



**THE EFFECT OF FOREIGN EXCHANGE RISK MANAGEMENT TECHNIQUES ON  
THE FINANCIAL PERFORMANCE OF COMMERCIAL BANKS IN KENYA**

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**Abstract**

Since the abolishment of the fixed exchange rate system and the replacement with a floating exchange rate system, exchange rate fluctuation has been a great concern to organizations, banks and even investors. In the recent past, we have seen the penetration of local banks in foreign markets as well as penetration of foreign banks in to the local markets. This exposes them to risks associated with dealing in foreign currency and the risks have to be managed. The study thus sorts to find out the effects of the foreign exchange risk management techniques on the financial performance of commercial banks in Kenya.

To achieve the objectives the data was collected from the population of 39 out of 43 banks registered in Kenya due to data availability. Data collected was both primary and secondary. Primary data was collected by use of questionnaires that were administered to the individuals in managerial positions. The secondary data was collected using schedule. Each of the commercial banks was served with two close-ended questionnaires.

The study found that use of financial derivatives had a significant influence on the performance of commercial banks in Kenya. Particularly options, swaps and forwards were all found to have positive effect on the performance of commercial banks in Kenya. The study therefore recommended the use of financial derivatives by commercial banks to hedge against foreign exchange risk fluctuations.

**Keywords:** *Bank performance, foreign currency swap, foreign currency option and foreign currency forward*

## INTRODUCTION

Exchange rate fluctuations have been a big concern to investors, analyst, managers and shareholders since the abolishment of the fixed exchange rate system of Bretton Woods in 1971. This system was replaced by a floating rates system in which the price of currencies is determined by supply and demand of money. Given the frequent changes of supply and demand influenced by numerous external factors, this new system is responsible for currency fluctuations (Abor, 2005). The exchange rate fluctuations expose companies to foreign exchange risk. Additionally, economies are getting more open with international trading constantly increasing and as a result companies become more exposed to foreign exchange rate fluctuations. A foreign exchange exposure is the sensitivity of changes in the real domestic currency value of assets liabilities or operating incomes to unanticipated changes in exchange rate. Generally, there are three types of foreign exchange risk exposed to companies: accounting (translation) exposure, transaction (commitment) exposure and economic (operational, competitive or cash flow) exposure (Shaheen, 2013). The effect of foreign exchange fluctuations has been a global concern as many companies today operate internationally. Firms in various sectors and in different countries used diverse foreign exchange risk management techniques.

In a study in the United States on the best techniques in foreign exchange risk management, Wallace (2004) established that the foreign exchange risk management techniques were in two categories: external and internal. External techniques were outlined as foreign exchange forwards, foreign exchange futures, currency futures, currency options, currency swaps and cross-currency swaps. On the other hand, the internal techniques were outlined as netting, prepayment, leading and lagging, long-term structural changes, price adjustments and Asset Liability Management (ALM).

Most the studies conducted globally by various researchers found that some hedging techniques were considered by most banks to be the more important than others. These included the use of forward contracts and foreign currency options as hedging instruments, use of matching/natural hedging strategy and preference of selective hedging strategy instead of hedging all positions immediately. The Kenyan banking sector has seen developments in legal and regulatory framework through the operationalizing of the Proceeds of Crime and Anti-Money Laundering Act in 2009, issuance of guidelines in agency banking, and rolling out of the credit information sharing mechanism. The sector has continued to grow in assets, deposits, profitability and innovation of products and their offerings. The strategy of expanding the branch network, both

within Kenya and in the greater East African region, automation of service needs and globalization challenges has enhanced the growth. The Kenyan banking sectors' continued expansion into the East African region will foster its growth momentum. Equally, the sector is expected to play a pivotal role in financing initiatives key to propel Kenya to a middle-income country as envisaged in the Vision 2030 (CBK, 2014). However, commercial banks venture into East African market exposes them more to foreign exchange risks.

### **Statement of the problem**

Exchange rate fluctuations affect operating cash flows and firm value through translation, transaction, and economic effects of exchange rate risk exposure. Income based on fair values reflects income volatility more than historical cost-based income. In the banking industry, international transactions have increased tremendously (Giddy and Dufey, 2007). These transactions are affected by the change in exchange rates of currencies involved. In addition, various local commercial banks in Kenya have of late opened branches in other countries in East African region. There is therefore need to understand how various foreign exchange risk management techniques influence the performance of commercial banks. There is also need to understand the outcome of using each of these techniques and which one has a greater impact on the financial performance of these institutions.

### **Objectives of the study**

The general objective of this study was to investigate the effect of external foreign exchange risk management techniques on the financial performance of commercial banks in Kenya.

### **Specific objectives**

1. To establish the effect of foreign currency swap on the financial performance of commercial banks in Kenya
2. To find out the effect of foreign currency options on the financial performance of commercial banks in Kenya
3. To determine the effect of foreign currency forward contracts on the financial performance of commercial banks in Kenya

## **THEORETICAL REVIEW**

This study adopted three theories related to foreign exchange risk management, which include purchasing power parity, international fisher effect theory and the unbiased forward rate 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 balance out by interest rate changes (Giddy, 2007). The Fisher theory simply argues that real interest rates across countries were 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.

### **Purchasing Power Parity theory**

The Purchasing Power Parity (PPP) was first developed by the Swedish economist Gustav Cassel in 1920s to examine the relationship between the exchange rates of different countries. The PPP holds if and when exchange rates move to offset the inflation rate differentials between two countries. The PPP is also defined as the basis of the "law of one price" which asserts that the exchange rate between two currencies should be equal to the ratio of the price level of identical goods and services in the two countries (Jiang *et al.*, 2015). The Purchasing Power Parity (PPP) theorem explains the relationship between relative prices of goods and exchange rates. The PPP theorem propounds that under a floating exchange regime, a relative change in purchasing power parity for any pair of currency calculated as a price ratio of traded goods would tend to be approximated by a change in the equilibrium rate of exchange between these two currencies.

### **The Unbiased Forward Rate Theory**

The Unbiased Forward Rate Theory asserts that the forward exchange rate is the best and an unbiased estimate of the expected future spot exchange rate. The theory is grounded in the efficient markets theory, and is widely assumed and widely disputed as a precise explanation. The "expected" rate is only an average but the theory of efficient markets tells us that it is an unbiased expectation--that there is an equal probability of the actual rate being above or below the expected value (Baillie and McMahon, 1989).

## **Performance of commercial banks in Kenya**

Firm performance is a multidimensional construct that consists of four elements (Limo, 2014). Customer-focused performance, including customer satisfaction, and product or service performance; financial and market performance, including revenue, profits, market position, cash-to-cash cycle time, and earnings per share; human resource performance, including employee satisfaction; and organizational effectiveness, including time to market, level of innovation, and production and supply chain flexibility (Omagwa, 2005). Consistent with the theoretical foundations in the capabilities and resource-based perspectives, it is argued that organizational capabilities are rent generating assets, and they enable firms to earn above-normal returns.

The banks in Kenya and also globally measures financial performance on how well a firm is generating value for the owners. It can be measured through various financial measures such as profit after tax, return on assets (ROA), return on equity (ROE), earnings per share and any market value ration that is generally accepted. Generally, the financial performance of banks and other financial institutions has been measured using a combination of financial ratios analysis, benchmarking, measuring performance against budget or a mix of these methodologies (Shaheen, 2013).

## **Critique of Existing Literature**

Although there are many studies conducted on foreign risk management techniques, these studies have been conducted in other countries which differ from Kenya in terms of economic, social, political, legal and business environmental factors. Basically firms operate under different environmental which differs by various factors. For instance, the findings of Dhanani (2003) study on foreign exchange risk management in the mining industry in the United Kingdom and study on foreign exchange risk management techniques by Jordanian nonfinancial firms cannot be generalized to Kenya. This is because Jordan and United Kingdom differ from Kenya in terms of the legal framework, monetary policies, social economic factors and business environmental factors. In Kenya, the study conducted by Mwangi (2013) on the effect of foreign exchange risk management on financial performance was limited to microfinance institutions in Kenya. Microfinance institutions and commercial banks in Kenya operate under different legal framework and policies and hence the findings of the study cannot be generalized to commercial banks in Kenya. Further, the study conducted by Ngari (2011) conducted a study on the effect of foreign exchange exposure on a firm's financial performance in Listed Companies in Kenya.

However, this study was limited to foreign exchange exposure and hence did not focus on foreign exchange risk management techniques. In addition, the study focused on companies listed in Nairobi Security Exchange.

### Research Gaps

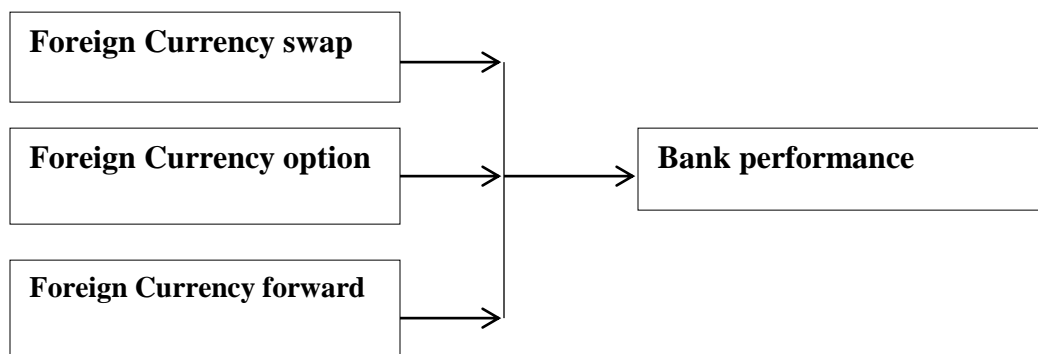
In the recent past, Kenya has experienced a high foreign exchange volatility which has subsequently led to an increase in the lending interest rate by the central bank. Since all the commercial banks in Kenya operate locally and internationally, the fluctuation of the foreign exchange rate may negatively influence their performance and hence needs to be managed. Despite the importance of foreign risk management techniques in commercial banks in Kenya, there is no empirical evidence showing how various foreign risk management techniques used by commercial banks in Kenya influence their financial performance. Studies conducted in this area have focused on other sectors, companies NSE and non-financial firms and hence their findings cannot be generalized to commercial banks in Kenya.

### Conceptual framework

A conceptual framework is a graphical or diagrammatic representation of the relationship existing between two or more variables in a study (Mugenda and Mugenda, 2003).

#### Independent variables

#### Dependent variable



In this study, the conceptual framework was based on three (3) independent variables that were presumed to financial performance of banks in Kenya. The variables include; foreign currency swap, foreign currency option, foreign currency forward. Bank financial performance was measured in terms of return on assets, earning per share, dividend yield and income after tax.

## RESEARCH METHODOLOGY

A descriptive research design was applied for this study. The target population for this study was a total of 43 banks in Kenya. Out of the 43 licensed commercial banks only 39 banks had secondary data that was accessible, so they were the mostly targeted. Primary data was collected by use of both structured and unstructured questions in the questionnaire. A total of 60 questionnaires were collected back from the respondents and used to analyze the findings. Data collected was analyzed with the help of the Statistical Packages for Social Sciences (SPSS) package. Linear regression model ( $Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \varepsilon$ ) was used to establish the relationship between determinants of capital structure and performance.

## RESEARCH FINDINGS AND DISCUSSION

**Table 1 External foreign exchange risk management on financial performance of banks**

Opinion	Frequency	percent
Neutral	13	21.7
Agreed	31	51.7
Strongly Agreed	16	26.7
Total	60	100.0

Table 1 presents the respondent response over the question regarding the effect of external foreign exchange risk management on financial performance of banks. 22 per cent of the respondents were Neutral about the effect of foreign exchange risk management on financial performance. As a component of the total, 52 % of the respondent Agreed to the statement that the use of foreign exchange risk management influences financial performance. 27 % of the respondents strongly Agreed with the statement that the use of foreign exchange risk management affects financial performance of banks. None of the respondent disagreed or strongly disagreed with the statement. The results imply that the majority of the respondents were of the opinion that in real the adoption of the external foreign exchange risk management practices such as currency swaps, currency options and forwards have led to the growth of financial performance in banks.

### Effects of foreign currency swap on financial performance

The researcher wanted to identify the relationship between firm size and the capital structure of the firm. Pearson correlation test was used to identify the strength of the relationship. Table 2 illustrated the results.

**Table 2 Relationship between foreign currency swap and financial performance.**

		<b>Currency swaps</b>	<b>Bank performance</b>	<b>Financial</b>
<b>Size</b>	Pearson Correlation	1	-.28**	
	Sig. (2-tailed)		.012	
	N	60	60	
<b>Capital structure</b>	Pearson Correlation	-.28**	1	
	Sig. (2-tailed)	.012		
	N	60	60	

The correlation represented in the Table 4.2 is negative, and the value of -0.28 is significantly different from 0 because the p-value of 0.012 is less than 0.10. The results therefore indicated that foreign currency swaps be incorporated with other factors in order to influence banks financial performance. Foreign currency swaps can be relied upon in determine the financial performance of banks but the results will be very little to make informed decisions.

### **Effects of foreign currency options on financial performance**

To determine the relationship between foreign currency options and financial performance of the banks, a correlation test was established and table 3 had the summary of the results.

**Table 3 Relationship between foreign currency options and financial performance**

		<b>Currency option</b>	<b>Bank performance</b>	<b>Financial</b>
<b>Size</b>	Pearson Correlation	1	-.025**	
	Sig. (2-tailed)		.020	
	N	60	60	
<b>Capital structure</b>	Pearson Correlation	-.25**	1	
	Sig. (2-tailed)	.020		
	N	60	60	



The correlation represented in the table 3 is negative, and the value of – 0.25 is significantly different from 0 because the p-value of 0.020 is less than 0.10. The results therefore indicated that foreign currency options must be considered with other factors in the firm in order to influence the financial performance of the banks. Foreign currency options alone influence financial performance of the banks to a certain extent and therefore cannot be relied upon in determining the overall performance of banks in Kenya.

### Effects of foreign currency forward on financial performance

To determine the relationship between foreign currency forward and financial performance of banks, a correlation test was established and table 4 had the summary of the results.

**Table 4 Relationship between foreign currency forward and financial performance**

		<b>Currency forward</b>	<b>Bank performance</b>	<b>Financial</b>
<b>Size</b>	Pearson Correlation	1	.96**	
	Sig. (2-tailed)		.622	
	N	60	60	
<b>Capital structure</b>	Pearson Correlation	.96**	1	
	Sig. (2-tailed)	.622		
	N	60	60	

The correlation reported in the table 4 is positive and significantly different from 0 because the p-value of 0.62 is greater than 0.10. This suggests that the banks should to some extent focus on foreign currency forward in determining financial performance.

### Secondary Data Analysis

**Table 4 Effect of Derivatives On Roa**

Variable	Coefficient	Standard error	t-statistic	p-value
Option	0.3370	0.1309	2.5739	0.012
Swaps	0.3320	0.1345	2.4686	0.000
Forward	0.04097	0.1194	0.3411	0.732
Intercept	-5.485	1.0287	-5.3322	0.000

F-statistic = 125.38

Probability of F = 0.0000

R-squared=0.728

Adjusted R-squared=0.709

The regression model is as follows:

$$Y = -5.485 + 0.3370 X_1 + 0.3320X_2 + 0.04097X_3 + \varepsilon$$

Standard Error	1.0287	0.1309	0.1345	0.1194
t-Statistics	-5.322	2.5739	2.4686	0.3411
p-value	0.0000	0.012	0.0000	0.7320

Where: Y = Return on Assets, X1 = Option, X2 = Swaps, X3 = Forward,  $\varepsilon$  = Error Term

Table 4.20 presents the results for secondary data. The dependent variable is the return on assets (ROA). Currency Options had the highest influence on bank performance of 0.3370. The implication is that a unit increase in use of Currency Options increases return on assets by 0.3370 unit. Use of Currency Swaps has the second most influence on bank performance of 0.3320. The implication is that a unit increase in use of currency options increases return on assets by 0.3370 units. The effect of forward on bank performance was found to be 0.04097. This value was not statistically significant, but the variable had the same positive effect as the other variables on bank performance. The implication from the overall model is that, the increase in the use of the financial derivatives help to manage the foreign currency risk exposure. The model was found to have a F-statistic that was statistically significant. The model also has an adjusted R-squared of 70.9%, which imply that, the variables included in the model explain only 70.9% of the variation in bank performance. The remaining 29.1% is explained by other variables. These findings are similar to those of Mugi (2014), Gideon (2013), Luyali and Mouni (2014), Omagwa (2005) ,Limo (2014) who found a positive relationship between performance and use of currency option, currency swaps and currency forwards in Kenya financial institutions.

**Table 5. Effect of Derivatives on Eps**

Variable	Coefficient	Standard error	t-statistic	p-value
Option	0.2870	0.1009	2.8444	0.012
Swaps	0.2520	0.0845	2.9822	0.020
Forward	0.0909	0.0694	1.3098	0.622
Intercept	-4.205	1.062	-3.9595	0.000

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F-statistic = 115.38  
Probability of F = 0.0000      R-squared=0.682      Adjusted R-squared=0.670

The regression model is as follows:

$$Y = -4.205 + 0.2870 X_1 + 0.2520X_2 + 0.0909X_3 + \varepsilon$$

Standard Error	1.062	0.1009	0.0845	0.0694
t-Statistics	-3.9595	2.8444	2.9822	1.3098
p-value	0.0000	0.012	0.020	0.622

Where: Y = Earnings per share, X1 = Option, X2 = Swaps, X3 = Forward, ε = Error Term

Table 5 presents the results for secondary data. The dependent variable is the earnings per share (EPS). Currency Options had the highest influence on bank performance of 0.2870. The implication is that a unit increase in use of Currency Options increases earnings per share by 0.2870 unit. Use of Currency Swaps has the second most influence on bank performance of 0.2520. The implication is that a unit increase in use of currency options increases return on assets by 0.2570 units. The effect of forward on bank performance was found to be 0.09090. This value was not statistically significant, but the variable had the same positive effect as the other variables on bank performance. The implication from the overall model is that, the increase in the use of the financial derivatives help to manage the foreign currency risk exposure. The model was found to have a F-statistic that was statistically significant. The model also has an adjusted R-squared of 67.70%, which imply that, the variables included in the model explain only 67.70% of the variation in bank performance. The remaining 32.3% is explained by other variables. These findings are similar to those of Mugi (2014), Gideon (2013), Luyali and Mouni (2014), Omagwa (2005) ,Limo (2014) who found a positive relationship between performance and use of option, swaps and forwards in Kenya financial institutions.

**Table 6. Effect of Derivatives on Dy**

Variable	Coefficient	Standard error	t-statistic	p-value
Option	0.2452	0.0709	3.4584	0.018
Swaps	0.2030	0.0675	3.001	0.000
Forward	0.0708	0.1026	0.6900	0.612
Intercept	-7.333	1.040	-7.0510	0.000

F-statistic = 119.38  
Probability of F = 0.0000      R-squared=0.65      Adjusted R-squared=0.64

The regression model is as follows:

$$Y = -7.333 + 0.2452X_1 + 0.2030X_2 + 0.0708X_3 + \varepsilon$$

Standard Error	1.040	0.0709	0.0675	0.1026
t-Statistics	-7.0510	3.4584	3.001	0.6900

p-value      0.0000      0.018      0.0000      0.612

Where: Y = Dividend Yield, X1 = Option, X2 = Swaps, X3 = Forward, ε = Error Term

Table 4.3 presents the results for secondary data. The dependent variable is the dividend yield (DY). Currency Options had the highest influence on bank performance of 0.2452. The implication is that a unit increase in use of Currency Options increases return on assets by 0.2452 unit. Use of Currency Swaps has the second most influence on bank performance of 0.2030. The implication is that a unit increase in use of currency options increases return on assets by 0.2030 units. The effect of forward on bank performance was found to be 0.0708. This value was not statistically significant, but the variable had the same positive effect as the other variables on bank performance. The implication from the overall model is that, the increase in the use of the financial derivatives help to manage the foreign currency risk exposure. The model was found to have a F-statistic that was statistically significant. The model also has an adjusted R-squared of 64%, which imply that, the variables included in the model explain only 64% of the variation in bank performance. The remaining 36% is explained by other variables. These findings are similar to those of Mugi (2014), Gideon (2013), Luyali and Mouni (2014), Omagwa (2005), Limo (2014) who found a positive relationship between performance and use of option, swaps and forwards in Kenya financial institutions.

**Table 7. Effect of Derivatives on Iatax**

Variable	Coefficient	Standard error	t-statistic	p-value
Option	0.2419	0.0609	3.9721	0.016
Swaps	0.2130	0.0745	2.8591	0.000
Forward	0.0308	0.094	0.3277	0.527
Intercept	-3.501	1.027	-3.4090	0.000

F-statistic = 96.38  
Probability of F = 0.0000      R-squared=0.69      Adjusted R-squared=0.682

The regression model is as follows:

$$Y = -3501 + 0.2419 X_1 + 0.2130X_2 + 0.0308X_3 + \varepsilon$$

Standard Error	1.027	0.0609	0.0745	0.094
t-Statistics	-3.9721	2.5739	2.8591	0.3277
p-value	0.0000	0.016	0.0000	0.527

Where: Y = income after tax, X1 = Option, X2 = Swaps, X3 = Forward, ε = Error Term

Table 4.4 presents the results for secondary data. The dependent variable is the income after tax. Currency Options had the highest influence on bank performance of 0.2419. The implication is that a unit increase in use of Currency Options increases return on assets by 0.2419 unit. Use of Currency Swaps has the second most influence on bank performance of 0.2130. The implication is that a unit increase in use of currency options increases return on assets by 0.2130 units. The effect of forward on bank performance was found to be 0.0308. This value was not statistically significant, but the variable had the same positive effect as the other variables on bank performance. The implication from the overall model is that, the increase in the use of the financial derivatives help to manage the foreign currency risk exposure. The model was found to have a F-statistic of 96.38 that was statistically significant. The model also had an adjusted R-squared of 68.2%, which implies that the variables included in the model explain only 68.2% of the variation in bank performance. The remaining 31.8 % is explained by other variables. These findings are similar to those of Mugi (2014), Gideon (2013), Luyali and Mouni (2014), Omagwa (2005),Limo (2014) who found a positive relationship between performance and use of option, swaps and forwards in Kenya financial institutions.

### **Summary of the findings**

The general objective of this study was to investigate the effect of external foreign exchange risk management techniques on the financial performance of commercial banks in Kenya.

The study was guided by the following specific objectives; To establish the effect of foreign currency swap on the financial performance of commercial banks in Kenya; To find out the effect of foreign currency options on the financial performance of commercial banks in Kenya and To determine the effect of foreign currency forward contracts on the financial performance of commercial banks in Kenya.

Among the variables tested, foreign options were found to have the highest effect on bank performance. This variable had the same effects on the different measures of financial performance. The finding revealed that currency options are a key risk management technique or derivative used in risk management by commercial banks in Kenya. The effect of the variable support earlier findings such as those of Limo (2014), Omagwa (2005), (Mugi, 2004) and Luyali and Mouni (2014), who found a positive and statistically significant effect of option on bank performance in Kenya. Currency was found to have the second highest effect on bank performance. This variable had the same effects on the different measures of financial

performance. The finding revealed that currency swaps are a key risk management technique or derivative used in risk management by commercial banks in Kenya. Currency forward was found to have the least effect on bank performance. This variable had the same effects on the different measures of financial performance. The finding revealed that currency forward are a key risk management technique or derivative used in risk management by commercial banks in Kenya. The effect of the variable in the regression model did not have statistically effect on financial performance for all the measures. Never the less the little effect contribution had a positive sign. Given the economic rationale and practical implication the variable was not dropped from the model.

### **Conclusion**

The researcher concluded that in Kenya the performance of the banking industry is affected by the use of financial derivatives to hedge against risk management. Different factors were found to have different effect on the bank performance. The results were supported by the findings of earlier researchers in Kenya and globally.

### **Recommendation**

The study recommends the use different financial derivatives to eliminate the risk that affect the financial performance of commercial banks. The central bank should ensure that the fluctuation in the exchange is under check. The central bank should also share information with the banks on the changes that are taking place in the currency exchange market to help them mitigate the risk exposure. The finding that the use currency options had a positive effect on the bank performance revealed the need by the managers to consider this financial derivative when setting techniques for managing risks associated with currency exchange fluctuations.

### **Area for further research**

This research recommend that future researchers focus on other methods of risk management techniques such as netting, prepayment, leading and lagging, long-term structural changes, price adjustments and asset liability management (ALM) which are internal to the firm. In extension since the models explained only 71%, 67%, 64% and 68% of the variation in bank performance, future research should be extended to try and explain the remaining percentages for each of the model that was unexplained by the included variables in the research.

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