

DETERMINING THE GOING CONCERN AND MANAGERIAL EFFICIENCY OF NIGERIAN BANKS USING ALTMAN Z-SCORE

Patrick Amaechi Egbunike

Department of Accountancy, Nnamdi Azikiwe University, Awka, Nigeria

amaechiegbunike@yahoo.com

Valentine Chukwudi Umeh 

Department of Accountancy, Nnamdi Azikiwe University, Awka, Nigeria

umehvalentine@gmail.com

Abstract

The paper examines Management efficiency in Banks Using the Altman Z-score for the period of recession, accompanied by the implementation of the Treasury single Account as well as the proliferation of ponzi schemes. Although previous studies have used the Altman Z-score for predicting bankruptcy and business failure two or more years before the actual failure, this study adopts the Altman model as a veritable tool for measuring management efficiency in businesses with emphases on the banking sector of the economy using a comparative analysis before and during the recession. We found among other things, that various selected banks in Nigeria have had varying results in terms of their ability to remain efficient and viable during the period of recession. We therefore recommend that deposit money banks put in place strategic marketing plans to attract and secure deposits from the banking public.

Keywords: Recession; Management Efficiency; Altman; Bankruptcy; Treasury Single Account; Banks; Going Concern

INTRODUCTION

Ratio analysis is not an end in itself. According to Van Horne (2004), ratio analysis serves as a very essential tool for carrying out financial information analysis. Different categories of users find interest in analyzing the financial information to ascertain the operating efficiency,

performance as well as various aspects of the company's financial position. Financial analysts in firms are usually challenged to come up with appropriate strategies to keep improving business fortunes. Businesses must seek and explore veritable means of revitalization when their going concern is being threatened. Financial distress exist where a company is unable to meet its financial obligations as they fall due. The there is a high likelihood that a firm will experience financial distress when a firm's assets are highly illiquid, non- variable costs are high, or revenues are highly dependent on the economic outlook. In recent times, banks in Nigeria have encountered several challenges that tend to limit or hinder their productivity and efficiency. First, the economic recession that bedeviled the Nigerian economy has led to a high layoff of workers in the banking sector. Secondly, the introduction and implementation of the Treasury Single Account (TSA) has created severe liquidity challenge for Banks in addition to the proliferation of ponzi schemes in Nigeria. This is in addition to the scarcity of foreign exchange, increasing loan default and rising inflation level. There is therefore need to ascertain the effect of the stated economic challenges on the going concern of Nigerian Banks as well as the efficiency of their management. Hence, an examination of management efficiency in selected banks, in response to the stated economic challenges, using the Altman Z score.

Objective of the Study

The study seeks to examine the level of efficiency of Nigeria Deposit Money Banks in overcoming economic challenges in recent times.

Hypotheses of the Study

H01: The managements of Banks in Nigeria have not been significantly efficient in overcoming economic challenges in recent times.

H11: The managements of Banks in Nigeria have been significantly efficient in overcoming economic challenges in recent times.

Limitations of the Study

The study is limited by the problem of incomplete data which is associated with most secondary data in developing countries. Though the problem exists, the researchers attempt to give available data a good analysis so as to achieve the objectives of the study. This study is significant to regulators, bank executives as well as shareholders and customers in the Nigerian banking sector.

LITERATURE REVIEW

Recession and Bank health

According to Babajide (2017), recession is brought about by the persistent general decline in the level of economic activities of a country during the year. Experts have defined recession to mean two consecutive quarters of decreased economic growth. The National Bureau of Statistics (NBS) reports that economic activities (Gross Domestic Product (GDP) in Nigeria declined by 0.36 percent in the first quarter of 2016, 2.06 percent in the second quarter of 2016 and 2.24 percent in the third quarter of 2016. The implication of this is that Nigeria experienced economic recession in 2016. Also, the CBN's Purchasing Managers' Index for November 2016, reveals that the production level in the manufacturing sector and the business activities in the non-manufacturing sector, declined consistently from January to November, just like the employment level in both sectors. The Nigerian economic recession has brought about the following challenges:

Loan defaults: the inability to repay loans borrowed from banks in recent times is attributed to the decline in economic activities which result to lower revenue and losses for many businesses. This was evident in the CBN's credit condition survey for the fourth quarter of 2016, which states that corporate loan performance as measured by the default rates deteriorated in the review quarter. Default rates on lending to all sizes of businesses deteriorated in Q4 2016. Lenders had mixed opinions on default rates in the next quarter; they were of the opinion that default rates for the medium and large PNFCs will improve, while the default rates for the small businesses and OFCs will further deteriorate." Also, the CBN in its Financial Stability report of Q1 2016 predicted further increase in bad loans in the second half of the year, as a result of increased loan impairments which is the aftermath of Naira depreciation and the inability of borrowers to service foreign loans. Dr. Biodun Adedipe, the Chief Executive Officer of Biodun Adedipe associates opines that the ultimate aim of lending is the collection of the principal loan amount as well as other facilities granted, along with the servicing (interest payment) by the borrowing customers. This implies that, the general economic outlook has a significant influence on the lending activities of banks and the safety of risk assets.

Foreign Exchange challenge: apart from loan loss, shortage of foreign currency also provided constraint in the operations of deposit money banks in Nigeria. The monthly inflow of dollar dropped from \$3.2 billion to less than \$1 billion in 2016 as a result of a decline in crude oil prices. The country has been plagued with shortage of dollars to finance its monthly import bill of over \$4 billion, which has resulted in businesses unable to access dollars to import raw materials needed for production which in turn reduces banks' income from import financing. Businesses are still suffering and struggling with the effects of supply of dollars whilst reporting

staggering losses. This was contained in a statement during the review of the economy in November. The scarcity of foreign exchange no doubt pose a major challenge to banks during the period because the lack of foreign exchange has been a major problem as virtually everything is imported into the country. Even indigenous factories have to bring in raw materials. As a result of shortage in foreign currencies which hinders the ability to bring in required raw materials, capacity utilization for some of these manufacturers dropped to about 35 percent and this has given rise to reduction in banks turnover.

Rising inflation: rising inflation has also affected Banking business in Nigeria in recent times. The National Bureau of Statistics (NBS) states that inflation rate has risen from 9.55 % in December 2015 to 18.44 % in November 2016. As a way out of this, the Central Bank of Nigeria (CBN) further tightened money supply, increasing the Monetary Policy Rate (MPR) first to 12 % in March 2016 and then to 14 % in July 2016. Also, the CBN increased the Cash Reserve Ratio (CRR) of banks from 20 % to 22.5 per cent. This implies a 300 basis points increase in the Monetary Policy Rate (MPR) and 250 basis point increase in the Cash Reserve Ratio (CRR). Although the aim was to attract more savings into the banking system and more dollar investments into the economy, they eventually, led to the withdrawal of about N2 trillion from the banking system, thus reducing the money available to banks to do business. It also brought about an increase in their cost of funds, which translates to a reduction in interest rate margins. The CBN states that interest rate contributions (interest margins) to total income of banks declined from 63.8 % in December 2015 to 54.3 % in the first half of 2016 (Babajide, 2017).

Rating Downgrade: Though the huge bad loans experience by some Nigerian banks was attributed to the economic recession, it has eroded confidence in the Nigerian banking sector. One of such is the downgrade of nine Nigerian banks from B+ to B- in a rating by an agency, Fitch. The company posits that “ the implication of the downgrade could mean that more loans that could not be recovered in the next 10 years dominated the system such that creditors can no longer rely on receiving full and timely extraordinary support from the Nigerian system, if any of the banks became non-viable” (Babajide, 2017).

Cost Cutting: Most Nigerian banks have resorted to cost reduction measures like staff retrenchment, reduction in lending activities, and reduction in staff salaries in response to the economic climate so as to reduce the impact of the economic quagmires on the performance and financial health,. Alhaji Musa Umar, the Director, Research, Policy and International Relations Department, Nigeria Deposit Insurance Corporation (NDIC) asserts that the financial sector appears to be having its own fair share of the effect of economic recession, as a number of banks are experiencing poor asset quality and increase in non-performing loans, resulting in downsizing of staff as well as reduction in staff salary. It is on record from the banking sector

analysts that about 3000 bank workers lost their jobs in 2016 as a result of the wave of staff retrenchment, an aftermath of the economic recession (Babajide, 2017).

Some Prior Studies

Selvam (2004) in an attempt to predict the financial health and viability of India Cements Ltd concludes that the cement company was heading towards financial collapse. While adopting Altman's Z score model, Krishna (2005) measures the financial distress of IDBI and predicts that the company is not in good financial standing, may likely be insolvent in the near future.

Olaniyi (2006) evaluates the extent to which Nigerian banks are prone to failure using First Bank and Trade Bank as case studies. This was aimed at discriminating between sound and unhealthy banks for investment decisions purpose. He concludes that the model could accurately measure the potential of failure banks in Nigeria. Ramaratnam and Jayaraman (2010) analyze and predict the financial health of five selected Indian companies using Altman's Z – Score. The study reveals that all the five companies were financially sound during the study period. Bhatt (2012) in his study, investigates the extent to which the three versions of the model for distress prediction could be effective when applied to the Indian markets. The study was carried out using four selected companies from various sectors of the Indian economy. The results evidenced that the models have remarkable degrees of accuracy in distress prediction in India.

Uchenna and Okelue (2012), applies multi discriminant analysis model (MDA) as proposed by Altman in 1968 to a selected group of failed and healthy banks in Nigeria to ascertain if MDA is a veritable tool to predict business failure in the Nigerian banking industry. The result reveals the effectiveness of MDA as a veritable tool for assessing the financial health of Nigeria banks.

Onyeiwu (2012) examines the relevance of the multiple discriminant analysis in Bankruptcy prediction as given by Altman. Using twenty companies drawn from Nigeria's manufacturing industry, the study concludes that the application of multiple discriminant analysis is relevant for bankruptcy prediction in the Nigerian business environment

Li (2012) examines the accuracy of various Z-score models in predicting corporate bankruptcy from 2008 through 2011 in the United States. His conclusion was that although the original Z-score model was developed for manufacturing firms, it could also be used in non manufacturing firms as they are able to predict bankruptcy for non-manufacturing companies.

While assessing the solvency position of 220 companies listed in the BSE Cap index, Sulphrey and Nisa (2013) adopts the Z-score discriminant analyses. The outcome of the study

reveals that only 79 of the selected companies were in the safe zone, while 117 and 24 were in the grey zone and the distress zone respectively.

Onuorah and Chigbu (2016) investigate the effect the Federal Government Treasury Single Account (TSA) implementation on the deposits and performance of Deposit Money Banks (DMBs) in Nigeria. Time series data were collected from Central Bank of Nigeria (CBN) Statistical Bulletin for the period 2012 to 2016. The study proxy the federal government treasury single account deposit using Federal Government demand deposit (FGDD), Federal Government time deposit (FGTD), and Federal Government saving deposit (FGSD). The dependent variable Bank performance was proxy using the Return on Equity (ROE) and Return on Investment (ROI). The study employs trend analysis (bar charts) and SPSS 7.0 Software descriptive statistics and least square test. The results provide evidence that the performance of banks have been positively impacted by the implementation of Treasury Single Account deposit (federal government demand deposit, Federal Government time deposit, and Federal Government savings deposit).

While assessing the impact of TSA implementation on the liquidity capacity of deposit money banks in Nigeria, Andornimye (2017) investigates the effects of Treasury Single Account (TSA) mechanism on banks' current ratio, deposit mobilization and credit creation in Nigeria. Adopting an ex-post facto design, data was collected from the annual reports of ten (10) banks; for the period 2010 to 2015. The student t –test statistic was used in testing the hypotheses. He finds Treasury Single Account (TSA) implementation to have a negative significant impact on current ratio of banks and a positive significant impact on banks' deposit mobilization., it could not establish a significant impact on credit creation by banks to the public.

Theoretical Framework

The study adopts the concept of Resource use efficiency in production activities as a theoretical underpinning for this study. The relationship between input used and output obtained determines the productivity of resources used. This implies that optimal productivity of resources is a condition that exists when there is efficient utilization of resources in the production process. Efficiency refers to the attainment of production goals with minimal waste. It is the effectiveness with which inputs are transformed into outputs. Efficiency usually exists and is measured in the forms of allocative efficiency, technical efficiency, or economic efficiency. Although differences exist among firms to a considerable extent in terms of the nature of business, mode of operation, capital structure, personnel employed, risk and technology, one thing that is peculiar to them all is a basic mechanism involving the combination and conversion of various resources into saleable products (Intermediation) and back into liquid form (Cash).

These resource conversion processes have implications for the financial health status of a business. A business that utilizes resources more efficiently is likely to experience a better financial health status than one that is less efficient in terms of resources utilization. This theory attempts to provide explanation for the disparity existing among Nigerian banks under same economic climate, in terms of performance and efficiency.

RESEARCH METHOD

The study adopts a comparative analysis of the average Altman Z-score of selected banks four years before the recession (2011-2014) and the Z-scores during the period of recession (2015-2016) to determine the likelihood of bankruptcy and the efficiency of banks' managements in the utilization of resources during the period of recession (post 2014). Management of Banks whose Altman Z-score is stable or increasing during the recession compared to pre recession average are deemed efficient. While those whose Altman Z-score declines during the period of recession are deemed inefficient.

Altman Z-score test for Bankruptcy Model

The Z-Score is a combination of six basic accounting values and one market-based value. These seven values are further categorized into five ratios which provide the pillars and framework of the Z-Score. The five ratios are combined in an Equation to result in a company's Z-Score (Altman 2002). The model describes different credit relevant aspects of a company's operations, which are liquidity, cumulative profitability, asset productivity, market based financial leverage as well as capital turnover are captured by the five ratios respectively (Altman, 2000). The Z-Score equation asserts that each component of the equation is linearly related to a company's probability of bankruptcy.

$$Z=1.2 [\text{Working Capital/Total Asset}] +1.4 [\text{Profit after Tax/Total Asset}] +3.3 [\text{Profit before interest and tax/Total Asset}] +0.6 [\text{Market Capitalization /Total Liabilities}] +1.0 [\text{Revenue/Total Asset}]$$

Where:

$$T1 = (\text{Current Assets- Current Liabilities}) / \text{Total Assets}$$

$$T2 = \text{Retained Earnings} / \text{Total Assets}$$

$$T3 = \text{Earnings before Interest and Taxes} / \text{Total Assets}$$

$$T4 = \text{Book Value of Equity} / \text{Total Liabilities}$$

$$T5 = \text{Sales} / \text{Total Assets}$$

$$Z= \text{Overall index or score.}$$

ANALYSES AND RESULTS

Table 1: Altman Z-score of selected Banks

Fiscal year	Full Company name	Listing Status	Altman Z-score	Firm Listing Age	Log of Total Asset
2011	Access Bank	Ngse	0.33	14	4.02
2012	Access Bank	Ngse	0.47	15	4.04
2013	Access Bank	Ngse	0.44	16	4.07
2014	Access Bank	Ngse	0.53	17	4.11
2015	Access Bank	Ngse	0.62	18	4.13
2016	Access Bank	Ngse	0.61	19	3.92
2011	Diamond Bank	Ngse	0.27	7	3.66
2012	Diamond Bank	Ngse	0.38	8	3.87
2013	Diamond Bank	Ngse	0.37	9	3.98
2014	Diamond Bank	Ngse	0.38	10	4.07
2015	Diamond Bank	Ngse	0.39	11	3.96
2016	Diamond Bank	Ngse	0.38	12	3.69
2011	Fidelity Bank	Ngse	0.40	7	3.68
2012	Fidelity Bank	Ngse	0.48	8	3.76
2013	Fidelity Bank	Ngse	0.44	9	3.84
2014	Fidelity Bank	Ngse	0.50	10	3.86
2015	Fidelity Bank	Ngse	0.53	11	3.81
2016	Fidelity Bank	Ngse	0.51	12	3.49
2011	First Bank Holding	Ngse	0.47	43	4.27
2012	First Bank Holding	Ngse	1.35	44	4.31
2013	First Bank Holding	Ngse	0.43	45	4.39
2014	First Bank Holding	Ngse	0.48	46	4.42
2015	First Bank Holding	Ngse	0.43	47	4.34
2016	First Bank Holding	Ngse	0.39	48	4.06
2011	First City Monumental Bank	Ngse	0.43	8	3.59
2012	First City Monumental Bank	Ngse	0.44	9	3.76
2013	First City Monumental Bank	Ngse	0.48	10	3.81
2014	First City Monumental Bank	Ngse	0.56	11	3.85
2015	First City Monumental Bank	Ngse	0.56	12	3.78
2016	First City Monumental Bank	Ngse	0.65	13	3.45
2011	Guaranty Trust Bank	Ngse	0.67	16	4.02
2012	Guaranty Trust Bank	Ngse	0.76	17	4.04

2013	Guaranty Trust Bank	Ngse	0.71	18	4.13
2014	Guaranty Trust Bank	Ngse	0.80	19	4.11
2015	Guaranty Trust Bank	Ngse	0.73	20	4.12
2016	Guaranty Trust Bank	Ngse	0.72	21	3.88
2011	Skye Bank	Ngse	0.37	7	3.77
2012	Skye Bank	Ngse	0.44	8	3.83
2013	Skye Bank	Ngse	.	9	3.85
2014	Skye Bank	Ngse	0.34	10	3.93
2015	Skye Bank	Ngse	0.27	11	3.79
2016	Skye Bank	Ngse	.	12	.
2011	Stanbic Ibtc Holding	Ngse	0.47	7	3.55
2012	Stanbic Ibtc Holding	Ngse	0.48	8	3.63
2013	Stanbic Ibtc Holding	Ngse	0.59	9	3.63
2014	Stanbic Ibtc Holding	Ngse	0.57	10	3.76
2015	Stanbic Ibtc Holding	Ngse	0.56	11	3.69
2016	Stanbic Ibtc Holding	Ngse	0.60	12	3.40
2011	Sterling Bank	Ngse	0.35	29	3.48
2012	Sterling Bank	Ngse	0.39	30	3.53
2013	Sterling Bank	Ngse	0.42	31	3.61
2014	Sterling Bank	Ngse	0.40	32	3.70
2015	Sterling Bank	Ngse	0.46	33	3.62
2016	Sterling Bank	Ngse	0.46	34	3.30
2011	Union Bank Of Nig	Ngse	-0.05	42	3.83
2012	Union Bank Of Nig	Ngse	0.48	43	3.82
2013	Union Bank Of Nig	Ngse	0.49	44	3.80
2014	Union Bank Of Nig	Ngse	0.67	45	3.79
2015	Union Bank Of Nig	Ngse	0.64	46	3.74
2016	Union Bank Of Nig	Ngse	0.60	47	3.48
2011	United Bank For Africa	Ngse	0.22	42	4.06
2012	United Bank For Africa	Ngse	0.38	43	4.12
2013	United Bank For Africa	Ngse	0.34	44	4.23
2014	United Bank For Africa	Ngse	0.39	45	4.22
2015	United Bank For Africa	Ngse	0.48	46	4.16
2016	United Bank For Africa	Ngse	0.51	47	3.93
2011	Unity Bank	Ngse	0.52	7	3.23
2012	Unity Bank	Ngse	0.38	8	3.34
2013	Unity Bank	Ngse	-0.05	9	3.41

2014	Unity Bank	Ngse	0.68	10	3.40
2015	Unity Bank	Ngse	0.63	11	3.36
2016	Unity Bank	Ngse	0.59	12	3.07
2011	Wema Bank	Ngse	-0.03	38	3.14
2012	Wema Bank	Ngse	0.25	39	3.19
2013	Wema Bank	Ngse	0.58	40	3.26
2014	Wema Bank	Ngse	0.48	41	3.36
2015	Wema Bank	Ngse	0.45	42	3.31
2016	Wema Bank	Ngse	0.40	43	3.01
2011	Zenith Bank	Ngse	0.60	8	4.10
2012	Zenith Bank	Ngse	0.72	9	4.13
2013	Zenith Bank	Ngse	0.66	10	4.22
2014	Zenith Bank	Ngse	0.60	11	4.36
2015	Zenith Bank	Ngse	0.68	12	4.32
2016	Zenith Bank	Ngse	0.68	13	4.06

Source: www.machameratios.com

Table 2: Average Altman Z-score 2011-2014 and Altman Z-score during the recession (2015 and 2016) of selected Banks

Bank Name	Average Z-score (2011-2014)	Z-score 2015	Z-score 2016
Access Bank	0.44	0.62	0.61
Diamond Bank	0.35	0.39	0.38
Fidelity Bank	0.46	0.53	0.51
First Bank Holdings	0.68	0.43	0.39
First City Monument Bank	0.48	0.56	0.65
Guarantee Trust Bank	0.74	0.73	0.72
Skye Bank	0.38	0.27	-
Stanbic Bank	0.53	0.56	0.60
Sterling Bank	0.39	0.46	0.46
Union Bank	0.55	0.64	0.60
United Bank for Africa	0.33	0.48	0.51
Unity Bank	0.53	0.63	0.59
Wema Bank	0.44	0.45	0.40
Zenith Bank	0.65	0.68	0.68

Source: Authors' Computation from Annual reports of Banks (www.Machameratios.com)

DISCUSSION OF RESULTS

H01: The managements of Banks in Nigeria have not been efficient in overcoming economic challenges in recent times. The efficiency or otherwise of Nigerian banks during the recession varies from bank to banks. From the computed Altman Z-score of the selected banks, it is seen that during the period of recession (2015-2016), the management of the selected banks have made attempts in salvaging their banks from bankruptcy during the period.

In both 2015 and 2016 fiscal year, First Bank Holdings, Guarantee Trust Bank and Skye Bank had Z-scores lesser than the average for the period 2011-2014. This indicates that these banks have been significantly affected by the economic recession and the implementation of the Treasury Single Account (TSA). The managements of these banks have been less efficient in response to the prevailing economic challenges.

For Wema Bank, there was an improved Z-score in the year 2015, but experienced a decline in year 2016.

For Access Bank, Diamond Bank, Fidelity Bank, First City Monument Bank, Stanbic Bank, Sterling Bank, Union Bank, United Bank for Africa, Unity Bank and Zenith Bank, the Z-scores for the period 2015-2016 has not significantly deviated from the average Z-score for the period 2011-2014. This implies that the managements of these banks have been up and doing in response to the prevailing economic recession as well as the implementation of the Treasury Single Account in Nigeria which has reduced banks' available cash resources.

CONCLUSION AND RECOMMENDATIONS

Considering the enormous challenges faced by banks in recent times, the study examines the efficiency of bank management in terms of their response and ability to manage the challenges. To enable us identify the bankruptcy position of the various selected banks and also quantifying the management's ability to manage challenges, we adopt the Altman's discriminate analysis model. Using the Altman Z-score as a basis for measuring bank efficiency pre and during the challenging period, it is seen that various selected banks in Nigeria have had varying results in terms of their ability to remain efficient and viable during the period of recession.

Regulators should lay more emphases on the continue close monitoring of banks' solvency positions, so as to easily detect and correct at an early stage, any signs of renewed deterioration. Banks should ensure that more strategic marketing plans be put in place to secure and attract deposits from the banking public.

Bank management should be proactive, dynamic and prepared to handle economic challenges as they show up.

SCOPE FOR FURTHER STUDIES

We recommend that future researchers look into modified versions of the Altman bankruptcy Score. Also, other methodologies could be adopted to examine the efficiencies of bank management during the stated period.

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