

EFFECT OF MACROECONOMIC VARIABLES ON PROFITABILITY OF COMMERCIAL BANKS LISTED IN THE NAIROBI SECURITIES EXCHANGE

Christine Nanjala Simiyu 

School of Business and Public Management, KCA University, Nairobi, Kenya

kitisw@gmail.com

Lessah Ngile

Machakos University College, Nairobi, Kenya

Abstract

Based on vital contribution of the commercial banks to economic progression Kenya, this study endeavors to investigate the effect of macroeconomic variables on financial profitability of listed commercial banks in the Nairobi Securities Exchange (NSE) for years 2001 to 2012. Panel data analysis using Fixed Effects model was applied on the data to examine the effects of three major macroeconomic variables which included: Gross Domestic Product (GDP), Exchange rates, and interest rates on profitability of the listed commercial banks. The study findings indicated that real GDP growth rate had positive but insignificant effect to profitability of commercial banks as measured through Return On Assets (ROA). Further, real interest rates had a significant negative influence on profitability of listed commercial banks in Kenya. While the exchange rate had a positive significant effect on the profitability of listed commercial banks on Nairobi Securities Exchange.

Keywords: Return on Assets, Panel Data, Fixed Effects, Profitability, NSE, Kenya

INTRODUCTION

One driving force of any economy is the interaction of the individual companies within it, both with each other and with financial institutions. Basic to this interaction must be well-founded knowledge as to the relative financial health of these companies. Logic suggests that a major factor affecting company failure rate would be the overall economic circumstances within which

companies are operating. An effective and efficient functioning of the financial sector requires sound and favorable macroeconomic environment in the country. However, in this era of globalization it is imperative for the financial sector to be strongly integrated with the global economy. Increased integration and growing macroeconomic fluctuations require more attention to be paid to the link between the "noise" that these fluctuations represent and the company's own development.

In Kenya, although financial markets have been liberalized and are operating on competitive basis, they still have a long way to go to achieve the required level of development. One may conclude that the process of liberalization created a mushroom growth of both the Non-Banking Financial Institutions (NBFIs) and banks, giving rise to profit, competition and also their existence (Otuori, 2013). In fact, during the past few years, a major chunk of the financial sector was shifted from the public sector toward private ownership in the country.

Macroeconomic Variables Affecting Profitability of Banks

The subject of macroeconomic factors and their effect on profitability of companies have been studied extensively but results lack consensus. Scott and Arias (2011) studied profitability of five largest banks in United States. They proved that GDP growth did not directly affect the profit level of U.S banking sector. Hoffmann (2011) used GMM and pooled OLS estimation approach to study US banks. The final result of both regression models indicates no considerable relationship. Sufian (2011) analyzed 11-29 Korean commercial banks during year 1992-2003. Linear regression results revealed negative impact of Gross Domestic Product (GDP) on Return on Assets (ROA), but positive impact of inflation. An empirical study by Damena (2011), on the profitability determinants of Ethiopian commercial banks used 10 years balance sheet data of 7 leading banks confirming positive effect of GDP, inflation and interest rate. Likewise, Davydenko (2011) used fixed effects estimation technique and proved that both GDP and Inflation have a positive relationship with ROA of Ukrainian banks. Saksonova and Solovjova (2011) performed comparative analysis of five largest Latvian commercial banks during period of economic crises. GDP growth had positive contribution to profits, and inflation negatively affected ROA.

The following are the macro economic variables that affect financial profitability of listed commercial banks that are discussed in this research. The real interest rate is the rate of interest an investor expects to receive after allowing for inflation. It can be described more formally by the Fisher equation, which states that the real interest rate is approximately the nominal interest rate minus the inflation rate. A consumer price index (CPI) measures changes in the price level of a market basket of consumer goods and services purchased by households. The CPI in the United States is defined by the Bureau of Labor Statistics as "a measure of the

average change over time in the prices paid by urban consumers for a market basket of consumer goods and services."

GDP is an inflation-adjusted measure that reflects the value of all goods and services produced in a given year, expressed in base-year prices, often referred to as "constant-price. Inflation is a sustained increase in the general price level of goods and services in an economy over a period of time due to the devaluation of the fiat currency being used

Exchange rate (also known as a foreign-exchange rate, forex rate, between two currencies is the rate at which one currency will be exchanged for another. However the macro economic variables that were considered in this study were real Gross Domestic Product (GDP), real interest rates and exchange rate.

Financial Profitability of Commercial Banks

Financial profitability of commercial banks is measured through the following variables;

ROE is a financial ratio that refers to how much profit a company earned compared to the total amount of shareholder equity invested or found on the balance sheet. ROE is what the shareholders look in return for their investment. A business that has a high return on equity is more likely to be one that of generating cash internally. Thus, the higher the ROE the better the company is in terms of profit generation. It is further explained by Khrawish (2011) that ROE is the ratio of Net Income after taxes divided by Total Equity Capital. It represents the rate of return earned on the funds invested in bank by its stockholders. ROE reflects how effectively a bank management is using shareholders funds. Thus, it can be deduced from the above statement that the better the ROE the more effective the management in utilizing the shareholders capital.

ROA is also another major ratio that indicates the profitability of a bank. It is a ratio of Income to its total asset (Khrawish, 2011). It measures the ability of the bank management to generate income by utilizing company assets at their disposal. In other words, it shows how efficiently the resources of the company are used to generate the income. It further indicates the efficiency of the management of a company in generating net income from all the resources of the institution (Khrawish, 2011). Wen (2010), state that a higher ROA shows that the company is more efficient in using its resources.

Net Interest Margin (NIM) is a measure of the difference between the interest income generated by banks and the amount of interest paid out to their lenders (for example, deposits), relative to the amount of their (interest earning) assets. It is usually expressed as a percentage of what the financial institution earns on loans a specific time period and other assets minus the interest paid on borrowed funds divided by the average amount of the assets on which it earned

income in that time period (the average earning assets). The NIM variable is defined as the net interest income divided by total earnings assets (Gul et al., 2011). Net interest margin measures the gap between the interest income the bank receives on loans and securities and interest cost of its borrowed funds. It reflects the cost of bank intermediation services and the efficiency of the bank. The higher the net interest margin, the higher the bank's profit and the more stable the bank is. Thus, it is one of the key measures of bank profitability.

PAST STUDIES

Various studies show that commercial banks play a vital role in the economic resource allocation of countries. They contribute to economic growth of the country by making funds available for investors to borrow as well as financial deepening in the country (Otuori, 2013). Commercial banks appear very profitable in Sub-Saharan Africa (SSA) where average returns on assets were about 2 percent over the last 10 years, significantly higher than bank returns in other parts of the world (Flamini et al, 2009).

The profitability of commercial banks can be affected by internal and external factors which can be classified into bank specific (internal) and macroeconomic variables (Flamini et al, 2009). The internal factors are individual bank characteristics which affect the bank's profitability, these factors are basically influenced by the internal decisions of management and board. The external factors are sector wide or country wide factors which are beyond the control of the company and affect the profitability of banks.

The major reasons behind high return in the region as outlined by Ongore (2013) were; investment in risky ventures and the existence of huge gap between the demand for bank service and the supply thereof. That means, in SSA the number of banks are few compared to the demand for the services; as a result there is less competition and banks charge high interest rates. This is especially true in East Africa where the few government owned banks take the lion's share of the market (Ongore, 2013).

The macroeconomic condition, which determines the level of credit worthiness of the borrowers, asset quality, increase and decrease in the value of collateral and other related factors, is the main source of macroeconomic shocks to the bank's portfolio. Furthermore, regulatory environment of an economy, level of financial development and level of concentration of the financial sector also explain its profitability. The instruments of monetary policy like inflation, real exchange rate, and short-term interest rate act as important determinants of profitability of companies in a country. According to Asimakopoulos, Samitas and Papadogonas (2009), financial sector institutions can capture a range of factors that impose risks on the financial system and devise ways to manage such factors. So, for long-term sustainability of the

financial sector, banks should be capable of operating in a competitive environment while mitigating the risk factor.

All companies strive to be successful and sustainable. To achieve this goal, it is important that company profitability continues to grow. In this regard, a fundamental research question is "what are the main variables that drive continual profitability?" as Kenya is dominated by Commercial Banks, it is of vital concern to associate their profitability with country's progress, and hence, a study to identify the cumulative impact of macroeconomic variables on the profitability of commercial banks would add to the strategies devised in interest of the institutions' development. Purpose of this research was to study the relationship between macroeconomic variables and profitability of commercial banks in Kenya.

PROBLEM STATEMENT

In order to survive in the long run, it is important for a bank to identify factors affecting its profitability so that it can take initiatives to increase its profitability by managing the dominant determinants (Podder, 2012). Bank profitability is also vitally important for all stakeholders, such as the owners, the investors, the debtors, the creditors, the depositors, the managers of banks, the regulators and the government. The profitability of banks gives directions to the stake holders in their decision making. As outlined by Podder (2012), it gives direction to the debtors and the investors to make decision whether they should invest money in bank or invest somewhere else, It also flashes direction to bank managers whether to improve its finance and Regulatory agencies and government are also interested in financial profitability for the regulation purposes.

Globally, banking is a rapidly growing industry. Every bank is trying to enhance overall profitability plus profits to occupy a better position in the financial system. This study will identify the key macroeconomic elements that have impact on the profitability of banks. This is justified on the grounds that there are few studies on the effect of macroeconomic variables on bank profitability in Kenya. Available studies lack consensus on the effect of macroeconomic factors on bank profitability. For instance, Ongore and Kusa (2013) established that macroeconomic variables insignificantly affect bank profitability. They used regression analysis and found that rise in inflation rates affected profitability of commercial banks negatively. However, the relationship was not significant at 5% level. A study by Kanwal and Nadeem (2013) in Pakistan established that there was a strong positive relationship of real interest rate on ROA. The study further established that GDP had a significant positive relationship with ROA. However, Athanasoglou et al (2006) on the other hand found that exchange rates and GDP positively influenced profitability while interest rates had a negative influence on profitability. Alper and

Anbar (2011) observed the returns of Turkish banks and inferred that GDP growth, real interest rate and inflation rate had an insignificant effect on banks' assets and equity returns.

Scholars have also provided qualitative proofs of variables affecting the banks' income. Shafer, Kasawneh, and Salem (2011) distributed 320 questionnaires among bank-related individuals and response proved important association of GDP with earnings. Khrawish (2011) determined the macroeconomic indicators affecting the listed Jordanian banks. Result demonstrated negative impact of GDP and inflation with ROA and ROE. Alper and Anbar (2011) observed the returns of Turkish banks and inferred that GDP growth, real interest rate and inflation rate had an insignificant effect on banks' assets and equity returns. This lack of consensus of various studies indicate that to establish how these factors affect company profitability in a country, a study needs to be carried out. This therefore justifies why the current study was of significance.

RESEARCH OBJECTIVES

The purpose of this study was to establish the effect of macroeconomic variables on profitability of commercial banks in Kenya. The specific objectives of this study were to;

- (i) Determine effect of real Gross Domestic Product (GDP) on financial profitability of commercial banks listed in the Nairobi Securities Exchange.
- (ii) Examine the effect of real interest rates on financial profitability of commercial banks listed in the Nairobi Securities Exchange.
- (iii) Evaluate the effect of exchange rates on financial profitability of commercial banks listed in the Nairobi Securities Exchange.

METHODOLOGY

Target Population and Sampling

The target population of this study was the 10 listed commercial banks in the Nairobi Securities Exchange (NSE). There are 10 listed commercial banks on NSE, and therefore a census was used.

The Data

The secondary data used in this study was obtained from the statements of the commercial banks, Central Bank of Kenya (CBK), Kenya National Bureau of Statistics (KNBS) and World Bank database. The data was collected for the 10 listed banks in the NSE over 12 year period (from 2001 to 2012) forming a panel data with 120 observations.

Model Specification

Since the data used in the study was panel, therefore, panel data analysis was used. The Random Effects model and the Fixed Effects model were applied. The model was specified as:

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \mu_i + \varepsilon_{it}$$

Where;

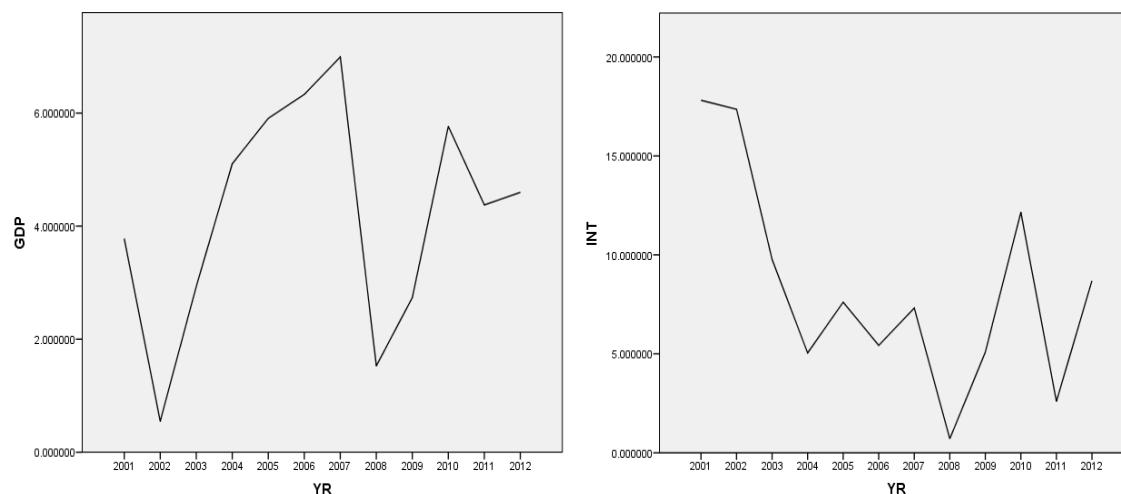
$i = 1, 2, \dots, 10$ Banks and $t = 2001$ to 2012 ; and Y_{it} = Return On Assets for bank i at time t , X_{1it} = Exchange Rate for bank i at time t , X_{2it} = Real Interest Rates for bank i at time t , X_{3it} = Real Gross Domestic Product, μ_i are unobserved differences among the banks and ε_{it} is the error term for bank i at time t .

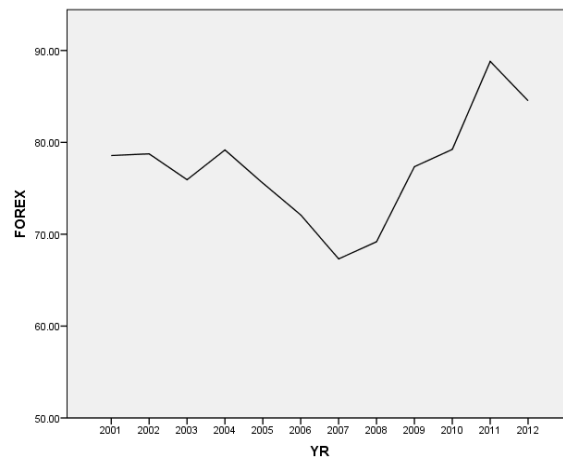
ANALYSIS & RESULTS

Trend Analysis

Figure 1 shows the linear trend for GDP growth, Interest rates (INT) and exchange rates (FOREX) overtime. The results suggests a growing trend of GDP overtime with plummeted in the year 2002 and 2008. These recorded fall in growth rates is attributed to general elections that happened in 2002 and 2008 as external shocks to economy which led to low growth rates in the respective years. Next, from the graph in figure 1, there was a decreasing trend in the interests rates between 2001 and 2012 with the lowest real interest rate recorded in the year 2008. On the other hand, there was an increasing trend in exchange rates between 2001 and 2012 with the lowest exchange rate being recorded in the year 2007. Overall, the results suggest that GDP growth and Interest rates shows similar trends, especially after 2008.

Figure 1: Trend analysis for GDP growth rates, INT and FOREX for 2001 - 2012





Correlation Analysis

A correlation analysis was performed to establish the correlation of the variables in this study. The results presented in Table 1 indicate that; real GDP growth rate and the exchange rate were positively correlated with ROA but the relationship was weak and not significant. This finding indicates that an increase in exchange rate and real GDP growth rate have a positive but insignificant relationship with profitability of banks as measured through ROA. On the other hand, real interest rates had a moderate negative significant correlation with ROA. This finding reveals that an increase in real interest rates has an effect on reduction of bank's return on assets.

Table 1: Correlation Matrix

		ROA	GDP	Interest rates	Exchange rate
ROA	Pearson Correlation	1			
	Sig. (2-tailed)				
	N	120			
GDP	Pearson Correlation	.139	1		
	Sig. (2-tailed)	.131			
	N	120	120		
Interest rates	Pearson Correlation	-.337**	-.188*	1	
	Sig. (2-tailed)	.000	.040		
	N	120	120	120	
Exchange rate	Pearson Correlation	.167	-.113	.141	1
	Sig. (2-tailed)	.068	.218	.125	
	N	120	120	120	120

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

The results further point to the fact that there was no problem of multicollinearity as no two independent variables had a correlation of more than 0.3 between them.

Panel Data Analysis

The model specified in section 2 was fitted to the data. Both FE and RE models were fitted and a Hausman test was used to choose the model that best describes the data. Table 2 below gives the results from a Hausman test.

Table 2. Hausman Test

Model	Dependent variable	Chi-value	Prob>chi ² -Value
1	Return on Assets (ROA)	429.34	0.000

The results indicate that the FE model is to be fitted to the data. Hence results from FE model are presented in Table 3

Table 3. Fixed Effects Panel Regression on Return on Assets

Fixed-effects (within) regression		Number of observations =		120		
Group variable: Bank		Number of groups =		10		
R-squared	Within = 0.2615		Observations per group =		12	
	Between = 0.1184					
	Overall = 0.0971					
		F =	7.899			
		p =	0.000			
		95% Confidence Interval				
ROA	Coefficient	Std. Error	t	p > t	Lower Bound	Upper Bound
GDP	.097712	.085700	1.140	.257	-.072028	.267451
Interest Rate	-.129319	.032052	-4.035	.000	-.192801	-.065837
Forex Rate	.074702	.028156	2.653	.009	.018935	.130469
Constant	-1.820101	2.232646	-.815	.417	-6.242137	2.601935

From the results in Table 3, the within model r-squared is 0.2615 which indicates that 26.15% of the variations within the variables were explained by the model. The overall r-squared is 0.0971 which means overall 9.71% of the variations in return on assets were explained by the independent variables. The between r-squared is 0.1184 which means that 11.84% of the variations between the variables were explained by the model. In the model, Real interest rate is seen to have a significant negative effect on Return on assets. The effect of exchange rate on return on assets was positive and significant. However, real GDP growth rate did not have any significant effect on return on assets of the banks.

This established that there was no significance influence of GDP on performance of the surveyed banks. GDP is a measure of economic growth. Economic growth is measured in terms

of an increase in the size of a nation's economy. A most widely used measure of economic output is the GDP. GDP is a calculation method in national accounting which is defined as the total value of final goods and services produced within a country's borders in a year, regardless of ownership. GDP measures only final goods and services, that is those goods and services that are consumed by their final user, and not used as an input into other goods. Measuring intermediate goods and services would lead to double counting of economic activity within a country. This distinction also removes transfers between individuals and companies from GDP. Without any adjustment, the GDP calculation is distorted by inflation. This unadjusted GDP is known as the nominal GDP. In practice and in the case of this study, GDP was adjusted by dividing the nominal GDP by a price deflator to arrive at the real GDP.

In an inflationary environment like Kenya, the nominal GDP is greater than the real GDP. Countries seek to increase their GDP in order to increase their standard of living. However, growth in GDP does not result in increased purchasing power if the growth is due to inflationary factors or population increase. For purchasing power to increase, it is the real, per capita GDP that is important. This can explain why there was not a significant effect of growth of real GDP on performance of banks. A one unit improvement in real GDP growth is expected to result to a 9.78% improvement in performance of banks. However, this effect was not significant at 5%. This can also be explained by the fact that though while investment is an important factor in a nation's GDP growth, even more important is greater respect for laws and contracts. The business environment, regulation and laws concerning conduct of business are important for companies to thrive.

Next, the results also indicated that real interest rate has a significant negative effect on profitability of banks as measured using return on assets. This effect is due to the fact that interest rates influence business borrowing. Accepting deposits from surplus units and lending to deficit units is the primary business of banks. Revenue from interest from loans is the chief revenue source of banks. In times of rising interest rates, businesses often need to take out loans to make up for investments and shortfalls in payroll or other expenses, so higher interest rates make such shortfalls more costly, since the businesses will have to pay more interest back to bank lenders. Companies also frequently take out longer term debt for improvements and infrastructure. The higher the prevailing interest rates, the most costly taking on debt and therefore the less likely businesses will be able to commit the funds to such projects. Rising interest rate thus make lesser and lesser businesses and individuals to take loans from banks which thus reduces revenues that banks get from loan interest. This therefore affects profitability of banks negatively. The study results further indicated that a unit increase in interest rates would lead to a 12.93% decrease in ROA of banks.

Another important impact interest rates have on businesses is in business strategy. At the most basic level, the goal of all businesses is to make profit. Therefore, every venture a business makes must be thoroughly analyzed for its ultimate prospects at bringing in profit, and how those prospects compare to other possible sources of revenue. Rising interest rates tend to make new ventures less attractive and they make repayments of loans more costly since banks in a rising interest rate economy offer loans on adjustable rates. This makes loan repayments expensive and can lead to an increase in non-performing loans. This therefore can have a detrimental impact on loan repayments and revenue from loan interest. This eventually affects profitability of the bank.

The study established that foreign exchange rate for Kenya shilling against US dollar had a significant positive effect on performance of banks. The study results suggests that a unit increase in exchange rate of Kenya shilling against US dollar would lead to a 7.47% increase in return on assets. This can be explained by many factors. First, currency fluctuations enter directly into the import price, producer price and Consumer Price Index (CPI). Exchange rate movements are transmitted to domestic prices through three channels. First is through prices of imported consumption goods, exchange rate movement affects domestic prices directly. Second is through prices of imported intermediate goods, exchange rate movement affects production cost of domestically produced goods. Third is through prices of domestic goods priced in foreign currency. The extent to which those changes are reflected in the consumer price index (CPI) depends on the share of imports in the consumption basket. If depreciation results in higher prices for imported goods, demand for domestic goods that compete with imports will increase. As demand rises, there will be upward pressure on domestic prices and nominal wages. Rising wages will exert further upward pressure on domestic prices. Depreciation of the exchange rate can only offer protection to domestic industry when the domestic cost of production increases much less than the rate of depreciation, while prices of imported equivalent increases by the full amount of the depreciation. A depreciation of the currency can in this case lead to improved performance of local industry. Further, rise in exchange rate but in a well controlled macroeconomic policy environment can lead to foreign currency gains by commercial banks which are incorporated in their income statements to improve on their performance.

SUMMARY OF EFFECT OF MACROECONOMIC VARIABLES ON PROFITABILITY OF BANKS

The study results indicated that economic growth (real GDP) has an insignificant positive effect on bank profitability at 5 % level of significance. The findings of insignificant positive relationship between bank profitability (ROA) and economic growth (real GDP) in Kenya with Equity bank

limited in focus is consistent with the findings of Rao and Lakew (2012), Ramadan et al., (2011) and Ongore (2013). These previous researchers established that economic growth measured using Real GDP did not have any significant influence on profitability of commercial banks. However, all these previous studies had established a positive influence of real GDP growth rate on profitability of banks though the effect was insignificant. These study findings also agree with results from a study by Scott and Arias (2011) who studied profitability of five largest banks in United States. They proved that GDP did not directly affect the profit level of US banking sector. Hoffmann (2011) used GMM and pooled OLS estimation approach to study US banks. The final result of both regression models indicates no considerable relationship which is consistent with findings from this study.

However, a study by Sufian (2011) analyzed 11-29 Korean commercial banks during year 1992-2003. Linear regression results revealed negative impact of Gross Domestic Product (GDP) on Return on Assets (ROA). This finding disagrees with findings from this study. Davydenko (2011) used fixed effects estimation technique and proved that GDP has a positive relationship with ROA of Ukrainian banks. Saksonova and Solovjova (2011) performed comparative analysis of five largest Latvian commercial banks during period of economic crises. GDP growth had positive contribution to ROA. Though these studies have similar results with the current study on positive effect of GDP on profitability, they disagree with the current study on the significance of that effect since these two studies found a significant positive relationship.

The second objective of the study was to determine the effect of real interest rates on profitability of listed commercial banks in Kenya. The study established that real interest rates had a negative and significant effect on profitability of listed commercial banks in Kenya. These findings are in contrast with findings from a study by Kanwal and Nadeem (2013) who established that there was a strong positive relationship of real interest rate with ROA. The study further established that the effect of real interest rate on profitability of commercial banks was negligible. Otherwise, the bloated interest expense will eat away at its profits. The current study also does not concur with findings from a study by Ngumo (2012). Ngumo (2012) sought to establish the effect of the lending interest rates on the financial profitability of SACCOs in Kenya. The study confirmed that the financial profitability of SACCOs is not affected by the changes in the commercial lending interest rates as set by the Central Bank. This is because the realized Net Interest Income (NII), Net Operating Income (NOI as well as Return on Equity (ROI) for the sampled SACCOS did not increase or decrease with an increase or decrease of the lending interest rates. However, the current study findings agree with findings by Sangmi and Tabassum (2010) who observed that rise in interest rates is related to lower profits, lower cash inflows and a higher required rate of return for investors which all translate into depressed

fair value for the company's stock. Moreover, if interest rate costs shoot up to such a level that companies have problems paying off their debt, then their survival may be threatened. This negatively affects performance of all companies in the economy. The findings from this study also agree with findings from a study by Ongore and Kusa (2013). The study had established that interest rates had significant negative relationship with financial profitability of commercial banks in Kenya. It had -0.055, -0.0291, -0.0412 coefficients of parameters with ROA, ROE and Net Interest Margin (NIM) with 95%, 90% and 95% significance level respectively. This relationship was negative indicating that rise interest rates affected profitability of commercial banks negatively.

The third objective of the study was to establish effect of exchange rate on commercial banks' profitability in Kenya with a focus on the banks that are listed in the NSE. Study results indicate that exchange rate has a significant positive effect on bank profitability at 5 % level of significance. The results are inconsistent with the findings of Babazadeh and Farrokhnejad (2012) who had established that depreciation of local currencies as compared to foreign currencies had a negative effect on profitability of local companies. The results also disagree with findings from a study by Bartram and Karolyi (2006). Bartram and Karolyi assessed the exposure of a large sample of non-financial firms in 18 European countries, the USA and Japan and found only small exposure of firms in these countries in relation to the exchange rate indices. This indicated that change in exchange rates had minimal effect on profitability and value of these companies. The findings however agree with results from a study by Muriuki (2013). Muriuki (2013) studied the effect of foreign exchange rate fluctuation on the financial profitability of listed companies in Kenya. The study concluded that unrealized foreign exchange gains and losses had an effect on the net income of listed companies as it was posted to either income statement or owners' equity. The study also found that there had been significant percentage growth in imports and exports for firms listed in the Nairobi Securities Exchange. The study further concluded that changes in foreign exchange has an effect on import costs and accounts payables, export revenues and accounts receivables with the net effect on the net income of the companies. Generally, the study findings agree with theory of production by Koutsoyianis (2003). The findings revealed that processes of commercial banks in Kenya are affected by various factors some of them macroeconomic in nature e.g. exchange rate changes.

CONCLUSION

The present study aimed at establishing the effect of macro-economic variables on profitability of quoted commercial banks in Kenya. The macroeconomic variables that were considered in this study included real GDP, real interest rates and exchange rate (US dollar/Kenya shilling).

Profitability is an important criterion to measure the performance of banks, especially in the changing environment of banking. To examine the effect of macroeconomic variables on commercial bank profitability in Kenya, panel data method (fixed effects model) was applied to data which was obtained from 10 banks' financial statements from 2001 to 2012.

The study concludes that though real GDP indicates the economic growth of the country, its increase does not have a significant effect on profitability of commercial banks. Annual real GDP growth rate is a measure of total economic activity and it is adjusted for inflation. It is expected to have an impact on numerous factors related to the demand and supply for banks deposits and loans. GDP growth is expected to have a significant positive relation on bank profitability. In this context, the study established a positive influence but the influence was insignificant.

Secondly, the study concludes that real interest rates have a significant negative influence of profitability of quoted commercial banks in Kenya. This indicates that a rise in real interest rates results to reduction in bank profitability and vice versa. Rise in interest rates could cause loans to be expensive thus reducing loan demand and eventually affecting interest revenue to banks. Further, rise in interest rates causes rise in loan repayments which can increase default rates by bank customers which negatively affects profitability.

Lastly, the study concludes that rise in exchange rate influences a rise in bank profitability (ROA). As the value of the Kenya shilling against the US dollar decreases, it has a positive impact on the exports of the country. This helps to boost up the exports of the country. While due to the decrease in the value of Kenya shilling, the imports become dearer and expensive for the country which lowers unnecessary imports to the country. Further rise in exchange rate would mean an increase in foreign exchange earnings and gains by banks which improves their profitability.

RECOMMENDATIONS

The following recommendations are made. First, though real GDP growth does not have a significant effect on bank profitability, the government and regulatory agencies should ensure that this important macroeconomic variable is well managed as its growth would fuel growth in various sectors of the economy. The growth of the various sectors of the economy brought about by the economic growth would have a multiplier effect which would eventually cause big leaps in the country's growth and growth of its various industries.

Secondly, rise in interest rates should be managed by applying effective policies and measures by the central bank. Banks also should have effective measures to manage interest rate risks so that their profitability is not affected adversely. Interest rate risk exists in an

interest-bearing asset, such as a loan or a bond, due to the possibility of a change in the asset's value resulting from the variability of interest rates. Interest rate risk management has become very important, and assorted instruments have been developed to deal with interest rate risk. Banks and the central bank should make use of these instruments and policies to ensure that rise in interest rates are well managed.

Lastly, though rise in exchange rate was associated with increase in bank profitability in this study, is a fact that a fast depreciating local currency can create instability within other macroeconomic variables. This necessitates the efforts by the Central Bank of Kenya which is the pivot monetary authority in Kenya to put in place different measures at stabilizing the local currency. The Central Bank of Kenya need to do a lot in the area of exchange rate and foreign exchange market management with a view to achieving a realistic exchange rate that will aid economic growth and achieve a relative stability in the value of the Kenya shilling against the dollar. However, banks should also have in place risk mitigating strategies to counter foreign exchange fluctuations.

REFERENCES

- Babazadeh, M. & Farrokhnejad, F. (2012). Effects of Short-run and Long-run Changes in Foreign Exchange Rates on Banks' Profit. *International Journal of Business and Management*. 7 (17), 18 – 33.
- Baltagi, B. H. (2008). *Econometric Analysis of Panel Data* (Fourth ed.). Chichester: John Wiley & Sons.
- Bartram, S. M. and Karolyi, G. A. (2006). The Impact of the Introduction Of The Euro On Foreign Exchange Rate Risk Exposures. *Journal of Empirical Finance*, 13 (4-5), 519-549.
- Ben Naceur, S. and Goaid, M. (2008), "The Determinants Of Commercial Bank Interest Margin And profitability : evidence from Tunisia", *Frontiers in Finance and Economics*, Vol. 5 No. 1, pp. 106-30.
- Dang, U. (2011). The CAMEL Rating System In Banking Supervision: a Case Study of Arcada University of Applied Sciences, International Business. *International Journal of Economics and Financial Issues*, Vol. 3, No. 1, 2013, pp.237-252.
- Doidge, C., Griffin, J., Williamson, R. (2006). Measuring The Economic Importance Of Exchange Rate Exposure. *Journal of Empirical Finance*, 13, 550-576.
- Flamini, C., Valentina C., McDonald, G., Liliana, S. (2009). *The Determinants Of Commercial Bank profitability In Sub-Saharan Africa*. IMF Working Paper.
- Gul, S., Faiza, I., Khalid, Z. (2011). Factors Affecting Bank profitability In Pakistan. *The Romanian Economic Journal*, 2(3), 6-9.
- Haron, S. (2004). Determinants of Islamic Bank Profitability. *Global Journal of Finance and Economics*. 1 (1), 4 – 13.
- Heffernan, S. and Fu, M. (2008), "The Determinants Of Bank Profitability In China", *Working Paper Series* (WP-EMG-03-2008), Cass Business School, City University, London.+
- Joseph, N. L. (2002). Modelling The Impacts of Interest Rate And Exchange Rate Changes On UK Stock Returns. *Derivatives Use, Trading and Regulation*, 7, 306-323.
- Kanwal, S. and Nadeem, M. (2013). The Impact of Macroeconomic Variables On The profitability Of Listed Commercial Banks In Pakistan. *European Journal of Business and Social Sciences*, 2 (9), 186-201.

- Khrawish, H.A. (2011) Determinants of Commercial Banks Profitability: Evidence from Jordan. *International Research Journal of Finance and Economics*, 5(5), 19-45.
- Kimani, D. K. and Mutuku, C. M. (2013). Inflation Dynamics On The Overall Stock Market Profitability: *The Case of Nairobi Securities Exchange in Kenya*. *Economics and Finance Review*, 2 (11), 01 – 11.
- Koutsoyiannis, A. (2003). *Modern Microeconomics* (2nd ed.). London: Macmillan Press Ltd.
- Muriuki, T. G. (2013). *The Effect Of Foreign Exchange Rate Fluctuation On The Financial Profitability Of Listed Companies In Kenya*. An MBA project, University of Nairobi.
- Olweny, T., Shipho, T.M. (2011) Effects Of Banking Sectoral Factors On The profitability Of Commercial Banks In Kenya. *Economics and Finance Review*, 1(5), 1-30.
- Ongore, V. O. (2013). Determinants of Financial Performance of Commercial Banks in Kenya. *International Journal of Economics and Financial Issues*, 3 (1), 237- 252.
- Ongore, V. O. and Kusa, G. B. (2013). Determinants Of Financial Profitability Of Commercial Banks In Kenya. *International Journal of Economics and Financial Issues*, 3 (1), 237-252.
- Otuori, O. H. (2013). Influence of exchange rate determinants on the performance of commercial banks in Kenya. *European Journal of Management Sciences and Economics*, 1(2), 86-98.
- Ramadan, I. Z., Kilani, Q. A. & Kaddumi, T. A. (2009). Determinants of Bank Profitability: Evidence from Jordan. *International Journal of Academic Research*, 3 (4), 76 – 89.
- Rao, K, R, M. & Lakew, T, B. (2012). Determinants of Profitability of Commercial Banks in A Developing Country: Evidence from Ethiopia. *International Journal of Accounting and Financial Management Research*, 2 (3), 1-20.
- Sangmi, M., Tabassum, N. (2010). *Analyzing Financial Profitability Of Commercial Banks In India: Application of CAMEL Model*. *Pakistan Journal Commercial Social Sciences*.
- Staikouras, C. and Wood, G. (2003). The Determinants Of Bank profitability In Europe. *Paper presented at the European Applied Business Research Conference*, Venice, Italy, 9-13 June.
- Sufian, F. & Kamarudin, F. (2012). Bank-specific and Macroeconomic Determinants of Profitability of Bangladesh's Commercial Banks. *Bangladesh Development Studies*, 35, (4), 196 – 215.
- Wen, W. (2010) *Ownership Structure and Banking Profitability: New Evidence in China*. Universitat Autònoma de Barcelona Departament D'economia de L'empresa, 2010.
- Williams, B. (2003). Domestic And International Determinants Of Bank Profits: foreign banks in Australia. *Journal of Banking & Finance*, Vol. 27 No. 6, pp. 1185-210.