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THE INFLUENCE OF FOREIGN EXCHANGE RATE FLUCTUATIONS ON THE FINANCIAL PERFORMANCE OF COMMERCIAL BANKS LISTED AT THE NAIROBI SECURITIES EXCHANGE

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ABSTRACT: *A foreign exchange rate is the price at which one currency may be converted into another. An exchange rate is an important aspect in a nation's international trade, balance of payments and overall economic performance. This paper is based on a study that sought to understand the relationship and effects of foreign exchange liberalization on financial performance of commercial banks listed in Kenya's Nairobi Securities Exchange. The study used a time series correlation research design with the target population being all commercial banks that are listed in the Nairobi Securities Exchange between 2006 and 2013. Data was sourced from the Central Bank of Kenya and published yearly accounts of listed banks. The study used multivariate Linear Regressions to establish the relationship between foreign exchange rate fluctuations, inflation rates, interest rates and bank performance indicators. Pearson product moment correlation (r) was applied to establish the relationship between the variables. The study found that there existed a strong positive relationship between foreign exchange rates and financial performance indicators. The positive relationship between exchange rate and financial performance may reflect how fluctuating and volatile exchange rate may have contributed to the growth of profitability of banks. The study recommends that the Government should put up more measures to increase the country's exports*.

KEYWORDS: Foreign Exchange Rate Fluctuations, Financial Performance, Commercial Banks, Nairobi Securities Exchange

INTRODUCTION

Foreign exchange generally refers to foreign currency. Foreign exchange may also entail assets denominated in foreign currencies. Foreign assets that can be used to serve the functions of foreign money, i.e. a medium of international payments or exchange, medium of deferred payments for international transactions and a liquid store of internationally usable wealth, constitute foreign exchange. Foreign exchange exists because countries have to trade goods, services and savings (Pugel, 2007). For example, when a Kenyan coffee manufacturer exports coffee to a buyer in the USA, the Kenyan exporter receives payment for his/her export in US dollars (US$). Therefore, for the Kenyan exporter is to use the US$ income in Kenya, he/she has to sell the US$ proceeds in exchange for the Kenyan currency. Similarly, Kenyan importers have to buy currencies of the exporting countries for payments to suppliers in those countries.

Accordingly, any foreign receipts to a country involve supply of foreign currencies in exchange for domestic currency. On the other hand, any payments to foreign countries involve purchase or demand for foreign currencies by paying in domestic currency. In addition, certain parties or currency traders undertake dealings, i.e. buying and selling, in foreign currencies seeking various kinds of financial gain (Anyafo, 1996). Major foreign currencies such as the US dollar

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(US$), UK Sterling Pounds, Japanese Yen and the Euro are used in foreign exchange since international transactions are mainly handled in such major currencies. Foreign exchanges are, therefore, the methods and instruments used to adjust the payment of debts between two nations that employ different currency systems. In a typical foreign exchange transaction, a party purchases some quantity of one currency by paying with some quantity of another currency (Anyafo, 1999). The rate of exchange is the price in local currency of one unit of foreign currency and is determined by the relative supply and demand of the currencies in the foreign exchange market. Buying or selling of foreign currency in order to profit from sudden changes in the rate of exchange is known as arbitrage.

Transactions in the foreign exchange constitute an important aspect of financial sector activities and arguably it is the largest and most extensive financial market in the world (Anyafo, 1999). This is because apart from being the vehicle for settlement of international transactions, it functions as the medium of interaction between sellers and buyers of foreign exchange in a bid to negotiate a mutually acceptable price for the promotion and furtherance of international transactions (Ani, Ugwunta & Okanya, 2013). The financial sector is hugely affected by activities in the foreign exchange market primarily because of the central role of banks in financial intermediation. Furthermore the peculiarity of the Kenyan economy makes exchange rate management critical to the overall well-being of the economy.

A foreign exchange rate is the price at which one currency may be converted into another. An exchange rate is an important aspect in a nation's international trade, balance of payments and overall economic performance. An exchange rate is referred to as nominal exchange rate when inflation effects are embodied in the rate and as the real exchange rate when inflation influences have not been factored in the rate (Pugel, 2007). There are fixed and floating exchange rate systems. Fixed exchange rates are meant to be fixed for a specified period of time. On the other hand, floating exchange rates move up and down from year to year, week to week, and minute by minute (Clark, Tamirisa & Shang-Jin, 2004). Under a fixed exchange rate regime, the rise and fall of the exchange rate are referred to as exchange rate devaluation and exchange rate revaluation (Sadoulet & Janvry, 1995). Nevertheless, fixed exchange rates are frequently devalued or revalued, implying that they can change over time and may also be volatile. A wide variety of factors influence the exchange rate, such as interest rates, inflation and the state of politics and the economy in each country (Pugel, 2007).

LITERATURE REVIEW

Bergen (2010) has examined the factors that influence exchange rates and found that interest rates, inflation and exchange rates are all highly correlated. According to Bergen (2010), by manipulating interest rates, central banks can exert influence over both inflation and exchange rates, and changing interest rates impact inflation and currency values. Higher interest rates offer lenders in an economy a higher return relative to other countries. Therefore, higher interest rates attract foreign capital and cause the exchange rate to rise. The impact of higher interest rates is mitigated, however, if inflation in the country is much higher than in others, or if additional factors serve to drive the currency down. The opposite relationship exists for decreasing interest rates, that is, lower interest rates tend to decrease exchange rates.

Karfakis and Kim (1995), using Australian exchange rate data, have found that unexpected current account deficit is associated with exchange rate depreciation, and a rise in interest rates.

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Research evidence lend credence to the fact that current account deficits diminish domestic wealth, and may lead to overshooting of exchange rates. A fall in the real value of currency has also been reported by Obstfeld and Rogoff (1995), Engel and Flood (1985) and Dornbusch and Fisher (2003). There has also been a surge and collapse in international capital flows into developing countries in the recent decades. Sudden outflow of capital is another major concern when it can drastically affect exchange rates as has been witnessed during several financial crises of Brazil, East Asia and Mexico. These capital outflows affect domestic output, real exchange rates, capital and current account balances for years after the crises. As a general rule, a country with a consistently lower inflation rate exhibits a rising currency value, as its purchasing power increases relative to other currencies. During the last half of the twentieth century, the countries with low inflation included Japan, Germany and Switzerland, while the US and Canada achieved low inflation only later. Those countries with higher inflation typically see depreciation in their currency in relation to the currencies of their trading partners. This is also usually accompanied by higher interest rates (Bergen, 2010).

According to Solnik (2000), the balance of payments approach was the first approach for economic modelling of the exchange rate. The approach tracks all of the financial flows across a country's borders during a given period. All financial transactions are treated as a credit and the final balance must be zero. Types of international transactions include: international trade, payment for service, income received, foreign direct investment, portfolio investments, short- and long-term capital flows and the sale of currency reserves by the central bank. A ratio comparing export prices to import prices, the terms of trade, is related to current accounts and the balance of payments. If the price of a country's exports rises by a greater rate than that of its imports, its terms of trade have favourably improved. Increasing terms of trade show greater demand for the country's exports. This, in turn, results in rising revenues from exports, which provides increased demand for the country's currency (and an increase in the currency's value). If the price of exports rises by a smaller rate than that of its imports, the currency's value will decrease in relation to its trading partners (Solnik, 2000).

Ani *et al.* (2013) have investigated the effect of foreign exchange reforms on financial deepening in Nigeria and found that foreign exchange reforms in Nigeria do not have the desired positive effect on the depth of the Nigerian financial sector. They argue that financial liberalization can have strong positive effects on economic performance. This implies that after the prescribed exchange rate reforms, the domestic economy has failed to experience impressive performance such as a stable exchange rate capable of attracting foreign investment or halt capital flight. Nigeria's currency has consistently failed to measure up in terms of value appreciation with other currencies in the international market. Generally, their findings suggest that reforms in the financial services sector generate tremendous financial booms and busts in the short-run, but these booms and busts have not intensified in the long-run. According to Ani *et al.* (2013), evidence from the non-spurious regression results suggest that foreign exchange reforms in Nigeria do not have the desired positive effect on the depth of the Nigerian financial sector. It is strongly argued that financial liberalization can have strong positive effects on economic performance.

Owoeye and Ogunmakin (2013), using two proxies for bank performance (loan loss to total advances ratio and capital deposit ratio), have examined the impact of unstable exchange rate on bank performance in Nigeria. Their specified models suggest that the impact of exchange rate on bank performance is sensitive to the type of proxy used to capture bank performance. Loan loss to total advance ratio shows that fluctuating exchange rate may affect the ability of

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lenders to manage loans resulting in high levels of bad loans while capital deposit ratio does not have significant relationship with exchange rate.

Baliamoune-Lutz (2006) has also explored the long-run linkages and short-run dynamics between financial liberalization reforms and domestic savings mobilization in Morocco over the period 1960 to 1999 using a vector error correction model approach. The author found financial depth to be positively related to private savings whereas increase in real rates of interest was negatively related. This implies that effectiveness of financial intermediation as a result of financial liberalization does not directly affect savings but instead influences the volume of intermediation significantly. The study found savings to have stable relationship with financial liberalization in the long run although the influence of interest rate is still negative. This implies that in the long-run income effect is dominant.

FOREIGN EXCHANGE AND THEORY

International Fisher Effect Theory

This model was developed by Irving Fisher in his book *The Theory of Interest* (1930). It uses market interest rates rather than inflation rates to explain why exchange rates change over time. The International Fisher Effect states that exchange rates changes are balanced out by interest rate changes. The Fisher theory simply argues that real interest rates across countries are equal due to the possibility of arbitrage opportunities between financial markets which generally occurs in the form of capital flows. Real interest rate equality implies that the country with the higher interest rate should also have a higher inflation rate which, in turn, makes the real value of the country's currency decrease over time. The relationship between relative interest rates and foreign exchange rates is explained within the interest rate theory of exchange rate expectations. Nominal interest rate differentials between two countries tend to reflect exchange rate fluctuations. If the international Fisher effect holds, interest rates in appreciating currencies tend to be low enough, and in depreciating currencies high enough, to offset expected currency gains and losses.

The International Fisher Effect (IFE) theory suggests that foreign currencies with relatively high interest rates will tend to depreciate because the high nominal interest rates reflect expected rate of inflation (Madura, 2012). Does the interest rate differential actually help predict future currency movement? Available evidence is mixed as in the case of PPP theory. In the long-run, a relationship between interest rate differentials and subsequent changes in spot exchange rate seems to exist but with considerable deviations in the short-run (Hill, 2004). The International Fisher Effect is known for not being a good predictor of short-run changes in spot exchange rates. One of Fisher's greatest contributions to the field of economics was explaining the relationship between inflation and the real and nominal interest rates. This relationship is known as the Fisher Effect.

The Fisher Effect states that an increase in the growth rate of the money supply will result in an increase in inflation and an increase in the nominal interest rate, which will match the increase in the inflation rate. This Fisher Effect helps explain why inflation may not be seen affecting the real interest rate in the long-run. In order for real interest rates not to be effected by inflation, the nominal interest rate must mimic the changes in the inflation rate. If inflation

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increases by 2%, nominal interest rates must increase by 2%. This keeps the real interest rate unchanged because the increase in the nominal rate and the increase in the inflation rate cancel out any effect on the real interest rate. Fisher shows that expected changes in asset prices have no effect on the economy unexpected changes might have an effect. He also make the argument that in the long-run expected and actual inflation will be equal.

The Balassa-Samuelson Model and External Debt (B-S)

The standard version of the Balassa-Samuelson model was developed by Obstfeld and Rogoff in 1996 and is presented using a single-factor aggregate production function. The model is one of the cornerstones of the traditional theory of the real equilibrium exchange rate. The key empirical observation underlying the model is that countries with higher productivity in tradable compared with non-tradable tend to have high price levels. The B-S model hypothesis states that productivity gains in the tradable sector allow real wages to increase commensurately and, since wages are assumed to link the tradable to the non-tradable sector, wages and prices also increase in the non-tradable sector. This leads to an increase in the overall price level in the economy, which in turn results in an appreciation of the real exchange rate.

The Balassa-Samuelson (B-S) hypothesis implies that countries with rapidly expanding economies should tend to have more rapidly appreciating exchange rates. Conventional econometric tests have found mixed results for the predictions of the B-S effect. In total, since it was (re)discovered in 1964, according to Tica and Druzic (2006), the B-S theory has been tested 60 times in 98 countries in time series or panel analyses and in 142 countries in cross-country analyses. In these analyzed estimates, country specific B-S coefficients have been estimated 166 times in total, and at least once for 65 different countries. Moreover, one should bear in mind that a lot of papers have been published since then. Mohsen and Abm (2005) and Egert, Halpern and McDonald (2006) also provide quite interesting surveys of empirical evidence on B-S effect.

Over time, the testing of the B-S model has evolved quite dramatically. Panel data and time series techniques have crowded out old cross-section tests, demand side and terms of trade variables have emerged as explanatory variables, new econometric methodologies have replaced old ones, and recent improvements with endogenous tradability have provided direction for future researchers. The sector approach combined with panel data analysis and/or co-integration has become a benchmark for empirical tests. Consensus has been reached on the testing of internal and external HBS effects (vis-a-vis a numeraire country) with a strong reservation against the purchasing power parity assumption in the tradable sector.

Analysis of empirical data shows that the vast majority of the evidence supports the HB-S model. A deeper analysis of the empirical evidence shows that the strength of the results is strongly influenced by the nature of the tests and set of countries analyzed. Almost all cross-section tests confirm the model, while panel data results confirm the model for the majority of countries included in the tests. Although some negative results have been found, there has been strong support for the predictions of a between relative productivity and relative prices within a country and between countries, while the interpretation of evidence for co-integration between real exchange rate and relative productivity has been much more controversial.

The shortcomings of the Balassa-Samuelson model are clear. First, it assumes that the tradable price at home is the same as that abroad. This is clearly an unrealistic special form of PPP, but for tradable goods only. For example, the Balassa-Samuelson model argues that a rise in the

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productivity rate in the home country relative to a foreign country can lead to a real appreciation of the home currency against the foreign currency. Under this setting, the manner in which the prices of tradable is determined remains unknown. It is quite clear that at no single point can two goods be the same price in two different countries since other factors may influence the price of that commodity. Second, since it says nothing about the demand side, the B-S model is criticized by the Keynesian school, which regards price to be rigid or sticky. Third, without considering the behaviour of consumers, or the demand side, it is difficult to interpret how market prices are formed. Last and most importantly, this model does not deal with the role of money; it can at best explain partly how the real exchange rate is determined (Holub & Cihak, 2003; Kanamori & Zhao, 2006).

Statement of the Problem

Following the liberalization of the foreign exchange market, Kenya attained monetary independence to control inflationary pressures. The recurring policy objective in Kenya has been to maintain an exchange rate that will ensure international competitiveness while at the same time keep the domestic rate of inflation at low levels, conduct a strict monetary stance and maintain a positive real interest rate. The objective of liberalizing the foreign exchange market was to allow the market forces of demand and supply to determine the price of buying and selling currencies.

Despite Kenya liberalizing its foreign exchange market, it lost the nominal anchor to tie domestic prices down and thus globalization effects are transmitted directly into the country. This is characterized by the volatility of the exchange rate, and also the spread between buying and selling rates of the foreign currency. A large spread indicates the existence of arbitrage opportunities that encourages speculators to buy more currencies cheaply and sell them dearly. The management of commercial banks needs to know with precision how the foreign exchange market is affecting their financial performance, since the exchange rate is quite volatile. Could it be that foreign exchange reforms have a negative influence on the financial performance of banks?

Most studies done have mainly focused on the effects of foreign exchange on domestic savings in Kenya, and a limited number of studies has explored the relationship between foreign exchange liberalization on financial performance of commercial banks in Kenya. Mwega *et al.* (1990) and Bundi (2013) have found that financial liberalization does not have an effect on domestic savings in Kenya. The study that informed this paper, therefore, sought to fill the knowledge gap and establish the relationship and effect of foreign exchange liberalization and financial performance of commercial banks listed in Kenya. This paper examines the relationship between foreign exchange rate fluctuations and the financial performance of commercial banks listed in Nairobi Securities Exchange.

MATERIALS AND METHODS

The study was sought to establish the influence of foreign exchange liberalization on financial performance of commercial banks that are listed in Kenya. As such, the study used a descriptive time series correlation research design. The target population for the study was all commercial banks that had been listed in the Nairobi Securities Exchange for a period of eight years, i.e. 2006 to 2013. There were ten banks listed in the Nairobi securities exchange in Kenya at the

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time. A census was used to establish the sample size, which comprised was all the ten commercial banks listed on the Nairobi Securities Exchange.

The research instrument that the researcher used for data collection was a documents analysis guide. There were two document analysis guides, one was used to collect data from the central Bank of Kenya and the second was used to collect data from the Kenya National Bureau of statistics to establish the exchange rates, inflation rates and interest rates at the end of each of the eight years. Data on foreign exchange rates, interest rates and inflation rates was extracted from published audited financial statements for performance indicators and the Central Bank of Kenya and the Kenya National Bureau of Statistics based on the research objectives.

Secondary data from the audited financial statements of the commercial banks' reports was reviewed for completeness and consistency and subjected to statistical analysis. The study focused on five key variables. The dependent variable was measured using return on equity, return on capital employed and earnings per share (to measure financial performance of commercial banks). Foreign exchange liberalization was measured using the independent variables, i.e. foreign exchange rates, inflation rates and interest rates. A regression analysis was conducted to establish the effect of foreign exchange liberalization on the financial performance of commercial banks in Kenya. The processed data was presented using tables, graphs and explanations provided. The researcher used multivariate linear regressions to establish the relationship between foreign exchange rate fluctuations, inflation rates, interest rates and bank performance indicators. Pearson product moment correlation (r) was applied to establish the relationship between foreign exchange rates spread, inflation rates, interest rates and bank performance indicators of return on capital employed, return on equity and earnings per share.

RESULTS

The exchange rate had an average minimum of Ksh 67.47 and an average maximum of Ksh 92.1 for the eight years studied with a mean of Ksh 78.69 with a standard deviation of Ksh 6.94. The return on capital employed had a minimum of 3.24% on all banks and a maximum of 50.11% for the period of eight years with a mean of 27.63% and a standard deviation of 10.7%. EPS had a minimum of Ksh 0 (one bank had an EPS of Ksh -0.22) and a maximum of Ksh 32.83 with a mean of Ksh 6.15 and a standard deviation of Ksh 6.68. The results of the descriptive statistics on the exchange rate were as shown in Table 1 below.

Table 1: Exchange Rate and Performance of Banks

	N	Minimum	Maximum	Mean	Std. Deviation
ROCE	80	3.24	50.11	27.6296	10.71194
ROE	80	0.18	34.23	19.7957	7.56229
EPS	80	0.00	32.83	6.1510	6.67886
Exchange Rate	80	67.47	92.10	78.6881	6.93771

Correlation Analysis

The study sought to determine the effect of foreign exchange liberalization on the financial performance of commercial banks listed in Kenya. To do this, the authors conducted a correlation analysis to measure the strength between the variables in the study. The study sought to establish the relationship between foreign exchange rate fluctuations and the

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financial performance of commercial banks listed at the NSE. The results on the relationship between foreign exchange rate and return on capital employed were as shown in the table below.

Table 2: Correlation between Exchange Rate and Financial Performance of Banks

		Exchange Rate	ROCE	ROE	EPS
Exchange Rate	Pearson Correlation	1	0.260*	0.251*	0.065
	Sig. (2-tailed)		0.020	0.024	0.569
	N	80	80	80	80
ROCE	Pearson Correlation	0.260*	1	0.940**	0.297**
	Sig. (2-tailed)	0.020		0.000	0.007
	N	80	80	80	80
ROE	Pearson Correlation	0.251*	0.940**	1	0.271*
	Sig. (2-tailed)	0.024	0.000		0.015
	N	80	80	80	80
EPS	Pearson Correlation	0.065	0.297**	0.271*	1
	Sig. (2-tailed)	0.569	0.007	0.015	
	N	80	80	80	80

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

Source: Authors, 2015

From the figures in the table above, it is evident that exchange rate has a significant positive correlation with ROCE having 0.26 and ROE of 0.251. The correlation between EPS and foreign exchange is positive and not significant at 0.065.

Tests of Coefficients for Foreign Exchange

The regression model in table below shows that for every unit change in the exchange rate there is an increase of 0.209 in the return on capital employed by commercial banks listed in Kenya.

Table 3: Table for Tests of Coefficients having ROCE as Dependent Variable

Coefficients[a]					
Model	**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
	B	**Std. Error**	**Beta**		
(Constant)	6.468	13.831		0.468	0.641
Exchange Rate	0.209	0.288	0.131	0.727	0.469
Interest Rate	0.111	0.783	0.023	0.141	0.888
Inflation Rate	-0.141	0.344	-0.063	-0.408	0.684

a. Dependent Variable: ROCE

Source: Authors, 2015

The regression model that was obtained from the results of the analysis was as follows:

$$ROCE = 6.468 + 0.209X_1 + 0.111X_2 - 0.141X_3$$

The regression model in table above indicates that a one unit change in the exchange rate leads to an increase of 0.209 in the return on capital employed of commercial banks listed in Kenya.

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Table 4: Table for tests of Coefficients having ROE as Dependent Variable

Coefficients[b]					
Model	**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
	B	**Std. Error**	**Beta**		
(Constant)	13.723	12.892		1.065	0.290
Exchange Rate	0.092	0.203	0.081	0.452	0.653
Interest Rate	0.071	0.553	0.021	0.128	0.899
Inflation Rate	-0.189	0.243	-0.121	-0.779	0.439
b. Dependent Variable: ROE					

Source: Authors, 2015

The regression model that was obtained from the results of the analysis was as follows:

$$ROE = 13.723 + 0.092X_1 + 0.071X_2 – 0.189X_3$$

The regression model in table above shows that a one unit change in the exchange rate leads to an increase of 0.092 in the return on equity of commercial banks listed in NSE in Kenya.

Table 5: Table for tests of coefficients having EPS as dependent variable

Coefficients[c]						
Model		**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
		B	**Std. Error**	**Beta**		
1	(Constant)	3.462	11.373		0.304	0.762
	Exchange Rate	-0.044	0.179	-0.045	-0.248	0.805
	Interest Rate	0.554	0.488	0.187	1.135	0.260
	Inflation Rate	-0.209	0.214	-0.151	-0.974	0.333
c. Dependent Variable: EPS						

Source: Authors, 2015

The regression model that was obtained from the results of the analysis was as follows:

$$EPS = 3.462 – 0.044X_1 + 0.554X_2 – 0.209X_3$$

The regression model in table above demonstrates that a one unit change in the exchange rate leads to a decrease of 0.044 in the earnings per share of commercial banks listed in Kenya's NSE.

DISCUSSION

The empirical results suggest that the exchange rate has a positive coefficient on ROCE and ROE of commercial banks in Kenya. This is interpreted to mean that a one unit change in the exchange rate leads to an increase of 0.209 in the ROCE and 0.092 in the ROE of commercial banks listed in Kenya's Nairobi Securities Exchange. This is in agreement with the study findings by Ling, Fayman and Michael (2014) on the impact of foreign currency fluctuations on bank profitability in the USA. Ling *et al.* (2014) conclude that the rise in the value of the

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US dollars versus various baskets of foreign currencies will enhance the earnings of US based institutions in the future quarter.

Similarly the research finding concurred with those of Obidike, Ejeh and Ugwuegbe (2015), on the impact of interest rate spread on the performance of Nigerian banking industry, who observe that exchange rate is positively and significantly affecting bank performance in Nigeria at the long-run. The research results further agree with the findings of Mbithi (2012) who, in a study of the effect of foreign exchange rates on the financial performance of firms listed at the Nairobi Securities Exchange, reveals that there is an effect in the company's financial performance as a result of dealing with foreign exchange in the normal business operations.

CONCLUSION AND RECOMMENDATIONS

The research findings of research question one found that foreign exchange rate had a strong positive effect on bank's financial performance in Kenya. The positive relationship between exchange rate and financial performance may reflect how fluctuating and volatile exchange rate may have contributed to the growth of profitability of banks. This may be attributed to the fact that many imports are paid by the locals using the dollar and, with the shilling weakening against the dollar, the banks are making an arbitrage profit.

Based on the findings and conclusion of the study, the study recommends that the issues related to foreign exchange trading should always be taken into account in efforts to improve banks' foreign exchange transactions and financial performance. The study further recommends that the Government should put in place more measures to increase the country's exports as this will go a long way in improving the performance of commercial banks in Kenya.

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