

AUDIT TENURE AND ALTMAN BANKRUPTCY PREDICTION MODEL IN NIGERIAN DEPOSIT MONEY BANKS

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Abstract

This study determined the effect of audit tenure on Altman bankruptcy predicting model of deposit money banks in Nigeria from 2012-2021. Ex-Post Facto research design was employed for the study. Data were extracted from annual reports and accounts of the sampled Nigerian banks from 2012 -2021. Multiple regressions were used via SPSS version 20. The findings revealed that, audit tenure was found to have a positive and insignificant effect on Altman bankruptcy prediction Model in Nigerian deposit money banks, while bank leverage has a negative and insignificant effect on Altman bankruptcy prediction model. Based on the findings the study recommended that since the length of an audit might affect a person's ability to solve problems and detect internal control flaws and risk factors that can be used to prevent bankruptcy, financial system needs to be brought under control and made suitable for the needs and interests of shareholders and depositors.

Keywords: Audit Tenure, Bank leverage and Altman bankruptcy prediction

INTRODUCTION

Corporate bankruptcy has recently received attention in the accounting and finance literature. Prior to these studies, the main emphasis was on using financial data to forecast bankruptcy (Beaver, 1966; Altman, 1986). Despite the fact that problems have already been noted in recent high-profile bankruptcy situations, very few scholars have examined the impact of corporate governance on the risk of bankruptcy (Fich & Slezak, 2008). However, how corporate governance relates to the likelihood of bankruptcy is still an unresolved empirical subject.

Afribank Plc, Spring Bank Plc, and Bank PHB Plc had their banking licenses revoked by the Central Bank of Nigeria in August 2011 because "the three rescued banks have not demonstrated the essential capability and ability to beat the September 30 recapitalization (of N25B) deadline." The NDIC intervened and established three bridge banks (temporary banks) to take over the assets of the failing banks and resume business as usual (Wurim, 2013). Bridge banks are transient financial institutions established by a regulator to manage the assets and liabilities of a bankrupt bank. The bridge banks were founded to take over all the assets and obligations of Spring Bank, Bank PHB, and Afribank, respectively. They are Enterprise Bank Limited, Keystone Bank Limited, and Mainstream Bank Limited (Wurim, 2013). The CBN said it had issued banking licenses to the three new banks (Chima, 2011).

According to Konstandina (2006), one of the biggest problems for those involved in the banking industry is how to explain bank failures. Erdogan (2008) added that bankruptcy is one of the biggest challenges to a country's economy. A significant finance and confidence problem brought on by this bankruptcy will endanger the entire economy. Since the first bank failure was reported in Nigeria in 1930, there has been an issue with financial sector turmoil, including outright bank failure (CBN, 2007). It is commonly known that the banking system is in bad shape, and it has been that way for a while (Odife, 2009). The horrifying effects of illness in the banking industry have had an impact on practically all elements of society, including the government, regulatory agencies, creditors, equity investors, bankers, and the general public.

The majority of studies on the prediction of bankruptcy were conducted abroad using the Altman Z score model. Gnyana (2015); Mwawughanga and Ochiri (2017); Z score is a well-liked and useful model, and all investors should consider it before making an investment choice to prevent financial loss due to business collapse. This was the conclusion reached by Wurim (2013). Additionally, studies conducted in Nigeria, including those by Ezejiofor, Nzewi and Okoye (2014), and Oforegbunam (2011), which evaluated the degree to which the Altman Model was used to predict the possibility of corporate bankruptcy or failure in the Nigerian banking sector, demonstrate that the Model was capable of accurately measuring the failure potential of sound and healthy banks. The analysis of these studies was completed in 2001. Therefore, we want to update this study using current data up to 2018, to predict healthiness or failure potential of Nigerian banks and ascertain the influence of corporate governance attributes on bankruptcy. On this note, this study ascertains the significant effect between audit tenure and bankruptcy in banking sector, using Altman bankruptcy prediction model.

Conceptual Framework

Corporate Governance

For more than three decades, experts have paid close attention to corporate governance challenges. The term is defined in accordance with the person who is doing the definition.

For instance, the definition of a manager in the company may differ from the investor's concept of the term. For instance, Metrick and Ishii (2002) describe corporate governance as "both the promise to refund a fair return on capital invested and the commitment to operate a corporation efficiently with a given investment" from the viewpoint of the investor. Now, this definition explicitly specifies that the yardstick or guiding principle of the term is the requirement to raise capital and provide an appropriate return. Because it makes a difference amongst firms, Metrick and Ishii (2002) contend that firm level governance may be particularly significant in developing markets with weaker institutions.

The board of directors, management, shareholders, creditors, consumers, and regulators or government agencies is the main participants in corporate governance in Nigeria. A significant piece of legislation governing corporate governance in Nigeria is the Companies and Allied Matters Act, Cap. 20. It offers some corporate governance procedures for choosing business directors, removing directors, setting up audit committees and auditors, and requiring shareholder participation in corporate decisions. For corporate governance in the public sector, the Securities and Exchange Commission (SEC) regulates and continuously promulgates codes or rules. There are multiple regulations for corporate governance in different economic sectors that are set by the various sector regulators, including the Central Bank of Nigeria (CBN).

In conclusion, corporate governance is a crucial component of any sustainable business model. The practices suggested in the Code will require businesses, especially those that have never before been subject to corporate governance regulations, to assess their current operations to make sure they adhere to the principles outlined in the Codes mentioned above and to put in place the necessary procedures and practices to fill in any gaps that may have been discovered (Olusola & Winifred, 2018).

Auditor Tenure

For reasons of monitoring, financial reporting is necessary. This monitoring and control are provided by the external audit of the company's financial accounts. The goal of the information disclosure principle is to make sure that stakeholders have access to sufficient, accurate, and relevant information to make informed decisions. In order to make investment decisions and evaluate the risk and return expectations on their investments, investors, in particular, need audited financial reports. Particularly, an audit gives shareholders and potential shareholders a fair level of assurance that the financial statements of management are free of major misstatements (Watts & Zimmerman, 1986). Investors consequently appreciate the audit report as a way to enhance the financial data organizations report.

The Companies and Allied Matters Act, 2004, Section 357, which deals with the appointment by members at the annual general meeting, contains provisions for statutory audit of companies in Nigeria (AGM). A person must be a member of a Nigerian body of accountants constituted from time to time by an Act in order to be qualified for appointment as an auditor of a company for the purposes of Section 358, which deals with the qualifications for such an appointment. The Statutory Duties of Auditors are outlined in Section 359 of the CAMA 2004 and include the following: (i) The primary responsibility of an auditor is to report to the company's members on the accounts they have examined, on every financial statements, as well as on all group financial statements, copies of which must be laid before the company in a general meeting throughout the auditors' term of office; (ii) Schedule 6 of the CAMA 2004 outlines those matters that an auditor must report.

According to this study, the length of the relationship between the auditor and the client is known as the auditor tenure. A somewhat too lengthy relationship between the auditor and his client could pose a threat to the auditor's independence since personal bonds and familiarity could form between the two, which could make the auditor less watchful and even more accommodating toward the company's senior executives. In addition to this risk to independence, the audit engagement may eventually become regular, in which case the auditor may focus less on locating internal control flaws and risk sources. Knapp's (1991) experimental research suggests a link between audit tenure and proficiency. The risk that the auditor will find an abnormality rises in the initial years of his mandate, and then gradually declines, reaching its lowest point after 20 years of service, according to US audit committee members. Thus, it is generally believed that a negative correlation exists between the length of an auditor's tenure and the audit's quality.

Bankruptcy

An individual or business who is unable to pay off outstanding debts must file for bankruptcy. A petition is filed, either on behalf of the debtor, which is more often, or on behalf of creditors, which is less frequent, to start the bankruptcy process. All of the debtor's assets are counted and assessed, and a portion of the debt may be settled using the assets.

A necessary component of how businesses operate in a capitalist economy is bankruptcy. On the one hand, it is expected because competition drives the closure of unsuccessful businesses and makes room for those who utilize limited resources more effectively (Bazej, 2018). Every bankruptcy also has an adverse effect on a number of stakeholders, including creditors, employees, suppliers, customers, and the local economy. Particularly at danger of loss when debtors file for bankruptcy are suppliers and creditors. Failure by a customer to honor debt commitments could harm the supplier's (creditors) ability to pay its own suppliers in the upper level, which could set off a domino effect of failures and, in the worst-case scenarios, end in bankruptcy avalanches (Battiston, Domenico, Mauro, Bruce & Joseph, 2007).

Therefore, it is crucial to carry out study into the risk of bankruptcy prediction. It may be possible to take corrective action if early warning signals of a worsening financial condition are identified. A fresh start is provided by bankruptcy, which discharges debts that are just unaffordable while providing creditors a chance to get some compensation based on the assets that can be sold off by the individual or business. According to theory, having the option to declare bankruptcy can help an economy as a whole by offering people and businesses a second chance to obtain consumer credit and by granting creditors some sort of debt repayment. The debtor gets released from the debt obligations accumulated before filing for bankruptcy following the successful conclusion of bankruptcy proceedings.

Altman's Revised Z-Score Model

Altman recommended a complete re-estimation of the model, replacing the book values of equity for the Market value in D, rather than merely putting a proxy variable into an existing model to obtain the Z-Scores. As a result, the classification criterion and associated cut-off scores changed, as well as the coefficients. The updated Z score model looked like this:

$$Z' = 0.717T1 + 0.847T2 + 3.107T3 + 0.420T4 + 0.998T5$$

Where:

T1 = (Current Assets-Current Liabilities) / Total Assets

T2 = Retained Earnings / Total Assets

T3 = Earnings before Interest and Taxes / Total Assets

T4 = Book Value of Equity / Total Liabilities

T5 = Sales/ Total Assets

Zones of Discrimination:

$Z' > 2.9$ -“Safe” Zone

$1.23 < Z' < 2.9$ -“Grey” Zone

$Z' < 1.23$ -“Distress” Zone

Empirical Studies

The impact of the Altman bankruptcy prediction model on the corporate governance of deposit money banks in Nigeria was assessed by Ezejiofor (2021). Nine deposit money institutions in Nigeria were chosen at random from a population of 22 banks. Information was gathered from the sampled banks' annual reports and accounts for the years 2009 through 2019. With the help of E-View 9.0, the study used regression analysis to test the hypothesis. According to the data analysis, the Altman bankruptcy forecasting model has a favorable impact on the frequency of board meetings, and this impact is quite substantial for Nigerian deposit money institutions. The effect of the Altman bankruptcy forecasting model on board independence in Nigerian deposit money bank was determined by Ezejiofor and Okerekeoti in 2021). Nine deposit money institutions were selected as the sample size from a total of 22 banks in Nigeria. Information was taken from the sampled banks' 2009–2019 annual reports and accounts. The study examined the hypotheses using regression analysis and E-View 9.0. The Altman bankruptcy predicting model was found to have a positive impact on board independence; however the data analysis showed that this effect is not significantly significant for deposit money institutions in Nigeria. Additionally, it was found that although the board size is positively impacted by the Altman bankruptcy forecasting model, this effect is not statistically significant in Nigerian deposit money institutions. Using the 2005 Altman Z score model, Mwawughanga and Ochiri (2017) analyze the financial standing of banks listed and unlisted on the Nairobi Stock Exchange in Kenya. Given that banks play a significant role in the Kenyan economy, the CBK has the regulatory authority to continuously monitor the financial standing of banks. The secondary data was taken from CBK and the websites of the different banks' audited annual reports and financial statements for the years 2010 to 2015. The statement of comprehensive income and the statement of financial condition were both parts of the yearly financial statements. Multivariate Discriminant Statistical approaches from Altman's 2005 work were employed in the analysis. The findings showed that a significant portion of Kenyan banks were operating in the gray area during the research period. The impact of leverage and bankruptcy risk on company incentives to defer income from taxes is examined by Jalan, Kale, and Meneghetti (2016). In a two-date, single-period model where a business's perquisite-consuming manager with an equity share in the firm maximizes her payout, they determine the ideal level of sheltering for a levered firm. Their empirical studies offer proof that supports these theoretical hypotheses. They demonstrate that leverage and bankruptcy risk have a negative relationship with sheltering and that the negative effects of bankruptcy risk and debt on sheltering are stronger for riskier enterprises while being weaker for larger, better managed, more successful, and "publicly visible" firms. They use two changes to the bankruptcy law to show that our findings are robust to endogeneity concerns. From 2007 to 2012, Masoumeh (2016) looked into the relationship between quality of earnings and earnings management for both bankrupt and non-bankrupt companies listed on the Tehran Stock Exchange. The study examined the relationship between discretionary accruals as a measure of earnings management, being opportunistic or efficient earnings management, and measured earnings quality by four distinct accounting-based earnings attributes: accruals quality, earnings persistence, and earnings predictability. The findings of estimating imbalanced panel data approach for 198 non-bankrupt firms and 55 firms subjected to Altman's model bankruptcy reveal that the non-bankrupt firms choose efficient earnings management while the bankrupt firms tend to utilize

opportunistic earnings management. Ahmadpour and Shahsavari (2014) looked into how Tehran's stock exchange bankruptcy companies managed their earnings quality and how that affected their ability to make money in the future. The findings using the panel data technique for 55 companies subject to Altman's model of enterprises on the verge of bankruptcy state that these companies have an unequal composition and have increased profit management. The outcomes of the opportunistic theory of earnings management validate and demonstrate the value of excellent work in terms of future earnings. The reliability of the Altman Model in predicting the risk of corporate bankruptcy or collapse in the Nigerian banking sector was evaluated by Ezejiolor, Nzewi, and Okoye in 2014. Data were gathered from the banks' annual reports and financial statements. It used Altman prediction. The model was able to effectively gauge the failure potential of sound and healthy banks, according to the results. Findings further demonstrate that the Altman bankruptcy prediction model was capable of accurately predicting the demise of the Nigerian banking sector's actual failing banks. To forecast the likelihood of bank failure in Nigeria, Adeyeye, Fajembola, Olopete, and Adedeji (2012) used principal component analysis with discriminant modeling. The important predictive financial ratios, according to the analysis of the regression model, are the measurements of profitability, liquidity, credit risk, and capital adequacy. To put it another way, disparities in profitability, liquidity, credit risk (asset quality), and capital adequacy (maintenance) are discovered to be the key factors that separate healthy (non-failed) banks from unhealthy (failed) banks. The research approach used in this study could be applicable to various economic sectors, both financial and nonfinancial.

The broad application of Altman's model makes it possible to forecast the health of Nigerian banks. The study discovered that the financial ratios are still a reliable indicator for determining banks' financial stability as posited by Altman; drop over time in the following ratios: value of equity to total book debt, working capital to total assets, retained earnings to total assets, and earnings before interest and taxes to total assets. According to a previous analysis by Altman, the ratio of gross earnings to total assets is an indication of bank difficulty. As previously mentioned by Altman, it follows that levels of Capital adequacy, Asset quality, Earnings strength, Liquidity sufficiency, and Management competency are essential indices for assessing the state of health of Nigerian banks.

METHODOLOGY

Due to the nature of the study, *Ex Post Facto* research design was adopted. This involves use of financial accounts of the banks under assessment for the period, 2012-2021 to generate the financial ratios that discriminated the most in prediction of healthy banks using Altman Model.

The population of this study involved all twenty (22) deposit money banks quoted on the Nigerian Stock Exchange. The study covered ten years annual reports and accounts of these banks from 2012 to 2021.

The twenty two (22) deposit money banks presently operational in Nigeria shall make up the sample size, whose data were collected and subjected to Altman original prediction model, in order to sieve those with distress and the healthy once, wherefore an investigation can be done to determine the relationship of corporate governance. These data were obtained from the annual reports and audited accounts of the banks under assessment. The data required include: working capital, retained earnings, earnings before interest and tax, equity as well as total assets and total book debts.

Method of Data Analysis

To achieve the objectives of this study, the researcher used Altman's original model for public companies to extract data and the hypothesis was tested using regression analysis with aid of SPSS version 20.0.

Model Specification

The study used Altman Model given as Zeta “Z”

$$Z=1.2X_1 + 1.4X_2 + 3.3X_3 + 0.6X_4 + 1.0 X_5, \dots\dots\dots.i$$

Where:

- X₁ = Working capital to total assets
- X₂ = Retained earnings to total assets
- X₃ = Earnings before interest and taxes to total asset
- X₄ = Value of equity to total book debt
- X₅ = Gross earnings to total assets

The decision rule is that:

- (i). For Z<1.81 Bankruptcy region
- (ii). For 1.81<Z>2.675 High bankruptcy potential
- (iii). For 2.675<Z<2.99 Low bankruptcy potential
- (iv). For Z>2.99 Strong (No sign of bankruptcy at all

The Altman Model was modified thus to incorporate corporate governance:

$$ABP_{it} = a_0 + \beta_1ADT_{it} + \beta_2BLV_{it} \dots\dots\dots.i$$

Where;

- ABP= Altman Bankruptcy Prediction Model
- ADT = Audit tenure
- BLV = Bank leverage

Decision rule

- If p value is > 5%, accept Ho, to reject Hi
- If p value is < 5%, accept Ho, to reject Hi

DATA ANALYSIS

Table 1: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
ABP	180	-.71	6.58	1.4265	1.51392	1.170	.181	.502	.360
ADT	177	.00	1.00	.9492	.22031	-4.124	.183	15.179	.363
BLV	177	1.42	10.84	6.3028	1.50121	-.094	.183	3.527	.363
Valid N (listwise)	177								

Table 1 shows the mean (average) for each of the variables, their maximum values, minimum values, standard deviation and skewness. The results provided some insight into the nature of the sampled Nigerian banks in this study.

It was observed that on the average over the ten (10) years periods (2012-2021), the sampled banks in Nigeria were characterized by positive Altman bankruptcy prediction Model (ABP) 1.4265. Also, the large difference between the maximum and minimum value of audit tenure (ADT), and bank leverage (BLV) show that the sampled banks in this study are not dominated by banks with more bankruptcy.

In this table, audit tenure (ADT), and bank leverage (BLV) show left skewness while Altman bankruptcy shows right skewness, and their kurtosis shows a positive indicates a shape flatter than normal.

Test of Hypothesis

H₀₁: Audit tenure does not affect bankruptcy in banking sector, using Altman bankruptcy prediction Model.

Table 2: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.037 ^a	.010	-.100	1.52426

a. Predictors: (Constant), BLV, ADT

Table 2 above revealed that the value of R² is = 0.010 and Adjusted R² value is 0.100 this suggests that the model explains about 10% of the systematic variations in the dependent variable (Altman bankruptcy prediction model) by audit tenure. This means that the regression explains 10% of the variance in the data. The remaining 90% was explained by other variables not included in the model.

Table 3: ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.565	2	.282	.121	.886 ^b
	Residual	404.264	174	2.323		
	Total	404.829	176			

a. Dependent Variable: ABP

b. Predictors: (Constant), BLV, ADT

Table 4: Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.318	.699		1.886	.061
	ADT	.237	.522	.034	.454	.650
	BLV	-.015	.077	-.015	-.194	.847

a. Dependent Variable: ABP

In table 3, it reveals that the F-stat (0.121) and p-value (0.886) indicates that the hypothesis is not statistically significant; hence its p-value is greater than 0.05%.

In table 4, the regressed coefficient correlation and t-statistics result shows of audit tenure value is 0.034 and 0.454 respectively with p-value of 0.650, showing that audit tenure has a positive insignificant effect on Altman bankruptcy prediction model. In order hand, table 4 indicates that coefficient correlation and t-statistics of bank leverage shows -0.015 and -0.194 respectively with p-value of 0.847, showing that bank leverage has a negative and insignificant effect on Altman bankruptcy prediction model. Therefore, we reject alternative hypothesis and uphold null hypothesis which state that audit tenure has no significant effect on Altman bankruptcy prediction of Nigerian deposit money banks.

Conclusion and Recommendation

This study determined the effect of audit tenure and bank leverage on Altman bankruptcy predicting model of deposit money banks in Nigeria from 2012-2021. Multiple regressions were used via SPSS version 20. The findings revealed that, audit tenure was found to have a

positive and insignificant effect on Altman bankruptcy prediction Model in Nigerian deposit money banks, while bank leverage has a negative and insignificant effect on Altman bankruptcy prediction model. Based on the study's findings, it was recommended that financial system needs to be brought under control and made suitable for the needs and interests of shareholders and depositors.

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