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

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ABSTRACT

This study sought to investigate the effect of foreign exchange risk management practices on the financial performance of commercial banks in Kenya. The research used a descriptive survey research design. The descriptive survey method was preferred because it ensured complete description of the situation making sure that there is minimum bias in the collection of data. The target population comprised of the forty three (43) commercial banks in Kenya from year 2009 to 2014. Census approach was used in the study. The study made use of secondary data. Data that was collected from the study sorted, edited and corded to have the required quality and accuracy. It was then entered into SPSS for generation of frequency tables, charts, correlations and regressions which was help in the analysis. The findings showed that the mean of Forward Contracts is relatively high as compared to other variables while Cross – Currency Swaps had the highest standard deviation. Options had the highest correlation and were positively correlated with Rate of return. Cross Currency Swaps and forward contracts were also highly and positively correlated with Rate of return. From the regression equation the study concluded that a unit increase in forward contracts, cross-currency swaps and options would lead to improvement on return on assets. The study recommends that; foreign exchange risk management should always be taken in to account to improve the banks return on assets and hence overall performance of the banks. Policy makers should undertake to understand risk affecting the foreign exchange markets among commercial banks to improve capital investments to maximize returns of the banks hence overall performance.

Keywords: *Forward Contracts, Cross –Currency Swaps, Options, Financial Performance*

INTRODUCTION

Foreign exchange risk is the exposure of a company's financial strength to the potential impact of movements in foreign exchange rates. The risk is that adverse fluctuations in exchange rates may result in a reduction in measures of financial strength. Companies dealing in multiple currencies face a risk (an unanticipated gain/loss) on account of sudden/unanticipated changes in exchange rates, quantified in terms of exposures. Exposure is defined as a contracted, projected or contingent cash flow whose magnitude is not certain at the moment and depends on the value of the foreign exchange rates. Kothari (2011), states that the process of identifying risks faced by the firm and implementing the process of protection from these risks by financial or operational hedging is defined as exchange risk management.

Foreign exchange rate risk practice is an integral part in every banks decision about foreign currency exposure (Allayannis 2001). Currency risk hedging strategies entail eliminating or reducing this risk, and require understanding of both the ways that the exchange rate risk could affect the operations of economic agents and techniques to deal with the consequent risk implications (Barton, Shenkir, and Walker, 2002). Selecting the appropriate hedging strategy is often a daunting task due to the complexities involved in measuring accurately current risk exposure and deciding on the appropriate degree of risk exposure that ought to be covered. The need for currency risk management started to arise after the break down of the Bretton Woods system and the end of the U.S. dollar peg to gold in 1973 (Papaioannou, 2001).

The issue of currency risk practices for non-financial and financial firms is independent from their core business and is usually dealt by their corporate treasuries. Most multinational firms have also risk committees to oversee the treasury's strategy in managing the exchange rate risk (Lam, 2003). This shows the importance that firms put on risk management issues and techniques. Any entity involved in foreign exchange dealings is exposed to three foreign exchange risks namely Translation exposure, Transaction exposure and Economic exposure. The concept of translation exposure arises from the need to translate accounts that are denominated in foreign currencies into the local currency. It is the risk that a company's equities, assets, liabilities or income will change in value as a result of exchange rate changes. This occurs when a firm denominates a portion of its equities, assets, liabilities, or income in a foreign currency.

Foreign exchange risk refers to the likelihood that unexpected change in exchange rates will alter the home currency value if foreign currency cash payment and receipts are expected from a foreign source. For instance, a sudden depreciation of the Kenyan Shillings against the USD can increase the cost of servicing an obligation especially for business whose input resources are imported. Taggert and McDermott (2000) assert that forex related firms are subject to foreign exchange risk on the payables and receipts in foreign currencies. They define foreign exchange risk practices as a program of assessment (identification and quantification) and counterstrategies to mitigate exchange rate risk and save firm`s economic value. Kirt further adds foreign exchange risk is a financial risk to manage value creation and loss prevention in a firm by internal and external financial tools. According to Featherson, Littlefield and Mwangi (2006), foreign exchange risk arises when fluctuation in the relative values of currencies affects the competitive position or viability of an organization. Firms are exposed to foreign exchange risk if the results of their projects depend on future exchange rates and if exchange rate changes cannot be fully anticipated. Generally, companies are exposed to, Transaction exposure, Economic exposure and Translation exposure (El-Masry, 2006; Salifu et al, 2007).

Foreign Exchange risk comes about as a disparity between the assets held by a bank and the loans that fund its balance sheet. An unexpected depreciation of the local currency against the USD can dramatically increase the cost of servicing debt relative to revenues. It can also negatively affect the creditworthiness of the bank (hence the ability to raise new funds) and even generate a negative net income, with serious consequences for the long-term financial stability of the bank (Moles, 2002). Banks are particularly vulnerable to foreign exchange rate risk, since they operate in developing countries where the risk of currency depreciation is high. It is acknowledged that specific foreign exchange risk practices may differ among banks depending upon factors such as the institution’s size, and the nature and complexity of its activities. However, a comprehensive foreign exchange risk programme should deal with, at minimum, good management information systems, contingency planning and other managerial and analytical techniques.

Kenyan commercial banks are classified into three peer groups using a weighted composite index that comprises net assets, customer deposits, capital and reserves, number of deposit accounts and number of loan accounts. A bank with a weighted composite index of 5 per cent and above is classified as a large bank. A medium bank has a weighted composite index of between 1 per cent and 5 per cent while a small bank has a weighted composite index of less

than 1 per cent. The combined market share of banks in large peer group is 49.9 per cent, banks in medium peer group hold a combined market share from 37.95 per cent and the market share of banks in small peer group is 8.4 per cent (Bank Supervision Annual Report 2014). The performance of commercial banks in Kenya is highly financial in nature. It is hence affected through low net cash flows, low sales turnover and uncertain profits due to financial exchange rate volatility in the era of globalization. The Kenyan shilling has depreciated against the US Dollar. While exchange rate fluctuation is a recurrent event, it is a challenge to acknowledge foreign exchange risk after realizing financial distress by dismal profits or loss performance.

Research Problem

Financial disasters in organizations in the recent past point out the need for risk management. Major failures in organizations including banks have occurred due to unidentified or unmitigated risks within the institutions. (Li, 2003) observes that the economic environment in which a firm operates is highly volatile and unpredictable. Increased volatility, greater dependence and new risks have made the structure of risk exposure of commercial banks and other financial institutions more complex. The volatility of foreign exchange rates and interest rates have been increasing significantly thus the necessity to have action plans in place to hedge against risk. It is however, of importance to notice that there is no "off-the-shelf" solution to all market players. Risk management has remained a controversial subject with some scholars arguing that it is not justified. Other scholars have argued that it is worthy practicing, (Leibowitz, 1996 and (Crabb, 2003). Glaum (2000) found discrepancies between academic literature and corporate risk management practices and contends that there are no clear-cut answers as to how corporate risk management should be organized.

The problems in the Kenyan banking industry emanates from their nature of target customers and the informal system of operations. The rapid increase in private sector makes foreign currency risk practices an important topic for commercial banks. A very large percentage of cross-border, fixed-income investments are denominated in foreign currencies (meaning currencies other than the currencies in which the banks are operating), leaving banks with significant foreign exchange exposure. During the recent American financial crisis, some banks that depend on foreign currency-denominated debt have suffered heavy foreign exchange losses that threaten their overall viability (Littlefield and Kneiding, 2009). Many of the standard tools used to hedge currency risk, such as futures, swaps and options contracts, are either not available in emerging markets or, where available, are traded in illiquid and

inefficient markets, making the range of products available extremely limited. This has put an extra burden on corporate treasurers to be able to find adequate hedge to their exposures in foreign currencies.

Studies done locally mainly focused on risk management practices in foreign owned banks (Omagwa, 2005), foreign exchange risk management practices in Forex Bureaus in Kenya, (Ubindi, 2006) and insurers in Kenya (Salesio, 2006). These previous studies have not related these foreign exchange risk practices to Kenyan banks' performance. The fluctuations in exchange rates tend to pose significant foreign exchange risk with increased transactions using foreign currency. Thus, the researcher sought to close the knowledge gap on the effects of foreign exchange risk management practices on the performance of commercial banks in Kenya.

Objective of the Study

- To investigate the effect of foreign exchange risk management practices on the financial performance of commercial banks in Kenya.

LITRATURE REVIEW

Theoretical Review

Interest Rate Parity Theory

The Interest Rate Parity (IRP) condition is a commonly employed technique in making exchange rates forecasts. Forecasts under this condition are made by inputting the spot exchange rates and the interest rates in the domestic and foreign countries respectively. This theory states that the interest rate differential between two countries is equal to the differential between the forward exchange rate and the spot exchange rate. Concept that any disparity in the interest rates of two countries is equalized by the movement in their currency exchange rates (Huang, 2009). Interest rate parity plays an essential role in foreign exchange markets, connecting interest rates, spot exchange rates and foreign exchange rates (Roll and Yan, 2000).

Huang (2009) has shown that the economic theory relating interest-rate differences among countries to subsequent exchange rate changes seems to have broken down. As a consequence, exchange-rate changes are no longer governed by international interest differentials. Meese and Rogoff (1983) have demonstrated that other economic theories like the purchasing power parity also add little to random walk forecasts of exchange rates, at least at horizons of less than a year. These studies all reported strong rejections of uncovered interest-rate parity. Subsequent studies have confirmed these results. There is also an active

theoretical literature, which attempts to determine if the failure of uncovered interest parity is due to risk aversion or market segmentation rather than market inefficiency. In contrast, Roll and Yan (2000) suggest that forward exchange rates are unbiased predictors of subsequent spot rates and there is really no forward premium puzzle.

Empirical Literature Review

Griffin and Stulz, (2001) found out that the effect of foreign exchange rate shocks is minimal in explaining relative US industry financial performance and is even smaller in other countries that are more open to trade. Instead, industry effects were more significant affecting trade than the cross currency exchange rates. Exchange rates have notable effects on the financial decision making of the profitability of the firm. For instances, in their efforts to minimize exchange rate risk exposures, the European union developed a uniform currency, the euro, to enable European firms to trade freely from the uncertainties of changes in relative prices resulting from exchange rate movements.

Bhatia (2004) research on mitigating foreign exchange risk for investing in microfinance institutions in developing countries found that there is a clear trade-off for investors mitigating currency risk in least developed countries in the form of contract fees for the benefit of protection against exchange rate fluctuations. The best financial instrument for investors interested in MFI`s is currency options.

Ahmed (2007) in the study realized the social role of Islamic finance examined that the bank has to create various reserves to cover various risks arising due to the nature of its assets and liabilities since it positively contributes to risk management in microfinance. Some observations and suggestions stated that risk management has become more important now and its importance will continue to grow in the future. Factors such as the increasing competition in markets and the integration of new technology into the industry further reinforce the importance of risk management in banks.

In his study, a survey of foreign exchange risk management practices in forex bureaus in Kenya, Ubindi, (2006) found out that quite a number of forex bureaus employed the conventional foreign exchange risk management practices while other forex bureaus had their own specific practices based on their views of what constitutes foreign exchange risk. He further noted that the hedging practices employed were influenced by the forex bureaus views on currency market fundamentals. The practices include forecasting, speculating and

taking individual positions in the currency markets with an aim of making financial gains and use of specific financial instruments to hedge against foreign exchange.

Boru (2011) did a study to determine the foreign exchange risk management practices by oil companies operating in Kenyan market. To achieve this objective, data was collected from the target population comprising 27 major oil companies operating in Kenyan market as listed in appendix 1 through administration of questionnaire using „drop-and-pick-later" technique. Out of 27 companies, only 20 responded representing a response rate of 74%. The study found that foreign exchange risk is the second most significant exposure to oil companies after fluctuation in global crude oil prices and therefore most of the companies find it as an important risk to manage. US Dollar is the currency to which all the oil companies are mostly exposed because importation costs are settled in this currency. It was established that all the companies practice hedging techniques. As a recommendation, oil companies should enhance their foreign exchange risk management practices by increasing the use of derivatives.

Singh (2013) did a study on the relationship between foreign exchange trading and financial performance of commercial banks in Kenya. The objective of the study was to establish the relationship between Foreign exchange trading and financial performance of commercial banks in Kenya. The study adopted a survey research design where all 42 commercial banks were the focus of the study. Data was collected from secondary sources: annual financial reports of commercial banks and foreign trading data (currency forwards and swaps, and spot trading) reported to CBK. Pearson correlation, descriptive statistics and multiple linear regression analysis were used. Thus, currency swaps, forwards and spots are significantly related with commercial banks` financial performance.

METHODOLOGY

The research used a descriptive survey research design. The target population comprised of the forty three (43) commercial banks in Kenya as at December 2014. Census approach was used in the study. The study made use of secondary data. Secondary data was collected from annual reports submitted to the CBK by the banks from the CBK website. Annual reports of the banks were analyzed for the period between 2009 and 2014, which is the study period. All the banks under study have been continually in business between 2009 and 2014 and were included to ensure that the sampling frame is current and complete. To examine the extent of influence of the independent variable on the dependent variables, the multiple linear regression analysis will be applied. The regression model is a multivariate model stating the

commercial banks Return on Assets as a function of the selected foreign exchange risk management practices.

FINDINGS

Descriptive Statistics

Table 1: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
ROA	252	-9.420	6.84	2.6814	2.8207
Forward Contracts	252	.02524	.1547	.6702	.0236
Cross – Currency Swaps	252	.0010	.5680	.0633	.08674
Options	252	.00566	.1547	.0113	.0339

Forward Contracts, Cross Currency Swaps, Options and the financial performance measure Return on Assets (ROA) were used. Their mean, maximum, minimum and standard deviation was taken in to account. From the findings, the study found that there was mean of 2.6814 for Return on Assets, 0.6702 for the forward contracts, 0.0633 for cross-currency swaps and 0.0113 for options.

Correlation

Table 2: Correlation

Correlations

		ROA	Forwards	Cross- Currency Swaps	Options
ROA	Pearson Correlation	1	.523**	.555**	.623**
	Sig. (2-tailed)		.000	.000	.000
	N	252	252	252	252
Forwards	Pearson Correlation	.523**	1	-.049	.670**
	Sig. (2-tailed)	.000		.756	.000
	N	252	252	252	252
Cross- Currency Swaps	Pearson Correlation	.555**	-.049	1	.038
	Sig. (2-tailed)	.000	.756		.808
	N	252	252	252	252
Options	Pearson Correlation	.623**	.670**	.038	1
	Sig. (2-tailed)	.000	.000	.808	
	N	252	252	252	252

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

On the correlation of the study variables, the researcher conducted a Pearson correlation. From the findings on the correlation analysis between Return on Assets and various derivatives, the study found that there was a strong positive correlation coefficient between

Return on Assets and forward contracts as shown by correlation factor of 0.523. The study also found a positive correlation between ROA and cross currency swaps as shown by correlation coefficient of 0.555. The study also found a positive correlation between ROA and options as shown by correlation coefficient of 0.623. Hence all the derivatives had a position relationship with return on assets as a measure of financial performance.

Regression Analysis

In this section the study presents the research findings on the relationship between various independent variables on the regression model and financial performance.

Table 3: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.881[a]	0.776	0.759	2.704

a. Predictors: (Constant), Options, Cross- Currency Swaps, Forwards

From the table above, R is the correlation coefficient which shows the relationship between the study variables, from the findings shown in the table above there was a strong positive relationship between the study variables as shown by R 0.881 at 5% significance level. The Adjusted R squared is coefficient of determination which tells us the variation in the dependent variable due to changes in the independent variable, from the findings in the table above the value of adjusted R squared was 0.759 an indication that there was variation of 76% on return on assets due to changes in forward contracts, cross currency swaps and options at 95% confidence interval. This is an indication that 76% of the changes in return on assets could be accounted for by the independent variables.

Table 4: ANOVA

ANOVA[a]						
Model		**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
1	Regression	261.692	3	87.231	13.733	.026[b]
	Residual	1575.264	248	6.352		
	Total	1836.956	251			

a. Dependent Variable: ROA

b. Predictors: (Constant), Options, Cross- Currency Swaps, Forwards

From the table above, the processed data, which is the population parameters, had a significance level of 2.6% which shows that the data is ideal for making a conclusion on the population's parameter as the value of significance (p-value) is less than 5%. The F critical at 5% level of significance, 3 d.f, 248 d.f was 2.6049, while F computed was 13.733, since F

calculated is greater than the F critical (value = 2.6049), this shows that the overall model was significant.

Table 5: Coefficients

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	2.951	.213		3.123	.000
Forward Contracts	4.513	.248	4.254	1.367	.027
Cross- currency swaps	4.728	.347	4.531	2.132	.037
Options	11.154	.462	10.672	2.971	.043

a. Dependent Variable: ROA

$Y = 2.951 + 4.513\ X_1 + 4.728\ X_2 + 11.154\ X_3$

From the regression equation above it was found that holding forward contracts, cross currency swaps and options to a constant zero, return on assets would be 2.951. A unit increase in forward contracts would lead to improvement on return on assets by 4.513 units. A unit increase in cross- currency swaps would lead to improvement of return on assets by 4.728 units and a unit increase in options would lead to improvement on return on assets by 11.154 units. Overall options had the greatest effect on return on assets, followed by cross currency swaps then forward contracts. At 5% level of significance and 95% level of confidence, forward contracts had a 0.027 level of significance; cross – currency swaps had a 0.037 level of significance while options had a 0.043 level of significance. All the variables were significant ($p<0.05$).

Conclusions

The findings showed that the mean of Forward Contracts is relatively high as compared to other variables while Cross – Currency Swaps had the highest standard deviation. This shows that cross – currency swaps shows had the highest variability or high volatility (Risk) in the financial performance. Options had the highest correlation and were positively correlated with Rate of return. Cross Currency Swaps and forward contracts are also highly and positively correlated with Rate of return. This implies that the foreign trading variables currency options, Forward Contracts, and Options are very crucial in determining financial performance of commercial banks in Kenya. From the regression equation the study concludes that a unit increase in forward contracts, cross- currency swaps and options would

lead to improvement on return on assets. Overall options had the greatest effect on return on assets, followed by cross currency swaps then forward contracts.

Policy Recommendations

The study sought to determine the relationship between foreign exchange risk management practices on the financial performance of commercial banks in Kenya. The study recommends that; foreign exchange risk management should always be taken in to account to improve the banks return on assets and hence overall performance of the banks.

Policy makers should undertake to understand risk affecting the foreign exchange markets among commercial banks to improve capital investments to maximize returns of the banks hence overall performance.

The study recommends that commercial banks should engage in Forex trading where the returns are highly maximized since investments in capital projects involve huge investment capital. The banks management should put structures in place so as to enhance returns on capital and assets and in turn maximize returns to the commercial banks.

REFERENCES

Abor, J. (2005). Managing foreign exchange risk among Ghanaian firms. *Journal of Risk Finance,* 6 (4)), 6-318.

Adler, C. & Dumas, F. (2010). Does Fuel Hedging Make Economic Sense? The Case of the US Airline Industry. *Financial Management,* 35, 53-86.

Ahmed, H. (2007). Waqf-Based Microfinance: Realizing the Social Role of Islamic Finance. Paper presented at the International Seminar on Integrating Awqaf in the Islamic Financial Sector

Allayannis, G. & Ofek, E. (2001). Exchange Rate Exposure, Hedging, and the Use of Foreign Currency Derivatives. *Journal of International Money and Finance,* 20 (2), 273-296.

Ankrom, J. (2007). Corporate Financing and Investment Decisions When Firms Have Information that Investors do not Have. *Journal of Financial Economics,* 13, 187-221.

Athanasoglou, P. P., Brissimis, S. N. & Delis, M. D. (2008). Bank-specific, industry- specific and macroeconomic determinants of bank profitability. International Financial Markets Institutions & Money, 18, 121-136.

Barton, T. L., Shenkir, W. G. & Walker, P. L. (2002). *Making enterprise risk management pay off*. FT Press.

Belk, P.A Glaum (1990). The management of Foreign Exchange Risk in UK Multinationals; An Empirical Investigation. Accounting and Business Research, Vol.21 (pp.3-13)

Bhatia, R. (2004). Mitigating Currency Risk for Investing in Microfinance Institutions in Developing Countries. Social Enterprise Associates. India: Springer.

Bodnar, G.M. & Richard C. (1998). A Simple Model of Foreign Exchange Exposure. *Wharton/CIBC Survey of Risk Management by US Non-Financial Firms,* 8(3), 15-20.

Boru, (2011) Foreign Exchange Risk Management by oil companies operating in Kenyan market. Unpublished MBA project

Brealey, R.A., Myers, S. C. & Allan, F. (2008). *Principles of corporate finance* (9th edition ed.), New York: McGraw-Hill.

Carter D.A, Pantzalis, C & Simkins, B.J (2003).Firm wide Risk Management of Foreign Exchange Exposure by U.S. Multinational Corporations Version of April 28, 2003.

Cooper, D. R. & Schindler P. S. (2003). International Edition: Business Research Methods . (8th ed.); New Delhi; MacGraw-Hill

Cumby, R.E. & M. Obstfeld (1981). A note on Exchange Rate Expectations- and Nominal Interest Differentials: A Test of the Fisher Hypothesis. *Journal of Finance,* 5, 697 703.

Dufey, G. & Srinivasulu, S. (2005). The Case for Corporate Management of Foreign Exchange Risk, *Financial Management*, 6, 54-62.

El-Masry, A A. (2006). Derivatives use and risk management practices by UK nonfinancial companies. Managerial Finance volume 32 number 2, pp.137-159

Featherson, S., Littlefield, E. & Mwangi, P. (2006).*Foriegn Exchange Management* .Microfinance: What is it and how can it be managed? Retrieved from http://www.cgap.org/sites/default/files/CGAP-Focus-Note-Foreign-Exchange-Rate-Risk-in-Microfinance-What-Is-It-and-How-Can-It-Be-Managed-Jan-2006.pdf Accessed October, 2009.

Glaum, M., 1990, "Strategic Management of Exchange Rate Risks". Long Range Planning 23, 4, pp. 65 – 72.

Griffin, J. M. & Stulz, R. M. (2001). International competition and exchange rate shocks: a cross-country industry analysis of stock returns. *Review of Financial Studies*, *14*(1), 215-241.

Huang, J C. & Brahmasrene, T. (2009). The effect exchange rate expectations on Market share .*Managerial* 29 (1), 55-72.

Kipchirchir, (2011). The relationship between financial performance for multinational corporations in Kenya and exchange rates volatility. Unpublished MBA project

Lee, C. (2010). Corporate diversification and firm performance. *Journal of political economy*, 102, 1248-1280.

Littlefield, E. & Kneiding, C. (2009). The global financial crisis and its impact on microfinance. *Washington, DC, CGAP Focus Note*, (52).

Madura, J. (2010). International Financial Management, 10th Edition, *South-Western College Publishing.*

Omagwa, J. (2005) Foreign Exchange Risk Management Practices Undertaken by Foreign Owned Commercial Banks in Kenya. Published MBA project

Papaioannou, M.G. (2006).Exchange Rate Risk Measurement and Management: Issues and approaches for Firms. *South-Eastern Europe Journal of Economics 129-146*

Roll, R. & Yan, S. (2000). An explanation of the forward premium „puzzle". *European Financial Management*, *6*(2), 121-148.

Salifu, Z., Osei, K A. & Adjasi, K. D. C. (2007). Foreign exchange risk exposure of listed companies in Ghana. The Journal of Risk finance,8(4), 380-393.

Saunders, Mark; Lewis, Philip et al. (2003). Research Methods for Business Students . (3rd. Ed.) Pearson Education Limited, England.

Stacy, O. M. & Williamson, R. G. (2010). Exchange rate exposure, use of foreign currency derivatives and corporate performance: a case of selected financial institutions in South Africa, University of South Africa Business School. South Africa.

Sun, T., Sundaresan, S. & Wang, C. (1993). An empirical investigation. *Journal of Financial Economics, 7,* 34-132.