EFFECT OF FOREIGN EXCHANGE RISK ON SHAREHOLDERS' WEALTH OF COMMERCIAL BANKS LISTED AT NAIROBI SECURITIES EXCHANGE, KENYA

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ABSTRACT

Shareholders' wealth is among key decisions in a firm because it has a bearing in overall investor perception and firm value. There has been concern about declining value of shareholders' wealth among commercial banks listed at the Nairobi Security Exchange (NSE). Previous studies have tried to link foreign exchange risk to shareholders' wealth. The researchers however fail to agree on the magnitude and direction of the effect. It is not established how foreign exchange risk would affect shareholders' wealth of commercial banks listed at the NSE. The objective of this study was to establish the effect of foreign exchange risk on Shareholders' wealth of Commercial Banks listed at then NSE. Descriptive research design was adopted. The target population was eleven commercial banks that had been constantly listed at the NSE from 2013-2019. A census was conducted to collect data from the eleven banks due to the smallness of the population. Data was collected using a checklist. Data was obtained from published financial statements and the Banking survey publications for seven years from 2013 to 2019. Data was analyzed using simple and multiple regression analysis with the help of SPSS version 25.0. Hypothesis was tested using t-statistic at 5% significance level. The study found that foreign exchange risk had a positive effect on shareholders' wealth (regression coefficient 4.308, p-value of 0.019). The findings suggest that a bank that invests in foreign investments yields high foreign income which will increase banks profitability resulting to increase in investors' returns in terms of capital gain and dividends. The study recommends that commercial banks ought to come up with ways of minimizing this risk.

Keywords: Foreign Exchange Risk, Shareholders' Wealth, Commercial Banks and Nairobi Security Exchange.

INTRODUCTION

Foreign exchange risk can be referred to as the uncertainty that the local currency price of net income may vary due to fluctuations in conversion rate (Bartram 2007). It can also be referred to as the changeability of a business's cash flows due to changes and conversion rate. Central Bank of Kenya provide a policy that institutions should formulate a comprehensive and responsive liquidity policy statement that takes into account all on- and off-balance sheet activities and should be recommended by senior management and approved by the board of directors (Maina,2013). Similarly, every bank must have foreign exchange risk management tools for identifying, measuring, monitoring and controlling foreign exchange risk (including the types of liquidity limits and ratios in place and rationale for establishing limits and ratios. It is a requirement that all banks should maintain a statutory minimum of twenty per cent (20%) of all its deposit liabilities, matured and short-term liabilities in liquid assets (Wambu, 2013). CBK further provides that the institution can however develop its own higher minimum liquidity ratio based on size, complexity and the risk appetite (Wambu,2013).

Operational efficiency refers to the capability of a business to reduce waste in time, energy, and resources while manufacturing goods and services of high quality (Mannino*et al.,* 2008). Operationally efficient banks employ the best strategies to curb default on loans, inability to meet short-term obligations, foreign exchange risk, and interest rate risk, increasing profits, leading to high dividend payment and capital appreciation. However, in an inefficient firm, the default rate will be increased. The organization will not be able to pay its responsibilities for less than one year, resulting in a reduction in dividend payment. In addition, net income will decrease because of fluctuations in the foreign exchange rate and interest rate, resulting in shareholders withdrawing their shares from the firm; therefore, operational efficiency alters the relationship between foreign exchange risk and shareholders' wealth.

Shareholders' wealth refers to maximizing the return to shareholders mainly through financing projects that contribute to a positive Net Present Value (NPV) (Mujahid & Abdullah, 2014). Shareholders' wealth is mainly reflected when the shareholders earn a return in dividends and capital appreciation. The more time it takes to collect a return, the lesser the worth shareholders put on that project. Additionally, investors place a lower value on projects that carry significant risk in getting returns, such as dividends. Previous studies focused on profitability and financial performance and this necessitated this study to determine the effect of foreign exchange risk on shareholders' wealth.

According to Beck *et al.* (2009), the financial system in Kenya comprises banks that act as a connection between the surplus financial elements and the deficit financial elements. A Commercial bank is a corporate entity that offers services of deposit, loans and safeguarding

customers' essential documents (Rose, 2002). Commercial banks are licensed and regulated by the Central Bank of Kenya (CBK). CBK was formed in 1966, following the dissolution of the East African Currency Board. In Kenya, the lending sector is one of the pillars of vision 2030 that can be enhanced through increased investments, the inspiration of Distant Direct savings, protection of the economy from outside shock, and driving Kenya to develop a central monetary focus in South and Eastern Africa. Banks accept deposits, give out loans, offer assurance services, and create job opportunities (Woods *et al.,* 2008). There are forty-two commercial banks in Kenya (Mwega, 2016).

According to Lin *et al*. (2011), Shareholders' wealth can be valued by book value to market value ratio, stock prices and economic value-added. This study measured shareholders' wealth using the book value to market value ratio. Tobin's Q ratio helps investors know whether a firm is undervalued so that they can purchase shares or if the firm is overvalued to sell shares (Lin *et al.,* 2011). When the ratio of book value to market value results in a value lesser than one, it implies that the market value is less than the additional cost. Thus, the organization's shares can be bought because of the low value. In contrast, if the ratio is greater than one, it implies that the organizations' earning is larger than the additional cost of the organization.

NSE report 2018 indicated that eleven commercial banks were listed in the NSE. Banks with government participation are Kenya Commercial Bank, Stanbic Bank Kenya Ltd NIC Bank, National Bank of Kenya and Housing Finance Ltd. Banks locally owned are Co-operative Bank of Kenya Ltd and Equity Bank (CBK, 2017). Therefore, it is vital to establish the influence of foreign exchange risk on shareholders' wealth listed at NSE.

According to Mwangi *et al.* (2018), listed banks benefit from economies of scale attributed to diversification due to their larger size and scale. These banks have been ranked according to their asset size. Equity Bank has the largest asset size of 158.3 billion and Housing Finance Group has the smallest asset size of 11 million. Cytonn report (2018) indicated that the number of people who can access financial institutions has increased from 59% in 2013 to 77% in 2018 due to financial awareness made by the banks. Kenya's banking sector has been undergoing consolidation, acquisitions and diversification. Banks listed at the NSE have been experiencing challenges such as asset quality deterioration, competition from SACCO'S and other microfinance institutions and consolidation due to some banks underperforming. Commercial banks are considered because listed banks have larger asset size and benefit from economies of scale attributed to diversification (Banking Survey, 2018). These listed banks are ranked according to their asset size. Equity bank has the largest asset size of sh.158.3 billion and Housing Finance Group has the lowest asset size of sh.11 million. In Kenya, 11 commercial banks listed at the Nairobi Securities Exchange (NSE) for a period ending December 2019 were

identified by the Central Bank of Kenya as important banks accounting for over two-thirds of the total banking sector in asset base and profitability.

In a study by Mbubi (2013) to investigate the impact of overseas conversion rate on performance of listed companies at the NSE ranging from 2002-2012. This research adopted descriptive examination to evaluate both theoretical and numerical information of 41 organizations. This research concluded that unrealized overseas conversion advances and losses influenced cash flow of international corporations since it was dispatched to their financial statements. The research also found that there had been major percentage change in buying goods from abroad for businesses listed in the NSE; the research therefore established that use of overseas conversion has an influence on costs of goods bought from abroad and liabilities with the result affecting the earnings of international corporations. However, Ahmed (2015) assessed the influence of overseas conversion exposure on the performance of certain listed banks in Kenya. This research embraced descriptive research plan. The study employed both data collected firsthand and data collected from financial statements. This research concluded that overseas conversion coverage negatively affects performance of listed banks at the Nairobi Securities Exchange in Kenya.

In addition, Wong (2009) examined the association concerning overseas conversion exposure and size of a bank. This research used the panel data of share worth of Chinese banks listed ranging from 2005 to 2008 to banks. From the observed findings, it suggested that an increase of the foreign exchange rates negatively affects performance, and therefore share prices of banks in China, which affects bigger banks having extra definite. This conclusion specified on reduction in share prices which indicated advanced non-payment risk. This study used Chinese banks whereas the current study used Kenyan banks to investigate whether by using a different context the results will change.

According to Gachua (2011) in his research to determine influence of overseas conversion coverage on performance of listed companies at the Nairobi Securities Exchange. Data was collected ranging from 2001 to 2010. This research adopted descriptive research plan that entailed both theoretical and numerical data. This research used 38 listed companies at Nairobi Securities Exchange but data of 32 companies was analyzed after removing ruined and uneven questionnaires. This research concluded that companies that were listed used financial statements and share prices account to keep overseas conversion changes. This research found out that unrealized overseas conversion benefits or losses had an influence on the cash flows of firms that were listed as it was displayed to both their statement of comprehensive income and shareholders' equity. Therefore, the current study aimed at evaluating how foreign exchange rate affected the shareholders' value in terms of returns to shareholders as many of the preceding empirical researches concentrated on financial performance.

In research by Ahmed (2015) to establish the influence of foreign exchange exposure on the performance of banks in Kenya, the researcher used data from financial statements and data from questionnaires and also used descriptive research design. The study found that foreign exchange risk and inflation rate negatively affects performance and interest rates did not affect performance. This research used financial performance as dependent variable whereas the current research used shareholders wealth. However, in a study by Odoyo*et al.* (2014), in their study to establish the effect of foreign exchange rates per share, they used economic theory to anchor their study. They collected data for a period of 2 years from 2012 to 2013. They used coefficient of determination to examine the extent of relationship between variables. This study also used mean, standard deviation, variance, minimum and maximum to examine information. They discovered that foreign exchange rates positively affect prices per share. Due to the divergent results the current research scrutinized the influence of foreign exchange risk on Shareholders' wealth to establish the results.

In a research by Irine (2011) to assess the relationship between foreign exchange risk and financial performance of Kenyan Airlines, the study adopted a case study design and found that currency deviations affected prices and negatively affected revenues and expenses in foreign denomination. Therefore, the study concluded that an increase in foreign exchange risk results to a decrease in financial performance. This study mainly focused on performance of Kenya Airlines while the current study used Kenyan Commercial banks to investigate whether by using a different sector the results would change.

Fu *et al.,* (2014) did a study to examine the relationship between shareholders' worth and bank competence for 274 banks in 14 Asia-Pacific markets for a period ranging 2003 to 2010, the outcome showed stock returns positively affected earnings of the banks. However, the effect of cost efficiency on shareholders' worth consumes a lot of time to be detected. These studies reveal that few studies have considered operational efficiency as an independent variable and this necessitated the current study to consider operational efficiency as a moderating variable.

Omondi and Muturi (2013) carried a study to find out the aspects influencing listed companies' financial performance at Nairobi Securities Exchange in Kenya, descriptive research design was employed. The study sampled 29 listed organizations using purposive sampling technique. Secondary data was collected from financial statements. Data was analyzed using Inferential and descriptive statistics and this study concluded that operational efficiency, leverage, company size, liquidity and company age significantly affected company's performance. These studies reveal that operational efficiency has not been used to moderate the relationship of variables and necessitated the current research to investigate how operational efficiency moderates the relationship between financial risk and shareholders' wealth of commercial banks listed at the NSE.

The objectives of the study were to investigate the effect of foreign exchange risk on shareholders' wealth of commercial banks listed at NSE and to assess the moderating effect of operational efficiency on the relationship between financial risk and shareholders' wealth of commercial banks listed at NSE. The null hypotheses were that there is no statistically significant relationship between foreign exchange risk and shareholders' wealth of commercial banks listed at NSE and that there is no statistically significant moderating effect of operational efficiency on the relationship between foreign exchange risk and shareholders' wealth of commercial banks listed at NSE.

METHODOLOGY

The study adopted descriptive research design since it facilitated in choosing and grouping of the components and features of object. The study covered all the 11 commercial banks listed at the NSE. Census technique was used since the population was small. Data was collected using a checklist. Descriptive and Inferential statistics were used to analyze data. Simple and Multiple linear regression analyses were then conducted using SPSS software version 25.0 in order to address study objective. Assumption of linear regression model of normality, multicollinearity and heteroskedasticity were tested before analyzing data.

RESULTS AND DISCUSSIONS

Diagnostic Tests

Test for Normality

Shapiro-Wilk Test and coefficient of skewness were used to test for normality (Aczel&Sounderpadian, 2002). The p-value of Shapiro Wilk Test was 0.972 which is greater than 0.05 (insignificant) hence a conclusion that the residual was normally distributed. The Skewness value was also 0.289 which is between -3 and +3 indicating that the residual of the variable was normal and unbiased.

Multicollinearity Test

Incidence and degree of multicollinearity if any was tested using Variance Inflation Factor (VIF). The VIF value was 1.025 less than 10 therefore, multicollinearity was absent. Multicollinearity may lead to wrong results due to its effect of inflating the predictor variables (Cooper & Schindler 2003).

Heteroskedasticity Test

This study used P-P plot to determine if the residuals had constant variance because they are best in the presentation of spread of residuals. The results indicated no specific pattern and the widths were neither increasing nor decreasing as the variables rise. Therefore, heteroskedasticity is absent.

Foreign Exchange Risk and Shareholders' Wealth

Foreign Exchange risk was measured in terms of et foreign currency to total assets. Operational Efficiency was measured using net income to average total assets while shareholders' wealth was measured using book value to market value of equity. Descriptive statistics such as mean, standard deviation, range, minimum and maximum for foreign exchange risk, operational efficiency and shareholders' wealth were carried out. The summary of descriptive statistics is shown in Table 1.

Table 1: Descriptive statistics

	FER	OE	SHW
Mean	0.0384	0.0293	0.5389
Range	0.0630	0.2781	0.8800
Minimum	0.0110	0.0019.	0.1100
Maximum	0.0740	0.2800	0.9900
Standard Deviation	0.0141	0.0338	0.2286

Where: FER-foreign exchange risk

OE-Operational efficiency

SHW-Shareholders' wealth

Foreign exchange risk had a mean of 0.0384, a maximum of 0.0740 and a minimum of 0.0110 which implies that banks benefit from foreign income. As shown in Table 1 above, the mean for shareholders' wealth as measured by Tobin's Q was 0.5389 for all the listed commercial banks which represents the average commercial banks shareholders' wealth. Operational Efficiency had a mean of 0.0293 and a standard deviation of 0.0338 implying less deviation from the mean showing that an increase in net income and average total assets affects the relationship between foreign exchange risk and shareholders' wealth.

Pair Wise Correlation between the Study Variables

Correlation determines the direction of a relationship between any two variables (Table 2).

Table 2: Pearson correlation between study variables

Variables	SHW	FER
SHW	1	0.266
FER	0.266	1

The results also show that foreign exchange ratio had a Pearson correlation of 0.266 and a p-value of 0.022<0.05 implying a positive and statistically significant relationship between shareholders wealth and foreign exchange ratio. This is because foreign investments are faced with fluctuations in foreign exchange rates and different rules and regulations of different countries. This suggests that an increase in foreign exchange ratio would lead to statistically significant increase in shareholders wealth.

Multiple Linear Regression

This study determined the significance of foreign exchange risk on shareholders' wealth of commercial banks listed at the NSE. A multiple linear regression was used to examine the relationship between foreign exchange risk and shareholders' wealth. A multiple linear regression analysis is represented in Table 3.

Table 3: Coefficients estimates of foreign exchange risk and shareholders' wealth

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.08	0.281		3.85	0.000
Foreign Exchange risk	3.764	1.749	0.233	2.152	0.035

R^2=0.174

Table 3 above shows that the regression coefficients of foreign exchange risk was 3.764 with a p-value of 0.035<0.05 hence foreign exchange risk had a positive and statistically significant effect on shareholders' wealth. The R^2 of the model was 0.174 indicating a model where 17.4 % of the changes in shareholders' wealth could be accounted for by foreign exchange risk, while 83.6% of the changes would be attributed to other factors not included in the study and the error term. This means a unit increase in foreign exchange risk would result to 3.764 units increase in Shareholders' wealth holding other factors constant. Therefore, the null hypothesis was rejected and this implied that there is a statistically significant relationship between foreign exchange risk and shareholders' wealth.

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The study findings suggest that a bank that invests in foreign investments yields high foreign income which will increase banks profitability resulting to increase in investors' returns in terms of capital gain and dividends. These findings are similar to those of Gachua (2011) and Mbubi (2013) whereas it differed with the study of Ahmed (2015) who found out that an increase in foreign exchange risk has a negative impact on performance. These findings show that investing in foreign market is a way of diversifying banks resources and this can lead to increase in banks cash flow thereby increasing shareholders wealth. Banks should come up with ways of diversifying their resources in order to minimize risk and maximize returns. These findings concur with modern portfolio theory which suggests that all resources should not be put in one place. A linear regression constructed to relate the variable was as follows.

$$Shareholders'\ Wealth = 1.08 + 3.764FER \ldots\ldots\ldots\ldots\ldots (3)$$

Test of the Moderating Effect

Operational efficiency was hypothesized as a moderating variable. Moderation implied an interaction effect, where introducing a moderating variable changes the direction or magnitude of the relationship between the two variables. The test of significance of the moderating variable is presented in Table 4. The results in Table 4 above show that model 1 is significant at 5% significance level without the interaction effect that it had a t-statistic of 3.765 and a p-value of $0.000 < 0.005$. Model 2 had a t-statistic of 2.348 and a p-value of $0.022 < 0.05$ also significant at 5% significance level. Model 2 accounts for more variance in the interaction between operational efficiency and foreign exchange risk. The R squared change had a p-value of $0.003 < 0.005$ indicating that there is potentially significant moderation of operational efficiency on the relationship between foreign exchange risk and shareholders' wealth. The effect of the interaction between foreign exchange risk and operational efficiency is negative. This implies that with a high level of foreign exchange risk, the shareholders' wealth will decline. Therefore, operational efficiency influences the relationship between shareholders' wealth and foreign exchange risk. Similarly, the effect of foreign exchange risk on shareholders' wealth is influenced by operational efficiency.

Table 4: Model summary

Model	Coefficients	Std error	t-statistic	p-value
Model 1				
(Constant)	0.31	0.082	3.765	0.000
OE	1.26	0.764	1.649	0.103

FER	0.499	0.183	2.731	0.008
Model 2				
(Constant)	0.201	0.086	2.348	0.022
OE	4.657	1.326	3.513	0.001
FER	0.994	0.237	4.194	0.000
OE.FER	-17.772	5.810	-3.059	0.003

R^2 for model 1=0.104. R^2 for model 2=0.206

Table 5: Anova Summary

Model	R	R^2	Adjusted R^2	F change	Sig F change
1	0.322	0.104	0.08	4.290	0.017
2	0.454	0.206	0.173	9.358	0.003

The results in table 5 above indicate that operational efficiency alters the relationship between foreign exchange risk and shareholders' wealth. The regression equation for the two models are:

Model 1 $Shareholders'\ wealth = 0.310 + 1.26OE + 0.499FER \ldots\ldots\ldots (2)$

Model 2 $Shareholders'\ wealth = 0.201 + 4.657OE + 0.994FER - 17.772OE.FER \ldots\ldots\ldots (3)$

The adjusted R^2 of the model without moderation was 0.08 whereas the adjusted R^2 of the model with interaction effect between foreign exchange risk and operational efficiency was 0.173 signifying there is an increase in the adjusted R^2. This implies that operational efficiency adds a predictive value to the model. Therefore, operational efficiency had a negative effect on the relationship between foreign exchange risk and shareholders' wealth. This implies that an increase in operational efficiency will result to a negative effect of foreign exchange risk on shareholders' wealth.

DISCUSSION

The objective of the study was to investigate the effect of foreign exchange risk on shareholders' wealth of commercial banks listed at the NSE. The finding of the study established that foreign exchange risk had a positive effect on shareholders' wealth. This implies that banks should invest in international markets since it generates more cash flows that can cater for foreign exchange rates fluctuations. Consequently, it yields higher profits and this results to increase in return to shareholders.

CONCLUSION

The study conclude that an increase in foreign exchange risk leads to an increase in shareholders' wealth. Therefore, banks should develop strategies to diversify their resources and invest in international markets because as much as foreign market is exposed to foreign exchange rates fluctuations it generates more cash flows.

RECOMMENDATIONS

Banks should come up with ways of diversifying their resources to minimize risk and maximize returns. Banks should diversify their resources into uncorrelated sectors to expand their cash flow sources to increase dividend payment and capital gain. Commercial banks should also emphasize on refining their operational efficiency to minimize financial risk to improve shareholders' wealth.

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