

# **MARKET RISK AND FINANCIAL PERFORMANCE OF LISTED NON-BANK FINANCIAL INSTITUTIONS IN KENYA**

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## **ABSTRACT**

Non-Bank Financial Institutions (NBFIs) have surfaced as a growing segment in the financial sector as they complement the mainstream banking institutions to provide financial services to customers. In the present day's dynamic business environment, these financial institutions face market risks including interest rate risk, foreign exchange risks, commodity risks and equity. The objective of the study was to examine the effect of interest rate risk on the financial performance of NBFIs listed on the Nairobi Stocks Exchange (NSE) over the period 2012–2017. The study focused on balance sheets components and financial ratios of 9 listed non-bank financial institutions in Kenya. The study used unbalanced panel data from 9 listed non-bank financial institutions over the period 2008–2017.

## **INTRODUCTION**

Global financial markets have been very volatile in recent decades with transformations such as globalization and complex business environment forcing organizations to think beyond just profitability. Changes in social, political and economic environment, strong competition, rapid technological advancements, and methodological changes in the value chain are among other issues urging for companies to establish strong risk management system. With the ever changing and challenging business environment, businesses continue to be exposed to various risks more especially as a result of adverse fluctuations in the macroeconomic environment and increased competition. Firms operating in such volatile environment are mostly vulnerable to market risk (Deloitte, 2015).

Africa is generally regarded as a high risk environment with many developing countries including Kenya being exposed to these market risks. Market risk has its components of foreign exchange risk, interest rate risk, commodity risk and equity risk. These risks have played a role in raising the debt burdens and negatively affecting economic performance of the economy of many developing countries. In Kenya today a number of firms are making losses due to lack of proper hedging and applying costly practices to mitigate these risks. The challenge is that it gets harder to monitor market risk and to be totally transparent at the level of portfolio risk exposure. Evaluating the impact of market risks on performance of financial organizations is a real challenge in the financial industry, but it is vital in establishing precautionary measures of managing risks (Iyakaramye, 2015).

The study used the net profit margin to assess financial performance of the companies while the degree of financial leverage indicators of interest rate risk. The financial performance was regressed against the market risk factors using the random effects models based on the Hausman and the LM tests specifications. The results show that financial leverage has a significant positive impact on the performance of the NBFIs with a p value of 0.000. The study concluded that interest rate risk has momentous effects on financial performance of the listed NBFIs in Kenya. Therefore, the study recommended that the management of the NBFIs should employ effective risk management strategies to mitigate their effects of the market risks.

***Key Words:** market risk, financial performance, listed non-bank financial institutions, Kenya*

## **PROBLEM STATEMENT**

In an ideal business environment with no competition or risks, organizations thrive without having to worry about making losses. There is need for competitive strategies or risk mitigation strategies and individuals, organizations and even states co-exist in harmony, this is a perfect market. However, in the reality, there is no such thing as a perfect market. Every day, businesses are faced with risks, changes and challenges that threaten their performance and eventually their survival (Odeke & Odongo, 2014). NBFIs has for long boasted of providing differentiated services such as securities trading, corporate advising, portfolio management and underwriting among others, that banking institutions often overlook. However, with banks diversifying into these products and services, NBFIs are losing this competitive edge considering banking institutions can access cheaper and larger volumes of capital. This intense competition, coupled with market shocks from volatile interest rates, foreign exchange risks, equity movements and commodity price fluctuations are threatening financial the performance of NBFIs. Previous researchers have focused the market risk and how it affects the abilities of commercial banks in Kenya to yield profits, leaving a gap on research that focus on listed non-bank financial institutions. This research therefore seeks to fill this gap by evaluating the effect of market risk on financial performance of listed non-bank financial institutions in Kenya. In the present day's unpredictable and dynamic business environment, financial institutions are faced by market risks comprising interest rate risks, foreign exchange risk, and equity risks. This study sought to investigate the effects of these market risks on the performance of listed non-bank financial institutions.

## **RESEARCH OBJECTIVE**

The general objective of the study was to evaluate the effect of market risk on financial performance of NSE listed non-bank financial institutions in Kenya. The specific objective is to evaluate the effect of interest rate risk on financial performance of listed non-bank financial institutions in Kenya.

## **THEORETICAL REVIEW**

The financial intermediation theory was developed by Gurley and Shaw (1960) and later advance by Akerlof, Benson and Diamond (1980). According to this theory, financial intermediation is a combination of institutional tool and market satisfying needs of different economic entities whose main aim is to accumulate money from public and legal entities and give it to borrowers on commercial conditions hence exposure to financial risk (Rayberg, 2002). The financial intermediation tends to overlook the traditional function of banks in transfer of risk and explaining little why intermediation should perform such function. The traditional theory of financial intermediation was based on transaction and information approach. The major factor used in financial intermediation is grounded on information asymmetry and it is based on the type moral hazard or adverse selection which requires costly verification and also auditing procedures. Information asymmetry generates imperfection of the market.

Financial intermediaries are financial institutions specialized in the activity of buying and selling assets and financial contracts. As their name suggests, financial intermediaries mediate between the providers and users of financial capital. The transfer of funds from agencies with surplus to agencies with deficit through financial intermediaries is also called financial intermediation. Financial intermediaries have the role to create assets for creditors and liabilities for debtors which are much more attractive for each of them than if the transfer of funds from creditor to debtor were to be made directly between the two parties. Functions of financial intermediaries include reduction of transaction costs, reduction of liquidity risk, information provision; and debt renegotiation. The modern theory of financial intermediation analyses, mainly, the functions of financial intermediation, the way in which the financial intermediation influences the economy on the whole and the effects of government policies on the financial intermediaries. The financial intermediation theory highlights the role of financial intermediaries in economy (Andries, 2009).

Intermediaries in their duty of risk management do not explain the dramatic rise in mutual funds and wide spread use of financial derivatives. It is important for an organization to its manage financial risks in order to prevent it from potential bankruptcy which can be caused by financial elements which targets the firms' balance sheet against extreme monetary loss and uncertainties from interest rate, exchange rate, and credit. The theory reflects the market as dynamic, coupled with products innovation and financial transformation, viewing financial intermediaries as entrepreneurial providers of financial services with customer orientation for both borrowers and savers with risk management taking the central stage (Maniangi, 2018).

This theory views NBFIs as financial intermediaries who like banks are exposed to market risks due to interest rates and foreign exchange movements. This theory therefore supports this study as it links market risks faced by financial intermediaries to their performance.

## **EMPIRICAL REVIEW**

Butler, Bechtel, Bruin and Danton (2017) utilized empirical studies to analyse the integration of known interest rate risk to bank lending. Panel data set with information on the reprising maturity profiles of Swiss were used. The results revealed that interest rate shock had a significant effect on the bank lending. The impact of an interest rate shock on lending increases as the bank becomes more exposed to interest rate risk. Further, capital was the driving factor in the bank lending as opposed to liquidity. This suggests that banks with higher capitalized system are in much better position to protect their creditors from variations in the interest rates.

Ahmed, Rehan, Chapra and Supro (2018) evaluated the effect of interest rate fluctuations on the profitability of banks in Pakistan using annual data of seven years from 2007 to 2014. With a target population of 20 banks, the study conducted correlation and regression analysis to determine how interest rate changes, deposits with other banks, advances and loans and investment over return on assets, return on equity and earnings per share affected the performance of the banks. The findings revealed that deposits with other banks and interest

rate reduced the profitability of banks, with advances and loans and investment boosting the profits margins.

Odeke and Odongo (2014) analysed 9 commercial banks, using a cross sectional survey and descriptive research design. The results indicated that the maturity gaps, basis risk and assets and liabilities margins among the banks displayed a variation of up to 14.9% in. The study concluded that there is a positive relationship between the interest rate risk and performance of commercial banks except basis risk.

Njeri (2016) investigated how fluctuations in the interest rates impact the financial performance of insurance companies with specific focus on life insurance policy in Kenya. The specific objectives were to establish the influence of interest rates changes on loan performance of insurance companies; to evaluate the influence of interest rates fluctuations on investment income; liquidity position of insurance companies and on stock returns of insurance companies in Kenya. Using a descriptive study design a population of 43 licensed insurance firms, the research targeted the top managers of the insurance firms. The sample size was 115 respondents relying on secondary data collected using a data sheet. Data analysis was performed using descriptive and inferential statistics and the results displayed in form of tables. The results revealed that there was a significant relationship between loan performance and financial performance, investment income and financial performance; stock returns and financial performance and stock returns and financial performance. The study concluded that changes in the interest rate have profound effects on the performance of assets since it leads to an increase in the amount of loans for borrowers.

Kimita (2016) conducted a research to assess how variations in the interest rates affect the financial output banks. The research covered a target population of the 42 operational Commercial Banks in Kenya at the year 2015. Information was gathered from secondary sources for duration of 10 years, from 2006 to 2015. The results on the regression coefficients indicated that interest rate variation had an insignificant positive relationship with the performance of commercial banks but a negative relationship was found in the case of credit risk and inflation. The study concluded that interest rates variation, credit risk and inflation have an inverse relationship with financial performance of commercial banks.

Maingi (2018) sought to explain financial risk in a population of 44 commercial banks in Kenya. Longitudinal data from 2006 to 2015 for 30 were collected from the CBK and banks website. Primary data was also collected from a population of 220 respondents comprising risk manager; operations manager, general manager and credit manager all were used in the study. Self-administered questionnaire was used. The findings were under longer period that capture various trade cycles credit risk had a significant negative relationship with performance hence managers should aim at reducing this risk to increase performance while market risk and interest rate risk had a significant positive relationship with performance this means that managers should expect increase in performance when interest rate and foreign exchange increase.

Previous studies have used different indicators of performance to measure financial performance. Noreen, Liaqat and Parveen (2018) evaluated the performance of NBFIs in Kenya using various performance indicators including profitability, capital adequacy, asset quality, liquidity and financing. Abdellahi, Mashkani and Hosseini (2017) used net profit to total sales as a measure of performance of listed banks on Tehran Stock Exchange to determine the association between liquidity risk, credit risk and market risk with financial performance. Badawi (2017) used net profit margin as a measure of performance to measure the impact of liquidity risk, credit risk, and market risk on profitability of banks in Indonesian Stock Exchange.

According to Costea (2013), profitability of non-banking financial institutions (NBFIs) in Romania is measured by return on assets (ROA), return on equity (ROE) and the rate of profit (gross profit / total revenue). Emamgholipour, Pouraghajan, Tabari, Haghparast, and Shirsavar (2013) aimed to provide a comparative analysis and evaluation of the profitability of NBFIs enlisted in Dhaka Stock Exchange. The research used the net interest margin, operating margin ratio and return on equity to evaluate financial institutions' effectiveness in decision-making, efficiency in their core activities and utilization of resources and their resilience to economic adversities.

Hussain and Fayyaz (2015) measured financial performance of a selective non-bank financial institutions operating in Bangladesh. The researcher used ratio analysis determine how they manage their assets to cover their liabilities. The ratios adopted by the company included liquidity ratios (current ratio, time interest earned ratio), solvency ratios (debt ratio, equity ratio, debt to equity ratio), profitability ratios (net profit margin, return on asset, return on equity, return on capital employed), and market prospect ratio (earnings per share, price earnings ratio, dividend pay-out ratio).

## **RESEARCH METHODOLOGY**

### **Research Design**

This study employed longitudinal research design. This design involves collecting the same data repeatedly from sample of people from the target groups at different points in time. The various data collections are often called waves. This design was appropriate for this study as it gave more informative data (Blyth, 2002). This study will cover a five year period from 2008 to 2017.

### **Target Population**

This research targeted the eleven non-bank financial institutions listed in the Nairobi Stock Exchange. These comprise of insurance companies, real estate investment funds, pension funds and investment companies. This study adopted a census design, that is, the whole target population will participate in the research. The population was however be grouped into different strata considering the difference in the business concepts of each category of non-bank financial institutions. Data on the dependent and independent variables was collected by use of secondary data. Since the study covers listed companies, they are required to publish

financial information annually. Thus the data was obtained from financial statements of individual non-bank financial institutions in Kenya under study. Data was also collected from the NSE and the regulatory institutions of each category of NFBI. Information will be collected for the past ten years starting 2008 to 2017.

### **Data Processing and Analysis**

The research analysis was based on panel regression model to measures the relationship between dependent variables and the independent variables. The independent variable for this study was leverage, while the dependent variable was the net profit margin. The study used panel data to carry out the research analysis for the 10 years starting from 2008 to 2017. This type of data measures how entities behave across time. The panel data were subjected to pooled OLS, Random effect model (REM) and Fixed Effect model (FEM) for panel regression analysis as suggested by Gujarati (2012). However, diagnostic tests were conducted to select a suitable model among the three models. The regression model used had the following form where financial performance of listed non-banks financial institutions was expressed as a function of interest risk. The analytical model adopted was;

$$Y_{it} = \beta_0 + \beta_1 LR_{it} + \epsilon_{it} \dots \dots \dots \text{Objective 1}$$

Where:  $Y_{it}$  – Net Profit margin ratio;  $\beta_0$  – Constant;  $LR_t$  – Leverage Ratio;  $\beta_1$  = Regression coefficients;  $i$ = number of firms;  $t$ = time period;  $\epsilon_{it}$ = Error term

## **RESEARCH RESULTS**

### **Descriptive Statistics**

The study carried out descriptive statistics of the three study variables and are presented in the table 1 below.

**Table 1: Summary Descriptive Statistics for the Variables**

<b>Variable</b>		<b>Mean</b>	<b>Std. Dev.</b>	<b>Min</b>	<b>Max</b>	<b>Observations</b>
Performance (NPM)	Overall	.028	.7982765	-4.81	.83	N = 90
	Between		.5116192	-1.236	.634	
	Within		.6340037	-3.546	1.534	
Leverage	Overall	1.569036	11.72242	-92.6	36.48	N = 83
	Between		5.073328	-10.11889	8.18	
	Within		10.7121	-80.91207	29.86904	

The Table 1 presents the descriptive results of the all variables under study. The performance variable (Net profit margin) had an overall mean of 0.028 and a standard deviation of 0.7983. The overall mean indicates that over the period, the non-banks financial institutions have experience positive profits. The standard deviation of the performance indicates that the variations in the net profit margin of the non-bank financial institutions in Kenya over the

study period of 2008 to 2017 have been low. The standard deviation within and between panels were found to be 0.51162 and 0.63400. The variation between panels is slightly higher than the variation within panels. This mean that the variation in the performance of the non-banks financial institutions was higher within the firms that the variation in performance between the firms across the study period 2008-2017. The net profit margin (performance) had a minimum value of -4.81 and a maximum value of 0.83. The above results indicate that over the study period 2008 to 2017, non-bank financial institutions have experienced higher sales than revenues from their operations.

The total number of observation for the leverage ratio is 83. The leverage ratio has a mean of 1.569 and a standard deviation of 11.7224. This shows that the leverage ratio of the non-bank financial institutions in Kenya over the study period of 2008 to 2017 has highly been volatile. The interest risk had a minimum value of -92.6 and a maximum value of 36.48. There is a larger variation of the leverage ratio within the panels with a standard deviation of 10.7121 as compared to the variation between the panels which was only 5.07333. This indicate that there is a high financial distress risk caused by leverage across the non-banks financial institutions in Kenya over time but not as high as financial distress risk caused by leverage within each non-banks financial institutions over time. This is due to different levels of leverage kept by individual non-bank financial institution. Heikal *et al.*, (2014) has observed that that debt to equity ratio is a financial ratio that indicates the proportion of relationship with financial distress and companies will always maintain it at lower levels. A high dependency on long-term debt can increase the profitability companies also well as their financial distress.

### **Diagnostic Tests**

Prior to carrying out a panel regression analysis, diagnostic tests were carried out. This included; multicollinearity test which was carried out using the Pearson’s correlation, and the Hausman test. The degree of multicollinearity was analysed using a pair-wise correlation. The results of the Pearson’s correlation are presented in the table 2 below.

**Table 2: Pair-wise correlation test between the independent and dependent variables**

	<b>Performance</b>	<b>Leverage</b>
Performance	1.0000	
Leverage	0.6729	1.0000

Performance has a strong significant positive correlation with leverage ratio represented by a coefficient of 0.6729. This means that an increase in leverage ratio significantly increases the performance of non-bank financial institutions.

The LM test was used to determine the appropriate model to adopt between the pooled OLS model and the random effect model.

**Table 3: Breusch-Pagan LM Test**

<b>Test Statistic chibar2 (01)</b>	<b>P value</b>

561.88	0.0000
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The result of the Breusch-Pagan LM test gives a P-value of 0.000 which is less than 0.05. This means that there are significant differences on technical efficiency among the listed non-bank financial institutions in Kenya. Therefore, the null hypothesis is rejected and the alternative hypothesis accepted. Based on Breusch Pagan LM test, the pooled effect model was not appropriate for the study.

**Hausman Test**

The Hausman test was used to determine the appropriate model to adopt between the fixed effect model and random effect model.

**Table 4: Hausman Test**

Test Statistic chi2(2)	P value
2.72	0.6072

From the results of the Hausman test in table 4 above, the p value is 0.6072 which is higher than the threshold of 0.05. This means that the random effect model is more favourable than the fixed effect model for the study.

Therefore, the researcher used the random effect model for the interpretation of the study findings since it is best model that can explain the relationship between financial performance and market risk factors.

The study performed a panel regression analysis based on the random effect model. This model presents performance as a function of leverage ratio. Table 5 below shows the result of the random effect regression model.

**Table 5: Random Effect Model**

Dependent variable		NPM	
Explanatory Variable		Coefficient	P value
Interest risk		0.014902*	0.000
Constant		0.114039	0.197
Post Estimation Diagnostics			
R square	Within	0.6599	
	Between	0.4882	
	Overall	0.4567	
	Rho	0.793521	
Wald chi2(3)		91.71*	
KEY			

P-value <0.05 \*

Using the random effect regression model above, the regression equation becomes;

$$Y_{it} = 0.1140 + 0.0149LR_{it} + \epsilon t$$

The results show that the Wald statistic is 91.7, which is significant at 5 percent confidence level. This means that interest rate risk is significant in explaining the variations in the net profit margin of the listed non-banks financial institutions in Kenya in the random effects specification.

The interclass correlation ( $\rho$ ) is 0.7935 which implies that 79.35% of the variations in net profit margin (performance) are due to differences across the non-bank financial institutions according to the random effect model. The within and between R-square are 0.6599 and 0.4882 respectively. This means that, 65.99% of variations in the in the performance are due to differences within non-bank financial institutions and 48.82% of the variations are due to differences between the non-bank financial institutions.

From the random effect regression output, interest rate risk has a positive effect on the performance of non-bank financial institutions in Kenya. This effect is statistically significant since the p value (0.000) is less than 0.05. Therefore, a unit increase in interest rate risk will increase the performance of the non-bank financial institutions listed at the NSE by a factor of 0.0149.

## **DISCUSSION**

The current study revealed a positive significant relationship between leverage as a market risk factor on financial performance of non-banks financial institutions in Kenya. This means that as the interest rate risk increases, the financial performance of the non-bank financial institutions also increases. These findings are in line Bony and Moniruzzaman (2017) investigated the impact of bank specific factors on the performance of Islamic banks in Pakistan for a period 2006 to 2009. Using statistical multivariate regression models, the findings revealed that the leverage ratio has a significant positive correlation with the performance of the banks at 5% significance level. Similarly, Noreen, Liaqat and Parveen (2018) examined the effects of leverage ratio on the performance of manufacturing companies in Nigeria. The results indicated that leverage ratio has a positive effect on the performance of the manufacturing companies. The studies above studies support the findings from the current study.

The findings of the current study also agree with those of Iqbal and Usman (2018) who evaluated the firm financial leverage position and its effect on the overall performance of the organization. The regression model indicated that financial leverage has positive significant impact on firm Return on Asset of the target companies. Further, results show that the value of leverage does not exceed the value of equity in this way leverage have positive impact on firm overall performance.

The findings of the current study disagree with Kassi, Rathnayake, Louembe, and Ding, (2019) who investigated the effect of market risk on the financial performance of 31 non-financial companies listed on the Casablanca Stock Exchange (CSE) over the period 2000–2016. Using the pooled OLS model, the fixed effects model, the random effects model, the difference-GMM and the system-GMM models, the results of the study revealed that

leverage ratio has a significant negative effect on the performance of the non-financial firms listed on the Casablanca Stock Exchange (CSE). The findings also disagree with those of Hussain and Fayyaz (2015) who observed that found that financial leverage has a significant negative relationship with the performance of commercial banks in Pakistan.

Another research with contrasting findings was conducted by Gatsi et al., (2013) to investigate the effects of working capital management and leverage on the profitability of 18 insurance firms in Ghana. Using a panel data methodology, the study revealed that the degree of financial leverage has a significant negative effect on the profitability of insurance companies.

The findings of a study by Enekwe, Agu and Eziedo (2014) indicate that leverage ratio has a negative effect on performance (Return on Asset) of listed companies in Nigeria while Jeleel and Olayiwola (2017) argues that capital structure is an important determinant of firm's financial performance and firms that finance with more equity performs better than that of more levered firms. Oketch, Namusonge and Sakwa (2018) examined the effect of financial leverage on bank performance in Kenya. Their study revealed that leverage has a negative and significant effect in explaining the financial performance of commercial banks. Thus, the capital structure of firm proves to be of value in financial performance. Uncontrolled growth of debt, increasing exposure of interest rate risk, might be the beginning of the end of company. These studies disagree with the findings of the current study.

## **RECOMMENDATIONS**

From the findings, the study recommends that non-bank financial institutions should make efforts to improve their strength of their capital structure by financing their assets. This will provide a platform that will secure the stakeholders during crisis or company failure. Non-bank financial institutions should develop strategies that will help them in of mitigating the market risks such as use financial derivatives and assets securitization which will reduce their interest rate and foreign currency risk exposure. The management of the listed no-bank financial institutions should also utilize financial leverage in ways that will enhance shareholders' value and increase the returns on other than being a financial distress factor that will affect their performance negatively. The study also recommends that the regulatory bodies of non-bank financial institutions should develop appropriate policies and financial regulations to help the institutions counter the effects of market risks factors to manageable levels.

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