

# American Journal of Finance (AJF)



## FINANCIAL DISTRESS AND PROFITABILITY OF TIER THREE COMMERCIAL BANKS IN KENYA

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### **ABSTRACT**

**Purpose:** This study is aimed at analysing the effect of financial distress on the profitability of tier three commercial banks in Kenya.

**Methodology:** Financial distress was proxied using non-performing loans, leverage and liquidity. Profitability was indicated using return on assets ratio. The study sampled twenty commercial banks and used casual research design. The study estimated a multiple regression linear model.

**Results:** The study established that non-performing loans have a negative and statistically significant effect, Leverage had a positive and statistically significant effect while Liquidity had a positive and statistically insignificant effect on the profitability of tier three commercial banks in Kenya.

**Keywords:** *Financial Distress, Tier, Profitability, Liquidity, Nonperforming loans, Leverage, Return on Assets, Total loans.*

## 1.0 INTRODUCTION

The financial sector in Kenya has seen tremendous growth over the years. This growth has been driven by the innovation and dynamism of the banking sector. Despite the impressive growth, the banking sector in Kenya has faced numerous challenges. The most significant challenge being financial distress (Kithinji & Waweru, 2017). The most severe cases of financial distress were experienced during the 1980s and 1990s.

Several approaches have been used to indicate and measure financial distress. Beaver (1966) developed the Business Financial Predictive (BFP) model that could be used to predict the success or failure of a business. Beaver (1966) model consisted of the following ratios: cash flow to total debt, net income to total assets, total debt to total assets, working capital to total assets, current assets to current liabilities and no credit interval. In 1968 Altman modified the model developed by Beaver (1966) and introduced Discriminant Analysis (DA). In the model, Altman (1968) used the Z score which was computed using the ratios of working capital to total assets, retained earnings to total assets, market values of owners' equity to book value of total liabilities, and sales to total assets. Present day researcher are using various variables to indicate financial distress this include: non-performing loans, leverage, liquidity, firms growth levels, default risk indicator, risk-adjusted default probabilities derived from corporate bond spreads (Sabato and Altman, 2005; Almeida and Philippon, 2006; Salehi and Abedini, 2009; Paranowo, 2010; Kihooto, Omagwa, Wachira, and Emojong, 2016). This study measured financial distress using non-performing loans, leverage, and liquidity.

### 1.1 Financial Distress and Profitability

On the firm's operation and profitability through its cost Financial distress has a significant impact implications with include administrative costs (Hotchkiss and Altman, 2013). It leads firms to a low level of profitability and shortage of cash. Furthermore, financial distress may stimulate profitability problems on firms through cash flow and revenue deterioration or operating income. It is expected that financial distress in firms will have an effect on operating income causing short-term insolvency which reduces the firm's ability by constraining working capital and increasing indebtedness.

Various researchers have analysed the effect of financial distress on the financial performance of firms. Tan (2012) using leverage as a proxy for financial distress established that financial distress results in the decline in the profit margins of companies. Irungu (2013) established that increase in non-performing loans which contribute to increase in financial risks in amongst banks does not impair the earning capability of firms. However, Irungu (2013) noted that the rising risks were a concern as it could stimulate financial collapse. However, other researchers established that financial distress does not significantly affect financial performance. Hassan and Al-Mazrooei (2007) and Zaabi (2011) found that financial distress does not affect performance in studies conducted on Islamic banks in the United Arab Emirates (UAE). According to Al-Mazrooei (2007) and Zaabi (2011) financial performance was most affected by corporate governance practise and performance levels of the UAE banks.

### **1.1.1 Tier Three Banks in Kenya**

The Central Bank of Kenya (CBK) classifies commercial banks in Kenya into three tiers. This classification is based on market share, asset base, amount of capital, and the number of customer deposits (CBK, 2016). Tier 1 consists of large banks which have billions of shillings in assets, capital, and customer deposits. In Kenya, there are currently 6 banks classified as tier 1. These six banks control approximately 65.4% of the commercial bank market, 66.7% of total deposits, 90.3% deposit accounts, and 94.10 of loan accounts (CBK, 2017). The second tier consists of eleven commercial banks which control 26% of the commercial banking market, 0.25% total deposits, 7.6% of deposit accounts, and 3.8% of total loan accounts (CBK, 2017). Tier three commercial banks consist of twenty-three banks which control 8.9% of the commercial bank market share, 8.2% of total deposits, 1.8% of deposit accounts, and 1.8% of loan accounts (CBK, 2017).

Over the last few years, the banking sector has shown robust growth. However, when analysed by tier classification, it was established that the pre-tax profits of tier three commercial banks decreased by 2.2% during the period 2015 to 2016. This decline was attributed to five commercial banks in this category posting losses. First community bank realised a loss of Kshs. 41.0 million, Jamii Bora Bank realised a loss of Ksh.490.0 million, and Consolidated Bank realised a loss of Kshs. 277.0 million (CBK2016;2017). While Dubai Bank and Imperial Bank were placed under receivership for their failure maintains adequate capital and liquidity ratios, large non-performing loans and weak corporate governance structures. This indicates that tier three commercial banks in Kenya have challenges that can result or do result in financial distress.

### **1.2 Statement of the Problem**

Financial distress is not a strange concept in the Kenyan banking industry. In the 1980s,1990s, some commercial banks were significantly affected by financial distress. In the recent past; between the years 2015-2016, Chase bank, Dubai bank and Imperial Bank went under receivership due to financial distress. These statistics thus show the necessity of digging deeper into this subject of financial distress in Commercial banks.

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Kariuki (2011) conducted a study on the effect of financial distress on the financial performance of commercial banks in Kenya. Kariuki (2011) established that financial distress effect was very small. In the study, Kariuki (2011) evaluated financial distress using Altaman's Z- score and sampled 22 of the 43 licensed commercial banks. Most of the 22 sampled banks had above average performance and had not shown signs of financial distress. The study by Kariuki covered the period 2008-2011 which coincided with the global financial crisis. This study found that there were conceptual, contextual, and methodological gaps in the work of Kariuki (2011). This research study filled the methodological gaps by only focusing on the variables that cause financial distress amongst banks which according to literature were identified as non-performing loans, leverage, and liquidity. The study filled the conceptual gaps by focusing only on the segment of the commercial banking sector that had shown vulnerability to financial distress. This meant the exclusion on tier one and tier two commercial banks which have a history of robust growth and stability. The study filled the contextual gaps by focusing on the period after the global financial crisis.

### **1.3 Study Objectives**

The study was guided by the following specific objectives:

- (i) To establish the effect of non-performing loans on the profitability of tier three commercial banks in Kenya.
- (ii) To establish the effect of liquidity on the profitability of tier three commercial banks in Kenya.
- (iii) To establish the effects of leverage on the profitability of commercial banks in Kenya.

## **2.0 LITERATURE REVIEW**

### **2.1 Theoretical Framework**

#### **The Financial Accelerator Theory**

In 1996, Bernanke, Gertler, and Gilchrist developed the term financial accelerator. In their work Bernanke *et al.* (1996), demonstrated that significant changes in macroeconomic activity can in some instances be promulgated by a seemingly small shock; this rationalizes the postulations of the existence of an accelerator mechanism. According to Bernanke *et al.* (1996), the financial accelerator is induced by changes in the credit market, which has an impact on the intrinsic cost of borrowing and lending that is associated with asymmetric information. The financial accelerator theory is best rationalized by the principal- agent problem (Bernanke *et al.*, 1996; Kiyotaki and Moore, 1997).

In the credit markets, the principals are the lenders and the agents are the borrowers. The lenders are often not able to obtain information on investment opportunities (project returns), characteristics (creditworthiness) or actions (risk taking behaviour) of the agents without costs. The agency costs are characterised by three conditions which result in the financial accelerator. Firstly, outside financing is often more expensive than internal financing unless the external debt is fully collateralised; this results in the agency cost disappearing as the loan is fully secured.

Secondly, the costs associated with borrowing increases as the amount of borrowing increases, the costs are inversely related to the borrowers' net worth which identifies the ability to repay. Thirdly, a decline in the borrower's net worth reduces the base for internal finance and raises the need for external finance at the same time raising the cost of it.

Further, this theory postulates that the less amount of wealth that the borrower contributes to a project, the more their interest will not be in line with the supplier of the external funds. The borrowers have a higher tolerance for riskier projects which often have high profits. However, to the lender these projects are not favourable as they bear all or most of the cost in case of low project returns. Further, the theory suggests that economic shocks may impair the ability of the borrower to make repayments (Bernanke *et al.*, 1996). This theory was relevant to this study as it provided an understanding of the effect that macroeconomic shocks such as changes in interest rates can have on the ability of the borrower to meet their obligations to the lender. This theory indicates how non-performing loans affect the financial performance of the banks.

### **Capital Irrelevance Theory**

In their seminal work, Modigliani and Miller (1958) postulated that in an efficient and effective capital market, where the firms paid no taxes, had no taxes, where the operating environment has homogeneous risk, where firms have 100% dividend pay-out, and the investors can borrow and lend at the same rate as capital, then the capital structure has no effect on financial distress. They defined the capital structure as being equity and leverage (debt). Modigliani and Miller (1958) concluded that financial distress was as a result of business risk which was mainly indicated by the cost of capital and the earning capacity of the firm which was indicated by the return on assets.

However, this theory faced a lot of criticism from various academicians. The main area of disagreement was on the assumptions of the perfect market (Stiglitz 1969; Jensen and Meckling, 1976, Frank and Goyal, 2003). The assumption that the firms face similar risks, have similar income was proved to be unrealistic given that no firm operates in a homogeneous business environment; the assumption that the individuals can borrow at the same rate as corporations was discredited given that there are considerations that determine the borrowing rate of individuals and corporations (Muigai, 2016). However various financial economists contend that despite the imperfections of the theory, the work of Modigliani and Miller was and is a major contribution to the theory of capital structure by providing an explanation of why the equity and debt conditions of a firm matter (Brealey, Myers, and Allen, 2016). The theory was found to be relevant to this study as it provides a relationship between leverage and financial distress. This provided a platform for empirical analysis of the effect of financial distress, occasioned by leverage, on financial performance.

### **Keynesian Theory of Money**

In "The general theory of employment, interest, and money", Keynes (1936) asserted that there are three reasons why firms and individuals maintain liquid assets. Firstly, Keynes (1936) indicated that there is the speculative motive whereby the firm or individual holds cash in order to be able to take advantage of situations of arbitrage (for example fluctuation of exchange rates or interest rates). Funds for speculative purposes are obtained from reserves, ability to borrow,

and marketable securities for banks and most firms. The second motive for holding cash is for precautionary purposes; the liquid funds are needed for safety and act as a financial reserve. However, there is no need to hold substantial amounts of cash for precautionary purposes. The third motive for maintaining liquidity is for transaction purposes. The firms and individuals need to hold cash to pay bills such as wages, debts, taxes, and dividend.

## **2.2 Empirical Review**

### **Non-Performing Loans and Profitability**

Manyuanda (2014) studied the effect of non-performing loans on the financial performance of Savings and Credit Co-operatives (SACCOs) in Nairobi County. The study sample all the Sacco's operating in Nairobi country. The independent variables of the study included firm size, leverage, and non-performing loans. The dependent variable performance was measured using Return on Assets. The researcher preferred to use ROA as a measure of financial performance as it clearly indicates how well the organisation is using its assets. The study established that a one unit increase in the level of non-performing loans resulted in a 22.9% decline in the level of performance; this decline was found to be statistically significant at the 5% confidence level. Similarly, the study established that a one unit increase in the level of leverage resulted in a 23.3% decline in performance; this decline was found to be statistically significant at the 5% level. The effect of the firm size which was measured by the natural log of assets base was found to be positive and statistically significant. Specifically, a one unit increase in the firm size will result in a 159% increase in profitability. That study established that there is a relationship between non-performing loans and financial performance of Saccos. This study aimed to establish the relationship between non-performing loans and profitability of tier three commercial banks.

Isanzu (2017) developed a multi-linear balanced panel regression model for the purposes of establishing the effect of credit risk on the financial performance of Chinese Banks. The study targeted the five largest banks in China and covered the period 2008-2014. Credit risk was measured using nonperforming loans, capital adequacy ratio, impaired loan reserve, and loan impairment charges. The dependent variable financial performance was measured using ROA. That study established that nonperforming loans have a negative and significant effect on the banks ROA; a one-unit increase in nonperforming loans was established to result in a 0.10 unit decrease in ROA. Capital adequacy was found to have a positive and significant effect on ROA; a one-unit increase in capital adequacy resulted in a 0.06 unit increase in the ROA. The beta coefficient for impaired loans reserve ratio was 0.006 and statistically significant at the 5% confidence level. The loan impairment charges were found to have a positive and statistically significant effect on the ROA. That study is relevant to this study as it provides a framework for understanding the effect of nonperforming loans on profitability.

### **Liquidity and Profitability**

Ibe (2013) motivated by the need to find a solution to the liquidity management problems faced by commercial banks in Nigeria conducted a study to evaluate the impact of liquidity management on the profitability of commercial banks. The study covered the period 1995-2010. The study sample was composed of three commercial banks namely United Bank of Africa

(UBA), Diamond Bank PLC, and Afri bank. In the study, liquidity was measured using the variables cash and short-term funds, bank balances, and treasury bill and certificates. Profit after tax was used as the measure of profitability. The study used regression analysis to estimate the relationship between the dependent and the independent variables. That study established that cash and short term funds had a negative effect on the profitability of the three banks. The effect of bank balances and treasury bills was found to have an insignificant effect on performance. That study is relevant to this study as it provides an indication of the variables that can be used to represent liquidity.

Kariuki (2013) estimated the Z equation developed by Altman (1968) to determine the effect of financial distress on the performance of commercial banks in Kenya. The equation estimated was given as  $Z = 6.56T_1 + 3.26T_2 + 6.72T_3 + 1.05T_4$ . Where  $T_1$  denoted the ratio of (current assets – current liabilities)/Total assets,  $T_2$  denoted the ratio of Retained earnings to Total assets,  $T_3$  denoted the ratio of Earnings before interest and tax to Total assets, and  $T_4$  denoted the ratio of Book value of Equity to Total liabilities. Financial performance was given by the Return on Assets (ROA). The study sampled twenty-two banks, eleven of which were listed on the Nairobi Securities Exchange (NSE) and the others were non-listed. The study covered the period 2008-2012. The study established that most of the banks under study had financial distress, with the non-listed banks suffering more from financial distress compared to the listed banks. The study established that financial distress has a significant and negative effect on the financial performance of banks selected for the study. The study by Kariuki (2013) measured financial distress using Altman's Z score. However, the non-performing loans, leverage, and liquidity are important indicators of financial distress, especially for commercial banks. Thus excluding them from the study means that the results are not comprehensive. This study purposed to fill this research gap.

### **Leverage and Profitability**

Kihumba (2013) studied the effect of capital structure on the financial performance of listed cement manufacturing companies in Kenya. Financial performance was measured by the net profit margin, return on capital employed (ROCE) and return on equity (ROE). The capital structure was given as the ratio between debt and equity and the ratio of debt to total funds. Data for the study was collected from the financial statements of the three cement factories listed on the Nairobi Securities Exchange. The study used longitudinal research design. Kihumba (2013) used Pearson correlation coefficient and estimated a regression equation. The study established that the capital structure had influence on financial performance, although not exclusively. The total debt was found to have a significant effect on net profit and ROCE. While long-term debt and total debt were found have an insignificant effect on financial performance. This study purposed to fill the research gap left by Kihumba (2013) by establishing the effect of leverage on the profitability of tier three commercial banks.

Edson (2015) studied the effect of financial leverage on commercial banks profitability in Tanzania during the period 2007-2013. The study sampled commercial banks that were listed on the Dar es Salaam Stock Exchange (DSE). The study sample consisted of only four commercial banks namely Commercial Rural Development Bank (CRDB), National Microfinance Bank



(NMB), and Dar es Salaam Community Bank (DCB). Profitability was measured using return on ROAA and ROAE. Leverage was measured using the Debt Ratio. The study established that the commercial banks had large amounts of leverage averaging 89.9%, 87.7% and 80.2% for CRDB, NMB and DCB plc respectively. Furthermore, the profitability measured in terms of ROA for CRDB, NMB and DCB are 3.7%, 5.1% and 3.7% respectively while that which is measured in terms of ROE are 25.4%, 29.6% and 14.5% respectively as mean values. The results of the Anova analysis indicated that the effect of financial leverage on ROAA and ROAE was negative and statistically insignificant at the 5% confidence level.

### **3.0 RESEARCH METHODOLOGY**

#### **3.1 Research Design**

The research design refers to the approach to be used to bring together the different components of the study in a logical and coherent manner in order to ensure that the objectives of the study are met (Bachman and Schutt, 2016). The research design determines the method of data collection, the Operationalisation and measurement of terms, and analysis of data. The research design is dictated by the research questions. The casual research design was adopted for this study. According to Beach and Pedersen (2016), this approach is suitable for understanding a phenomenon which has a conditional form If X, then Y. Wangige (2016) recommends the use of the casual research design because it measures the effect a specific change will have on existing norms and assumptions. The casual effect is present when change in one phenomenon, usually the independent variable, typically results in change on another phenomenon, usually referred to as the dependent variable.

#### **3.2 Target Population**

The research questions provided in chapter one address issues that are of great importance to groups of individuals known as the research population. The research population is generally a large collection of individuals or objects that are the focus of a query (Castillo, 2009). The research population has similar characteristics; the individuals or objects have certain common, binding characteristics or traits (Alzahrani, 2012). The research population for this study were the 23 banks categorized as tier three by the central bank of Kenya (Appendix 1).

#### **3.3 Sample Population**

This study employed census sampling whereby all the firms in the target population were used for analysis. This procedure was preferred because the study population was small thus making it possible to collect the data. Additionally, the census solves the accuracy problems associated with sampling.

#### **3.4 Data Collection Instruments**

The study used quantitative secondary data. The data was collected from the financial statements and annual reports of the commercial banks selected for this study. Additionally, the study collect data from publications from the Central Bank of Kenya. The data was collected for the

period 2010-2016. The data was collected from the official website of the individual commercial banks and the Central Bank of Kenya. Where the data was not available over the internet, the researcher visited the head offices of the respective banks.

### 3.5 Data Analysis

The data collected was be tabulated, coded, and cleaned before analysis. Tables were used to present the data collected. Multiple regression model was estimated in order to establish the effect of non-performing loans, liquidity, and leverage on profitability. The regression equation was estimated using Statistical Packages for Social Sciences (SPSS).

#### 3.5.1 Analytical Model

The study used a multiple linear regression equation to estimate the effect of financial distress on the profitability of tier three commercial banks in Kenya. The study adopted the model similar to that used by Mwangi (2012)

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon \dots \dots \dots (3.1)$$

Where Y denotes profitability,  $\beta_0$  denotes the constant,  $\beta_1$ ,  $\beta_2$ , and  $\beta_3$  denote the regression coefficients which indicates the rate of change of the dependent variable as a function of changes in the independent variable,  $X_1$  denotes the non-performing loans,  $X_2$  denotes liquidity,  $X_3$  denote leverage, and  $\varepsilon$  denotes the error term.

#### 3.5.2 Diagnostic Tests

In order to ensure the validity of the model used in the study, the data collected was subjected to diagnostic tests. The diagnostic tests were performed by the evaluating the model's statistical structure (Everitt and Skrondal, 2010). The diagnostic test can be in form of graphs, qualitative analysis, and hypothesis tests. The study tested the time series data for normality, multicollinearity, and heteroskedasticity.

#### 3.5.3 Normality Tests

These tests are conducted in order to determine the distribution of the data. Data that is not normally distributed provides estimates that have incorrect t-tests, F-tests, and chi-square test results (Razali and Wah, 2011). Non-normal distribution occurs when one of the variables has the wrong functional form. Kolmogorov-Smirnov (KS) Test was used to check for normality. The KS test is defined by the following hypothesis:  $H_0$ : The data follows normal distribution and  $H_A$ : The data does not follow a normal distribution (Pennsylvania State University, 2017a). Probabilities that are  $>0.05$  indicates that the data is normally distributed while  $< 0.05$  indicates that the data is not normally distributed.

#### 3.5.4 Multicollinearity

When two or more of the independent variables in the model have a high degree of linear relation, that is, one or more of the independent variables can predict the value of another variable with a high degree of accuracy, then multicollinearity is said to be present. Where multicollinearity is present, the coefficients estimated by the multiple regression models may change erratically due to any small change in the explanatory variables. The presence of multicollinearity does not reduce the reliability of the model but affects the individual predictors. Variance Inflation Factors (VIF) and Tolerance tests were used to test for the presence of multicollinearity in the model. A VIF of greater than five but less than 10 indicates moderate multicollinearity, VIF level which is higher than 10 indicates serious multicollinearity requiring correction (Pennsylvania State University, 2017b). A VIF value of between 1 and 5 indicates little or no correlation. A high tolerance value indicates an overlap between the variables, the lower the tolerance values indicate high degrees of correlation. According to Hossain (2012) tolerance values of less than 0.2 are as a rule of thumb considered unacceptable. In order to deal with multicollinearity, the data can be transformed into the first difference (Gujarati, 2003).

### **3.5.6 Heteroskedasticity**

Heteroskedasticity is said to be present when the disturbances in the regression model have similar variances (Gujarati, 2003). The presence of heteroskedasticity in the model results in unbiased estimates of the relationship between the dependent and independent variables. However, the standard errors and the inferences may not be accurate. The White Test was used to check for heteroskedasticity. The White-Test is a test of the null hypothesis of homoscedasticity against the heteroskedasticity of an unknown form (Econometrics Views, 2017). The observed  $R^2$  and the chi-square are estimated and used to indicate the presence of homoscedasticity. If the calculated chi-squared value obtained for the observed  $R^2$  is greater than the critical chi-square value at a chosen level of significance (5%) then the null hypothesis of homoscedasticity is accepted. To deal with heteroskedasticity in the model, a weighted regression can be used (Gujarati, 2003).

### **3.5.7 Ethical Considerations**

In keeping with the moral principles required of any research work, ethical standards and guidelines were taken into consideration from the inception of the research project to the completion. The data collected was only used for this. Permission was obtained from the National Commission for Science, Technology, and Innovation.

## **4.0 DATA ANALYSIS, INTERPRETATION, AND DISCUSSION**

### **4.1 Response Rate**

The researcher was only able to collect data from twenty of the twenty-three commercial banks. Most of the data was collected over the internet. Information not available electronically was sourced from the hard copies of the financial statements of the commercial banks. However, some commercial banks declined to provide financial statements. According to Mugenda and Mugenda (2003), a sample of 30% of the population is considered representative while a sample of above 50% is considered good. Thus the sample used can be considered adequate for the study.

## 4.2 Diagnostic Tests

The three main assumptions of any regression models are non-multicollinearity, normality and homoscedasticity (Berenson, Levine and Krehbiel, 2009). The study data was subjected to test for normality, multicollinearity, and heteroskedasticity. In order to ensure that the data collected was appropriate for regression analysis, the data was transformed into logarithmic form. Thereafter, the data was transformed into the first difference.

### 4.2.1 Normality Test

The test for normality was conducted using SPSS. The null hypothesis for the Kolmogorov-Smirnov (KS) test is that the distribution of the data collected follows a normal distribution. The alternative hypothesis states that the data collected is statistically different from the normal distribution. The results of the KS test are presented in Table 4.1.

**Table 4.1: Results of Normality Test**

	Kolmogorov-Smirnov <sup>a</sup>		
	Statistic	df	Sig.
ROA	.928	28	.789
Non-Performing Loans	.544	28	.608
Leverage	.797	28	.841
Liquidity	.521	28	.904

Source: Study Data (2017)

The results of the SPSS output summarised in Table 4.1. The significance (sig.) level for the ROA, non-performing loans, leverage, and liquidity were 0.789, 0.608, 0.814, and 0.904 respectively. All the significance values are greater than the 0.05 critical values. Therefore, the null hypothesis is accepted. The data collected was normally distributed.

### 4.2.2 Multicollinearity

The test for multicollinearity was conducted using SPSS. The results of the VIF and Tolerance tests were analysed in order to establish the presence of multicollinearity. According to Hossain (2012) where the VIF is more than 10 and the tolerance less than 0.2 then the model is considered to have multicollinearity issues. The results of the multicollinearity test are presented in Table 4.2.

**Table 4.2: Multicollinearity Test**

Model	Collinearity Statistics	
	Tolerance	VIF
Non-Performing Loans	.521	1.921
Leverage	.385	2.600
Liquidity	.626	1.597

Source: Study Data (2017)

The results in Table 4.2 indicate that the Tolerance levels for non-performing loans, leverage, and liquidity were 0.521, 0.385, and 0.626 respectively. The tolerance values are greater than 0.2. The VIF values for non-performing loans, leverage, and liquidity were found to be 1.921, 2.600, and 1.597 respectively. The VIF values are less than 10. Given that the VIF values are less than 10 while the tolerance values are greater than 0.2 then the null hypothesis was accepted, the data collected does not suffer from multicollinearity.

#### 4.2.3 Heteroskedasticity

In the White Test, the null hypothesis states that the variance of the residual is constant which would imply that the data is homoscedastic. The alternative hypothesis states that the variance of the residual is not constant which implies the presence of heteroskedasticity (Asteriou and Hall, 2011). The White-Test was conducted using Econometrics View (E-Views) software. The regression model was first run in order to obtain the squared residuals. Thereafter, White Test was conducted in order to obtain the observed  $R^2$  and chi-square. Table 4.3 presents the results of the White Test.

**Table 4.3: Test for Heteroskedasticity**

Heteroskedasticity Test: White				
F-statistic	25.3751	Prob. F(3,24)		0
Obs*R-squared	21.2884	Prob. Chi-Square(3)		0.0001
Scaled explained SS	17.2181	Prob. Chi-Square(3)		0.0006

Source: Study Data (2017)



The results presented in Table 4.3 indicate that the probability of the chi-square for the observed  $R^2$  is less 0.0001 which is less than the critical value of 0.05 thus the null hypothesis is rejected. The alternate hypothesis is thus accepted. The results imply that the data has heteroskedasticity. In order to deal with the problem, weighted regression equation was estimated.

### 4.3 Inferential Analysis

In this research project, multiple regression analysis was conducted in order to determine the effect of financial distress on the profitability of tier three commercial banks in Kenya. Analysis of the study data was performed using SPSS. Table 4.4 gives a summary of the regression model.

**Table 4.4: Model Summary**

Model Summary <sup>b</sup>				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.561 <sup>a</sup>	.315	.229	.1168238
a. Predictors: (Constant), Liquidity , Non-Performing Loans, Leverage				
b. Dependent Variable: ROA				

The computed R is 0.561. This indicates that the association between the dependent variable and the predictors is 56.1%. The  $R^2$  (which is referred to as the coefficient of determination presents the degree to which changes in the dependent variable are explained by the independent variables in the model (Gujarati, 2003). The computed  $R^2$  is 0.315 which implies that 31.5% of variation in the profitability of tier three commercial banks is explained by financial distress (financial distress being measured by non-performing loans, leverage, and liquidity). The remaining 68.5 % is explained by variables not present in the model. The adjusted  $R^2$  indicates the fit of the model and can take the value of less than or equal to 1. Values closer to 1 indicate a better fit while negative values indicate that the model terms do not predict the response (Gujarati, 2003). The computed adjusted  $R^2$  is 0.229. Indicating that the model terms have predictive power.

Table 4.5 presents the results of the ANOVA test or F-test. The significance of the multiple regressions is indicated by the F-test (Gujarati, 2003).

**Table 4.5: Results of Anova Analysis**

ANOVA <sup>a</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.151	3	.050	3.680	.026 <sup>b</sup>
	Residual	.328	24	.014		
	Total	.478	27			
a. Dependent Variable: ROA						
b. Predictors: (Constant), Liquidity , Non-Performing Loans, Leverage						

Source: Study Data (2017)

As indicated in Table 4.5 F value was 3.680 and the p value was computed as 0.026. The p value is less than 0.05 which implies that the regression model is significant. The computed F statistic is 3.680 which is greater than the critical value 2.95 (the critical value is obtained from the F distribution table). This implies that the data set is appropriate for analysing the relationship between financial distress and profitability. The independent variables non-performing loans, leverage, and liquidity influence the profitability of tier three commercial banks in Kenya.

Table 4.6 provides a summary of the multiple linear regression coefficient estimates including the intercept and the significance levels. The coefficients are the estimates that arise from the regression analysis; they give the variance in the dependent variable attributable to the independent variables (Martin, 2017).

**Table 4.6: Regression Coefficients**

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-2.010	1.107		-1.815	.082
	Non-Performing Loans	-.098	.221	.739	3.158	.004
	Leverage	.353	.300	.321	1.179	.025
	Liquidity	.264	1.115	.051	.237	.815
a. Dependent Variable: ROA						

The results in Table 4.6 shows that when non-performing loans, leverage, and liquidity are taken into account and the constant held at zero the ROA will be -2.0. However, the significance value is 0.082 which is greater than the critical value of 0.05. This implies that the constant is not statistically significant.

The first specific objective of the study was to determine the effect of non-performing loans on the profitability of tier three commercial banks in Kenya. The results presented in Table 4.6 show that non-performing loans have a negative and statistically significant effect on the financial performance of tier three commercial banks in Kenya ( $\beta = -0.098$ ,  $p= 0.004$ ). According to the results computed a 1% increase in the number of non-performing loans will lead to a 9.8% decrease in the financial performance of tier three commercial banks in Kenya. These findings are similar to those found by Manyunda (2014), Norman, Pervin, Chowdhury, and Banna (2015), and Isanzu (2017).

The second specific objective of the study was to establish the effect of leverage on the financial performance of tier three commercial banks in Kenya. The results presented in Table 4.6 indicate that leverage has a positive and statistically significant effect on profitability ( $\beta = 0.353$ ,  $p=0.025$ ). This implies that a 1% increase in the amount of leverage will result in a 35.3% increase in the profitability of tier three commercial banks in Kenya. These findings are inconsistent with the findings of Kihumba (2013), Enekwe, Agu, and Nnoglobogu (2014) and Edson (2015) who established that leverage has a negative effect on profitability. However, the study findings are consistent with the findings of Maseno (2013) who found that leverage has a positive effect on the profitability of commercial banks in Kenya. According to Maseno (2013), banks increase their percentage of debt, which is often used to finance their operations, as this helps them to achieve higher financial performance. This holds true because the income of the bank is earned by loaning borrowed funds.

The results presented in Table 4.6 indicates that liquidity has a positive but statistically insignificant effect on the financial performance of tier three commercial banks in Kenya ( $\beta=0.264$ ,  $p=0.815$ ). This implies that a one percent increase in the liquidity of the tier three commercial banks will lead to a 26.4% increase in the profitability of tier three commercial banks in Kenya. However, the increase is statistically insignificant. This finding is inconsistent to that of Ibe (2015) who established that liquidity has a negative effect on profitability of commercial banks in Nigeria. According to Davis (2011), firms which belong to business groups (most of the commercial banks sampled belonged to business groups) liquidity does not necessary connote higher probability of failure due to the pooling of funds. However, amongst smaller firms, liquidity is negatively related to profitability and is the key reason that these firms fail.

The results of the regression analysis allows for equation (3.1) to be rewritten in the form presented in equation (4.1).

$$Y = -0.098X_1 + 0.353X_2 \dots\dots\dots(4.1)$$

The general objective of the study was to establish the effect of financial distress on the financial performance of tier three commercial banks in Kenya. The theoretical and empirical literature suggests that financial distress has a negative effect on the profitability of an organisation. Equation 4.1 indicates that the financial distress is mostly associated with non-performing loans. The level of debt improves the financial performance and hence reduces the chances of distress.

## **5.0 CONCLUSIONS AND RECOMENDATIONS**

### **5.1 Conclusion**

The study found that the non-performing loans have a negative effect on the profitability of tier three commercial banks in Kenya. However, it is necessary for banks to issue loans. For commercial banks, loans form a significant amount of their asset structure. The loans are needed to generate returns. However, when these loans and the interest charged are not recovered results in the income of the bank being used to pay for the loss and to finance any recovery effort. Based on this finding, the study concludes that nonperforming loans which are indicators of financial distress can significantly reduce the profitability of tier three commercial banks.

The findings indicate that leverage has a positive effect on the profitability of tier three commercial banks in Kenya. It is theorised that leverage is used to grow and expand businesses. Additionally, the inclusion of debt in the capital structure has tax benefits. It can thus be concluded that level of leverage held by tier three commercial banks should be increased so as to increase profitability. The main objective of the organisation is achieved by maximising the profit levels.

The study found that liquidity has a positive but statistically insignificant effect on the financial performance of tier three commercial banks in Kenya. Based on this finding the study concludes that although liquidity is used by the commercial banks as a means of warding off financial distress, the overall effect is inconsequential to financial performance. Assets which could have been used to finance growth and expansion are laid idle.

### **5.2 Recommendations**

Based on the findings, this study recommends that the tier three commercial banks review their mix of loans and level of leverage. This recommendation is based on the finding that non-performing loans have a negative effect on profitability while leverage has positive effects. Where the banks have too many non-performing loans, the amount of loss will exceed the amount of profit realised from using leverage to provide financing for their activities. The study recommends that the tier three commercial banks should increase the level of debt in their balance sheets. This is based on the finding that leverage has a positive effect on financial performance which reduces the chances of financial distress.

At the policy level, the study recommends that the CBK should review the liquidity requirements placed on commercial banks. This is based on the finding that liquidity does not improve the financial performance of the commercial bank. The amount held as liquid assets can be used for investments.

### **5.3 Recommendations for Further Research**

This study provides insight into the relationship between financial distress and financial performance of tier three commercial banks in Kenya. The results indicate that the indicators of financial distress namely non-performing loans, leverage, and liquidity occasion only 31.5% of the variation in the level of financial performance. This indicates that there are other factors that impact the level of financial performance. These factors include interest rates, exchange rates, economic growth, employment level, amongst others. Altman (1984) avers that financial distress is indicated by a number of endogenous and exogenous factors. This study recommends that further studies should be conducted that incorporate the other variables.

This study sought to provide an empirical understanding of the effect of financial distress indicated by non-performing loans, leverage, and liquidity on tier three commercial banks in Kenya. The study was necessitated by the fact that the banks in this category have been hard hit by financial distress which eventually led to failure. However, the practice world over is to have the other tiers of commercial banks which do not face financial distress be included in the study. The inclusion of tier one and tier two commercial banks in the study would provide a better platform for analysis and comparison. The study, therefore, recommends that the effect of financial distress on tier one and tier two commercial banks be included in further studies.

Further, the study was undertaken in Kenya which represents the context of an emerging economy with economic, regulatory, and political characteristics that are unique to the country. Additionally, the study of only 23 commercial banks could be considered not to be representative of the businesses operating within the economy. The application of the study results may, therefore, be considered to be too restrictive. Therefore, the study recommends that future studies should cover broader jurisdictions, taking into consideration the unique characteristics of those economies.

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