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Effect of Credit Diversification on Financial Distress Prediction of Commercial Banks Listed At the Nairobi Securities Exchange, Kenya

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Abstract: *The study sought to determine the effect of credit diversification on financial distress prediction of commercial banks listed at the Nairobi securities exchange.The study used a cross sectional and time series research design and the target population for this was eleven listed commercial banks. A sample size of seven listed Commercial Banks was be used. Simple random sampling techniques were used in the study. Primary data was collected using interview guide while secondary data was collected from Banks' books of accounts. Inferential statistics were used in data analysis. Regression results revealed that credit diversification had (β =. - 438, p = .034, < .05). The study concluded that credit diversification has a significant effect on financial distress prediction.Credit diversification activities have reduced the probabilities of default on the side of borrowers through introduction of new types of credit facilities. Credit risk can be reduced through specialization of lending.The study recommended that the management of banks should introduce new types of credit facilities to increase on their credit portfolios. Besides, the management of banks should reduce on credit risk through specialization of lending.*

Keywords: *Credit diversification, solvency ratio, return on equity, financial distress prediction*

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I. Introduction

Banking industries around the world have a myriad of challenges; one of it being financial distress. Financial Distress is a concept in finance that denotes lack of liquidity engulfed with financial difficulties that result into inability of any firm to attend to its financial obligations with much ease (Outecheva, 2007). Financial Distress is characterized by a series of distress points that assumes a continuous nature from one distress point to another. On the onset of financial distress there is cash flow reduction from positive to negative which might result in solvency and or liquidity shortfalls (Turetsky & MacEwen, 2001).

A bank under financial distress can incur costs related to the situation, such as more expensive financing, opportunity costs of projects, and less productive employees. Employees of a distressed firm usually have lower morale and higher stress caused by the increased chance of bankruptcy, which could force them out of their jobs. Financial distress raises the banks' business risk and lowers its creditworthiness with investors and clients. If precautionary measures are not adopted limited access to funds typically results in a bank failing (Tan, 2012).

Banks face two forms of financial distress that is default on a debt payment, and an attempt to restructure the debt in order to prevent the default situation. It occurs when a bank does not have capacity to fulfill its liabilities to the third parties and whenever the countries in which the banks are operated are having a recession, the banks would be highly exposed to financial risks, bank crises and bank failure (Demyanyk & Hasen, 2010). A typical example of corporate financial distress according to Andrade and Kaplan (1998) is the delisting of public companies in Indonesia during the 2008 financial crisis which led to increased proportion of non-performing loan of commercial banks.Local banks in Kenya, Nigeria, Uganda and Zambia have been closed down because of insolvency and illiquidity caused by non-performing loans. In Kenya Dubai Bank, Imperial Bank were closed down in 2015 due to financial distress, Chase Bank in 2016 faced financial challenges prompting intervention from the central bank of Kenya (Mulwa & Kosgei, 2016).

In Nigeria banks such as Bacus Merchant Bank Ltd, ABC Merchant Bank Ltd, African Express Bank Ltd, Allied Bank of Nigeria, Allstates Trust Bank, Alpha Merchant Bank, Amicable Bank of Nigeria, Assurance Bank of Nigeria, Century Merchant Bank were placed under liquidation and subsequently closed down (Gebreslassie, 2015). Many more local banks were distressed and subject to some form of "holding action" imposed by the CBN and Nigeria Deposit Insurance Corporation (NDIC) in 2015. The Bank of Zambia (BOZ) closed three financial institutions in 2015. The financial institutions are; Genesis Financial, Cetzam Financial

Services Plc. and the local subsidiary of Meridien BIAO; a bank which had been founded in Zambia in the 2000s and had expanded into an international bank with subsidiaries in many African countries was closed in 2011, but was subsequently restructured and re-opened in 2012 (Mwenda & Mutoti, 2011).

Severity of bad debt problems in the banking industry has been attributable to problems of adverse selection and moral hazard. Low levels of bank capitalization experienced, access to public-sector deposits through the political connections of bank owners, excessive ownership concentration, regulatory forbearance, impaired loan quality due to information asymmetry caused bank owners to take excessive risks with depositors' money and hence are causative agents of financial distress (Gebreslassie, 2015). Kariuki (2013) noted that the expansion rate of the local banks and non-banking financial institutions temporarily slowed down in Kenya due to a series of bank financial distress that has been experienced in the Kenyan banking industry.

Financial distress is a problem that affects not only the banking sector but also firms in other sectors of the economy across the globe. A study done on financial crisis in Malaysia between 1997 and 1998 by Khor (2005) was triggered by a private corporate debt of companies listed in the Bursa Malaysia, Malaysian's Stock Exchange, that caused distress in the banking and financial sector. Khor (2005) argues out that many companies at the time failed to meet their obligations to repay their loans. Bank diversification refers to combining conglomerate activities such as commercial banking, securities trading, insurance and other financial services (Baele, De Jonghe & Vennet, 2006) or forming a conglomerate of many banks through a bank holding company or banking groups (Kahloul & Hallara, 2010).

According to Mercieca, Steve, Schaeck and Wolfe (2007), a diversified portfolio that combines a variety of loan products that belong to different asset classes in an optimal way will help a bank to continue offering services to its clientele even in times of an economic storm than if it would provide loans in the same asset category. Portfolio diversification can help banks steer away from densely populated industry sectors and discover underserved markets, such as the secondary market for manufactured home loans. Not only will this expose a bank to a larger investment universe with a wider selection of asset classes, but it will also provide more attractive and lucrative opportunities for growth. A more diversified portfolio allows banks to enhance asset quality, performance and resilience. It also minimizes portfolio risks and reduces the need for external financing along with the high costs associated (Mercieca et al., 2007).

Financial institutions face challenges in the process of diversifying its services. Banks sometimes experiences portfolio volatility which lowers portfolio performance (Markides, 1995). The researcher further posits that investors in the banking industry rarely achieve their expected returns as a result of diversification because of volatility caused by market risk. There are several types of bank diversification which include amongst others, geographical diversification, international diversification (Lin, 2010; Obinne, Uchenna, Nonye, & Okelue, 2012), income diversification (Gambacorta, Scatigna, & Yang, 2014; Kiweu, 2012), deposit diversification, asset diversification and diversification into different economic sectors (Berger, Hassan, & Zhou 2010); Goetz, Laeven, & Levine, 2013).Diversification is a concept that can be traced back to 1989 in the case of Second Banking Directive which allowed European banks to engage in functional diversification across activities such as investment banking, insurance, commercial banking and other financial services (Baele et al., 2007). In America, the 1999 Gramm-Leach-Bliley Act allowed banks to expand into more non-interest banking activities (Ebrahim & Hasan, 2008; Elyasiani & Wang, 2012).

A snip preview of most of the distressed banks in Kenya for example Chase bank, Imperial bank and Dubai banks reveals that the banks cannot meet their long term and short term financial obligations (Mulwa & Kosgei, 2016). Chase bank was declared bankrupt in 2016 while both Imperial bank and Dubai bank were closed in 2015. This lowered the level of consumer confidence in the banking sector. The central bank of Kenya leadership in mid-2015 was changed as a strategy to address the poor financial performance of most of the financial institutions. This deteriorated further after the introduction of the interest rate cap in August 2016, which was expected to lower interest margins and result in slower credit growth. The non-performing loans ratio among the banks has risen to a 10-year high in the third quarter of 2016 as commercial banks struggled with loan defaults in a tough economic environment. The rise was mainly driven by business borrowers and has affected largely banks in tier 2 and 3 banks (Mwanza, 2017). This study sought to determine the effect of bank diversification on financial distress of banks listed on Nairobi securities exchange.

II. Statement Of The Problem

In Kenya, financial institutions such as, Kenya Commercial Bank and National Bank of Kenya are some of the financial institutions listed on Nairobi Securities exchange that are undergoing restructuring as a turnaround strategy to mitigate financial distress. National bank has closed some of its branches and merged some in a restructuring strategy to improve profit margins (Kivuva, 2018). Based on the banks mentioned above which have faced financial challenges, financial distress among banking institutions cannot be ignored.

In view of this discrepancy, there is need to determine suitable types of bank diversification that can improve the cash flow position, performance and financial position of the banks. If this is not addressed, the influence of financially distressed banks may trickle down to the whole banking industry and affect viability of financial institutions in the economy. This is a dangerous precedent for the future of the banking industry. Therefore this study sought to examine the effect of credit diversification on financial distress prediction of commercial banks listed on Nairobi Securities Exchange. The remainder of this article paper is organized as follows. Section 2 covers review of past studies and defines the main hypothesis. Section 3 covers materials and methods. Section 4 covers the results and discussion. Section 5 presents the conclusion and recommendations.

III. Literature Review And Hypothesis Development

Credit Diversification and Financial Distress Prediction

Credit diversification activities aims at reducing the probabilities of default risk in the side of borrowers through allocation of deposit and non deposit borrowing funds over different groups of customers in new sectors or in new geographical locations or by introducing new types of credit facilities (Jahn, Memmel, & Pfingsten, 2013).The reduction of credit risk could be also achieved through specialization of lending. This specialization can be achieved by lowering the ratio of diversification either in credit types or the diversity of customers who are qualified for loans, all this enhances of banks'ability to screen out doubtful loans requests. Their findings were general in nature; they did not tell us the various new credit facilities that are introduced.

Tabak, Fazio and Cajueiro (2011) investigated the effect of credit portfolio diversification of Brazilian banks on their risk and return. A sample size of seven banks listed in Tehran Stock Exchange was considered between 2009 and 2014.Panel data multivariate regression method was used in this study. The researchers found that there is a significant relationship between credit diversification and risk. They further found that foreign and public banks are less often influenced by the degree of credit diversification.

Rossi, Schwaige and Winkler (2009) analyzed the effects of credit portfolio diversification on risk, efficiency and bank capital of Austria's commercial banks. They operationalized credit portfolio diversification into size of the borrowing companies industry. A time span of 6 years was considered that is between 1997 and 2003. They found that although credit diversification negatively affects cost efficiency, efficiency increases the banks profits and reduces the banks' realized risk.Baele et al. (2007) researched on whether the stock market evaluated bank diversification. They sought to determine whether banks with diversified credit portfolios had a competitive advantage in terms of risk with their competitors. A sample size of 17 European banks was considered and a time interval of 6 years between 1999 and 2004 was used. Panel data multivariate regression method was adopted. The results indicated that credit diversification has non linear effect on their special risk. The researchers were interested in finding out whether diversified credit portfolios had a competitive advantage in terms of risk with their competitors.

Jahn, Memmel, and Pfingsten (2013) investigated the effect of credit portfolio concentration on credit risk. They divided the short term and long term credits of the years 2003 to 2011 of Germany Banks to 23 different industries. The results showed that the banks which have specialized its lending to a special industry are faced with less credit risk and hence minimum financial distress. Concentrated banks recorded less loss of credit. This implies that banks should invest in diversified or concentrated credit portfolio if they have to hedge themselves from financial distress. Their study was not industry specific and hence varied results.

Behr et al.(2007) studied the effect of diversification on the risk-return characteristics of German banks. The rationale of the study was to determine whether the benefits of risk sharing are more than specialization or not. They used the seasonal data of borrowers for determination of degree of diversification of banks credit portfolio and found that the return on specialized banks has become slightly more than that of diverse banks. Specialized banks have less cost of non-current receivables and ratio of non-performing credits and the standard deviation of these two ratios has been less in diversified banks.

Acharya, Hasan, and Saunders (2006) did a study on the effect of concentration and diversification on the banks risk and return. They drew data from the unique banks' credit portfolios. The sample size was 105 Italian banks and the data period whose data between 1993 and 1999. The researchers investigated whether the selection of diversification by the bank leads to higher return and lower risk or not. They found that credit diversification does not necessarily lead to better performance or higher security for the banks as it is not a guarantee that it lowers risk potential of the banks.

Jahn (2013) researched on "Banks concentration versus diversification in the loan portfolio: New evidence from Germany", they investigated the effect of credit portfolio concentration on credit risk. They divided the short term and long term credits of the years 2003 to 2011 of German banks to 23 different industries. It was found that specialization in loan portfolio contributed to reduce the credit risk to be less than average. This specialization will lead to enhance the banks abilities in selection and monitoring loans more efficiently by getting more knowledge in specific industries, and identifying the types of risks that they are facing in specific. Nevertheless, it should not be understood that the specialized loans are not risk free.

Therefore, banks should make a tradeoff between the benefits and the costs of offering diversified or specialized credit facilities.

Alshomaly (2014) researched on bank diversification and the systematic risk of equity portfolio. The sample size was 17 Jordanian banks that are listed in Amman Stock Exchange for the period from 2006 to 2012. Bank loans were separated into five credit classes which are individual, mortgage, small business, large business, and government loans. The researcher adopted Herfindahl Hirschman indexin order to estimate the diversification degree of credit portfolio. The results showed that the Jordanian banks were more credit diversified as the highest diversification value was 0.21. This meant that credit diversification is a steady activity by Jordanian banks. The study further found a weak positive relationship between the systematic risk and credit diversification. The literature reviewed above led to the following hypothesis statement:

H_A1: *Credit diversification has a significant effect on financial distress prediction of commercial banks.*

IV. Material And Methods

The researcher used both cross-sectional and time series designs because the current study used panel data and it specifically focused on how diversification by Banks' changes over time between 2012 and 2016. This research designs were suitable for the study because they deal with the observations on the same subjects in different times. Panel data was employed because it helps to study the behavior of each bank over time and across space (Baltagi, 2005). The target population comprised of the eleven listed commercial banks at the Nairobi Securities Exchange as at May 2018. The sample size was arrived at using the following formula:

$n = {NC^2}/{C2 + (N-1)\,e2} = (11 \times 0.25^2) \div (0.25^2 + (11 - 1)\ 0.05^2) = 7$ Banks where n=sample size; N=population size; C=Coefficient of variation which is ≤ 30%; e = margin of error which is fixed between 2-5%). The study sample was calculated at 25% coefficient of variation and 5% margin of error (Nassiuma, 2000).Simple random sampling was used to identify thebanks whose data was used in this study. The study period was between 2012 and 2016. Panel data was collected from banks books of accounts.The document analysis guide wasused to capture all relevant secondary data and it had columns to capture the data on independent and dependent variables for the years under consideration.After assembling books of accounts for respective banks under study, the researcher extracted relevant data from the book of accounts with the help of the documentary analysis guide.

Data analysis is a systematic process which applies statistic techniques to evaluate data through inspecting, transforming and modeling data to draw useful information for decision making (Wagala, Islam,& Nassiuma, 2012). Data was analyzed quantitatively using descriptive and inferential statistics. The descriptive statistical techniques used in the study were percentages and frequencies. In regards to inferential statistics, correlation and regression analysis were used in the study. The yard stick for interpretation of the output of the Karl Pearson correlation analysis table was based on scholarly works of Wong & Hiew (2005). The researchers opined that a correlation coefficient value (r) ranging from 0.10 to 0.29 means that there exist a weak correlation between the independent and dependent variable; from 0.30 to 0.49 is considered medium, and from 0.60 to 1.0 means that the independent variables have a strong relationship with the dependent variable.

Simple linear regression model was used to identify significant predictors of financial distress at 95% confidence level. The indicators of financial distress predictionwere solvency ratio and return on equity. The lower the banks' solvency ratio, the greater the probability that it will default on its debt obligations. Solvency ratio was calculated using the following formula:[After tax Profit + Depreciation]÷ [Short Term Liabilities + Long Term Liabilities], Return of equity was calculated using this formula: [Net Income ÷ Shareholders Equity], banks with a high return on equity are usually more capable of generating cash internally and therefore less dependent on debt financing.

The regression model was as follows: $Y = \alpha + \beta_1 X_1 + e$

α = Constant

β_1= the slope representing degree of change in independent variable by one unit change in the dependent variable.

X_1= Credit diversification

e = error term.

V. Results& Discussions

Correlation Statistics

The correlation between credit diversification and solvency ratio is first presented, followed by correlation between credit diversification and return on equity and finally the correlation between credit diversification and financial distress prediction as the composite variable.

Correlation Statistics of Credit Diversification and Solvency Ratio

There was a significant strong relationship between credit diversification and solvency ratio (r = 0.530, p value < .01) as shown in Table 4.1:

Table 4.1: Correlations Statistics of Bank Diversification and Solvency Ratio

		Financial Distress	Credit Diversification
Financial Distress	Pearson Correlation	1	
	Sig. (2-tailed)	1	
Credit Diversification	Pearson Correlation	.530**	1
	Sig. (2-tailed)	0	
** Correlation is significant at the 0.01 level (2-tailed).			

Source: Survey data, 2019

Correlation Statistics of Bank Diversification and Return on Equity

Creditdiversification had a non significant weak relationship with return on equity with (r = 0.054, p-value > .05) as shown in Table 4.3:

Table 4.2: Correlations Statistics of Credit Diversification and Return on Equity

		Financial Distress	Credit Diversification
Financial Distress	Pearson Correlation	1	
	Sig. (2-tailed)	1	
Credit Diversification	Pearson Correlation	.054*	1
	Sig. (2-tailed)	.454	
* Correlation is significant at the 0.05 level (2-tailed).			

Source: Survey data, 2019

Correlation Statistics of Bank Diversification and Financial Distress Prediction

This section presents the relationship between credit diversification and the composite value of financial distress prediction.Credit diversification was found to have significant relationship with financial distress prediction with p values of 0.032 at 0.05 level of significance as shown in Table 4.3:

Table 4.3: Correlations Statistics of Credit Diversification and Financial Distress Prediction

		Financial Distress	Credit Diversification
Financial Distress	Pearson Correlation	1	
	Sig. (2-tailed)		
Credit Diversification	Pearson Correlation	.219*	1
	Sig. (2-tailed)	.032	
* Correlation is significant at the 0.05 level (2-tailed).			

Source: Survey data, 2019

Regression analysis

Simple linear regression analysis is a powerful technique used for predicting the unknown value of a variable from the known value of another variable also called a predictor variable (Saunders, Lewis, & Thornhill, 2009). In this case, simple linear regression analysishelps to predict financial distress prediction from credit diversification.

Testing the significance of the Regression Model

Analysis of variance was employed to test the significance of the regression model. The results are shown in the Table 4.4:

Table 4.4: ANOVA

ANOVA[a]					
Model	Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1.533	1	8.134	.000[a]
	Residual	3.800	10		
	Total	5.333	14		

a. Predictors: (Constant), credit diversification

b. Dependent Variable: Financial Distress

Source: Survey data, 2019

The F-ratio was 8.134 at 1 degree of freedom which is the variable factor. This represented the effect size of the regression model and the model is significant at 95% confidence level (p=.000[a]) indicating that financial distress prediction can be predicted using credit diversification.

Model summary

The implication of the model was as displayed in the table below;

Table 4.5: Model Summary

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.503[a]	.253	.224	.96695

a. Predictors: (Constant), credit diversification

Source: Survey data, 2019

From the table above, the value of R-square is 0.253 which indicates that 25.3% of variance in financial distress prediction is explained collectively bycredit diversification.

Coefficient analysis

Coefficient analysis is tabulated below;

Table 4.6: Coefficient Analysis

		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	T	Sig.
1	(Constant)	2.972	.889			.007
	Credit Diversification	-.188	.121	-.438	1.559	.034

a. Dependent Variable: Financial Distress

Source: Survey data, 2019

As aforementioned, the model was found to be statistically significant. Further, the regression model can be outlined as follows:

Financial Distress Prediction = (2.972) + -.438 X_1+ .889

Hypothesis 1 (H_A1) predicted that credit diversification has a significant effect on financial distressprediction of commercial banks.The results in Table 4.6 indicate that credit diversification has a significant effect on financial distress prediction at $p < 0.05$. A unit increase in credit diversification caused a .438decrease in financial distress of banks. Thus we fail to reject the alternative hypothesis that credit diversification has a significant effect on financial distress prediction. The study is in tandem with the findings of Tabak, Fazio and Cajueiro (2011);Rossi, Schwaige and Winkler (2009) that credit diversification has a negative effect on commercial banks financial distress. The study further disagrees with the findings of Baele, Lievenet al. (2007)who found that credit diversification has non linear effect on their special risk.

VI. Conclusion And Recommendations

Credit diversificationhas a significant effect on financial distress.Credit diversification activities have reduced the probabilities of default on the side of borrowers through introduction of new types of credit facilities.Credit risk can be reduced through specialization of lending. In order to hedge banks against financial distress, banks have invested in diversified or concentrated credit portfolio. Banks with diversified credit portfolios have a competitive advantage in terms of risk with their competitors. In light of the findings and conclusion of the study, the following recommendations are made: Credit diversification has exhibited a significant effect on financial distress. It is therefore recommended that the management of banks should introduce new types of credit facilitiesto increase on their credit portfolios. Besides, the management of banks should reduce on credit risk through specialization of lending. Specialization should be achieved by lowering the ratio of diversification either in credit types or the diversity of customers who are qualified for loans, all this enhances of banksability to screen out doubtful loans requests.

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