

Full length Research paper

An evaluation of the effect of off balance sheet risks on financial performance of commercial banks listed at Nairobi security exchange in Kenya

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The purpose of this study was to evaluate the effect of off balance sheet risks on financial performance of listed commercial banks in Kenya. The study was guided by two research objectives; to assess the effects of credit risk and market risk on financial performance of listed commercial banks. Descriptive research design was used. A sample of 10 listed commercial banks was calculated using this provided necessary financial information for analyzing each research objective. Secondary data through published financial reports were used for a period of 2014 to 2018. The study concluded that credit risk had a strong negative relationship and statically significant on financial performance. Market risk had insignificant effect on financial performance of commercial banks. The recommended that banks should manage different credit facilities.

Keywords: balance sheet risks, credit facilities, financial performance, commercial banks, market risk.

INTRODUCTION

Financial performance is important in growth of commercial banks; however, it has been affected by off balance risks not checked when reporting financial statements around the world. In history of finance and accounting, most people understand what a balance sheet is but they cannot explain the distinctions between risk associated in the companies reporting's either on the balance sheet and off the balance sheet risk items. Balance sheet was started in the 15th century by Franciscan monk Luca Pacioli, a friend of Leonardo da Vinci and his math teacher, is credited with publishing a textbook in 1494 which listed an entity's resources separate from any claim upon those resources in Northern Italy. In short, he created a balance sheet with debits and credits separated. The goal of off-balance sheet financing is to reduce or maintain a company's debt at or below a prescribed level so that its debt-to-equity ratio is low. Firms with debt financing impact profits with

those balance due to a covenant and consequently trigger a default (Partnoy, 2010).

Off balance sheet risks arise from off-balance sheet activities represented by total bank assets in large commercial banks of United States. Commercial banks regulates off Balance sheet activities since they increase banking risk when calculating risk based capital requirement. Off balance risks are also treated as contingent claims which generate banking fee income. Therefore the activities are one of the banking activities that creates portfolio risk which involves lending obligation on provisions of funds this risk does not create any change in the normal balance sheet before they are realized. The loan in the bank is given as an asset in the balance sheet where they promise to make a loan is a funding obligation to the profit of the bank. The types of risk include credit risk, and market risk (Hassan, 2017). Off-- balance sheet risks caused by an increase of off

balance sheet items of locally owned commercial banks affects the bank performance in Malaysia. OBS items increase bank revenue to a given level and then profits start to decline due to excessive growth of off balance sheet items. Off balance sheet risks are risks posed by growth rates of factors not appearing on the balance sheets such as guarantees, contingent liabilities, commitments, market related transactions, advisory, management and underwriting functions and directly affect future of organizations (Karim and Chan, 2017).

Credit risk is as a result of trading in loan commitments and letters of credit, as part of the restructuring of commercial banks in Ghana lead to increase in the efficiency and profitability of the banks due to increased income and decreased portfolio risk though it increases credit risk at some point (Jang, 2020). They further argued that the diversified portfolio reduces total risks because income from non-interest activities is not correlated or at least perfectly correlated with income from fee based activities and diversification stabilize operating income and give rise to a stable stream of profits (Deyoung, 2018).

Market risk occurs regardless of the managed interest rate risk in the balance sheet, even if the maturities of assets and liabilities are well matched. The symmetric response of loan repayments to interest rate changes generates interest rate risk (Choi & Elyasiana, 2000), Market risk activities contribute to the overall diversification of the bank portfolio risk. Since the off-balance sheet items were developed to meet the demands of corporate and commercial banks treasurers facing volatile financial markets and helping them hedging specific market risk this has led to the conclusion that increasing the scale of off-balance sheet items does not increase market risk and therefore the overall risk exposure and solvency of the bank is not affected (Hassan, 2017).

Statement of the Problem

When credit risks and market risks are managed properly they improve financial performance of commercial banks listed at NSE. Financial performance as measured by return on asset decreased from the previous year’s financial reports. Commercial banks records return on asset percentage of 2.70% in the year 2017, in the 2016 return on asset was 3.30% as compared to the year 2013 which was 4.70%. This is evidence by central bank of Kenya report 2017.

The study conducted by Mercieca *et al* (2019) examined the effect of off-balance sheet activities on performance of commercial banks listed in Istanbul stock

exchange. The study analyzed bank risk exposure, profitability, and leverage and liquidity position. The study failed to analyze off balance sheet risk in relation to market risk and credit risk on financial performance of commercial banks. Maina (2013) determined the relationship between off-balance sheet and solvency of commercial banks in Kenya. The study objectives were; to determine the relationship between liquidity, profitability, firm size risks on solvency of commercial banks.

The study used secondary data from 2008 to 2012 from 42 banks. The study employed regression analysis to determine the relationship between off-balance sheet risks and solvency of commercial banks. The study failed to apply correlation analysis which is important in data analysis of off-balance sheet risks on financial performance of commercial banks. It is against that this study shall be carried out.

This study therefore focused on the effect of off balance sheet risks on financial performance of commercial Banks listed at Nairobi security exchange in Kenya.

Objectives of the Study

General Objective

The general objective of this study was to evaluate the effect of off -balance sheet risks on financial performance of commercial banks listed at Nairobi security exchange in Kenya.

Specific Objectives

- The study used the following specific objectives;
- i. To determine the effect of credit risk on financial performance of commercial banks listed at Nairobi security exchange.
 - ii. To find out the effect of market risk on financial performance of commercial banks listed at Nairobi security exchange.

Research Hypothesis

This study was guided by the following research hypothesis:

- Ho₁: Credit risk has no significant effect on financial performance of commercial banks listed at Nairobi security exchange Kenya.
- Ho₂: Market risk has no significant effect on financial performance of commercial banks listed at Nairobi security exchange Kenya.

LITERATURE REVIEW

Theoretical Review

Capital Asset Pricing Model

Capital Asset Pricing Model (CAPM) was formulated by Sharpe in 1964 and modified by Lintner in 1965 and later refined by Black in 1972. Capital asset pricing model state that there is a relationship between systematic balance sheet risks and their expected returns on assets and particular stocks. The model is the main theory that explains pricing security risks of balance sheet assets and cost of capital (Beltratti, 2012).

The assumption of theory is that the beta value of balance sheet items is to measure how much risk in the investments can add portfolio value to financial markets. The stock in the market is more risky than one in the bank thus it has greater beta value. When it has small beta value of a stock then the balance sheet risk formula assumes to reduce commercial bank risks. CAPM states that investors can eliminate diversifiable risks completely through a well-diversified portfolio, thus it introduces the concept of risk reduction through diversification (Ongore & Kusa, 2013).

Limitations of the study underlie to this theory is that; Commercial banks are diversifying to off balance sheet risks to stabilize their income. The CAPM formula only evaluates capital stocks are fairly valued to its risk realized with time value for money. It compares only expected returns. The bank and at the same time reduce their overall risks. However, they are generating high income from off balance sheet. Commercial banks diversify with an assumption that when they diversify more they become less likely to be subjected to financial distresses; therefore a positive association is expected between diversification of the firm and high income. On the other hand, firms with unique products are likely to make more income. Proper diversification is a primary factor in determining the profitability of a firm due to the economies of scale (Albertazzi & Jacques, 2016).

The relevance of the theory is to engage loan commitments, letters of credit and market related transactions is part of the restructuring of commercial banks. It explains how restructuring commercial banks increase efficiency and profitability of due to more income. However, the growth of banks results to off balance sheet risks. Diversification to off-balance sheet activities displays credit risk and market risk as they occur. The benefits of diversification will only be felt by the banks if only the income generated is higher than risks associated with banks balance sheet. Determining

the success of a firm, profitability performs a vital role. The main reason why a study use CAPM is to explain banks' profitability through diversifying off balance sheet risks which has resulted to perform better.

Empirical Review

Credit risk and Financial Performance

Khan (2012) analyzed the effect of credit risk on financial performance of Pakistan firms. The objective was to analyze the effect of credit risk management on financial performance of Pakistan firms. The study was based on 94 Pakistan firms listed in Karach security exchange from 2012 - 2015. The study adopted causal design with descriptive statistics. From correlation analysis, the study results indicated that there was a negative significant relationship between credit management period and company financial performance. From different sectors studied, the study found that it is not statistically significant to roll manufacturing firms with banks and insurance companies in to one sample and treat them equally. The members are different in terms of stock credit volume and level of receivables. The credit risk ratio used by many investors includes interest coverage ratio, leverage ratio, debt to equity and debt to capital ratio.

The study conducted by Mitchener, (2013) investigated the effect of credit risks on financial performance of commercial banks in Botswana. The specific objectives were; to analyze the effect of 5 Cs of credit risk through character, capacity and collateral to pay loan on financial performance. Descriptive survey design was used. A sample of 12 commercial banks was employed using census. Financial statement was used as the main instrument from 2009 to 2014. Correlation analysis was used to analyze data collected from 12 commercial banks. The findings showed that there is significant relationship between credit risk and financial performance of firms. However, the study recommends that there is need for commercial banks to employ the 5Cs for them to improve financial performance. This can be an indication that borrowers will be able to repay the loan using collaterals.

Raheman (2017) analyzed the effect of credit risk on financial performance of Pakistan firms. The objective was to analyze the effect of credit risk management on financial performance of Pakistan firms. The study was based on 94 Pakistan firms listed in Karach security exchange from 2012 - 2015. The study adopted causal design with descriptive statistics. From correlation analysis, the study results indicated that there was a

negative significant relationship between credit management period and company financial performance. From different sectors studied, the study found that it is not statistically significant to roll manufacturing firms with banks and insurance companies in to one sample and treat them equally. The members are different in terms of stock credit volume and level of receivables.

Market risk and Financial Performance

Eppy (2017) analyzed the impacts of market risk on financial performance of listed commercial services sectors in Italy. The purpose of the study was to investigate the impact of market risk on financial performance of listed commercial service sectors in Italy. Descriptive research design was employed. The target population comprised of 17 firms. Financial reports were used to collect data. Panel data analysis was employed. Regression analysis using logit model were also employed. Findings indicated that market risk had impact on financial performance through cash management. Marketing of collateral to get loans can fail the ability to improve financial performance of any sector. The conclusion of the study was that; market size using book ratio should be employed to measure market operation risk management practices on financial performance.

Murithi (2017) analyzed the relationships between market risk and financial performance of commercial banks in Kenya. The aim of the study was to examine the relationship between market risk efficiency and financial performance of commercial banks in Kenya. A sample of 234 respondents was selected from 2340 respondents using 10% of the target population. Questionnaires were given to the respondents. Descriptive analysis was employed in data analysis. From the analysis, it was found that market risk improve earnings ratios for financial performance. Return on equity was the major influence on commercial banks. Market risk is weighted

with capital invested for operating profit. Leverage ratio is given a small priority in market risks. The study recommends that interest rates bearings should be optimized with market size of the business.

Hundman, (2013) examined the relationship between market risks and financial performance of large commercial banks of the United States. The study employed survey design. Inferential statistics was used to analyze data collected from 13 commercial banks. Using correlation results, it was indicated that market risk has no significant effect on financial performance of banks. The market risk as reported off the balance sheet contributes to risk diversifications which in turn affect financial performance. Since there is a negative correlation; stakeholders should be advised to manage well diversified risk for off balance sheet items facing financial performance of capital markets.

Research Gaps

Raheman (2017) analyzed the effect of credit risk on financial performance of Pakistan firms. The objective was to analyze the effect of credit risk management on financial performance of Pakistan firms. The study was based on 94 Pakistan firms listed in Karach security exchange from 2012 - 2015. The study adopted causal design with descriptive statistics. From different sectors studied, the study failed to analyze data collected by panel data analysis estimation.

Conceptual framework

The conceptual framework illustrates the presumed relationship between the independent variables (credit risk, market risk, and liquidity risk.) and the dependent variable (financial performance measured by bank's return on asset)

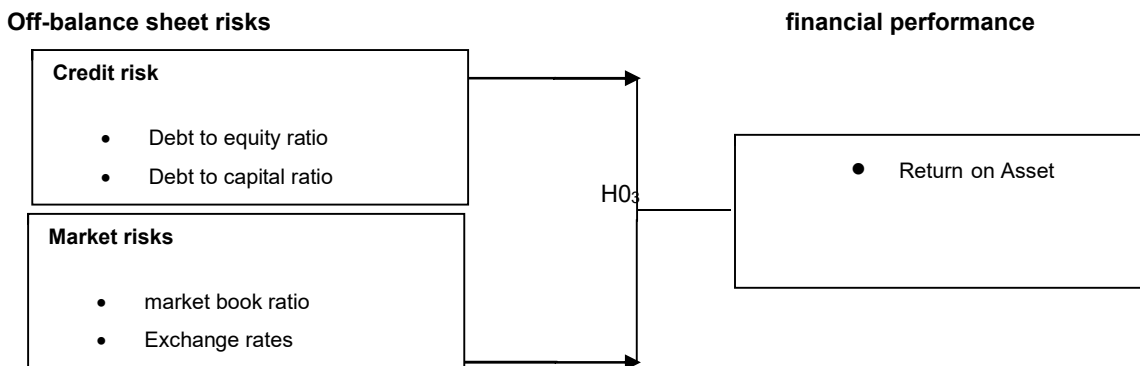


Figure 2.1 Conceptual Framework Source: Researcher (2020)

RESEARCH METHODOLOGY

The study used descriptive research design, because it aimed at collecting information in relation to the effect of

off balance sheet risks on financial performance of commercial banks listed. The sample size of 10 listed commercial banks was selected.

Table 3.2 Sample size determination

S/N	Name of the bank
1.	Barclays bank of Kenya
2.	CFC Stanbic bank limited
3	Diamond trust bank of Kenya limited
4	Equity bank
5	Housing finance bank
6	I& M bank
7	Kenya commercial banks
8.	National Bank of Kenya
9	Cooperative bank
10	Standard chartered bank

Source: (Researcher 2020)

This study used secondary data from published financial reports at Nairobi security exchange and central bank of Kenya from 2014 to 2018.

This is the first objectives sought to determine the effect of credit risk on financial performance of listed commercial banks in Nairobi security exchange. Table 4.1 shows the results of credit risk measured by debt to equity ratio.

DATA ANALYSIS, PRESENTATION AND DISCUSSIONS

The results showed that Equity Bank had a mean of 1.6620 with a standard deviation of .35745; Standard Chartered had a mean of 1.7992 with a standard deviation of .79003,

Credit risk

Table 4.1 Debt to equity ratio

	N	Min	Max	Mean	Std. Deviation
Equity Bank	5	12.35	28.97	1.6620	.35745
Standard Chartered Banks	5	1.32	2.23	1.7992	.79003
Housing Finance Co. of Kenya	5	5.44	9.44	2.8460	1.96383
Diamond Trust Bank	5	3.76	5.60	3.0686	.48877
CFC Stanbic Holding	5	3.86	8.26	3.1106	1.34405
Barclays Bank	5	1.08	6.69	3.1500	2.24289
Investment Mortgage bank	5	1.37	4.52	3.1840	1.87832
National Bank of Kenya	5	2.49	3.65	4.4714	.82610
Kenya Commercial Bank	5	1.01	5.92	5.4280	1.77249
Co-operative Bank	5	1.24	3.17	18.7540	6.58962
Valid N (listwise)	5				

Source: (Researcher 2020)

From credit risks measured by debt to equity ratio, it was indicated that Equity Bank had lowest mean of 1.6620 with a standard deviation of .35745, and Co-operative Bank had a mean of 18.7540 with a standard deviation of 3.1500.

This is another indicator of the first objectives also sought to determine the effect of credit risk on financial performance of listed commercial banks in Nairobi security exchange. Table 4.2 shows the results of credit risk measured by debt to capital ratio.

Table 4.2 Debt to capital ratio

	N	Min	max	Mean	Std. Deviation
Equity Bank	5	1.32	2.23	1.6420	.35408
Investment Mortgage	5	1.68	12.93	1.8040	1.25926
Barclays Bank	5	24.51	32.40	2.4180	1.67770
Kenya Commercial Bank	5	3.72	6.69	4.9400	1.21746
Standard Chartered	5	.71	4.93	5.6320	1.59877
Housing Finance Co.	5	1.37	45.23	7.3920	5.29278
Coop. Bank	5	16.24	22.60	19.0102	2.60742
Diamond Trust Bank	5	2.24	15.19	19.0320	2.70742
National Bank of Kenya	5	4.42	8.28	28.1480	3.17808
CFC Stanbic Holding	5	.20	3.46	28.6400	17.84267
Valid N (listwise)	5				

Source: (Researcher 2020)

From the findings of credit risks measured by debt to capital ratio, it is indicated that Equity Bank had a lowest mean of 1.6420 with a standard deviation of .35408, and CFC Stanbic Holding had highest mean of 28.6400 with a standard deviation of 17.84267. The study agreed with Raheman (2017) credit risk affect performance with capital ratio.

Market risks

The second objective was to find out the effect of market risk on financial performance listed commercial banks in

Nairobi security exchange. The market risk measured by market book ratio was presented.

Table 4.3 showed that Standard chartered had a mean of .0697 with a standard deviation of .01420, National Bank of Kenya had a mean of .0956 with a standard deviation of .13137 CFC stanbic bank had a mean of .0977 with a standard deviation of .01730, Equity bank had a mean of .1300 with a standard deviation of .11031, Kenya commercial had a mean of .1524 with a standard deviation of .08072, Cooperative bank had a mean of .2356 with a standard deviation of .08848, Barclays bank of Kenya had a mean of .2653 with a standard deviation of .01933, of .01933,

Table 4.3 Market book ratio

	N	Min	max	Mean	Std. Deviation
Standard chartered	5	.24	.28	.0697	.01420
National Bank of Kenya	5	.07	.12	.0956	.13137
CFC stanbic bank	5	.21	.36	.0977	.01730
Equity bank	5	.01	.26	.1300	.11031
Kenya commercial	5	.07	1.64	.1524	.08072
Cooperative bank	5	.06	.60	.2356	.08848
Barclays bank of Kenya	5	.07	.12	.2653	.01933
Diamond trust bank	5	.10	.25	.2862	.06331
I & M bank	5	.13	.30	.4290	.21454
Housing finance bank	5	.24	.28	.4887	.66614
Valid N (listwise)	5				

Source: (Researcher 2020)

Diamond trust bank had a mean of .2862 with a standard deviation of .063311& M bank had a mean of .4290 with a standard deviation of .21454 and Housing finance bank had a mean of .4887 with a standard deviation of .66614. From the results, it was established that Standard chartered had lowest mean of .0697 with a standard deviation of .01420, while highest mean was housing

finance bank with .4887 with a standard deviation of .66614. The study disagreed with Uyar (2017) who noted that commercial banks are influenced by market risks. The second objective sought to determine the effect of market risk on financial performance listed commercial banks in Nairobi security exchange. The market risk measured by exchange rates was presented.

Table 4.4 Exchange rates

	N	Min	max	Mean	Std. Deviation
CFC Stanbic bank	5	1.05	2.52	.4717	.30995
I & M bank	5	1.25	4.26	.9690	.64126
Kenya commercial	5	.30	2.23	.9819	.39026
Diamond trust bank	5	.41	2.27	1.0257	.27311
Barclays bank of Kenya	5	.19	2.51	1.0859	1.33930
National Bank of Kenya	5	.10	1.90	1.8938	1.64280
Cooperative bank	5	.13	1.80	2.0823	1.56007
Housing finance bank	5	.06	1.70	2.3610	1.23944
Standard chartered bank	5	.75	1.40	2.9900	1.15445
Equity bank	5	.14	1.90	12.6500	1.28439
Valid N (listwise)	5				

Source: (Researcher 2020)

The result presented in table 4.4 indicated that CFC Stanbic bank had a mean of .4717 with a standard deviation of .30995, I & M bank had a mean of .9690 with a standard deviation of .64126, Kenya commercial had a mean of .9819 with a standard deviation of .39026, Diamond trust bank had a mean of 1.0257 with a standard deviation of .27311, Barclays bank of Kenya had a mean of 1.0859 with a standard deviation of 1.33930, National Bank of Kenya had a mean of 1.8938 with a standard deviation of 1.64280, cooperative bank had a mean of 2.0823 with a standard deviation of 1.56007, Housing finance bank had a mean of 2.3610 with a standard deviation of 1.23944, Standard chartered bank had a mean of 2.9900 with a standard deviation of 1.15445, and Equity bank had a mean of 12.6500 with a standard deviation of 1.28439.

From the results, it is indicated that CFC Stanbic bank had lowest mean of .4717 with a standard deviation of

.30995 and Equity bank had highest mean of 12.6500 with a standard deviation of 1.28439. The study concurred with (Eppy 2017) who established that market risks measured by exchange rate risks increases growth.

Estimation of the direct model

Regression model summary was determined in table 4.12, the R of .999 indicate the strength of a relationship between variables. The adjusted R² commonly known as multiple regression coefficient of determination indicated that adjusted regression square was .998 implying that regression line would explain 99.8% of dependent variable (financial performance) gives as a percentage of variation. These variations in percentage are evaluated by the changes in each independent variable (off-balance sheet risk) in a regression line and thus a standard error term of estimates is 24.3% in the residual valuations.

Table 4.12 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.999 ^a	.998	.995	.2432291

a. Predictors: (Constant), Market risk, Credit risk

Source: Research Data (2020)

The study implied that credit risk, market risk, was directly proportional to financial performance of commercial banks. This means that an increase in any of; credit risk, market risk would lead to an improvement of financial performance of commercial banks.

In testing model fit, the study determined Analysis of Variance (ANOVA) to test the goodness of fit of the study model and these results was shown in Table 4,13.

Table 4.13 Analysis of Variance (ANOVA)

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	48.197	3	16.066	271.564	.045 ^b
	Residual	.059	21	.059		
	Total	48.257	24			

a. Dependent Variable: Financial performance(ROA)
 b. Predictors: (Constant), Market risk, Credit risk

Source: Research Data (2020)

Predictors (Market risk, Credit risk) remain constant with an F statistics of 271.564 indicates that the model is fit and statistically significant, thus the three off-balance sheet risks has a significant effect on financial performance at $p=.045 < .0.05$.

The study conducted multiple regression analysis to determine the nature of a relationship between independent variable and dependent variable. The result in table 4.14 was used to establish regression equation

based model. The study used unstandardized coefficients to interpret the effects of each independent variable outcomes on dependent variables. The interpretation of regression model indicates the strength using Beta values β where the significant values explain. The study null hypotheses based on general study objective were tested by the level of significance values. The hypotheses were presented as shown in table 4.14;

Table 4.14 Regression coefficients for (direct model)

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error			
1	(Constant)	30.585	.985		31.044	.020
	Credit risk	-.520	.040	-1.174	-12.980	.049
	Market risk	.377	.107	.145	3.532	.176

$$Y_i = 30.585 - .520X_1 + .377X_2 + e_i \dots \dots \dots \text{Direct model (i)}$$

Where Y_i = Financial Performance

β_0 = constant

β_1, β_2 and β_3 are coefficients of the independent variables; X_1 , and X_2 ,

X_1 = Credit Risk

X_2 = Market Risk

e_i = Error Term

The results in Table 4.14, Regression coefficients indicate that holding other factors constant, p-value = .020, β 30.585 implied that a variation of one independent variable (off-balance sheet risk) would lead to 30.585 in financial performance (dependent variable). An increase in credit risks results to a decrease in financial performance of commercial banks by 52.0% and was

statistically significant at 5%. An increase in market risks would results to an increase in financial performance of commercial banks by 37.7 % and was statistically insignificant at 5%.

CONCLUSIONS AND RECOMMENDATIONS

Conclusion of the study

This is the first objectives sought to determine the effect of credit risk on financial performance of listed commercial banks in Nairobi security exchange. The study concluded that Credit risk measured by debt to equity ratio in Equity Bank had highest mean. The results

of credit risk measured by debt to capital ratio, it is indicated that Equity Bank had lowest mean and CFC Stanbic Holding had highest mean. The credit risk had a strong negative relationship and statically significant on financial performance.

The second objective was to find out the effect of market risk on financial performance listed commercial banks in Nairobi security exchange. The study concluded that market risk measured by market book ratio highest mean in housing finance bank. The market risk measured by exchange rates was presented, from the results, it is indicated that CFC Stanbic bank had lowest mean and Equity bank had highest mean. Market risk had a positive correlation and statistically insignificant on financial performance of commercial banks.

Recommendation of the study

This is the first objectives sought to determine the effect of credit risk on financial performance of listed commercial banks in Nairobi security exchange. Credit risk measured by debt to equity ratio, it was recommended that Equity Bank should reducing credit risk by debt to equity ratio. The recommendation of credit risk measured by debt to capital ratio is that Equity Bank to monitor credit facilities. Thus, reduce credit risk in order to improve financial performance.

The second objective was to find out the effect of market risk on financial performance listed commercial banks in Nairobi security exchange. The market risk measured by market book ratio was presented that Standard chartered had lowest mean with a recommendation to manage market risk. The market risk measured by exchange should be revised by CFC Stanbic bank.

Suggestion for further research

The study addressed off-balance sheet risks on financial performance of commercial banks, thus another should be conducted to examine the effect of liquidity risk on financial performance listed commercial banks at Nairobi security exchange. The study should be conducted to investigate off-balance sheet determinants on financial performance of other financial institutions in Kenya.

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