rate to stock prices and from stock prices to market interest rates. Thus, there is evidence to show that inflation rate and exchange rate are the cause of movement on stock prices and stock prices are the cause of movement of interest rates in Kenya.*

**Keywords:** Granger causality test, Vector error correction method, Macroeconomic variables, NSE-20 Index), Kenya.

### Introduction

Stock markets and capital markets act as a link between capital deficits and capital suppliers. Share prices signal the rate of return investors demand on securities of a particular risk class. If the market is inefficient the risk-return relationship will be unreliable, Fama (1970), Jensen (1968) and Malkiel (1999). Stock markets may affect economic activity through the creation of liquidity. Stock markets also contribute to economic development by enhancing the liquidity of capital investments. On the other hand, the economic activity through capital investments (disinvestment) and monetary policy development may have long-term effect on movement in stock prices which leads to increased (decreased) returns and risk premium investors demand on securities. Thus, this shows there is evidence that there may exist a bi-directional causality and long-run relationship between movement of stock prices and movement of macroeconomic variables in the real sector of the economy.

Based on the assumption of strong and persistent relationship between macroeconomic variables and stock market prices and returns. Several considerations have led to revisit the monetary development in Kenya in the recent two decades. Kenya experienced a significant macroeconomic crisis which was associated with high inflation, loss of control of the money supply, the failure and/or distress of several banks and non-bank financial intermediaries and high interest rates which pushed many businesses into difficulties and generated a large non-performing portfolio. Also, major economic and financial reforms under the auspices of the

IMF/WB as part of financial sector liberalization removed interest rates and exchange controls. Following the liberalization of the economy, financial disintermediation, rather than deepening occurred. However, in the context of an already poorly performing economy, lack of discipline in macro-economic management and a weak banking system, the move to liberalize financial markets produced disappointing results.

The major initial public offers by various firms as equity financing in mid-2000's led to large shifts in liquidity, dip in stock prices while the 2008 post election disturbances impact led supply networks for food in most parts of the country leading to high inflation rate which had long-term impact on the economy and financial markets. The escalating oil prices, global economic crisis leading to weak consumer spending and the volatile foreign exchange rates resulting in the weakening of the shilling all combined to reduce the spending power of securities or other investments and drive away foreign investors. Several empirical studies indicate that, the monetary policy stance adopted by the Central Banks to combat these macroeconomic variables have impact on stock prices movements. For example, Ehrmann and Fratzscher (2004) shows that monetary policy shocks have instantaneous and significant effect on stock prices on the US economy. Thus, stock prices are more likely to be influenced by the monetary developments or conditions of an economy. The Table 1.1 below presents the Kenyan monetary policy environment and it is evident that it was generally unstable from 1997 to 2012.

**Table 1.1: Summary of characteristics of macroeconomic variables of Kenya**

Year	Change in GDP ratio (%)	Inflation rate (%)	Broad money (M3) to GDP ratio (%)	Treasury bill rate (%)	Change in foreign exchange rate (%)
1997	2.3	11.2	-2.7	26.53	13.9
1998	1.8	6.6	10.3	12.56	-1.2
1999	1.4	3.5	-1.4	19.97	19.9
2000	-0.2	6.2	-2.7	12.9	7.1
2001	1.2	5.8	-2.8	11.01	0.7
2002	1.1	2	10.1	8.36	-1.9
2003	1.8	9.8	5.9	1.46	-1.2
2004	4.9	11.6	7.5	8.04	1.6
2005	5.8	10.3	2.9	8.07	-6.4
2006	6.4	14.5	11.8	5.73	-4.1
2007	7.1	9.8	11.6	6.87	-9.7
2008	1.6	26.2	15.8	8.59	24
2009	2.6	9.2	12.5	6.82	-2.4
2010	5.8	4.1	14.2	2.78	0.06
2011	4.4	14	17	18.3	0.07
2012	4.6	9.4	11.4	8.3	1.13

**Source:** KNBS and CBK annual statistical abstracts 2012

One reason for this might be that stock market price volatility and movements depends on the overall health of the economy and real economic variables which tend to display persistence (Porteba and Summers,1986). Therefore, an interest question in investment and finance is, what long-run effect does the instability caused by volatility or movements in macroeconomic variables have on the movement on stock prices. These changes or movements in macroeconomic variables have increased the variety of investment opportunities as well as risk of investments decisions and portfolio diversification process. Understanding this relationship will help domestic as well as international investors for hedging and diversifying their portfolios. Also, fundamental investors have taken into account of these relationship to predict the future trends for each other.

The rest of the paper is organized as follows. Section 2 provides a brief account of the theoretical framework. Section 3 presents the empirical methodology. Section 4, presents the integration, cointegration analysis and Granger causality test. Finally, section 5 we present the concluding remarks and policy recommendations.

### **Literature review**

Monetary policy development has been the central debate in economics and finance as the influence of stock market development. Various studies and monetary condition in Kenya also have shown that there is a long-run significant effect and causality of monetary policy developments on stock returns. Many profitable investments require a long-term commitment of capital, but investors are often reluctant to relinquish control of their savings for long periods. Liquid equity markets make investment less risky and more attractive because they allow savers to acquire an asset or equity and to sell it quickly and cheaply if they need access to their savings or want to alter their portfolios. At the same time, companies enjoy permanent access to capital raised through equity issues.

Under arbitrage pricing asset (APT) Chen, Roll and Ross (1986) identified the following macroeconomic factors such as surprises in inflation, GNP, yield curve and investor confidence as significant in explaining security returns .In addition their impact on asset prices manifests in their unexpected movements their should represent undiversifiable influences (these are, clearly, more likely to be macroeconomic rather than firm specific in nature), timely and accurate information on these variables is required and the relationship should be theoretically justifiable on economic grounds. This theory can be supported by efficient market hypothesis (EMH) championed by Fama (1970) in particular with semi-strong form efficiency which states that stock prices must contain all relevant information including publicly available information has important implications for policy makers and the stock broking industry alike. As for the effect, macroeconomic variables such as money supply and interest rates on stock prices, the efficient market hypothesis suggests that competition among the profit maximizing investors in an efficient market will ensure that all relevant information currently known about changes in macroeconomic variables are fully reflected in current stock prices, so that investors will not be able to earn abnormal profits through prediction of future stock market movements.

A number of studies have used different techniques to estimate the relationship between macroeconomic variables and stock market prices. In Kenyan studies, Ochieng and Oriwo (2012) on study of effect of macroeconomic factors (lending interest rate, inflation rate and 91-day T-bill rate on stock prices from 2008 to 2012 found that that 91–day T-bill rate has a negative relationship with the NASI while inflation has a weak positive relationship with the NASI. Contrary to this study, Muthike and Sakwa (2011) did a study on can “macroeconomic



indicators be used as predictors of the stock exchange index trends” and found that treasury bills, money supply, and real exchange rates were positive, while the signs of inflation rates and GDP were negative. The 91-day T-bill rate and the inflation rate were the only clear leading macroeconomic indicators on the NSE-20 Index.

The study concludes that the Kenyan stock market and the formed significant relationships with all macroeconomic indicators identified, except the gross domestic product. Studies on causality relationship centered on the question of whether there is long-run effect and relationship between macroeconomic variables and stock prices. Olweny and Kimani (2011) found that the causality between economic growth and stock market runs unilaterally or entirely in one direction from the NSE 20-share index to the GDP. From the results, it was inferred that the movement of stock prices in the Nairobi Securities Exchange reflect the macroeconomic condition of the country and can therefore be used to predict the future path of economic growth whilst Kisaka and Mwasaru (2012), their empirical results indicate that exchange rates Granger-causes stock prices in Kenya.

In other economies, Vuyyuri (2005) investigated the cointegrating relationship and the causality between the financial and the real sectors of the Indian economy using monthly observations from 1992 to 2002, the financial variables used were interest rates, inflation rate, exchange rate, stock returns and real sector was proxied by industrial productivity employing Johansen (1988) multivariate cointegration test supported the long-run equilibrium relationship between financial sector and the Granger causality test showed unidirectional causality between the financial sector and real sector of the economy. Maghyerch (2002) investigated the long-run relationship between the Jordanian stock prices and selected macroeconomic variables again using Johansen (1988) cointegration analysis and monthly time series data for the period from 1987 to 2000. The study showed that macroeconomic variables were reflected in stock prices in the Jordanian capital market. Orman (2003) focused on examining the impact of real interest rates as key factor on the performance of Egyptian stock market both in terms of market activity and liquidity. The cointegration analysis through Error correction mechanism (ECM) indicated significant long-run and short-run relationship between the variables implying that real interest rates had an impact upon stock market performance.

### **Model specification**

Different methods have been employed to test the relationship between macroeconomic variables and stock prices. This study examined the causal relationship and long-run equilibrium effect of macroeconomic variables on stock prices using Granger causality in a VAR modeling technique. These models were useful and suitable because the research focus led on examining the long-run effect and casual relationship between movement of stock prices and volatility in macroeconomic variables.

In Granger causality test, the study employs Sim's (1972) test based on Granger's (1969) definition of causality. Granger causality statistics examines whether lagged values of macroeconomic variables help predict stock prices in Kenya. For this case, a bi-variate model is formed by these two equations (1 and 2).

$$LNSE_t = \alpha_{10} + \alpha_{11}LNSE_{t-j} + \alpha_{12}MACR_{t-j} + e_{1t} \dots \dots \dots (1)$$

$$LMACR_t = \alpha_{20} + \alpha_{21}LNSE_{t-j} + \alpha_{22}LMACR_{t-j} + e_{2t} \dots \dots \dots (2)$$

According to Granger's definition of causal relationships:

$$NSE \text{ does not cause } MACR, \text{ if } \alpha_{11} = \alpha_{12} = 0 \dots \dots \dots (3)$$

$$MACR \text{ does not cause } NSE, \text{ if } \alpha_{21} = \alpha_{22} = 0 \dots \dots \dots (4)$$

In order to judge whether these conditions hold, Sim's employ the following F-statistic to be applied to equations (3) and (4). With Sim's test, the result of F-test direction of causality is judged as follows;

- (i) Equation (3) holds, equation (4) does not hold; MACR causes NSE (MACR  $\square$  NSE).
- (ii) Equation (4) does not hold, equation (3) holds; NSE causes MACR (NSE  $\square$  MACR).
- (iii) Both (3) and (4) hold; Feedback between MACR and NSE (MACR  $\square$  NSE).
- (iv) Neither (3) nor (4) holds; MACR and NSE are independent.

However, results from VAR model are sensitive to the lag length since the direction of causality may depend critically on the number of lagged terms included in the model and the fact that in a m variable. VAR model all the m variables should be stationary. This study used Akaike information criterion (AIC) and Schwarz information criterion (SIC) to determine the option lag length then chose model that gives the lowest values of these criteria, that is, including too many lagged terms consumes the degree of freedom while including too few lags leads to model specification errors.

**Data analysis**

The analysis used secondary time series quarterly data of period from 1996 to 2012. NSE-20 index is used as the proxy for the performance of the Nairobi Securities Exchange and stock price in Kenya. Five macroeconomic variables are used namely, real GDP, market interest rates, inflation rate, foreign exchange rate and broad money supply (M3). The data was obtained from Central Bank of Kenya annual publications and Kenya National Bureau of Statistics annual economic surveys. The priori expectations of the five macroeconomic variables are hypothesized as; there exist a positive relationship between real GDP, broad money supply (M3) and stock prices whilst there exist a negative relationship between market interest rates (INT), inflation rate (INF), foreign exchange rate (EXR) and stock prices.

**Results and discussions**

*Stationarity test*

Most macroeconomic time series data are often assumed to be non-stationary and thus it is necessary to perform a pretest to ensure there is a stationary to avoid the problem of spurious regression. Table 1 presents the ADF unit root test at first difference after not rejecting the null hypothesis of unit root at their levels, which clearly shows that the null hypothesis of the existence of a unit root is rejected at 1% significance levels. Hence, all the series are accepted not to contain unit root.

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**Table 1:** Unit root test results .

<b>ADF Unit Root Test (At first difference)</b>		
Variables	Intercept	Trend and Intercept
LNSE	-3.809774(0.0003)	-3.812799(0.0003)*
LGDP	-8.326202(0.0000)	-8.472317(0.0000)
LEXR	-5.689688(0.0000)	-5.712849(0.0000)
LINF	-3.540389(0.0008)*	-3.508139(0.0009)*
LINT	-5.554974(0.0000)	-5.585226(0.0000)
LMS3	-8.162753(0.0000)	-8.1067410(0.0000)

**Source:** Effective sample 1996:I–2012:IV

\*Significance at 5%

**Cointegration Test**

The cointegration tests are undertaken based on the Johansen and Juselius (1990) maximum likelihood framework. The aim was to determine whether there exists a cointegrating vector between stock market price (NSE-20 Index) and the five macroeconomic variables (real GDP, market interest rates, inflation rate, foreign exchange rate and broad money supply). Table 2 presents the Johansen cointegration test results. Note that, since the trace statistics takes into account, all of the smallest eigenvalues, it possesses more power than the maximal eigenvalue statistic. Furthermore, Johansen and Juselius (1990) recommend the use of the trace statistics when there is a conflict between the two statistics.

**Table 2:** Johansen cointegration test results: 1 to 1

Eigenvalue	Likelihood Ratio (Trace statistic)	5% Critical value	1% Critical value	Hypothesized No. of CE(s)
0.440320	92.84143	94.15	103.18	None
0.338052	58.01802	68.52	76.07	At most 1
0.251567	33.26391	47.21	54.46	At most 2
0.153716	15.87751	29.68	35.65	At most 3
0.093069	5.863490	15.41	20.04	At most 4
3.54E-05	0.002124	3.76	6.65	At most 5

Trace test indicates 3 cointegrating equations at the 0.05 level

\* denotes rejection of the hypothesis at the 0.05 level

\*\*MacKinnon-Haug-Michelis (1999) p-values

The trace statistics for the model are presented in Table 2. The trace statistics indicates that there are no cointegrating equations. The cointegration test conducted earlier to establish whether this ECM term (derived from the residual of long-run regression) is stationary at level. Therefore, the existence of cointegration is indicative of a long-run relationship between stock prices and macroeconomic variables. The next step is to carry out vector error correction model

(VECM) of LNSE and LMACR to estimate the long-run equilibrium relationship or the speed of adjustment of errors from the short-run equilibrium to long-run equilibrium.

**Vector error correction model (VECM)**

Since the two variables LNSE and LMACR are cointegrated in the long-run. The short-run dynamics can be investigated using the VECM. Akaike information criterion (AIC) and Schwarz information criterion (SIC) were used to determine the length of the VAR model, in which lag order one to one or VAR(1,1) was found to be optimal for both of the bi-variate model of LNSE and LMACR. The error terms in all equations are assumed to be uncorrelated. Every equation then is estimated by OLS. Below presents the estimates for the VECM model which consists of two parts. In the first part, the estimates of the long-run effects are presented in equation 5 while the second part containing the estimates of the short-run dynamic interaction among the variables are presented in Table 3. The second part is also linked with first part (long-run relation) by the ECM. The ECM is a measure of the speed of adjustment of the short run relation to unexpected shocks. It is measured as the effects of residual from the long-run model. This long-run feedback effect is indicated by significant ECM terms while the short run relation is measured by the significant coefficient on the individual variables. Therefore, the long-run cointegrating equation is presented in equation 5.

$$\text{LNSE} = - 218.2393 + 2.999692\text{LMS3} + 22.70917\text{LY} + 6.176304\text{LINF} - 0.935025\text{LINT} - 5.845143\text{LEXR} \dots\dots\dots(5)$$

From the long-run equation, all the variables are consistent with priori expectations except for inflation rate. However, the fact that there is presence of long-run relationship among the variables included in the model. The ECM results of short-run deviations in table 3 show that all the variables have the expected signs in the short-run model, but insignificant effects on the stock prices in long-run except for inflation rate, exchange rate and market interest rates.

**Table 3:** Vector error correction model (VECM) results

Error Correction Model	D(LNSE)	D(LMS3)	D(LY)	D(LINF)	D(LINT)	D(LEXR)
Cointegating equation1	0.011433 (0.01326)[0.86220]	0.144342 (0.04407) [3.27501]	0.018241 (0.00465) [3.92172]	-0.002316 (0.00240) [-0.96643]	-0.034360 (0.03216) [-1.06833]	-0.005252 (0.00373) [-1.40640]

**Source:** Effective sample 1996:I-2012:IV

\*Values in parentheses are standard errors in ( ) and t-statistic in [ ] respectively.

**Granger causality test**

A test for existence and direction of Granger causality between the stock prices and macroeconomic variables was carried out. Table 4.4 presents the results of Granger causality test between the stock market prices and macroeconomic variables.

**Table 4: Granger causality test coefficients results**

Null hypothesis	Observations	F-statistic	Probability
DLGDP does not Granger Cause DLNSE	60	0.31	0.57
DLNSE does not Granger Cause DLGDP		0.38	0.54
DLEXR does not Granger Cause DLNSE	66	0.29	0.09
DLNSE does not Granger Cause DLEXR		0.53	0.47
DLINF does not Granger Cause DLNSE	60	4.61	0.04
DLNSE does not Granger Cause DLINF		0.11	0.73
DLINT does not Granger Cause DLNSE	66	2.35	0.13
DLNSE does not Granger Cause DLINT		4.13	0.05
DLMS3 does not Granger Cause DLNSE	66	0.17	0.96
DLNSE does not Granger Cause DLMS3		0.61	0.63

**Source:** Effective Sample 1996:I-2012:IV

The null hypothesis show that LNSE does not Granger cause LMACR except for market interest rates and cannot be rejected neither the hypothesis that LMACR does not Granger cause LNSE except for inflation rate and exchange rate on stock prices because of the significant F-statistic ratio. Therefore, the Granger causality test results are described as follows, a change in the macroeconomic variables with except for inflation rate and exchange rate had a statistically insignificant impact on changes in the stock prices whilst changes in stock prices except for market interest rates also seem to be an insignificant factor explaining part of the movements in the macroeconomic variables. This suggests that there is unidirectional causality from inflation rate, exchange rate to stock prices and also unidirectional causality from stock prices to market interest rates.

### Conclusions and Summary

The main objective was to investigate causal and long-run relationship between macroeconomic variables and stock prices empirically using secondary time series quarterly data from 1996 to 2012. Vector error correction method was used to capture the short-run dynamics and the effect of macroeconomic variables on stock prices in Kenya and was found to be insignificant except for inflation rate, exchange rate and market interest rates. These results were also consistent with the results of Granger causality test suggesting that stock prices does not Granger cause macroeconomic variables except for market interest rates and macroeconomic variables does not Granger cause the stock prices with exception of inflation rate and exchange rate. That is, there is unidirectional causality from inflation rate, exchange rate to stock prices and also there is unidirectional causality from stock prices to market interest rates. These findings exhibit mixed results in Kenya, for example, consistent results are found only in causality between exchange rate and stock prices of Kisaka and Mwasaru (2012), while others were inconsistent, Olweny and Kimani (2011). With other past studies that detect no evidence of causality between stock market prices and macroeconomic variables for example, Maghyerch (2002), Orman (2003), Vuyyuri (2005) where the association between the two variables has been found to be insignificant and there is long-run equilibrium.

### **Policy recommendations**

The research analysis applied to the sample data found no consistent evidence that changes or movement in some macroeconomic variables impact on stock prices. There seem to be unidirectional flow of causality between the some macroeconomic variables and stock prices in Kenya. According to the findings the insignificant effect on movement of stock prices shows that policies aiming at stabilizing macroeconomic variables will have a delayed effect on stock prices, but this effect is significant. Therefore, an important recommendations of the analysis for the conduct of effective monetary policy in Kenya is that attention should be given to the complementary and coordinated development of financial reforms and changes in the monetary sector of the economy. The government should make necessary reforms for a well-developed monetary sector which can foster stock market in the long-run. Also, issues such as promoting the right political climate, improving macroeconomic stability, professionalization of asset management business and privatization of the management of public funds. It also provides support to theories according to which well-functioning financial sector and money market can promote stock market by fueling the engine of economic growth through faster capital accumulation and by tuning it through better investment opportunities. That is, better money market can give a big boost to stock market development.

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## **FACTORS INFLUENCING IMPLEMENTATION OF ELECTRONIC PROCUREMENT: A CASE STUDY OF NATIONAL BANK OF KENYA**

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### **Abstract**

*Due to the competitive milieu in business and corporate world, organizations are now utilizing various business-to-business information systems/ technologies in order to remain relevant in the market and meet diversified and ever changing needs of their customers. The main objective of the study was to review the factors that influence the implementation of electronic procurement in a case study of National bank of Kenya (NBK). NBK was chosen as a case study since it has been facing challenges with its current procurement system and therefore there was need for it to adopt an electronic system to fasten its procurement operations. The findings of the study will enable the bank to gain a competitive advantage over their competitor's, reduce the cost of operation and achieve increased profitability. This research project relies on literatures from other scholars and qualitative information attained from NBK procurement division. The study points out that user uptake and training, executive management support, system integration, the organization's readiness to adopt e-procurement are key to effective e-procurement implementation. The sampling frame entailed 50 out of the total 100 employees in the procurement division. The study adopted a descriptive research design whereby both qualitative and quantitative approaches were used. The target population of this research was 100 employees of National Bank of Kenya, Procurement Division. Above 50% of the respondents were of the opinion that all the four factors positively influence the implementation of E-procurement. Thus, NBK should introduce a strong training program for its entire staff on the electronic system which signifies that the procurement operations will be faster and more effective. This study recommends future studies to incorporate factors that hinder implementation of e-Procurement in banks. For inclusive findings in this field; this research project recommends new studies to be done on a larger population. This study was done on National Bank alone.*

**Key words:** E-procurement, Implementation, user uptake and training, executive management support, system integration.

### **Background of the Study**

Businesses need to develop and implement strategies that do not only pursue long run profitability but also, create competitive advantage. According to Shu-hung (2007), a firm that embraces strategies in its operation is much better than the one whose performance is determined by the prevailing conditions. Usually, successful business strategies are determined by prevailing market conditions. Thus, business entities need to develop new business strategies that enhance their organizational capabilities in the market so that they can meet the market demands.

Shu-hung (2007) notes that, business entities that do not deploy internet in their operations do not have business strategies. Currently, firms rely on the internet in support of their businesses as well as in achieving actual competitive advantage. A firm through its long-term profitability mainly reflects this actual competitive advantage (Naseebullah, Dominic, & Khan, 2011). Internet by itself does not constitute the competitive advantage or a divergent business strategy.



## Statement of the Problem

Many banks are now introducing or planning procurement focal points to keep their financial clients from running off to technology vendors for e-buys. Again, many institutions consider manual procurement as obsolete because it is costly, inefficient and slow. Considering that time, profitability and efficiency are fundamental to any form of business, many organizational management are now focusing on procurement in order to adopt the best policies that meet the existing market demand.

Through e-Procurement, many organizations noted growth and efficiency in their operations (Clark, 2000). Considering the importance of procurement in organizations, the increments of cost in this department are critical to the entire entity. In the last decade or so, banks, especially in the third world countries have been relying on manual procurement that encompasses huge paper work, high time consumption and inefficiencies. Due to such attributes, the process has forced banks to part way with huge amounts as operating costs. With the inception of information technology, the emergence of competition within the financial sector, and dynamic consumer demands, banks have been compelled to seek alternatives in procurement that meet the ever-changing market condition. NBK is subjected to similar conditions to incorporate e-Procurement in its procurement process so that it can be efficient and competitive.

Literatures have established several criteria via which procurement methods should be based on; that is, complexity, risk, certainty, flexibility, quality, price, responsibility, dispute, competition, arbitration and time (Smith et al., 2004). Considering that manual procurement has more disadvantages than e-Procurement; the latter is more preferable. The e-Procurement is flexible, competitive and timely. However, e-Procurement is more risky and uncertain. These attributes show the existence of some challenges associated with e-Procurement implementation.

## Research Objectives

The research project assessed the factors that influence the successful implementation of e-procurement, in the banking sector in Kenya in a case study of NBK.

The research project seeks to address the following specific objectives

- a. Identify the impact of user uptake and training in successful implementation of e-procurement in NBK.
- b. Analyze the NBK executive management support of e-Procurement in influencing a successful implementation of e-procurement.
- c. Analyze the effect of system integration in successful implementation of e-procurement in NBK.
- d. Evaluate the effect of the Organization's readiness to adopt e-procurement successfully.

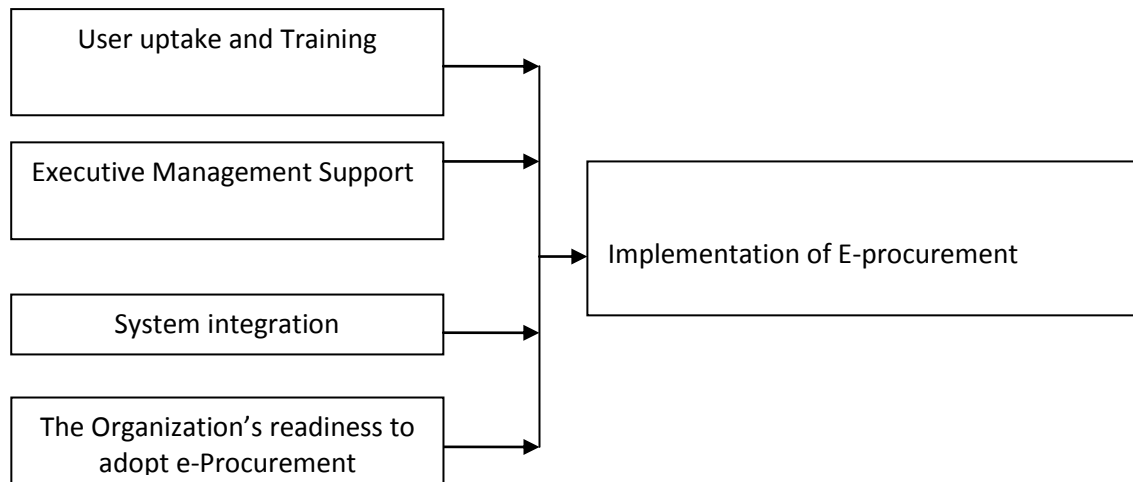
## Research Questions

- a. What is the effect of user uptake and training in successful implementation of e-procurement in NBK?
- b. What is the effect of NBK executive management support of e-Procurement in influencing a successful implementation of e-procurement?
- c. What is the effect of system integration in successful implementation of e-procurement in NBK?

d. What is the effect of the Organization’s readiness to adopt e-procurement successfully?

**Conceptual framework**

The figure 2.1 below illustrates the conceptual framework of the study, identifying the dependent and independent variables which will form the basis of the study.



**Fig. 2.1. Conceptual framework**

**Literature review**

***Factors Influencing Implementation of e- Procurement***

In the past decades, the procurement system in Kenya has undergone significant developments. From being a system with no regulations in the 1960s, and a system regulated by Treasury Circulars in the 1970s, 1980s and 1990s, the introduction of the Public Procurement and Disposal Act (PPDA) of 2005 and the Procurement Regulations of 2006 has introduced new standards for public procurement in Kenya.

In line with the country’s public procurement reform agenda, Kenya in 2006 committed itself to become one of the 22 countries participating in the pilot testing a new Methodology for assessment of National Procurement Systems (version 4) developed by the OECD-DAC Joint Venture for Procurement.

***User Uptake and Training***

The e-Procurement implementation poses big challenges to numerous organizations, banks included. One major impediment of adopting e-Procurement is the absence of awareness of this concept and its implication on organizational performance (Birks, Bond, & Radford, 2001). The success of implementing e-Procurement depends on behavioral, technological and organizational factors. Organizations characterized by large size, innovative management and strong central offices have a high chance of implementing e-Procurement system. According to Moon (2005), two factors determine the success of implementing e-Procurement- the procurement process and behavioral issues. Therefore, it is realistic to conclude that

organizations’ readiness in reference to its procurement process, its technology, and its people influence the implementation of successful e-Procurement (Knudsen, 2003).

***Executive Management Support***

The positive implementation of e-Procurement depends on the support of the management in an organization. Gunasekaran et al. (2009) argues that, for a successful implementation of e-Procurement to occur, the executive management must play a critical role before, during and after its implementation. The support of executive management will transform the e-Procurement into a management tool that is characterized by operational, strategic and tactical advantage (Attaran, 2001). A strategic cooperation with shareholders will enable organizations (and in our case banks) shareholders to finance the whole process of e-Procurement.

***System Integration***

Global market opportunities presented in the financial sector have facilitated banks to pursue global markets. Within the global enterprise milieu, banks have to optimize various information systems/ technologies like the internet, EDI, www, e-procurement and ERP (Gunasekaran et al., 2009). These tools are meant to standardize and automate organizational operation processes. The e-Procurement has emerged as an indispensable tool in automating procurement within a physically distributed venture milieu. The e-Procurement is important in both global operations and domestic operations because of the emphasis put on in a supply chain management in international and global operations.

***The Organization’s Readiness to adopt e-Procurement***

If an organization does not establish a strong foundation, then, a successful implementation of e-Procurement is uncertain. A successful e-Procurement implementation depends on the already existing organizational, behavioral and technological factors. According to Moon (2005), large organizations, characterized by innovative management and centralized management have better status of implementing e-Procurement successfully compared to decentralized management organizations. Organizations with advanced and sophisticated technologies are more prepared to successfully implement e-Procurement than organizations that do not embrace recent technology in their operations.

**RESEARCH METHODOLOGY**

The study adopted a descriptive research design whereby both qualitative and quantitative approaches were used in the process of the study.

<b>Cadres of Staff</b>	<b>Number of Employees</b>	<b>Percent</b>
General Managers	2	2
Managers	8	8
Officers	40	40
Clerks	50	50
<b>TOTAL</b>	<b>100</b>	<b>100</b>

***Sampling Frame and technique:*** The population of the study comprised of the departments in the procurement division of NBK. The target population constituted the employees of National Bank of Kenya Ltd based at Head Office, Procurement Division, and the management. Purposive sampling and random sampling were used. The sample included randomly selected

General Managers and employees within the procurement division of NBK. The researcher strived to have a 50% representation of the population included in the sample.

**sample size:** The researcher sampled 50% of employees in each category using stratified random sampling technique.

**Ddata collection instruments:** Various data collection methods for qualitative research were reviewed for use in this study (Walker, 1985). However, the study used both primary and secondary data. Primary data was collected through observation and by use of questionnaires while secondary data was collected from past reports, journals and books.

**Pilot Testing:** To enhance the validity and reliability of the research instruments, the questionnaire was pre-tested on three departments out of the eight, which were sampled randomly taking into account cost as a factor.

**Data Processing and Analysis:** The questionnaires were examined and edited to ensure that all the required data was coded for analysis. Field observations were compiled as well. Qualitative data were derived from the variables in question one. The variables were mainly operational variables on respondents.

## Research findings and discussion

### Introduction

In this chapter, the research project presents the empirical findings of data collected through questionnaires. The analysis of the data is presented through the outcome (based on interviewee perceptions), and the percentages (attitude towards successful implementation of e-Procurement).

The target was on NBK employees, however, on different ranks. The distribution of the questionnaires was as follows: 2 questionnaires to general managers, 8 questionnaires to managers, 40 questionnaires to officers and 50 questionnaires to clerks.

**Table 4.1: Cadres of Staff**

<b>Cadres of Staff</b>	<b>Number of Employees</b>	<b>Percent</b>
General Managers	2	2
Managers	8	8
Officers	40	40
Clerks	50	50
<b>TOTAL</b>	<b>100</b>	<b>100</b>

### User Uptake and Training

This section discusses the qualitative and quantitative data as views of respondents on user uptake and training as a positive factor that facilitates successful implementation of e-Procurement. Table 4.2 present the interviewed individuals on user uptake and training in e-Procurement in promoting procurement activities.

**Table 4.2. User Uptake and Training**

Rating Scale	Total Frequency	Percent
1 Strongly Disagree	1	2
2 Disagree	2	4
3 Not sure	1	2
4 Agree	15	30
5 Strongly Agree	31	62
<b>TOTAL</b>	<b>50</b>	<b>100</b>

According to the Table 4.2. majority of NBK staff respondents (62 percent) strongly agreed that user uptake and training was a success factor than a barrier towards the implementation of e-Procurement. A small number (about 2 percent) of NBK staff respondents strongly disagreed that user uptake and training was a success to the implementation of e-Procurement. From the analysis, this can be interpreted to imply that most of NBK staff respondents were certain that user uptake and training would positively influence e-procurement implementation. Nevertheless, the respondents argued that necessary training was the only key factor to the success of e-Procurement implementation. Thus, they recommended that NBK should introduce a training program for its staff to enable smooth operation. Out of the 62 percent who strongly agreed, more than half (42 percent) were officers and clerks and (20 percent) were managers and General Managers.

**Executive Management Support:** This section discusses the qualitative and quantitative data as views of respondents on executive management support as a factor that facilitates successful implementation of e-Procurement.

**Table 4.3 Executive management support**

Rating Scale	Total Frequency	Percent
1 Strongly Disagree	0	0
2 Disagree	0	0
3 Not sure	5	10
4 Agree	11	22
5 Strongly Agree	34	68
<b>TOTAL</b>	<b>50</b>	<b>100</b>

According to the Table 4.3, majority of NBK staff respondents (68 percent) strongly agreed that executive management support is a success factor to the implementation of e-Procurement. Out of all NBK staff respondents interviewed none (0 percent) disagreed that that executive management support is a positive factor towards successful implementation of e-Procurement. Out of the 68 percent who strongly agreed that management support was important in implementation, 34 percent were managers and general managers and the other half 34 percent were officers and clerks.

**System Integration:** This section discusses the qualitative and quantitative data as views of respondents on system integration as a factor that facilitates successful implementation of e-Procurement.

**Table 4.4: System Integration**

Rating Scale	Total Frequency	Percent
1 Strongly Disagree	1	2
2 Disagree	1	2
3 Not sure	6	12
4 Agree	9	18
5 Strongly Agree	33	66
TOTAL	50	100

According to the Table 4.4, majority of NBK staff respondents (66 percent) strongly agreed that system integration was a success factor towards successful implementation of e-Procurement in NBK. A minute number (about 2 percent) of NBK staff respondents strongly disagreed that system integration is less a success factor than a barrier to the implementation of e-Procurement. Out of those who strongly agreed, 36 percent were managers and general managers and 30 percent were in the category of officers and clerks.

**Organization's Readiness to adopt e-Procurement:** This section discusses the qualitative and quantitative data on the views of respondents on Organization's Readiness to adopt e-Procurement as factor that facilitates successful implementation of e-Procurement.

**Table 4.5: Organization's Readiness to adopt e-Procurement**

Rating Scale	Total Frequency	Percent
1 Strongly Disagree	2	4
2 Disagree	3	6
3 Not sure	1	2
4 Agree	16	32
5 Strongly Agree	28	56
TOTAL	50	100

According to the Table 4.5, More than half of NBK staff respondents (about 56 percent) strongly agreed that organization's readiness to adopt e-Procurement was a success factor to the implementation of e-Procurement. A small number (about 4 percent) of NBK staff respondents strongly disagreed that organization's readiness to adopt e-Procurement was more of a success factor than a barrier to the implementation of e-Procurement. 2 percent were not sure. 35 percent of those who strongly agreed were managers and general managers and 21 percent were officers and clerks.

## Conclusions

From the interview, NBK staff respondents strongly agreed that user uptake and training, executive management support, system integration and organization's readiness to adopt e-Procurement could positively influence the implementation by 62 percent, 68 percent, 66 percent and 56 percent in that order.

This research project was based on a case study of National bank of Kenya (NBK). NBK was chosen because it has been experiencing challenges with its current procurement system leading to high operating costs and a reduced customer base and hence the need to change to an e-procurement system for ease of its operations.

This research project looked at the views of only 100 employees in NBK's Procurement Division. The results from the computed percentage show that uptake and training in e-Procurement, executive management support, system integration, and, the organization's readiness to adopt e-Procurement positively influence the implementation of e-Procurement in NBK.

### Recommendations

This research project recommends new studies to incorporate factors that hinder successful implementation of e-Procurement in banks. Lack of top management support, limited skills and knowledge of IT and lack of funds were some the issues that came out as working against the embracement of e-procurement by the bank. Top management support, training and re-skilling of employees together with budgetary allocation issues should be emphasized. Close attention of these issues is likely to improve the level on intake of e-procurement by the banking industry in Kenya.

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## **EFFECT OF CREDIT REFERENCE BUREAU ON THE LEVEL OF LOAN DEFAULT AMONG COMMERCIAL BANKS IN KENYA: A CASE STUDY OF BARCLAYS BANK OF KENYA- KITALE BRANCH.**

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### **Abstract**

*The Kenyan banking sector was riddled with momentous Non-Performing Loans (NPLs) portfolio in the 1980's, 1990's and early 2000 which led to the collapse of some banks. One of the catalysts in this scenario was Serial defaulters, who borrowed from various banks with no intention of repaying the loans. Undoubtedly these defaulters thrived well in the information asymmetry environment that prevailed due to lack of a credit information sharing mechanism. The study is going to shade light on how credit information sharing through the credit reference bureau affects the credit decisions taken by the commercial banks in Kenya which eventually affects loan performance. It seeks to establish whether through access of credit reports from the bureaus, commercial banks are able to better distinguish between bad and good borrowers hence reducing the likelihood of default on loan repayments. The study used a Case Study research design. A case study of Barclays Bank- Kitale branch was used whereby 55 questionnaires were distributed to all the branch staff members (respondents) who were very cooperative indicated by 54 questionnaires being returned with questions duly answered. Frequency tables were then used to present statistics pertaining to the demographic factors and the data collected was analysed using descriptive statistics. The statistical package for Social Science (SPSS) 20.0 was used to derive the descriptive statistics relevant for this study. The study found out that the bank is taking a keen look at the credit scores of all credit applicants in order to determine good and bad borrowers and thus reducing the likelihood of loan default. Through use of credit rating of customers the bank was able to know and determine the likelihood of default and therefore grants its credit facilities to customers with good credit scores only thus reducing its nonperforming loans portfolio. The study therefore recommends that banks, borrowers and CRBs should work closely to ensure that there is no information asymmetry and thus ensuring that credit flows to deserving borrowers. Moreover to make clients appreciate the credit policies and recovery procedures banks need to educate their customers on the importance of meeting their credit obligations to avoid being listed in the credit reference bureaus with negative scores.*

**Key words:** Credit Bureau, Loan default, Information asymmetry

### **Introduction**

Financial distress has afflicted numerous local banks, many of which have been closed down by regulatory authorities or have been restructured under their supervision (Brownbridge, 1998). In Kenya, 2 local banks and 10 non bank financial institutions were closed` or taken over between 1984 and 1989. A further 5 local banks and 10 NBFIs were closed or taken over in 1993 to 1994 and 2 more local banks in 1996 (C.B.K annual report, 2008). Brownbridge (1998) suggests that the problem for many of the failed banks was that they did not have adequate expertise to screen and monitor their borrowers and therefore distinguish between good and bad risks. The credit markets have been faced with adverse selection and moral hazard problems attributed to information asymmetry among lenders and borrowers. It is



therefore important that lenders supplement their information about borrowers with that of other lenders (Japelli and Pagano, 2005).

Credit Reference Bureaus complement the central role played by banks and other financial institutions in extending financial services within an economy. CRBs help lenders to make faster and more accurate credit decisions. They collect, manage and disseminate customer information to lenders within a provided regulatory framework – in Kenya, the Banking (Credit Reference Bureau) Regulations, 2008 which was operational effective 2nd February 2009. Credit bureaus assist in making credit accessible to more people, and enabling lenders and businesses reduce risk and fraud. Sharing of information between financial institutions in respect of customer credit behaviour, therefore, has a positive economic impact (C.B.K annual report, 2009). Banks play a central role in extending financial services within an economy, in support of this role, credit bureaus help lenders make faster and more accurate credit decisions.

A credit information system, of which a credit bureau is an important aspect, is therefore a necessity in a functioning credit market (Japelli and Pagano, 2005). South Africa has one of the most efficient credit reporting systems in sub Saharan Africa characterized by fixed data retention periods that is correlated with the predictive value, presence of competing private bureaus, use of sophisticated credit scoring models that incorporate high quality data, full file reporting including both positive and negative information, information is gathered on both individuals and entities and a proper regulatory framework that facilitates efficiency and effectiveness in credit reporting (Brownbridge, 1998). In the recent past, there has been an increase in funding of credit programmes in developing countries aimed at small-scale enterprises. Small and medium size enterprises have become major players in the Kenyan economy as is for many developing countries. The sector contributes to the national objective of creating employment opportunities, training entrepreneurs, generating income and providing a source of livelihood for the majority of low-income households in the country, accounting for 12–14% of GDP (RoK, 1989, 1992, 1994). With about 70% of such enterprises located in rural areas, the sector has a high potential for contributing to rural development. Yet the majority of entrepreneurs in this sector are considered not creditworthy by most formal credit institutions (Atieno, 2001).

### **Statement of the Problem**

In Kenya the banks' reputation has been affected by the huge bad debts portfolio that resulted in the closure of some banks in the 1990s and early 2000. Banks with high bad debts provisions are seen as failures in their operations. In the past, banking in Kenya had clauses that protected the customer, because the banks were not allowed to share customer banking details. There were customer confidentiality clauses binding the banks from sharing information about customers. This made the sharing of important information like the bad debtors illegal. The sharing of customer information has now been allowed, showing the importance of the Kenya credit reference bureau and the need to study its impacts in the banking sector.

The Kenya lending market is quiet competitive with close to forty three commercial banks currently in operation. In a highly competitive market, lenders may not be so willing to share information for fear of losing out to competition. On the other hand, through adverse selection caused by information asymmetry, good borrowers are locked out due to high interest rates and the moral hazard aspect of information asymmetry, may lead to a higher

rate of default by bad borrowers who are not deterred by the high interest rates. With the newly introduced credit reporting that is regulated by the central bank of Kenya, the lenders are expected to submit negative information about their borrowers on a monthly basis. This information can only be accessed by the commercial banks since the CRB was formed under the Banking Act in 2008. The information is given to CRB Africa Ltd and Metropol CRB Ltd, which are currently the only licensed bureaus in Kenya, by banks and as such verification of the same is not easy. Positive information about a borrower is not a mandatory submission under the regulation. The study thus sought to find out the default predictive value of information from CRB in Kenya.

### **Research Objectives**

The general objective of this study was to find out the effect of credit reference bureaus on the level of loan default among Commercial Banks in Kenya taking a case study of Barclays Bank of Kenya- Kitale branch.

### **Specific objectives**

- 1) To find out how often do banks interact with the credit reference bureaus, and its effect on loan default rate.
- 2) To establish the timeliness of CRB information and its effect on loan default rate.
- 3) To establish the nature of information given by the credit reference bureaus and its reliability in assessing customers credit worthiness.
- 4) To establish the accuracy of information from credit reference bureaus and its effect on loan default rate.

### **Significance of the Study**

***To commercial banks :*** The study will help the managers in commercial banks to understand the impact of information on credit history and through use of the same enable them to make better credit decisions. The managers will not only use negative ratings on customers but also be able to rely on positive credit reports to grant favourable credit to borrowers with a good credit history. Moreover this information will enable the banks to reduce their nonperforming loans, increase profits and thus win more customer confidence who will in turn buy more products from the financial institutions.

***To borrowers from commercial banks:*** Being aware of their credit ratings borrowers will be more disciplined in terms of not borrowing from multiple institutions and thus not being able to meet their credit obligations when they fall due. This study will also help borrowers with good credit reports to use this to their advantage in terms of negotiating for better interest rates, loan amounts and payment periods.

***To researchers:*** This study will contribute knowledge on the credit information sharing and the impact it has on efficiency in the credit market. It will open avenue for exploration of other viable sources of information on credit worthiness of a borrower. It will also open up discussions on how to ensure that the credit information sharing is managed to achieve accessibility and price viability of credit facilities by lenders in general.

## Research methodology

**Research Design:** This study used a Case Study of Barclays Bank of Kenya- Kitale branch to determine the effect of CRB on loan default rate

**Target Population:** The study involved use of the entire 55 staff members of Barclays Bank Kitale branch to fill the hard copies of the questionnaires. All staff members of the bank have been well trained on bank procedures, policies and the regulatory frame work thus making them prime respondents capable of giving comprehensive answers to question at hand.

**Description of Research Instruments:** Detailed semi structured questionnaires were used to collect data from the bank officials. The data collected was from primary sources and both qualitative and quantitative data was utilized in the study.

**Data Collection:** In this case study, emphasis was given to primary data which is an empirical data source. Secondary data was obtained from bank websites, banking journals, CBK reports and other relevant texts. Self administered questionnaires that did not require identification of the respondents were distributed in person to all the respondents and picked later after one week. This gave the respondents high degree of anonymity and sufficient time to read, understand and answer the questions to the best of their abilities.

**Data presentation and analysis:** Data was analyzed using descriptive and inferential statistics. Measures of central tendency and variability were used to give expected summary statistics of variables being studied and describe dispersion of scores generated. Multiple correlation analysis was used to determine the relationship that exists among the dependent and independent variables. The findings of the data analysis were presented in form of tables and percentages.

## Findings and Discussions

### *Frequency of Requesting for Credit Reports*

The researcher wanted to know how often does the bank request for credit reports from CRB about their borrowers. The results were as follows:

**Table 1: CRB requests by the bank**

<b>Response</b>	<b>Frequency</b>	<b>Percentage</b>
For all credit applications	53	98
For some credit application	1	2
Not at all	0	0
Not sure	0	0
<b>Total</b>	<b>54</b>	<b>100</b>

From the table 1 above, 98% of the respondents who were the majority indicated that the bank was requesting for credit reports for all credit applications while 2% said that the request was for only some selected credit applications. This shows the emphasis with which the bank is putting on the credit score information of its potential borrowers.

**Findings on whether the bank receives information on time when requested from the credit reporting agencies.**

The study sought to establish whether the bank received information on time from CRB when requested. This helped the researcher to determine the reliability of the information and the period it may take to process a loan. The findings were as follows:

**Table 2: Timeliness of CRB information requested.**

<b>Response</b>	<b>Frequency</b>	<b>Percentage</b>
1-6 hours	29	53
1 day	25	47
More than 2 days	0	0
<b>Total</b>	<b>54</b>	<b>100</b>

Table 2 above shows that all the respondents (100%) agreed that banks received information within a day from CRB. This is due to the fact that the information can be accessed online using restricted passwords even at the branch level and therefore it leads to shorter loan processing periods for the eligible customers.

**Data verification**

The researcher also sought to know whether the bank verifies the data received from CRB about the customers’ credit scores since this will show the accuracy of the data. Responses were as follows:

**Table 3: Whether the bank verifies data from CRB.**

<b>Responses</b>	<b>Frequency</b>	<b>Percentage</b>
Yes	2	4
No	42	78
Not sure	10	18
<b>Total</b>	<b>54</b>	<b>100</b>

Majority of the respondents denoted by a frequency of 78% indicated that the bank did not verify data from CRB while a minority of 4% said the bank verifies the data. 18% were not sure whether the bank verifies the credit score from the bureau or not. This shows that the bank has confidence in the bureaus’ data and thus uses the raw data from the bureau to vet its borrowers indicating its reliability and accuracy.

**Conclusions**

It was found that Credit bureaus play a vital role in credit decisions made by the bank depicted by 98% of the respondents agreeing that the bank requests for credit scores for all loan applicants. By so doing the bank reduces its exposure to loan defaults through granting loans to customers with good credit scores and denying the same those with poor credit scores. Findings also showed that banks received CRB information within 12 hours of requesting which is made easier by the bank giving some sales staff personalised passwords to access customer’s scores, showing that these information can be relied on in expediting loan process. Moreover it was found that customers with good credit rating have more

advantage than those with poor ratings because they can negotiate for lower rates on their borrowing.

### Recommendations

The study recommends that banks, borrowers and CRBs should work closely to ensure that there is no information asymmetry and thus ensuring that credit flows to deserving borrowers. Moreover to make clients appreciate the credit policies and recovery procedures banks need to educate their customers on the importance of meeting their credit obligations to avoid being listed in the credit reference bureaus with negative scores which affects their credit worthiness. Also financial institutions should use CRB scores in vetting their potential borrowers in order to reduce loan defaults and their nonperforming loans portfolio.

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