EVALUATION OF FINANCIAL RATIO ANALYSIS IN THE PREDICTION OF CORPORATE FAILURE AND BANKRUPTCY IN NIGERIA: A STUDY OF SELECTED COMMERCIAL BANKS

By

USMAN, Mohammed
MBA/ADMIN/39554/2004-2005
(G04BAMF7112)

BEING A PROJECT SUBMITTED TO THE POSTGRADUATE SCHOOL IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF DEGREE OF MASTER OF BUSINESS ADMINISTRATION,
FACULTY OF ADMINISTRATION,
AHMADU BELLO UNIVERSITY,
ZARIA.

DEPARTMENT OF BUSINESS ADMINISTRATION,
FACULTY OF ADMINISTRATION,
AHMADU BELLO UNIVERSITY,
ZARIA.

OCTOBER, 2005.

CERTIFICATION

*This is to certify that this project titled: "**Evaluation of Financial Ratio Analysis in the Prediction of Corporate Failure and Bankruptcy in Nigeria: A Study of Selected Commercial Banks"** by USMAN, Mohammed meets the regulations governing the award of the Degree of Master of Business Administration (MBA) of Ahmadu Bello University, Zaria and it is therefore approved for its contributions to knowledge, and literary presentation.*

_____	_____	_____
Mallam Dalhatu B. Imam **Chairman, Supervisory Committee**	Signature	Date
_____	_____	_____
Dr. M.N. Maiturare **Head of Department**	Signature	Date
_____	_____	_____
External Examiner	Signature	Date
_____	_____	_____
Dean, Postgraduate School	Signature	Date

DECLARATION

I hereby declare that this project titled: *"**Evaluation of Financial Ratio Analysis in the Prediction of Corporate Failure and Bankruptcy in Nigeria: A Study of Selected Commercial Banks"*** is a product of my own research findings. Therefore, all sources of information used in this write-up have been duly acknowledged by means of references. As such, I remain solely liable for any error(s) found in this work.

_____	_____	_____
Mohammed Usman	Signature	Date
Student/Researcher		

DEDICATION

This meagre contribution of mine is dedicated to the Supreme Being, Omnipotent, Omniscient, Sovereign, the First and the Last, Almighty Allah (S.W.T). The work is also dedicated to all those Martyrs and innocent victims who were being oppressed daily throughout the world by aggressors and terrorist States in the name of “fighting terrorism.” May Allah help the truth prevail and contain falsehood and aggression and make justice prevail throughout the world, amen.

ACKNOWLEDGEMENT

All praises are due to Allah, the Cherisher and Sustainer of the Worlds, the Eternal, Absolute, Sovereign, Holy Source of Peace and Perfection; Pioneer of all things. I owe my existence to You alone, my indebtedness to You supersedes all other loyalties. Oh Allah! I thank You for Islam and for making me among your faithfuls. May Your peace and blessings be upon Your Prophet, the seal of Prophets and divine inspirations – Muhammad (S.A.W). May Your mercies Oh Allah! Shower upon the family of Prophet Muhammad, his companions and all those that followed his way till the end of time, Ameen.

My special thanks and appreciation goes to my supervisor for immeasurable assistance and audience I enjoyed from him; thank you Sir for meticulously going through the manuscript of this work. I equally thank you for your objective criticisms, corrections and suggestions despite your tight schedules; thank you Sir, I am most grateful.

My sincere and profound gratitude goes to my beloved parents – my Late father (may his soul rest in perfect peace), my beloved Mother for always being there and to my step father for all your moral support, prayers and standing by me. Your love, care, affection, support, finance, and prayers have made my life a perfect bliss. I pray to Almighty Allah to reward you with Aljannah Firdaus for all your effort; you are the love of my life.

My hearty thanks and appreciation goes to my wonderful brothers & sisters: Mohammed, Aliyu, Fatima Binta and Aisha Yani. Your moral support, encouragement & otherwise cannot be quantified and have particularly been a source of inspiration. I am indeed most grateful.

My appreciation also goes to my in-law Alh. Yunusa Suleiman for his support and care, a thousand thank you. To ‘my children’ Amina, Abdulazeez, Aliyu, Suleiman and little Habeeba, baby Halima Sa’adiyyah will also not be forgotten – you are all cherished greatly.

My special thanks and appreciation goes to my well cherished and darling, my loving wife, Hajia Barrister Fateemah Adam Halilu for being there for me. Thank you for defining what love and strength can be and labouring with me through every challenge; also for your undying support and spiritual guidance; I equally thank you for your endurance, patience and prayers during my absence during the period of this course (MBA).

My thanks and appreciation goes to all the family members of my in-laws; the Adamu Halilu's: Faruq, Bilal, Usman, Idris, Suleiman, Farida, Firdaus and above all my mother in-law Hajiya Aisha Emily Adamu Halilu. Thank you all for your support and prayers.

I am indebted to my friends and members of my class especially Dalhatu Murtala Daboh, Jamilu Idris, Usman Shehu Hassan, Yahaya Muhammad. Also to Hadiza Abdulkarim, Josephine Daudu, Deluwa Bibinu, Kabiru G. Magaji – thank you all for your several free rides during the Kaduna – Zaria – Kaduna shuttling. My thanks also go to Omonigho Ahunun, Ganiyat B. Onadiran, Mohammed S. Usman and all those other members of my class whom I have not mentioned here by name.

I acknowledge with appreciation the co-operation and assistance I enjoyed from all lecturers of the Department of Business Administration, especially Mal. Auwal Ahmad, the MBA Co-ordinator Mal. Sabo Bello, Dr Sani Abdullahi, the HOD, Dr Muhammad N. Maiturare, Dr A.B. Akpan, the Librarian Mal. Inuwa (Shadow) and all other staff of the Department who were not mentioned here.

I also acknowledge with appreciation the co-operation and assistance I enjoyed from all the lecturers of the Department of Local Government Studies especially the HOD Prof. Halidu I. Abubakar, Dr Bashir Jumare, Dr Bello Ohiani, Mal. Kabir M. Isah, Mal. Usman Abubakar, Dr Adejo Odoh, Dr Stephen B. Oni and all those whom I've not mentioned. I also thank Mal. Hamza A. Yusuf of Dept. of Public Admin., Dr M.B. Uthman and Dr Ibrahim A. Aliyu all of Faculty of Law, A.B.U. Zaria.

To my friend Abdullahi I. Isah, Mal. Sa'eed, Idris Kunza, Mal. Yahya Isah and all those I might have forgotten to mention, bear with me for I am only human.

Finally, I once again thank Almighty Allah for protecting us during the daily shuttling from Kaduna – Zaria – Kaduna, may Allah see us through life with success all, ameen.

TABLE OF CONTENTS

Title Page …… i

Certification…….. ii

Declaration…….. iii

Dedication…… iv

Acknowledgement…….. v

Table of Contents…… vii

Abstract……. ix

CHAPTER ONE

1.1 General Background of the Study…… 1

1.2 Statement of the Problem…… 5

1.3 Objective of the Study……. 6

1.4 Research Question/Hypothesis…… 6

1.5 Significance of the Study……. 7

1.6 Scope of the Study…… 8

1.7 Limitations of the Study……. 8

1.8 Definition of Related Terms……. 9

References…….. 11

CHAPTER TWO: LITERATURE REVIEW

2.1 The Concept of Financial Ratios……. 12

2.2 Historical Development of Ratio Analysis…….. 13

2.3 Concept of Financial Ratios…… 22

2.4 Predictive Power of Financial Statement Analysis…… 24

2.5 Standards of Comparison……. 27

2.6 Types of Comparison…… 27

2.7 Classification of Financial Ratios…… 28

2.8 Growth Ratio…… 34

2.9 Valuation Ratio…… 34

2.10 Related Research/Studies on Financial Ratios in Nigeria……. 37

2.11 Financial Ratios and Corporate Failure……. 41

2.12 Financial Ratios and Corporate Risk……. 44

2.13 Financial Ratios and Bond Rating…….. 44

2.14 Financial Ratio and Rapid Growth and Profitable Firms……. 45

2.15 Trend Analysis of Financial Records and Comparison…… 45

2.16 Common Size Statement Analysis……. 46
2.17 Financial Ratio Techniques……. 47
2.18 Limitations of Financial Ratios……. 47
References…….. 50

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Population of the Study…….…….. 52
3.2 Sample Size……..……. 52
3.3 Sample Selection/Sampling Technique……..…… 52
3.4 Data Collection…….…… 53
3.5 Method of Data Analysis……..…… 55
References…….. 57

CHAPTER FOUR: DATA PRESENTATION AND ANALYSIS

4.0 Introduction……..……. 58
4.1 Ratios used in the Study……. 60
4.2.1 Liquidity Ratio……..……. 60
4.2.2 Profitability Ratio…….…… 62
4.2.3 Activity Ratio……..…….. 65
4.2.4 Leverage or Debt Ratio……... 67
4.3 Multivariate Discriminant Ratio Analysis…….. 68
4.4 Analysis and Comparison of Results……. 70
References…….. 74

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.0 Introduction…….. 75
5.1 Summary…….. … 75
5.2 Conclusion…….…… 77
5.3 Recommendations…….. 80
References…… 82
Bibliography…… 83
Appendices I - V…….. 84

ABSTRACT

Financial analysis is the process of identifying the financial strengths and weaknesses of a firm by properly establishing relationships between the assets and liabilities and the performance of that particular firm. Commercial banks in Nigeria need to undertake periodic financial analysis; this could not be unconnected with the recent failures that engulfed the banking industry in Nigeria and its devastating effects on both the customers and shareholders.

The study seeks to evaluate the efficiency of financial ratios analysis in predicting corporate bankruptcy and failure in the Nigerian banking industry. This is to guard against the possible loss suffered by numerous customers, owners and other stakeholders who have interest in such financial institutions. An in-depth analysis of financial statements of a firm tend to provide a deep insight into the operations of that firm. This brings to the fore the genesis and the magnitude of problems that subsequently result in poor performances. Therefore the use of financial ratios in the analysis of performance, is an indispensable aid to appraising true performance of firms. This will greatly help management to spot out financial weaknesses of firms and to take suitable corrective actions. Thus, financial analysis is the starting point for making plans before using any sophisticated forecasting and planning procedures. This is necessary as understanding the past is a prerequisite for anticipating the future.

In the course of this study, stratified random sampling was employed to achieve the aims of this research work. The banks studied in this work were categorised into two strata: first generation and new generation banks. Three banks were strategically selected from the old generation banks while two banks were also selected from new generation banks.

From the data obtained and the analysis made using various financial tools, the financial condition of the banks under study was not very good, according to Altman's model and Osaze's index respectively. Based on the analysis made using the various tools of financial analysis, it is recommended that the banks should majorly cut down their cost of operations and reduce their total debt. This will reduce their operating expenses as well as interest charges paid annually to creditors.

CHAPTER ONE

1.1 GENERAL BACKGROUND OF THE STUDY

Almost all kind of business activities, directly or indirectly, involve the acquisition and use of funds. There are several business activities of an enterprise, among these are; production finance, marketing, etc. out of these activities finance plays an important role. For example, recruitment and promotion of employees in production is clearly a responsibility of the production department; but it requires payment of wages and salaries and other benefits, and thus, involves finance. Similarly, buying a new machine or replacing an old machine for the purpose of increasing productive capacity affects the flow of funds. Sales promotion policies come within the purview of marketing, but advertising and other sales promotion activities require outlays of cash and therefore, affect financial resources. (Pandey, 2000: 5).

Financial management endeavours to make optimal investment, financing and dividend/share repurchase decisions. In an endeavour to make optimal decisions, the financial manager makes use of certain analytical tools in the analysis, planning, and control activities of the firm. Financial analysis is a necessary condition, or prerequisite, for making sound financial decisions. One of the important roles of a chief financial officer is to provide accurate information on financial performance, and the tools taken up will be instrumental in this regard (Van Horne, 2002: 8). However, financial scholars generally explain what financial management is by describing the business organisation as a 'pool of funds' i.e. it is a collection of funds from a variety of sources. The sources include money from investors who invest in the business stock or creditors who lend their money to the business to profit or retained earnings. The funds from these sources are being committed to a number of uses such as the purchase of assets, especially fixed, for the production of goods and services, inventories, to facilitate production and sales as well as payment for varying transactions. What is fundamental they stated was that these sources of funds and the uses or purposes for which the funds are committed do change over time and the process is known as funds flow. Financial management according to them therefore connotes the effective and efficient management of the flow of funds within and outside the organisation.

Management employs financial analysis for purposes of internal control. In particular, it is concerned with profitability on investment in the various assets of the

company and in the efficiency of asset management (Ibid: 349). Financial analysis as a role of financial analyst evolved with changes in the role of financial management. Financial management as a field of study is believed to have passed though several and significant changes over the years when it first emerged as a separate field of study from management in the year 1890. At that time emphasis was primarily on the acquisition of funds. This was so because the basic problem facing business managers and firms in the early 1900 was that of obtaining the desired capital. This focus remained through to the later parts of 1920s. However, radical changes occurred and a significant departure was recorded during the periods of the world depression of the 1930s otherwise called the great depression when an unprecedented number of businesses failed. This development necessitated a redirection of attention and effort to critical issues of the moment such as bankruptcy, corporate reorganisation, corporate liquidity, the role of government and government regulations on the operation of businesses. In other words, there was shift of emphasis from corporate expansion strategies to business survival strategies. The period of 1940s through to the early parts of 1950s witnessed a redesignation of focus to basically methods of financial analysis. The intention was to help businesses maximise their total profitability, stock prices as well as predict the likelihood of failure even before it occurs.

The analysis of financial ratios indicate the operating and financial efficiency, and growth of a firm. The financial ratios could be used to determine the ability of the firm to meet its current obligations; the extent to which the firm has used its long-term solvency by borrowing funds; the efficiency with which the firm is utilising its assets in generating sales revenue and the overall operating efficiency and performance of the firm. The job of the financial manager is, therefore, an important one and his responsibilities involves taking decisions as regards instruments the firm should take, how these instruments should be financial and how the existing resources of the firm should be managed so that the maximum benefit could be derived.

In order to perform his functions in the most effective and efficient manner, the financial manager needs some tools of analysis. One of the tools available to the financial manager is the “Financial Ratio Analysis”. Financial ratio analysis is the process of identifying the financial strengths and weaknesses of any firm by properly establishing relationship between the items of the balance sheets and the

profit and loss account. A financial manager wants to know through financial analysis whether the firm can reasonably afford to borrow all or part of the funds needed to finance a planned expansion, find out causes of changes in operating income relative to its competitors etc. Financial ratio analysis is therefore, used as a means of evaluating the financial position and performance of a firm as well as product the likelihood of an organisation going bankrupt.

Although financial managers cannot rely on accounting information as reported in the various financial statements as most times they do not provide adequate understanding of the performance and the actual position of a firm until when they convey meaning relating to specific information. The analysis of financial analysis can also be undertaken by outsiders for example, investors who wish to determine the credit worthiness or investment potentials of the firm.

According Pandey, (2000: 8-9), financial analysis is the process of identifying the financial strengths and weaknesses of the firm by properly establishing relationships between the items of balance sheet and the profit and loss account. Financial analysis can be undertaken by management of the firm, or by parties outside the firm, viz, owners, creditors, investors and others. The nature of analysis will differ depending on the purpose of the analysis. Trade creditors may be interested in a firm's ability to meet their claims over a very short period of time. Their analysis will therefore, confine to the evaluation of the firm's liquidity position. Suppliers of long-term debt, on the other hand, are concerned with the firm's long-term solvency and survival. They analyse the firm's profitability over time, its ability to generate cash to be able to pay interest and repay principal and the relationship between various sources of funds (capital structure relationship). Long-term creditors do analyse the historical financial statements, but they place more emphasis on the firm's projected, or pro forma, financial statements to make analysis about its future solvency and profitability. Investors, who have invested their money in the firm's shares, are most concerned in those firms that show steady growth in earnings. As such, they concentrate on the analysis of the firm's present and future profitability. They are also interested in the firm's financial structure to the extent it influences the firm's earnings ability and risk. Management of the firm on the other hand, would be interested in every aspect of the financial analysis. It is their overall responsibility to see that the resources of the firm are used most effectively and efficiently, and that the firm's financial condition is sound.

It is imperative to note the importance of the proper context for ratio analysis. Like computer programming, financial ratio is governed by the GIGO law "Garbage In…Garbage Out!" A cross industry comparison of the leverage of stable utility companies and cyclical meaning companies would be worse than useless. Examining a cyclical company's profitability ratios over less than a full community or business cycle would fail to give an accurate long-term measure of profitability. Using historical data independent of fundamental changes in a company's situation or prospects would predict very little about future trends. For example, the historical ratios of a company that has undergone a merger or had a substantive change in its technology or market position would tell very little about the prospects for this company. Generally, a financial ratio serves as a useful tool to manager and investors in assessing the financial strengths and weaknesses of a firm. However, a single ratio in itself does not indicate favourable or unfavourable condition until it is compared with some standards. Further to the identification of the inadequacies of the univariate ratio analysis otherwise called the traditional ratio analysis, a number of empirical studies were conducted on multivariate financial analysis which can be used in the prediction of financial and corporate bankruptcy etc. Some of the standards of comparison of the traditional or univariate ratio analysis are:-

(a) Ratios computed from the past financial statements of the same firm;
(b) Ratios developed using the pro-forma financial statements of the same firm;
(c) Ratios of some selected firms especially the most progressive and successful in the same industry within the same period; and
(d) Ratios of the industry to where the firm belongs (industry average).

Financial Ratios are often evaluated using:-

(i) Cross-sectional approach; and
(ii) Time-series analysis.

Of all the tools of financial analysis, ratio analysis is perhaps the most widely used. A ratio is simply the relationship between the one number and another number. Financial ratio analysis is the calculation and comparison of ratios which are derived from the information in a company's financial statements. The level of historical trends of these ratios can be used to make inferences about a company's financial condition, its operations and attractiveness as an investment. But that surely does not mean that the resulting ratios would assist the analyst by enhancing undertaking of the firm's financial conditions. The analyst is interested

only in those ratios that are relevant to particular financial problems or decisions. It is wrong to conclude from any firm's ratio that a firm's liquidity position is satisfactory or not, that its capital structure is sound or unsound, or that the ratio is too high or too low. The ratio may be symptomatic of a problem, but further analysis is required to determine the cause or to draw conclusions of a qualitative nature.

The great advantage of ratio analysis is that it reduces raw data of widely varying magnitude to a common comparative basis. Thus, ratio analysis is the most meaningful way to compare financial information regarding a given firm to that of others that are larger or smaller, or to a composite of other firms such as an industry.

Credit analysts, those interpreting the financial ratios from the prospects of a lender, focus on the "downside" risk since they gain none of the upside from an improvement in operations. They pay great attention to liquidity and leverage ratios to ascertain a company's financial risk. Equity analysts look more to the operational and profitability ratios, to determine the future profits that will accrue to the shareholder.

Although financial ratio analysis is well-developed and the actual ratios are well-known, practising financial analysts often develop their own measures for particular industries and even individual companies. Analysts will often differ drastically in their conclusions from the same ratio analysis.

1.2 STATEMENT OF THE PROBLEM

Two groups of questions will be the focus of this study. The first is how effective is the financial ratio analysis in predicting corporate bankruptcy and failure?

The second question concerns prevention of corporate bankruptcy and failure by the use of the financial ratios. Does the use of financial ratio analysis prevent corporate bankruptcy and failure? In other words are the earlier results corroborated, or have they been influenced by the limited selection of variables? In addition to the implications on the traditional financial ratios, we are interested in finding out whether the use of financial ratio analysis can help in predicting corporate bankruptcy and failure.

In tackling our research problem, we shall use a hypothesis approach rather than just observing and reporting the emerging classifications. The statistical methods will be factor analysis, and transformation analysis.

In tackling our research questions special attention must be given to stability, and avoidance of definitional correlation. One of the pitfalls of inductive methods, such as factor analysis, is whether the results are a consequence of a coincidence, and thus unstable, or do they result from true underlying factors, which would mean better stability. Hence we shall test the stability of our factor analysis results with transformation analysis.

Definitional correlation between financial ratios can easily arise if they include, either directly or indirectly, the same components (e.g. net profit/total assets and net profit/sales are related by definition). We strive to avoid this pitfall by a judicious selection of the original variables.

1.3 OBJECTIVES OF THE STUDY

The purpose of this study is to evaluate the efficiency of financial ratio analysis in predicting corporate bankruptcy and failure in the Nigerian banking sector. This is in order to assess how well or otherwise financial ratio analysis can assist financial managers in predicting financial problems and to enable them adequately plan for future financial resources of their organisations.

1.4 RESEARCH QUESTION/HYPOTHESIS

Profitability, operating efficiency, output level, capital investment and dividends are considered as measures of success of a firm. Ratio analysis is a very useful tool to raise relevant question on a number of a managerial issues. This study seeks to answer the following question: “How efficient are financial ratios analysis in predicting corporate failure and bankruptcy in Nigerian banking industry?” In an attempt to answer the research question, two hypotheses have been developed. These hypotheses are null hypothesis and alternative hypothesis. The hypotheses are given as follows:-

H_o: There is no significant relationship between financial ratios analysis and prediction of corporate failure.

H_1: There is significant relationship between financial ratios analysis and prediction of corporate failure.

1.5 SIGNIFICANCE OF THE STUDY

Ratio analysis is the most powerful tool of financial analysis. Financial analysis is the process of identifying the financial strengths and weaknesses of a firm by properly establishing relationships between the items of the Balance Sheet and the Profit and Loss Account. Financial analysis can be undertaken by management of the firm, or by other stakeholders outside the firm, viz: owners, creditors, investors and others. The relationship between two accounting figures, expressed mathematically, is known as financial ratio. Financial ratios help to summarise large quantities of financial data and to make qualitative judgement about the firm's financial performance. It is important to note that a ratio reflecting a quantitative relationship, helps to form a qualitative judgement (such is the nature of all financial ratios).

The analysis of financial ratios indicate the operating and financial efficiency, and growth of a firm. The financial ratios could be used to determine – the ability of the firm to meet its current obligations; the extent to which the firm has used its long-term solvency by borrowing funds; the efficiency with which the firm is utilising its assets in generating sales revenue, and the overall operating efficiency and performance of the firm.

With the current political and economic difficulties in Nigeria, business enterprises are invariably subjected to pressure and stress which in effect has constituted a threat to the corporate existence of these businesses which if not properly managed could lead to bankruptcy, or even total failure. As such, financial sectors became a battlefield for survival of the fittest with financial institutions being forced to assume greater risks. The makes the banking industry particularly prone to bankruptcy and/or failure.

Financial ratio analysis is used to computer, analyse, predict and compare the conditions and performances of business enterprises in order to evaluate their liquidity, profitability and viability. It is against this background that this topic was chosen by the writer.

1.6 SCOPE OF THE STUDY

This study seeks to evaluate the use of financial activities as a tool in predicting corporate failure and bankruptcy. It also seeks to evaluate and show how financial ratios can serve as tools for managerial control to evaluate corporate performance as well as predictors of bankruptcy or failure. Consequently, the study covers the financial activities of five banks between the period 2001 and 2004.

In an attempt to evaluate these various financial statements, industry ratios using trend analysis were compared over time. Year-to-year comparisons can highlight trends and point up the need for action. Trend analysis works best with five years of ratios. The second type of ratios analysis, cross-sectional analysis, compares a company's financial ratios to industry ratio averages. Another popular forms of cross-sectional analysis compares the financial ratios of two or more companies in similar lines of business.

1.7 LIMITATIONS OF THE STUDY

Research on financial ratios analysis is usually based on a large number of firms. But due to time constraint, this study will base its research on five firms (banks) only. Some of the limitations of this study are:-

- Limitations of the financial ratios which could be due to alternative accounting methods – variations among companies in the application of generally accepted accounting principles may hamper comparability. Firms frequently establish a fiscal year-end that coincides with the low point in operating activity or in inventory levels. Therefore, year-end data may not be typical of the financial condition during the year. The financial statements contain numerous estimates to the extent that these estimates render the financial ratios and percentages inaccurate. Also, traditional financial statements are based on cost and are not adjusted for price-level changes.
- Although a trend may have been developed over a period of five years, the period of the study (2000 – 2004) is too short to form an adequate opinion to give a reliable basis for realistic prediction.
- Nigeria is yet to develop industry ratio averages with which to compare its firms' ratios. Comparison between firms' ratios with that of the industry was therefore not possible.

- Time constitutes a serious limiting factor as the study has to be concluded within a short period of time.
- Most of Nigerian firms were unwilling to release financial statement and other data.

1.8 DEFINITION OF RELATED TERMS

Accounts Payable Turnover: The number of times payables turnover during the year.

Accounts Receivable Turnover: Number of times that trade receivables turnover during the year.

Cost of Goods Sold: Percentage of sales used to pay for expenses which vary directly with sales.

Current Ratio: The ratio between all current assets and all current liabilities.

Days in Account Payable: This shows the average length of time a firm's trade payables are outstanding before they are paid (number of days at cost in payables).

Days in Inventory: This shows the average number of days it will take to sell a firm's inventory (number of days at cost in inventory).

Days in Receivables: This shows the average number of days it takes to collect a firm's account receivables (number of days of sales in receivables).

Debt Coverage Ratio: Indicates how well cash flow covers debt and the capacity of the business to take on additional debt.

Debt to Equity: The between capital invested by the owners and the funds provided by lenders.

Gross Profit Margin: Indicator of how much profit is earned on firm's product without consideration of selling and administration costs.

Inventory Turnover: Number of times that firm turns over (or sell) inventory during the year.

Net Profit Margin: Shows how much profit comes from every naira of sales.

Quick Ratio: The ratio between all assets quickly convertible into cash and all current liabilities.

Ratio: Is an expression of mathematical relationship between one quantity and another as either a percentage, rate, or proportion.

Return on Assets: Considered a measure of how effectively assets are used to generate a return.

Return on Equity: Determines the rate of return on firm's investment in the business.

Sales Growth: Percentage increase (or decrease) in sales between two time periods.

Sales to Total Assets: Indicates how efficiently a firm business generates sales on each naira of assets.

REFERENCES

1. Pandey, I.M.; Financial Management, Vikas Publishing House Pvt. Ltd. of New Delhi, 2000, p. 5.

2. Ibid, p. 8.

3. Ibid, p. 349.

4. Ibid, pp. 8-9.

CHAPTER TWO

LITERATURE REVIEW

2.1 THE CONCEPT OF FINANCIAL RATIOS

Financial ratios are widely used for modelling purposes both by practitioners and researchers. The firm involves many interested parties, like the owners, management, personnel, customers, suppliers, competitors, regulatory agencies, and academics, each having their views in applying financial statement analysis in their evaluations. Practitioners use financial ratios, for instance, to forecast the future success of companies, while the researchers' main interest has been to develop models exploiting these ratios. Many distinct areas of research involving financial ratios can be discerned. Historically one can observe several major themes in the financial analysis literature. There is overlapping in the observable themes, and they do not necessarily coincide with what theoretically might be the best founded areas, ex post. The existing themes include

a. the functional form of the financial ratios, i.e. the proportionality discussion,
b. distributional characteristics of financial ratios,
c. classification of financial ratios,
d. comparability of ratios across industries, and industry effects,
e. time-series properties of individual financial ratios,
f. bankruptcy prediction models,
g. explaining (other) firm characteristics with financial ratios,
h. stock markets and financial ratios,
i. forecasting ability of financial analysts vs financial models,
j. estimation of internal rate of return from financial statements (Weston & Brigham, 1987: 27).

The history of financial statement analysis dates far back to the end of the previous century (Horrigan, 1968). However, the modern, quantitative analysis has developed into its various segments during the last two decades with the advent of the electronic data processing techniques. The empiricist emphasis in the research has given rise to several, often only loosely related research trends in quantitative financial statement analysis. Theoretical approaches have also been developed, but not always in close interaction with the empirical research.

2.2 HISTORICAL DEVELOPMENT OF RATIO ANALYSIS

The discipline of financial analysis has its roots in the principles of accounting. Historically, it was a combination of corporate reporting practices and a major depression that dictated this background. Financial analysis encompasses both security analysis and corporation finance, as these two fields can be considered to be two sides of the same coin. Security analysis has traditionally looked down upon the financial decisions of a firm from the point of view of an outsider, while corporations finance (or business finance, or financial management) has considered financial decision-making from the perspective of an operating officer. In addition, portfolio analysis has emerged from security analysis to be a discipline in its own right. Financial analysis thus appeared the most appropriate term with which to describe the intellectual framework common to all these fields of study.

In 1866 the Treasurer of the Delaware, Lackawanna, and Western Railroad Company, for example, once responded to a request for information from the New York Stock Exchange by writing, “The Delaware, Lackawanna R.R. Co. make no reports and publish no statements and have done nothing of the kind for the last five years.” By 1934, when Benjamin Graham and David Dodd wrote their classic study, Security Analysis, corporate reporting practice was much more sophisticated than this quotation suggests. Nonetheless, the level of corporate disclosure and the accounting standards in use were by no means as high as those which analysts now regard as normal. As a consequence, entire sections of Graham and Dodd’s work are devoted to the fine points of recasting a corporation’s income statement and balance sheet into more meaningful form and explaining other techniques of financial statement analysis.

Moreover, Security Analysis was first published in the era of the Great Depression, when investors had good reason to question whether a corporation with a high level of bonded indebtedness would be able to refinance its debt or meet its interest payments as they fell due. Each investor had to assess the probability of a firm’s failure. Given a historical tradition of inadequate disclosure and the peculiar liquidity problems of the depression, a premium was placed upon analysis with skill in accounting techniques.

The conditions that prevailed when Graham and Dodd wrote their work are not prevalent today, however. The corporate income tax and the heightened

sophistication of the accounting profession have gradually forced most businesses to keep better records and to adopt more adequate accounting practices. In addition, the probing of security, analysts and the requirements of the Securities and Exchange Commission, as well as the various exchanges on which securities are listed, have in large measure succeeded in improving disclosure practices. Furthermore, the danger of imminent insolvency is no longer among the most pressing problems facing corporations today.

These developments have shifted the focus of the security analyst significantly. The modern financial analyst, to use a broader and more inclusive term than security analyst, is now concerned with problems such as the selection of firms that have relatively attractive investment opportunities, the evaluation of the availability of funds to finance asset expansion, and the analysis of changes in the rate at which shareholders will value future streams of income.

Incorporating Economics into Financial Analysis

Many of these problems are familiar to economists. It is not surprising, therefore, to find security analysts as well as financial officers looking beyond the traditional accounting statements for information and placing greater emphasis upon the principles of economic analysis in evaluation this data. Many of the tools of national income analysis as well as those of microeconomic theory have now been incorporated into financial analysis. Thus financial analysts typically discuss the effect of changes in national income upon the corporate rate of return and the opportunity for corporate growth, or ponder the effect of changes in the output of substitutes and complementary products on both product prices and factor costs, or consider the consequences of changes in capacity upon a firm's output and hence its rate of return.

Other forces have also helped reshape financial analysis since Graham and Dodd wrote their monumental study. Since the end of World War II, the discipline of corporation finance has developed and made popular a large number of analytic tools, including cash budgeting, profit planning, and capital budgeting. The chief financial officer of a corporation, who is trained in these techniques, is now able to anticipate cash flows and plan the earnings of a corporation much more precisely.

This quite revolution in corporate financial management enables the security analyst who is evaluating the firm to focus his attention on the firm's expected future rate of return rather than on its past earnings stream. As a result, the

determinants of the corporate rate of return now seem far more significant to the analyst than the monetary market forces which produced past random price fluctuations.

The corporate disclosure problem in the area of capital budgeting is still severe. The modern security analyst must be, like his predecessors, something of a detective. The attitude of corporations concerning the disclosure of their expected return on various projects is often reminiscent of that expressed by the Delaware and Lackawanna about disclosing their sales and earnings figures a century ago.

A second major development that has had a profound impact on the course of financial analysis is the emergence of portfolio management as a separate, distinct of study. When Graham and Dodd wrote their treatise, portfolio was considered a relative trivial topic. The theory was that if the market prices of a security were less than some predetermined price, it should be bought, and if the price was above this figure, it should be sold. With the growth of large mutual funds, expanded trust departments in commercial banks, and the rise of professional portfolio managers and investment advisors, this simple buy-sell dictum proved unsatisfactory. It seems unlikely, for example, that a large mutual fund would ever sell all its holdings in General Motors, I.B.M., or American Tel. and Tel. It might be expected to add to or subtract from its holdings at different times. Adding and subtracting at the margin raises a different set of problems altogether.

Questions never asked before began to arise. How might one obtain the maximum return from the portfolio as a whole, with a given variability in the return? What is the meaning of diversification? What kinds of risk can portfolio diversification guard against? To answer such questions, more sophisticated techniques, such as factor analysis and quadratic programming are required. The practical application of these techniques has been made feasible by computers. Like all new developments, however, the new tools suggest as many questions as they resolve.

Analysts are now trying to sharpen these new analytical tools. The analyst wants assurance that his inputs into the analytical process are adequate and that they are designed in the most efficient, functional form possible. In short, to the large permanent investor, the relationship among the securities within a portfolio is now a matter of serious concern. For this reason portfolio management has become an important field of study in its own right.

The third major development that has influenced financial analysis is the use of abstract models in the study of the interrelationship of the firm and the market. The search for some intrinsic value, or loosely, what the stock is "really worth" (a search that is reminiscent of Marx's desire to find the "socially necessary" amount of labour power inherent in any commodity) has all but disappeared from serious analysis. Instead, the financial analyst now seeks to express the price of a security as a function of different variables. A number of such single-equation, or "unconstrained," models, of which the Value Line model is perhaps the best known, have been developed and applied with varying degrees of success. Recently, more adequate systems have been developed in which the independent variables of the price equation are themselves joined together to form side conditions, or constraints.

This type of analytical model building, replacing the intuitive analysis of each change in corporate activities in terms of its own rich institutional background, has necessarily led to the use of more formal mathematical techniques. Thus it is not surprising that knowledge of the rudiments of calculus, matrix algebra, and statistics has become an indispensable background for the financial analyst. The necessary of this background has been recognised by business schools throughout the nation, and course in these courses in these subjects are now required for all students in most universities.

In sum, the field of financial analysis has changed radically over the years. Economic theory has been invoked to add depth and perspective to the analysis and help interpret the information contained in corporate income statements and balance sheets. Tools have been fashioned to attack problem areas that were previously thought to be beyond rational solution. Thus, at present, mathematical models are being built, tested, and amended in the search for interrelationships within the valuation process – financial analysis is becoming a professional discipline. The casual interloper if fast being replaced by the full-time analyst or financial manager as the gulf of knowledge between amateur and professional widens. The tremendous changes in financial analysis can perhaps be more readily appreciated if we review briefly the specific research efforts carried on in the past.

To 1929

Before corporate financial records became readily accessible and before the exchanges regulated their members as closely as they do now, the financial community spent considerable time and effort examining the pattern of price changes. These fluctuations in security prices were studied in isolation, however; typically they were not related to other facets of corporate activity or to monetary policy. In *The Great Crash* John Kenneth Galbraith explained why these price changes were studied so carefully:

> By the end of the summer of 1929, brokers' bulletins and letters no longer contented themselves with saying what stocks would rise that day and by how much. They went on to say that at 2p.m. Radio or General Motors would be "taken in hand." The conviction that the market had become the personal instrument of mysterious but omnipotent men was never stronger. And, indeed, this was a period of exceedingly active pool and syndicate operations – in short, of manipulation. During 1929 more than a hundred issues on the New York Stock Exchange were subject to manipulative operations, in which members of the Exchange of the Exchange or their patterns had participated. The nature of these operations varied somewhat but, in a typical operation, a number of traders pooled their resources to boom a particular stock. They appointed a pool manager, promised not to double-cross each other by private operations, and the pool manager then took a position in the stock which might also includes shares contributed by the participants. The buying would increase prices and attract the interest of people watching the tape across the country. The interest of the latter would then be further stimulated by active selling and buying, all of which gave the impression that something big was afloat. Tipsheets and Market commentators would tell of exciting developments in the offing. If all went well, the public would come in to buy, and prices would rise on their own. The pool manager would then sell out, pay himself a percentage of the profits, and divide the rest with his investors.
>
> While it lasted, there was never a more agreeable way of making money. The public at large sensed the attractiveness of these operations, and as the summer passed it came to be supposed that Wall Street was concerned with little else.[1]

The theory of valuation, if we can call it that, implicit in this pre-analytic approach has become known as the "bigger fool theory," because it maintains that any price for any security is appropriate at any time if the buyer can sell the stock at a profit to an even "bigger fool" at a later date.

1930 – 1945

The historical events that led up to the fall in security values in October, 1929, have been thoroughly documented. Once the crash occurred, however, analysts began searching for a frame of reference that would have given them advance warning of those events. Eventually this search revealed a functional relationship linking security prices to corporate and economic variables.

Benjamin Graham and David Dodd, perhaps more than any other writers of this era, stressed the normative relationship between the price of a security and the corporation's earning power. Working implicitly with the formula $P = mE$, they attempted to establish the corporation's real earning power, E, by looking at the firm's average earnings over the past five years. They then postulated that the multiple, m, linking the earnings of the corporation to the price of the stock was approximately twice the government bond rate.

Had an investor used this type of analysis in the late 1920's, he personally would not have suffered huge losses because the formula would have told him that the securities were "overvalued," and presumably he would have disposed of them before crash.

1945 to date

The normative approach to security analysis, with its concern for "central value" and its emphasis on the fact that price and value can be different, dominated the thinking of the 1930's and early 1940's. Since the end of World War II, however, their analysis has faded in popularity under the pressure of a different economic environment and increased analytical sophistication. It became widely recognised that when an investor buys stock he is buying future earnings, not past earnings, and that future earnings are related to the growth of national income as well as to the ability of the corporation's management. It also became increasingly apparent that the past is an imperfect guide to the future, especially if it contains a long depression, a war, and a sharp inflation. Moreover, analysts began to realise that a single universal multiple could not be applied to all types of corporations, because different types of corporations have different streams of earnings. Not only do they grow at different average rates, but the uncertainty surrounding these average growth rates differs. Accordingly, since securities represent different degrees of risk, different multiples are necessary.

Most important of all, analysts began to question the distinction between price and value. Instead of concentrating on the price at which securities "ought" to sell, they became increasingly interested in understanding how the prevailing price reached its present level.

Today analysts are primarily interested in estimating the future earnings of the company. Some attempt to do this by extrapolating past earnings. Others first

estimate Gross National Product and then derive the level of sales are then estimated from the industry figures. Finally, by applying a carefully constructed profit margin estimate to the estimated sales, these analysts can generate an estimated earnings figure. Linking projected earnings to projected security prices, however, remains a more elusive problem. Two different approaches have been utilised.

Some analysts capitalise a corporation's estimated earnings by means of an historical multiple. They collect al the multiples that have been applied to the security in question in the past and strike a mean, which they then use to capitalise future earnings. This approach suffers, of course, from the fact that the multiple is expressed as a single value, rather than as a function that is responsive to changes in product and factor markets and changes in monetary policy. Other analysts have followed a different tack and attempted to measure the price/earnings multiple as a function of interest rates, or the change in corporate sales, or the profit margin, or the capital structure, and other more or less arbitrarily selected variables. This approach enjoys wide use, but it is difficult to accept because the theoretical rationale for including some variables and rejecting others does not seem to have been carefully developed in most cases.

Many other financial analysts, seeking to understand how the price of a share of stock reached its present position, have concentrated more heavily on the corporation's expected stream of dividends, rather than on its expected earnings. In this text, the price of a share of stock will be treated not as a multiple of earnings but as a constrained function of dividends. To be explicit, the price of each stock is defined as the capitalised value of the future stream of dividends. The future stream of dividends is then limited, or constrained, by two factors. First, dividends are limited by the prevailing conditions in the product market in which it purchases its inputs. If competitive conditions faced by the firm are such that an expansion of output will lead to a rapid decline in product prices, the rate of dividend growth will be more limited than if the corporation in the financial market. If lenders are reluctant to advance funds in the quantities desired at prevailing interest rates, for example, the likelihood of a high dividend growth rate is reduced.

The rate of discount, or capitalisation rate, that investors will apply to the future stream of dividends is postulated as a function of two variables: the alternative investment opportunities open to shareholders, and the riskiness of the

firm in question. The dividend capitalisation equation and the two constraints can be combined into a system of equations. Thus, the price of a stock can be represented as

$$P = P\left[r, b, i, \frac{L}{E}\right]$$

where r = average rate of return on assets, b = average corporate retention rate, i = average interest rate paid on borrowed funds, and L/E = ratio of total liabilities to total equity. The constraint imposed by the product and factor markets can be represented as

$$LC\left[r, b, i, \frac{L}{E}\right] = 0$$

while the constraint imposed by the financial market can be represented as

$$FC\left[i, \frac{L}{E}\right] = 0$$

When the two constraints are substituted into the price equation, two of the four variables are eliminated. By observing the values of the other two variables and the price of the shock, the analyst can determine what the market implies the following parameters to be:

1. The change in the rate of return that will arise as a result of a change in the rate of growth of national income.
2. The change in the rate of return that will result from a change in the corporation's growth rate.
3. The change in the rate of discount that will arise from a change in the variance of the corporation's growth rate.

Moreover, once these parameters are known, the analytical process can be reversed and answers can be found to questions such as: given the parameters associated with income and growth, what rate of growth does the market believe the corporation will achieve? What rate of discount is the market currently applying to the future stream of dividends?

Like any scholar, the financial analyst stands at a threshold. Behind him is a rich tradition of analysis that, in spite of its obvious strengths, was unable to cope

with al the events of the world about him. In from of him lies a host of new techniques that may lead to a better understanding if he can first master the tools and then vigorously apply them.

Summarily, historical development of financial ratio analysis has led to understand that:

1. The emphasis of financial analysis has shifted from an analysis of the corporation's financial statements to a study of the economic environment within which the corporation operates. Better reporting practices by the majority of corporations and the apparent ability of the economy to avoid serious depressions have contributed to this change.
2. The change in emphasis of financial analysis has also been influenced by three major developments. These are as follows:
   - *The widespread use of more sophisticated financial management tools.* These new tools, including cash budgeting, profit planning, and capital budgeting, enable the analyst to evaluate the earnings prospect of a firm with a greater degree of confidence than had hitherto been possible.
   - *The growth of portfolio management as a discipline separate and distinct from security analysis*.
   - *The use of analytical models to study the interrelationship of the corporation's activity and the valuation that the market places upon the firm.*
3. Financial analysis is an evolving discipline. The research carried on in the past reflects this evolution. The earliest research programs concentrated on the study of the behaviour of price changes in isolation. As corporate records improved, prices were functionally related to variables such as earnings or sales. Today both economic and financial data are incorporated in the analysis of security prices. The modern financial analyst may call upon an entire system of equations to describe different markets that influence a corporation's activities. By solving these equations jointly, he can develop a better understanding of the underlying structure of relationships that describe a corporation's behaviour.

Technically, financial ratios can be divided into several, sometimes overlapping categories. A financial ratio is of the form X/Y, where X and Y are figures derived from the financial statements or other sources of financial information. One way of

categorising the ratios is on the basis where X and Y come from (Foster and Salmi; 1978: 36) and (Salmi, Virtanen and Yli-Olli; 1990: 10). In traditional financial ratio analysis both the X and the Y are based on financial statements. If both or one of them comes from the income statement the ratio can be called dynamic while if both come from the balance sheet it can be called static (see ibid.). The concept of financial ratios can be extended by using other than financial statement information as X or Y in the X/Y ratio. For example, financial statement items and market based figures can be combined to constitute the ratio.

2.3 THE CONCEPT OF FINANCIAL RATIOS

Financial analysis is the process of identifying the financial strengths and weaknesses of the firm by properly establishing relationships between the items of the balance sheet and the profit and loss account. Financial analysis can be undertaken by management of a firm, or by parties outside the firm, viz. owners, creditors, investors and others (Foster, G., 1986: 2-7). The nature of the analysis will differ depending on the purpose of the analyst. Financial analysis is normally done through the use of mechanics of ration analysis.

Ratio analysis is a powerful tool of financial analysis. A ratio is defined as “the indicated quotient of two mathematical expressions” and as “the relationship between two or more things.” In financial analysis, a ratio is used as a benchmark for evaluating the financial position and performance of a firm. The absolute accounting figures reported in the financial statements do not provide a meaningful understanding of the performance and financial position of a firm.

Financial ratio analysis is a fascinating topic to study because it can teach us so much about accounts and businesses. When we use ratio analysis we can work out how profitable a business is, we can tell if it has enough money to pay its bills or is likely to face problems in the near future. Ratio analysis can also help us to check whether a business is doing better this year than it was last year; and it can tell us if our business is doing better or worse than other businesses doing and selling the same things. The overall layout of this section is as follows: We will begin by asking the question, what do we want ratio analysis to tell us? Then, what will we try to do with it? This is the most important question. The answer to that question then

means we need to make a list of all of the ratios we might use: we will list them and give the formula for each of them.

Once we have discovered all of the ratios that we can use we need to know how to use them, who might use them and what for and how will it help them to answer the question we asked at the beginning? At this stage we will have an overall picture of what ratio analysis is, who uses it and the ratios they need to be able to use it. All that is left to do then is to use the ratios; and we will do that step-by-step, one by one.

If we look at the questions asked above section, we can see that we talked about profits, having enough cash, efficiently using assets - we can put our ratios into categories that are designed exactly to help us to answer these questions. The categories we want to use, section by section, are:

- Profitability: has the business made a good profit compared to its turnover?
- Return Ratios: compared to its assets and capital employed, has the business made a good profit?
- Liquidity: does the business have enough money to pay its bills?
- Asset Usage or Activity: how has the business used its fixed and current assets?
- Gearing: does the company have a lot of debt or is it financed mainly by shares?
- Investor's or Shareholder's decision.

The basic ratios are those that everyone should use in these categories whenever we are asked a question about them. We can use the additional ratios when we have to analyse a business in more detail or when we want to show someone that we have really thought carefully about a problem.

Ratios when computed can be computed and expressed in the following ways; (a) Percentages; (b) Fractions, and (c) Relations between one variable and the other.

Research has shown that financial ratios, although not rooted in Nigeria, can be applicable to firm in this country, that is organisational or financial institutions especially with the development of the Osaze's index of risk for measuring corporate growth and profitability for developing and underdeveloped economies of

the world like ours. Hence the development of 'CAMEL' by the Nigerian Deposit Insurance Corporation (NDIC); a standard criteria for examination and risk assessment criteria for banks in Nigeria. The meaning of 'CAMEL' stands thus:

C = Capital Adequacy;
A = Asset quality;
M = Management ability and competence;
E = Earnings strengths; and
L = Liquidity sufficiency.

A number of measures is being taken by NDIC to address the problem of liquidity arising from banks' inability to meet their customers' obligations as at when due. The above parameters adequately covers every factor required for a sound bank management, hence the nature of distress can be determined and the severity of the ratings analysed properly.

2.4 PREDICTIVE POWER OF FINANCIAL STATEMENT ANALYSIS

A number of empirical studies have tested the predictive power of financial ratios. In many of these studies, financial ratios are used to predict business failure. Others have tested the power of financial ratios to predict corporate bond ratings. With these ratios as the dependent variable, regression analysis and discriminant analysis have been employed, using various financial ratios for a sample of companies. The best ratios for predictive purposes are debt-to-equity, cash-flow-to-debt, net operating profit margin, debt coverage and its stability, return on investment, size, and earnings stability. On the basis of these studies, it appears that a handful of ratios can be used to predict the long-term credit standing of a firm (Van Horne: 2002: 365-366).

Financial statement analysis enables the users of the statements to make informed decisions about a business. It is pertinent to state that since the beginning of the development of financial ratios, several researchers had on different studies found some predictive power of financial ratios. Some of the aspects that financial ratios can predict are as follows:

- Financial ratios and corporate failure;
- Financial ratios and corporate risk;

- Financial ratios and bond rating; and
- Financial ratios and rapid growth and profitable firms (Beaver, 1967: 71-127).

The use of single ratio or what is referred to as univaried (i.e. one at a time) analysis cannot be relied upon to generalise and predict the overall likely future failure or otherwise of a firm. Even though liquidity and profitability ratios are sometimes being employed to predict future health of firms, but they cannot reveal the likely solvency of firms in the future.

A lot of analytical methods that use combinations of financial ratios are being employed to predict the likely future insolvency of business firms, which may lead to failure and bankruptcy. For example, Beaver (1966) compared the financial ratios of 79 manufacturing firms that subsequently failed with the ratios of 79 that remained solvent. Initially he denied thirty financial ratios for the prediction of corporate insolvency, but later he found that five ratios were more powerful in the prediction than others. These ratios are:

(i) Cash flow to total debt
(ii) Net income to total assets
(iii) Total debt to total assets
(iv) Working capital to total assets and
(v) Current ratios.

With the help of these ratios, Beaver found that all failed firms had more debt, lower return on assets, less cash, more receivables, less inventory and low current ratio. To test the predictive power of his ratios, Beaver used a dichotomous classification technique, and found cash flow to debt ratio to be the best predictor of corporate sickness five years prior to failure.

However, Altman (1968) was the first person to apply discriminant analysis in finance to predict bankruptcy in business firms. Altman extended univariate (single variable) into multivariate in which multiple predictors are employed. He employed multiple discriminant analysis (MDA) to predict failure, which may lead to bankruptcy by using various financial ratios in a liner function. He derived the following discriminant function.

$$Z = 0.012X_1 + 0.014X_2 + 0.033X_3 + 0.006X_4 + 0.999X_5$$

where X_1 = discriminant function score of a firm

X_2 = net working capital/total assets (%)

X_3 = retained earnings/total assets (%)

X_4 = market value of equity/book value of total liabilities (in %)

X_5 = sales/total assets (times).

Based on the use of the above function, Altman found that firms with Z score above 2.99 represented healthy firms; as such they are not likely to go bankrupt; where firms having below 1.81 are likely to go bankrupt. And the region between 2.99 and 1.81 is the grey area or zone of ignorance because of susceptibility of error or misclassification. On the basis of these cut-offs, Altman suggests that failure can be predicted about 95 per cent within one year, 72 per cent within two years, and 48 per cent three years and about 30 per cent within four and five years.

Due to various criticisms and debates on the suitability of MDA in predicting corporate bankruptcy, Altman, et al (1977) developed Zeta analysis. The Zeta analysis uses MDA once again with a linear discriminant function. A sample of 53 bankrupt firms and a matched sample of 58 non-bankrupt firms were used. Seven ratios-return on assets, the stability of earnings, debt service (i.e. interest coverage), the retained earnings to total assets, the current ratio, the common equity to total capital ratio and the size of total assets, using a linear discriminant model, were employed. The Zeta Model was successful in predicting failures up to 5 years prior to failure to 70 per cent about five years before failure; a better performance than the Z score model. Unfortunately, unlike the Z score model, the Zeta model was developed with a private party, called ZETA Services Incorporated, so that the coefficients of the model were not published.

Abdul-Aziz and Lawson used a cash-flow base (CFB) model to predict corporate bankruptcy. The various components of cash flow operating, investing, financing and liquidity changes are employed. Testing the predictive accuracy of the model for one to five years prior to bankruptcy. They found 92 per cent accuracy of bankruptcy prediction one year prior to the event, declining to 72 per cent, five years before the event. In comparing Z score model, Zeta model and CFB model Abdul Azie and Lawson found that CFB model is more accurate than Z-score

model in the accuracy of prediction of failure and slightly less accurage than Zeta model.

2.5 STANDARD OF COMPARISON

It should be noted that there is no such a ratio that can be called an ideal ratio. Therefore, ratio analysis involves comparison for a useful interpretation of the financial statements. A single ratio in itself does not indicate favourable or unfavourable condition. It should be compared with some standard. Standards of comparison may consist of:

a. **Past ratios,** i.e., ratios calculated from the past financial statements of the same firm;
b. **Competitors' ratios,** i.e. ratios of some selected firms, especially the most progressive and successful competitor, at the same point in time;
c. **Industry ratios,** i.e. ratios of the industry to which the firm belongs; and
d. **Projected ratios,** i.e. ratios developed using the projected, or pro forma, financial statements of the same firm.

The easiest way to evaluate the performance of a firm is to compare its present ratios with the past ratios. When financial ratios over a period of time are compared, it is known as the time series (or tend) analysis. This gives an indication of the direction of change and reflects whether the firm's financial performance has improved, deteriorated or remained constant over time (Pandey, 2000: 110).

2.6 TYPES OF COMPARISON

There are three basic tools of analysing financial tools:

- **Horizontal or Trend Analysis** – This evaluates a series of financial statement data over a period of time to determine the increase or decrease that has taken place, expressed as either an amount or a percentage. A base year is selected and changes are expressed as percentages of the base year amount. This given an indication of the direction of change and reflects whether the firm's financial performance has improved, deteriorated or remained constant overtime. The analyst should not simply determine the change, but, more importantly, he/she

should understand why ratios have changed. The change, for example, may be affected by changes in the accounting policies without a material change in the firm's performance.

- **Cross-sectional Comparative Analysis –** Another way of comparison is to compare ratios of one firm with some selected firms in the same industry at the same point in time. In most cases, it is more useful to compare the firm's ratios with ratios of a few carefully selected competitors, who have similar operations. This kind of a comparison indicates the relative financial position and performance of the firm. A firm can easily resort to such a comparison, as it is not difficult to get the published financial statements of the similar firms. Although comparative analysis is widely used, it has several potential problems. For example, operating results of companies may be interdependent, especially when these companies are in the same industry. Similar companies may also use different accounting techniques, making comparison difficult. Additionally, economics of scale or other economic factors may affect companies differently.
- **Industry Analysis –** Ratios may be compared with average ratios of the industry in order to determine the financial condition and performance of a firm. The financial standing and capability of a firm vis-à-vis other firms in the industry can be ascertained using this ratio. Industry ratios are important standards in view of the fact that each industry has its characteristics which influence the financial and operating relationships (Pandey, 2000: 147).

2.7 CLASSIFICATION OF FINANCIAL RATIOS

Ratios can be grouped into various classes according to financial activity or function. Parties interested in financial analysis are short- and long-term creditors, owners and management. Short-term creditors' main interest is in the liquidity position or the short-term solvency of the firm. Long-term creditors, on the other hand, are more interested in the long-term solvency and profitability of the firm. Similarly, owners concentrate on the firm's profitability and financial condition. Management is interested in evaluating every aspect of the firm's performance. Management also have to protect the interests of all parties and see that the firm

grows profitably. In view of the requirements of the various users of ratios, financial ratios can be classified into four important categories:

a. Liquidity ratios;
b. Leverage ratios;
c. Activity ratios; and
d. Profitability ratios (Van Horne, 2000: 365-371).

LIQUIDITY RATIOS - Measure the short-term ability to pay maturing obligations and to meet unexpected needs for cash. Liquidity ratios also measure the firm's ability to meet its current obligations. Analysis of liquidity needs the preparation of cash budgets and cash and fund flow statements; but liquidity ratios, by establishing a relationship between cash and other current assets to current obligations, provide a quick measure of liquidity. A firm should ensure that it does not suffer from lack of liquidity, and also that it does not have excess liquidity. The failure of a company to meet its obligations due to lack of sufficient liquidity, will result in a poor creditworthiness, loss of creditors' confidence, or even in legal tangles resulting in the closure of the company. A very high degree of liquidity is also bad; as idle assets earn nothing. The firm's funds will be unnecessarily tied up in current assets. Therefore, it is necessary to strike a proper balance between high liquidity and lack of liquidity.

The most common ratios which indicate the extent of liquidity or lack of it are (i) current ratio and (ii) quick ratio. Other ratios include cash ratio, interval measure and net working capital ratio.

Current Ratio: This expresses the relationship of current assets to current liabilities. It is widely used measure to evaluate a company's liquidity and short-term debt paying ability. It is given by the formula:

$$\text{Current ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

As a conventional rule, a current ratio of 2 to 1 or more is considered satisfactory.

Quick Ratio or Acid Test: This relates cash, marketable securities, and net receivables to current liabilities. It indicates a company's immediate liquidity. It

establishes a relationship between quick, or liquid, assets and current liabilities. The quick ratio is found out by dividing quick assets by current liabilities.

$$\text{Quick ratio} = \frac{\text{Current assets} - \text{Inventories}}{\text{Current liabilities}}$$

It could also be represented by the formula:

$$\text{Quick ratio} = \frac{\text{Cash + short term investments + current receivables}}{\text{Current Liabilities}}$$

Generally, a quick ratio of 1 to 1 is considered to represent a satisfactory current financial condition.

An important complement to the current ratio are the cash ratio, interval measure and net working capital ratio.

Cash Ratio: This measures ash ratio and its equivalent to current liabilities. Trade investment or marketable securities are equivalent of cash; therefore, they may be included in the computation of cash ratio.

$$\text{Cash Ratio} = \frac{\text{Cash + Marketable securities}}{\text{Current liabilities}}$$

Interval Measure: This measures the firm's ability to meet its regular cash expenses. Interval measure relates liquid assets to average operating cash outflows.

$$\text{Interval Measure} = \frac{\text{Current assets} - \text{Inventory}}{\text{Average daily operating expenses}}$$

Net Working Capital Ratio: This measures a firm's liquidity, it's obtained by finding the difference between current assets and current liabilities excluding short-term bank borrowing called net working capital (NWC) or net current assets (NCA). The measure of liquidity is a relationship rather than the difference between current assets and current liabilities.

$$\text{Net Working Capital Ratio} = \frac{\text{Net Working Capital}}{\text{Total Assets}}$$

LEVERAGE RATIOS - This shows the extent that debt is used in a company's capital structure. This ratio indicates mix of funds provided by owners and lenders. Leverage ratios may be calculated from the balance sheet items to determine the proportion of debt in total financing. Many variations of these ratios exist; but all these ratios indicate the same thing – the extent to which the firm has relied on debt in financing assets. Leverage ratios are also computed from the profit and loss items by determining the extent to which operating profits are sufficient to cover the fixed charges.

Debt Ratio: This ratio can used to analyse the long-term solvency of a firm. The firm may be interested in knowing the proportion of the interest-bearing debt (also called funded debt) in the capital structure. It may therefore, compute debt ratio by dividing total debt (TD) by capital employed (CE) or net assets (NA). Total debt will include short and long-term borrowings from financial institutions, debentures/bonds, deferred payment arrangements for buying capital equipments, bank borrowings, public deposits and any other interest-bearing loan. Capital employed will include total debt and net worth (NW).

$$\text{Debt ratio} = \frac{\text{Total debt (TD)}}{\text{Total debt (TD) + Net worth (NW)}}$$

Debt-Equity Ratio: This shows ratio between capital invested by the owners and the funds provided by lenders. Comparison of how much of the business was financed through debt and how much was financed through equity. For this calculation it is common practice to include loans from owners in equity rather than in debt. The higher the ratio, the greater the risk to a present or future creditor. Most lenders have credit guidelines and limits for the debt to equity ratio (2:1 is a commonly used limit for small business loans). Too much debt can put a business at risk but too little debt may mean a firm is not realising the full potential of its business and may actually hurt its overall profitability. This is particularly true for larger companies where shareholders want a higher reward (dividend rate) than lenders (interest rate).

$$\text{Debt-Equity ratio} = \frac{\text{Total Debt (TD)}}{\text{Net Worth (NW)}}$$

ACTIVITY RATIOS - These ratios are employed to evaluate the efficiency with which firms manage and utilise its assets. These ratios are also called turnover ratios because they indicate speed with which assets are being converted or turned over into sales. Funds of creditors and owners are invested in various assets to generate sales and profits. The better the management of assets, the larger the amount of sales. Activity ratios, thus, involve a relationship between sales and assets. A proper balance between sales and assets generally reflects that assets are managed well. Several activity ratios can be calculated to judge the effectiveness of asset utilisation.

Inventory Turnover: This ratio indicates the efficiency of the firm in producing and selling its product.

$$\text{Inventory turnover} = \frac{\text{Cost of goods sold}}{\text{Average inventory}}$$

The average inventory is the average of opening and closing balances of inventory. As such, in a manufacturing firm inventory of finished goods is used to calculate inventory turnover.

Assets Turnover: This ratio shows the firm's ability in generating sales from all financial resources committed to total assets. Thus:

$$\text{Total assets turnover} = \frac{\text{Sales}}{\text{Average Total assets}}$$

Accounts Receivable Turnover:

$$\text{Accounts Receivable Turnover} = \frac{\text{Sales}}{\text{Average Accounts Receivable}}$$

Fixed Assets Turnover: This is used in determining a firm's efficiency in utilising its fixed assets.

$$\text{Fixed Assets Turnover} = \frac{\text{Sales}}{\text{Net Fixed Assets}}$$

Current Assets Turnover: This is used in determining a firm's efficiency in utilising its current assets.

$$\text{Current Assets Turnover} = \frac{\text{Sales}}{\text{Net Fixed Assets}}$$

PROFITABILITY RATIOS – These ratios are calculated to measure the operating efficiency of the firm. Apart from management of the firm, creditors and owners are also interested in the profitability of the firm. Creditors want to get interest and repayment of principal regularly. Owners want to get a required rate of return on their investment. This is possible only when the firm earns enough profits. Generally, there are two major types of profitability ratios: (i) Profitability in relation to sales, and (ii) Profitability in relation to investment (Pandey, 2000: 131).

Net Profit Margin: This ratio establishes a relationship between net profit and sales and indicates management's efficiency in manufacturing, administering and selling the products. It is the ability of a firm to turn each Naira sales into net profit.

$$\text{Net profit Margin} = \frac{\text{Profit after tax}}{\text{Sales}}$$

Operating Expense Ratio: This ratio explains the changes in the profit margin (EBIT to sales) ratio. This ratio is computed by dividing operating expenses viz., cost of goods plus selling expenses and general and administrative expenses (excluding interest) by sales:

$$\text{Operating expenses ratio} = \frac{\text{Operating expenses}}{\text{Sales}}$$

The operating expense ratio is a yardstick of operating efficiency, but it should be used cautiously. It is affected by a number of factors, such as external uncontrollable factors, internal factors, employees and managerial efficiency (or inefficiency), all of which are difficult to analyse. Also, the ratio cannot be used as a test of financial condition in the case of those firms where non-operating revenue and expenses form a substantial part of the total income.

Return on Equity (ROE): This ratio determines the rate of return on your investment in the business. As an owner or shareholder this is one of the most important ratios as it shows the hard fact about the business – is the business making enough of a profit to compensate for the risk of being in business or not?

$$\text{Return on Equity} = \frac{\text{Net Profit}}{\text{Equity}} \quad \text{or} \quad \frac{\text{Profit after taxes}}{\text{Net worth}}$$

Earning Per Share (EPS): This ratio indicates whether or not the firm's earnings power on per-share basis has changed over certain period. EPS simply shows the profitability of the firm on a per-share basis; it does not reflect how much is paid as dividend and how much is retained in the business. Also, as a profitability index, it is a valuable and widely used ratio.

2.8 GROWTH RATIO

Growth ratios measure how well the firm maintains its economic position in the economy as a whole as well as its own industry. During the recent period inflation, the interpretation of growth ratios has become more difficult.

Some of the ratios that fall under this category are:

(i) Sales growth

(ii) Net income growth, and

(iii) Dividends per share.

2.9 VALUATION RATIOS

This is a set of ratios that helps equity shareholders and other investors to assess the value and quality of an investment in the ordinary share of a firm. These ratios are the most comprehensive measures of performance for the firm in the sense that they reflect the combined influence of risk ratios and return ratios. These include;

1. Earnings per share
2. Dividend per share
3. Dividend Cover
4. Price earning ratio
5. Dividend yield, and
6. Earnings yield.

The value of an investment in ordinary shares in a listed company is its market value and so investment ratios must have regard not only to information in the firm's published accounts but also to the current share price quoted on the stock exchange. Ratio (d, e, & f above) involve the use of share price. The above ratios can briefly be described as follows.

(a) **Earnings Per Share**

Earnings per share (EPS) is widely used by investors as a measure of a company's performance and is particularly important in;

- Comparing the results of a company over a period of time;
- Comparing the performance of one company's equity, and also against the returns obtainable from loan stock and other forms of investment.

The purpose of this ratio is to achieve as far as possible clarity of meaning, comparability between one company and another, one year and another, and attributability of profits to the equity shares. It is calculated as follows;

$$\text{Earnings Per Share (EPS)} = \frac{\text{Earnings}}{\text{No. of equity shares in share}}$$

or

$$\text{Earnings Per Share (EPS)} = \frac{\text{Profit after tax}}{\text{No. of common shares outstanding}}$$

(b) **Dividend Per Share**

This ratio is self explanatory and is clearly an item of interest to shareholders. It is calculated as;

$$\text{Dividend Per Share (DPS)} = \frac{\text{Total Dividend}}{\text{No. of equity shares in share}}$$

(c) **Dividend Cover**

This ratio shows that proportion of profit on ordinary activities for the year that is available for distribution to shareholders has been paid or proposed and what proportion will be retained in the business for future expansion. Usually, a dividend cover of 2 times would indicate that, ignoring extra-ordinary items, the company had paid 50% of its distributable profits as dividends and retained 50% in the business to help to finance further expansions.

It is calculated as;

$$\text{Dividend Cover} = \frac{\text{Earnings Per Share}}{\text{Net Dividend per Ordinary Shares}}$$

(d) **Price/Earning Ratio**

The price/earning ratio is the ratio of a firm's current share price to the earnings per share. A high profit/earning ratio will indicate strong shareholder confidence in the company and its future. For example in profit growth and lower profit/earning ratio indicates lower confidence. It is however worthy of note to state that the profit/earning ratio of one firm can be compared with the profit/earning ratios of;

- Other firms in the same industry
- Other companies outside the industry.

(e) **Dividend Yield**

This is defined as the return a shareholder is currently expecting on the shares of a firm. It is calculated as;

$$\text{Dividend Yield} = \frac{\text{Dividends per Share}}{\text{Market value per Share}}$$

The dividend yield and earnings yield evaluate the shareholders' return in relation to the market value of the share. The earnings yield is also called earnings-price (E/P) ratio. The information on the market value per share is not generally available from the financial statements; it has to be collected from external sources, such as the stock exchanges or the financial newspapers (Pandey, 2000: 139).

The dividend per share is taken as the dividend for the previous year and inclusive of the withholding tax. The net dividend is the actual cash paid and the gross dividend is found by multiplying the net dividend by a factor of;

$$\frac{100}{(100 - IT)}$$

where,

IT here is the rate of withholding tax. Thus given a rate of tax deduction of 20%, the gross dividend is the net dividend multiplied by a factor of 100/80. Dividend yield is therefore an important aspect of share's performance.

(f) **Earning Yield**

This ratio is measured as the earnings per share, grossed up, as a percentage of the current share price. It indicates what the dividend yield could be, given;

- The company paid out on its profit as dividends and retained nothing in the business,
- There were no extra ordinary items in the Profit and loss account.

It attempts in most cases to improve the comparison between investments in different companies by overcoming the problem that firms have differing dividend covers. It is however not given much publicity as Earnings per Share (EPS), Profit/Earning ratio, dividend cover and dividend yield.

2.10 RELATED RESEARCH/STUDIES ON FINANCIAL RATIOS IN NIGERIA

Deep examination into the researches conducted on financial ratios analysis will reveal that most of the financial ratios were developed for developed economies of Europe and the Americas. Therefore, their applicability in a developing country such as Nigeria is suspect if not non-existent since economic factors and environment of both economies are never the same at any point in time.

Consequent upon the above facts, Osaze (1981) in a study on financing rapid growth firms in Nigeria discovered that ratios adequately discriminate between growing and non-growing firms. The Osaze's index of risk was developed specially for use in developing countries like Nigeria to compensate for the too much over-reliance on financial ratios and other models developed in Europe and America for the prediction of risk in businesses in developing countries, or more clearly and specifically, corporate failure.

The Osaze's index of risk was developed after a review of the works of some reputable financial scholars such Beaver (1966), Altman, E.I. (1968), Johnson, C.G. (1970), Bolton Report (1971), Deakin (1972), Edminster, R.O. (1972), Flam (1975), Libby (1975), Tamari, M. (1978), Parosh & Tamari (1979) and some other scholars. Osaze developed eight ratios in the index and were selected as the ones found to be applicable to the Nigerian situation. The details of the models and the associated ratios and points are as follows:-

Table 2.1 Showing Ratios and their Rating of Osaze's Index of Risk Model

Factor	Ratios	Points
1.	**Net Worth to Total Assets**	
a.	Firms with over 50%	12
b.	Firms with 41 – 50%	10
c.	Firms with 31 – 40%	8
d.	Firms with 21 – 30%	6
e.	Firms with 10 – 20%	2
f.	Firms with less than 10%	0
2.	**Retained Earnings to Net Profit**	
a.	Firms with over 30%	12
b.	Firms with 21 – 30%	10
c.	Firms with 16 – 20%	8
d.	Firms with 11 – 15%	6
e.	Firms with 5 – 10%	2
f.	Firms with less than 5%	0
3.	**Profit Trends over Five (5) Years Period**	
a.	Firms with profit every year and rising net profit to sales	16
b.	Firms with stable profits every year	12
c.	Firms with profit every year but not uniform trend	10
d.	Firms with profit every year but declining trend	8
e.	Firms with loss in any of the last three years only	6
f.	Firms with loss in any of the first three years only	2
g.	Firms with loss in all five years	0
4.	**EBIT to Total Assets**	
a.	Firms with over 30%	12
b.	Firms with 21 – 30%	10
c.	Firms with 16 – 20%	8
d.	Firms with 11 – 15%	6
e.	Firms with 5 – 10%	2
f.	Firms with less than 5%	0

5. Current Ratio

a.	Firms with over 2x	12
b.	Firms with 1.51 – 2.0x	10
c.	Firms with 1.11 – 1.50x	8
d.	Firms with 0.91 – 1.10x	6
e.	Firms with 0.50 – 0.90x	2
f.	Less than 0.5x	0

6. Working Capital to Total Assets

a.	Firms with over 30%	12
b.	Firms with 21 – 30%	10
c.	Firms with 16 – 20%	8
d.	Firms with 11 – 15%	6
e.	Firms with 5 – 10%	2
f.	Firms with less than 5%	0

7. Ratio of Cash Flow (Depreciation + PAT) to Total Debt

a.	Firms with over 50%	12
b.	Firms with 41 – 50%	10
c.	Firms with 31 – 40%	8
d.	Firms with 21 – 30%	6
e.	Firms with 11 – 20%	2
f.	Firms with less than 10%	0

8. Sales to Account Receivables

a.	Firms with Sales of over 5x Debtors	12
b.	Firms with 4 – 5x Debtors	10
c.	Firms with 2 – 3x Debtors	8
d.	Firms with 1 – 2x Debtors	6
e.	Firms with 0.5 – 0.9x Debtors	2
f.	Firms with 0.5x Debtors	0

In analysing the Osaze's Model, it should be noted that the factors used in the index gives the particular ratio to be calculated and the yardstick of

measurement while the points gives the scoring of each factor. To determine the risk associated with a business using the model. In making analysis using this model, Osaze's advised that the following be observed and applied:

(a) All firms with over sixty (60) points when their total scores are added are unlikely to fail and, therefore, should be classified as successful.

(b) Those firms with less than forty (40) points as their total scores have a high probability of failure and should be classified as likely to go bankrupt.

(c) Firms with total scores of between forty and sixty point should be classified as belonging to the gray area and will therefore need further and proper scrutiny before a final decision can be taken with respect to the success of potentiality of bankruptcy; and

(d) In such a situation, the model recommended the use of subjective factors like management capacity and other economic indicators.

In buttressing his points, Osaze gave several reasons to justify the use of this model, some of the reasons advanced include the following:

(i) That the index and their weighting were developed from studies of failing and failed firms in Nigeria;

(ii) The model was developed with input from a number of banks and loan officers notably: the First Bank of Nigeria Plc; the Union Bank of Nigeria Plc; NIDB, NBCI, etc.

(iii) The index has been tested on a sample of technically bankrupt and successful firms of similar ages and sizes in Nigeria and the results obtained were considered satisfactory. Out of the sample of thirty successful firms in the country, only two or 6.7% had less than forty points. Thus, 6.7% successful firms were misclassified as bankrupt. On the other hand, out of the matching sample of bankrupt firms, twenty-six had less than forty points (a success rate of eighty seven per cent) and three had over 60 points (a misclassification of 10%). The remaining one firm fell into gray area of between 40 and 60 points (3%). Thus, necessitating further index scrutiny.

(iv) He (Osaze) further argued that the index is less complicated and was based on what was found to be normally considered by local financial institutions and analyst in determining the total risk associated with a company.

(v) The Osaze model also is easily applicable and time saving for the analyst in Nigeria who has little or no access to sophisticated computer facilities which is required for multivariate ratio analysis; and

(vi) Finally, the model is easily comprehensible by the Nigerians that are not well educated entrepreneurs and businessmen as well as the financial market operators and investors alike.

2.11 FINANCIAL RATIOS AND CORPORATE FAILURE

Financial ratios are generally considered to be useful for predicting financial difficulties of firms. Previous research on the ability of financial ratios to predict business failure can be classified into two categories. The first group concentrates upon the predictive power of individual ratios based either on the ratios trend or its magnitude whereas the second category utilised the multivariate approach. Discriminant analysis researches, relying on statistical techniques, have been able to use sets of ratios to predict the survival/continuation or failure of a firm.

The works of some distinguished scholars such as Smith & Winakor (1935), Fitzpatrick (1931 and 1932), Charles L. Merwin (1942) are taken into consideration in analysing the first category. Smith and Winakor studied a sample of 183 firms which had experienced some financial difficulties during the period of 1923 to 1931 and had finally failed by 1931. They analysed the prior ten year trends of the means of 21 ratios and concluded that the ratio of net working capital to total assets whose decline began ten years before the occurrence of financial difficulties was the most accurate and steady indicator of business failure. Their data actually indicated that the long-term solvency ratios were equally good indicators. Fitzpatrick however used a different approach by analysing the prior three to five year trends of thirteen ratios of twenty firms that have failed during the period 1920 to 1929. He (Fitzpatrick) studied the data on a case-by-case method of analysis and followed it up by comparative analysis of a matched sample of nineteen successful firms. He however concluded that all his ratios predicted failure to some extent through declining trends but also stated that his best predictors were the net profit to net worth ratio and the net worth to total debt ratio.

The above two studies were incorporated in Merwin's study (1942) of a sample of 939 firms in the period 1926 to 1936. He divided his sample into two

groups as “continuing” (successful) and “discontinuing” (unsuccessful) firms and analysed the prior six year trend of a large unspecified number of ratios of each group. He accomplished this by comparing industry mean ratios of the discontinuing firms with ‘estimated normal’ ratios, which were estimates of what the discontinuing firms’ ratios would have been had they maintained the same average ratios as the continuing firms. His conclusion was that three ratios were very sensitive predictors of discontinuance up to as early as four to five years in some instances. These ratios were net working capital to total assets, net worth to total debt and the current ratio. These ratios all showed declining trends before discontinuance and were also below the estimated normal ratios.

The second category on the other hand, solely relied on the statistical techniques of discriminant analysis. Researchers that contributed to the development of the area of this study included among others; Beaver (1966) and (1968), Altman (1968), Daniel (1968), Deakin (1972), Edminister (1972), Wilcox (1973), and Altman and others (1977).

In 1966, Beaver considered a sample of seventy-nine large firms that failed and compared with corresponding non-failed companies of the same size and industry. The data collected were for the same years. These samples were used to test the predictive ability of thirty financial ratios. The mean values of the ratios for the two samples were compared over the five year period prior to failure. He discovered that the mean ratio for the failed companies differed significantly from the successful ones. It also deteriorated significantly as failure was approaching. Beaver also tested the samples using discriminant analysis and went on to analyse the evidence using likelihood ratios. Though not all the financial ratios examined predicted failure equally many showed excellent predictive power.

In one of his studies, Beaver (1968) investigated the ability to predict failure from changes in market prices of stocks using four ratios. These included cash flow to total liabilities, net income to total assets, total debt to total assets with the market behaviours of prices on a sample of seventy-nine failed and seventy-nine successful firms of approximately same size and industry. He found out that the median market price of the failed companies declined at a increasing rate as failure approached relative to that for non-failed firms. The largest price decline occurred in the final year. He concluded that investors adjust stock prices to the deteriorating

condition of failing companies. He equally found the evidence to be consistent with investors assessing the likelihood for failure on the basis of financial ratios.

Altman (1968) used discriminant analysis to establish a model for predicting corporate bankruptcy in the United States. He developed a discriminant function with scores assigned to various categories in within which a particular firm falls. This is known as the Z-score model or discriminant function Z was found to be:

$$Z = 1.2X_1 + 1.4X_2 + 3.3X_3 + 0.6X_4 + 1.0X_5$$

where X_1 = working capital to total assets (in %)

X_2 = cumulative retained earnings to total assets (in %)

X_3 = earnings before interest and taxes to total assets (in %)

X_4 = market value of equity to book value of total liabilities (in %)

X_5 = sales to total assets (in %).

The Z ratio is the overall index of the multiple discriminant function. Altman found that companies with Z scores below 1.81 (including negative amounts) always went bankrupt, whereas Z scores above 2.99 represented healthy firms. Firms with Z scores in between were sometimes misclassified, so this represents an area of gray. On the basis of these cut-offs, Altman suggests that one can predict whether or not a company is likely to go bankrupt in the near future.

This model was expanded by Altman and others into what is known as the **Zeta model**. This model is more accurate in prediction, but unfortunately the coefficients are not published. It was developed for private sale by ZETA Services Inc., and the output consists of Zeta scores for thousands of companies. As a result of this and other work, financial ratio analysis has become more scientific and objective. It now focuses on those ratios that really have underlying predictive ability. Expert systems have been developed on the basis of such models where computer software mimics the reasoning process of experienced financial analysts. (Van Horne, 2002: 366).

Daniel (1968) in his study employed simple correlation, factor analysis and stop wise regression to select financial statement data and ratios which best correlated with failure and non-failure as the dependent variable. The discriminant function was found to have considerable power in identifying failing firms.

Deakin (1972) using fourteen ratios studied a pair of thirty-two failed and non-failed firms for the period between 1964 – 1970 in a discriminant function as he discovered that he could predict bankruptcy three years before the failure.

Edminister (1972) tested the predictive ability of financial ratios on small businesses starting with fifteen ratios. He concluded that quick assets to current liabilities, working capital to sales, net income plus depreciation – depletion and amortisation to current liabilities net worth to sales, current liabilities to net worth, inventory to sales incorporated in discriminant function predicted failure for up to three years on cumulative data basis.

2.12 FINANCIAL RATIOS AND CORPORATE RISK

Several studies conducted in the area of prediction of corporate risk by means of financial ratios were carried out in the 1970s. Some of such studies included;

Altman et al (1974) used discriminant analysis on forty-one ratios and using data on 134 firms, discovered their model to be useful predictor of risky loans (those with repayment problems)

Ogler (1970) developed a credit scoring model for commercial bank loans using twenty-one ratios selected from all but valuation ratio category. He concluded that he could predict good loans with some degree of success. This could be considered as a risk measure for corporate investors.

2.13 FINANCIAL RATIOS AND BOND RATING

Hickman (1958) on the outcome of corporate bond issues during 1900 – 1943 concluded that the time-interest earned ratio and the net profit to sales ratio were useful predictors of default on bond issues, whether used jointly or separately. The firms with high ratio went into default less frequently.

Sauliner et al (1958) studied the United States federal lending and loan insurance for the period of 1934 to 1951 and concluded that firms with very low current ratios and net worth to total debt ratios were more likely to default on loans. Firms with deteriorating current ratios prior to borrowing also defaulted about twice as often as those with stable or increasing ratios.

There are different positions with respect to bank credit difficulties. Moore and Atkinson (1961) examined the aggregate data involving changes in bank credit use and financial ratios during 1955 to 1957. They found out that firms with higher current ratios and working capital to total assets, net worth to total debt and net profit to net worth ratios increased their use of credit more than other firms.

Weston (1970) used a multiple regression model containing four variables, the logarithms of earning variability, period of solvency, market value of all bonds outstanding and market value of stock to debt ratio to predict up to sixty-two per cent of the actual rating by Moody.

2.14 FINANCIAL RATIOS AND RAPID GROWTH AND PROFITABLE FIRMS

There are several studies in this area but the prominent ones are as follows;

Horrigan (1965), determined that some short term liquidity and long term solvency ratios in 1937 were significantly different between profitable and unprofitable firms, with the profitable ones having higher ratios but capital turnover ratios were not significantly different.

Jackendoff (1962) also found that financial ratios consistently and clearly distinguished between profitable and unprofitable firms in the period of 1949 to 1955. The current ratio and the working capital to total assets and net worth to total debt ratios of profitable firms were consistently higher but the relationship of total asset turnover appeared to be inverse to size of the firm.

Osaze (1981) in a study on financial rapid growth firms in Nigeria discovered that ratios adequately discriminated between growing and non-growing firms.

2.15 TREND ANALYSIS OF FINANCIAL RECORDS AND COMPARISON

In financial analysis the direction of changes over a period of years is of crucial importance. Time series or trend analysis of ratios indicates the direction of change. This kind of analysis is particularly applicable to the items of profit and loss account. It is advisable that trends of sales and net income may be studied in the light of two factors: the rate of fixed expansion or secular trend in the growth of the business and the general price level. It might be found in practice that a number of firms would show a persistent growth over a period of years. But to get a true trend of growth, the sales figures should be adjusted by a suitable index of general

prices. In other words, sales figures should be deflated for rising price level. When resulting figures are shown on a graph, we will get trend of growth devoid of price changes. Another method of securing trend of growth and one which can be used instead of the adjusted sales figures or as check on them is to tabulate and plot the output or physical volume of sales of expressed in suitable units of measure. If the general price level is not considered while analysing trend of growth, it can mislead management. They may become unduly optimistic in periods of prosperity and pessimistic in dull periods.

For trend analysis, the use of index numbers is generally advocated. The procedure followed is to assign the number 100 to items of the base year and to calculate percentage changes in each item of other years in relation to the base year. This procedure may be called as “trend-percentage method” (Pandey, 2000: 145-146).

Research conducted on trend analysis, has revealed that there were multiple dimensions of financial phenomena generally referred to as liquidity, activity and leverage. Research studies in future and financial analysis in practice, using financial ratios as input variables, may take cognisance of this evidence. It was also revealed that financial ratio patterns show some amount of stability over time (Pandey, 2000: 183).

2.16 COMMON SIZE STATEMENT ANALYSIS

A simple method of tracing periodic changes in the financial performance of a company is to prepare comparative statements. Comparative financial statements will contain items at least for two periods. Changes – increases and decreases – income statement and balance sheet over period can be shown in two ways: (1) aggregate changes and (2) proportional changes.

Aggregate changes can be indicated by drawing special columns for aggregate amount or percentage, or both, of increases and decreases. Relative, or proportional, changes, on the other hand, are shown by recording percentage calculated in relation to a common base in special columns. For example, in the case of profit and loss statement, sales figure is assumed to be common base (and therefore, equal to 100) and all other items are expressed as percentage of sales. Similarly, the balance sheet items are expressed as percentages are called

common-size statements. This kind of analysis is called *veridical analysis* and it indicates static relationships since relative changes are studied at a specific date.

2.17 FINANCIAL RATIO TECHNIQUES

Non-Parametric Analysis

William Beaver compared the financial ratios of 79 manufacturing firms that subsequently failed with the ratios of 79 that remained solvent. His study revealed five ratios which could discriminate between failed and non-failed firms. These ratios are: (i) cash flow to total debt, (ii) net income to total assets, (iii) total debt to total assets, (iv) working capital to total assets, and (v) current ratios. As expected, failed firms had more debt and lower return on assets. They had less cash but more receivables as well as low current ratios. They also had less inventory.

Multi Discriminant Analysis

Multi Discriminant Analysis (MDA) can be used to classify companies, on the basis of their characteristics as measured by financial ratios, into two groups: those which are likely to fail (and go bankrupt) and those not likely to fail. In the literature, the likelihood of bankruptcy is associated with financial ratios. For instance, it is assumed that the probability of bankruptcy is higher for a firm with a low current ratio, high debt ratio and low rate of return. The empirical Beaver (in the USA) and Gupta (in India) identified ratios which have discriminating power. What is, however, required from practical point of view is the understanding of seriousness posed by low performing ratios and the combined effect of favourable and unfavourable ratios. The use of MDA helps to consolidate the effects of all ratios. MDA constructs a boundary line – a discriminant function - using historical data and the bankrupt and non-bankrupt firms. Edward Altman was the first person to apply discriminant analysis in finance for studying bankruptcy. His study helped in identifying five ratios that were efficient in predicting bankruptcy. The model was developed from a sample of 66 firms – half of which went bankrupt. Altman established a guideline Z score which can be used to classify firms as either financially sound – a score above 2.675 - or headed towards bankruptcy – a score below 2.675. The lower the score, the greater the likelihood of bankruptcy and vice versa.

2.18 LIMITATIONS OF FINANCIAL RATIOS

The financial ratio analysis is widely used to evaluate the financial position and performance of a business. The ratios are largely concerned with the efficiency and effectiveness of resource utilisation by a company's management and also with the financial stability of the company. Despite the numerous benefits derivable fro the use of financial ratios, it has some limitations which warrant the analyst to be cautious in using ration analysis. These limitations include:

1. It is difficult to decide on the proper basis of comparison. The basis usually used in applying financial ratios is the industry average. However, these averages are not available in some countries especially developing countries with Nigeria inclusive.
2. The comparison is rendered difficult because of differences in situations of two companies or of one company over the years. This is because situation of two companies are never the same. Also, factors influencing performance may also change over the years.
3. The price level changes make the interpretations of ratios invalid. This is because accounting figures are presented in monetary units that are assumed to remain constant. However, inflationary trend over the years usually makes this assumption invalid and misleading due to rise in prices.
4. The differences in the definition of items in the balance sheet and the profit and loss statement make the interpretation of ratios difficult.
5. The ratios calculated at a point of time are less informative and defective as they suffer from short-term changes.
6. The ratios are generally calculated from past financial statements and, thus are no indicators of future.
7. Estimates - The financial statements contain numerous estimates. To the extent that these estimates make the financial ratios and percentages inaccurate.
8. Cost - Traditional financial statements are based on cost and are not adjusted for price-level changes.
9. Alternative accounting methods - Variations among companies in the application of generally accepted accounting principles may hamper comparability.

10. A typical data - Companies frequently establish a fiscal year-end that coincides with the low point in operating activity or in inventory levels. Therefore, year-end data may not be typical of the financial condition during the year.

Research has shown that financial ratio analysis is very desirable and necessary for the evaluation of management's performance and in forecasting financial problems that may eventually lead to bankruptcy. As such, adverse trend can be predetermined and remedied by management of a firm by the use of financial ratios and steer the firm to the desired path.

REFERENCES

1. Weston, J.F. and Brigham, E.F., “Essentials of Managerial Finance”. Dryden Press, New York, 1987, p. 27.

2. Horrigan, J.O., “A Short History of Financial Ratio Analysis “Accounting Review, 43 (pp. 284-294), April, 1968.

3. John Kenneth Galbraith, The Great Crash: 1929, Boston: Houghton Mifflin, 1955, pp. 84-85.

4. E.M. Lerner & W.T. Carleton; A Theory of Financial Analysis, Harcourt, Brace & World Publishers, Inc., New York, 1966, pp. 3-13.

5. Salmi, T & Martikainen, T, “A Review of the Theoretical and Empirical Basis of Financial Ratio Analysis” Published in the Finnish Journal of Business Economics 4/94, 426-448, Runeberginkatu 14-16, FIN-00100 Helsinki, Finland. <www.uwasa.fi/~ts/ejre/ejre.html>

6. Salmi et al, Financial Ratio Variability and Industry Classification. The Finnish Journal of Business Economics 35:4, 333-356.

7. Foster, George (1986). Financial Statement Analysis. Second edition. Englewood Cliffs, New Jersey: Prentice Hall, Inc., pp. 2-7.

8. Van Horne, J.C. Financial Management & Policy, Pearson Education, Inc. 2002.

9. Beaver, W. “Financial Ratios as Predictors of Failure” Empirical Research in Accounting: Selected Studies, Supplement to Journal of Accounting Research, 41 (1966), 71-111.

10. Altman, E.I. “Financial Ratios, Discriminant Analysis and the Prediction of Corporate Bankruptcy” Journal of Finance, 23 Sept. 1968, 589-609.

11. Pandey, I.M. (2000), p. 110.

12. Ibid, p. 131.

13. Ibid, p. 139.

14. Osaze, B.E. (1992); Nigerian Capital Market: Its Nature and Operational Character, Uniben Press, Benin-City, p. 41.

15. Van Horne, J.C. Financial Management & Policy, Pearson Education Inc., 2002, p. 366.

16. Pandey, I.M. (2000), pp. 145-146.

17. Ibid, p. 183.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 POPULATION OF THE STUDY

This study aims at evaluating and interpreting the performances. For this purpose, five commercial banks were randomly selected viz; First Bank of Nigeria Plc, Union Bank of Nigeria Plc, United Bank for Africa Plc, Standard Trust Bank Plc and First Atlantic Bank Plc. Financial ratios were applied on the financial statements of the selected banks in order to assess and measure the possibility of any of the banks going bankrupt.

3.2 SAMPLE SIZE

The five banks used for this study were strategically selected as the first Nigerian bank was selected, and two other old generation banks who were major players in the Nigerian banking industry. The last two banks also selected were among new generation banks and also performing well.

In assessing and measuring the performance and effectiveness of the selected banks, thirteen (13) univariate ratios classified under four (4) broad categories are were. For the evaluation or likelihood of failure for the selected banks, Osaze's index of risk (multivariate ratio) were also used.

3.3 SAMPLE SELECTION/SAMPLING TECHNIQUE

The banks selected are to be studied for a period of five years (2000 – 2004). The period chosen was due to the intense nature of competition amongst banks providing various ranges of financial services to their numerous customers. Banks in Nigeria now find themselves in fierce competition all trying to attract, capture and maintain a large number substantial and existing share of the customers available to them. This is necessary especially given the slump in the economic trend of the country. The study therefore, tried to evaluate the use of financial ratios as well as their impact and particularly to device strategies to suit the peculiarities and situation of each of the chosen bank. As earlier mentioned, the banks selected are:

a. First Bank of Nigeria Plc,
b. Union Bank of Nigeria Plc,
c. United Bank for Africa Plc,
d. Standard Trust Bank Plc, and
e. First Atlantic Bank Plc.

3.4 DATA COLLECTION

Data are recorded observations about phenomenon being studied (Naechmias & Naechmias, 1982). It is usual to distinguish between qualitative and quantitative data. This is thus the first puzzle encountered in practical data collection. Qualitative and quantitative methods are to produce qualitative and quantitative data respectively. The distinction between qualitative and quantitative methodology has been elaborated in social science researches notably in sociology and evaluation, education, human resource management and in organisational sciences (Evered and Louis, 1981).

Quantitative methodology is easily illustrated as an approach which applies a natural scientific approach to the conduct of research of a social phenomenon. Operational definitions, objectivity, replicability, and causality are its characteristics. The survey method exemplifies this tradition to the extent that it can apparently be readily adapted to such concerns. By means of questionnaires, conceptualised items can be measured; objectivity is maintained by the reliability of one's questionnaires; replication can be carried out by using the same research instrument in another setting. Other than surveys, experimental and quasi-experimental designs and exposte analyses of secondary information (i.e., of pre-collected data) are also accepted as, exhibiting the same underlying characteristics.

Qualitative methodology differs in a number of ways. The objective here is to see the social world from the point of view of the actor, a theme which pervades the methodology writings within this orthodoxy. Close involvements with the subjects are emphasized. Qualitative research is said to be more flexible than quantitative research to the extent that the emphasis is on discovery of novel or unanticipated findings and the possibility of changing the research plans as unanticipated events occur. This is contrasted sharply with the quantitative investigator's design which emphasise; fixed measures, test of hypotheses, and a somewhat relatively hurried fieldwork. Qualitative researchers often claim that they produce data which are

often considered 'rich' (Evered and Louis, 1961) by which is meant data with a great deal of depth.

In contrast, survey data are seen as deficient in this respect, to the extent that they provide only superficial evidence on the social world; extracting the causal relationship between arbitrarily selected variables which have little or no meaning to those individuals whose social worlds they are meant to represent. The validity of a research is the extent to which the data collected are relevant to the problem of the research. No data need be collected unless they are related to the problem. The data must provide exactly the information that is sought from the respondents.

Relative Advantages

The samples survey exemplifying the quantitative tradition, is an appropriate and useful means of gathering information under these conditions:

9. when the information sought is reasonably specific;
10. when the information sought is familiar to the respondents;
11. when the researcher himself has considerable prior knowledge of particular problems and the possible range of likely responses that may emerge;
12. when mailed questionnaires and interviews are used, they provide more systematically collected data and are thus more scientific;
13. when the objective is to study attitude rather than behaviour of social respondents;
14. when the study is exploratory and the researcher is interested in collecting data which will be subjected to further rigorous hypothesis testing. However;
15. they may not be suitable for inferring cause and effect;
16. they may not allow in-depth examination of the questions; and
17. they tend to build on the fallacy that the 'truth' of a fact is borne out by the number of people who accept its accuracy.

This study uses mainly secondary source of data for relevant information. This option was deliberately taken due to the incidence of turning down requests for primary data by most bank officials. This habit of withholding data from researchers leaves the researcher with no option than resorting to the use of mainly secondary data, annual reports of the selected banks for the period under study, textbooks, journals, relevant related literature and other print materials.

3.5 METHOD OF DATA ANALYSIS

In this study, the researcher used a total number of 21 ratios. These were classified into six major groups as:

1. **Liquidity Ratios:** Financial ratios in this category measure the company's capacity to pay its debts as they become due. They include ratios such as:

(i) Current ratio
(ii) Quick ratio
(iii) Cash Ratio
(iv) Interval Measure
(v) Net Working Capital Ratio

2. **Leverage Ratios:** These ratios show the extent that debt is used in a company's capital structure. Ratios under this category include:

(i) Debt ratio
(ii) Debt-Equity ratio

3. **Activity Ratios:** Ratios under this category use turnover measures to show how efficient a company is in its operations and use of assets. Under this category, we have:

(i) Inventory turnover
(ii) Total assets turnover
(iii) Accounts Receivable Turnover
(iv) Fixed Assets Turnover
(v) Current Assets Turnover

4. **Profitability Ratios:** The ratios in under this category measure the ability of the business to make a profit. The ratios under category include:

(i) Net profit Margin
(ii) Operating expenses ratio
(iii) Return on Equity
(iv) Earning Per Share

5. **Growth Ratios**: This category of ratios measures how well the firm maintains its economic position in the economy as a whole as well as its own industry. They include:

(i) Sales growth

(ii) Net income growth, and

(iii) Dividends per share.

6. **Valuation Ratios:** These ratios help equity shareholders and other investors to assess the value and quality of an investment in the ordinary share of a firm. Ratios under this category include:

(i) Earnings per share

(ii) Dividend per share

(iii) Dividend Cover

(iv) Price earning ratio

(v) Dividend yield, and

(vi) Earnings yield

REFERENCES

1. Naechmia, D. & Naechmias, C. (1981), Research Methods in the Social Sciences, New York, St. Martins Press, p. 31.

2. Asika, N. (2004), Research Methodology in the Behavioural Sciences, Longman Press Nig. Plc, Lagos, p. 63-102.

3. Kurfi, A.M., Principles of Financial Management, Benchmark Publishers Ltd., Kano, 2003, pp. 61-65.

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

4.0 INTRODUCTION

This chapter presents the analysis of data and summary of findings using financial ratio analysis as a basis for such analysis. Financial analysis is the process of identifying the financial strengths and weaknesses of a firm by properly establishing a relationship between the items of the balance sheet and those of profit and loss account. Ratio analysis is a very useful analytical technique to raise pertinent questions on a number of managerial issues. It provides bases or clues to investigate such issues in detail. While assessing the financial health of the company with the help of ratio analysis, answers to following questions relating to the company's profitability, assets utilisation, liquidity, financing and strategies capabilities may be sought (Pandey, 2000: 151).

This analysis can be conducted by management of the firm or by parties that have stake in the firm, viz: owners, creditors, investors and others. The nature of analysis will differ depending on the purpose of the analyst. Using ratio analysis, the above mentioned interested parties try to find answers to the following questions:

(a) How profitable is the firm? What accounting policies and practices are followed by the company? Are they stable?

(b) Is the profitability (RONA) of the company high/low/average? It is due to: profit margin, asset utilisation, non-operating income, window dressing, change in accounting policy, inflationary conditions?

(c) Is the return on equity (ROE) high/low/average? Is it due to: return on investment, financing mix, capitalisation of reserves?

(d) What is the trend in profitability? Is it improving because of better utilisation of resources or curtailment of expenses of strategic importance? What is the impact of cyclical factors on profitability trend?

(e) Can the company sustain its impressive profitability or improve its profitability given the competitive and other environmental situations?

The ratio analysis is a process of identifying the financial strengths and weaknesses of the firm. This may be accomplished either through a trend analysis

of the firm's ratios over a period of time or through a comparison of the firm's ratios with its nearest competitors and with the industry averages.

The four most important financial dimensions which a firm would like to analyse are: liquidity, leverage, activity and profitability. Liquidity ratios measure the firm's ability to meet current obligations, and are, calculated by establishing relationships between current assets and current liabilities. Leverage ratios measure the proportion of outsiders' capital in financing the firm's assets, and are calculated by establishing relationships between borrowed capital and equity capital. Activity ratios reflect the firm's efficiency in utilising its assets in generating sales, and are calculated by establishing relationships between sales and assets. Profitability ratios measure the overall performance of the firm by determining the effectiveness of the firm in generating profit, and are calculated by establishing relationships between profit figures on the one hand, and sales and assets on the other (Pandey, 2000: 155).

In this section, for the purpose of this study and analysis of the various financial statements of the banks under study, seventeen (17) traditional (Univariate) ratios grouped under four (4) broad categories were used. These categories are liquidity ratios, activity ratios, leverage or debt ratios and profitability ratios are used. It is an established fact that any useful univariate analysis must take into consideration the importance of liquidity or otherwise of a firm and its effects; the various ways through which the resources owned by the firm is being effectively and efficiently utilised or otherwise as well as its effects on the firm; the portion of the firm's resources that was financed externally by creditors as well as the resources of the firm are being utilised to generate returns to the stakeholders of the firm. Finally, the use of multivariate discriminant analysis using Osaze's index of risk model was also used. This model (Osaze's) seek to verify the possibility of any of the banks chosen going bankrupt or failing can be predicted based on present financial standing and the various decisions that could be made to divert or reduce the effect of such occurrences.

4.2 RATIOS USED IN THE STUDY

4.2.1 Liquidity Ratio

Liquidity ratios measure the ability of the firm to meet its current obligations. In fact, analysis of liquidity needs the preparation of cash budgets and cash and fund flow statements; but liquidity ratios, by establishing a relationship between cash and other current assets to current obligations, provide a quick measure of liquidity. A firm should ensure that it does not suffer from lack of liquidity, and also that it does not have excess liquidity. The most common ratios which indicate the extent of liquidity or lack of lack of it are: (i) current ratio and (ii) quick ratio. Other ratios include cash ratio and net working capital ratio (Pandey, 2000: 114).

Current Ratio

The current ratio of a firm measures the firm's short-term solvency. It indicates the availability of current assets in naira for every one naira of current liability. A ratio of greater than one means that the firm has more current assets than current claims (liability) against them. Current assets normally includes cash, marketable securities, accounts receivables and inventories. Current liabilities consist of accounts payable, short-term notes payable, current maturities of long-term debt, accrued income, taxes, and other accrued expenses (principally wages). Current ratio is normally calculated as:

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

Also, in order to obtain the percentage of the current assets that will be required to adequately cover current obligation, we simply find the reciprocal of the current ratio, i.e.;

$$\frac{1}{\text{Current Ratio}}$$

For the purpose of this research, the current ratios for the respective banks are given below:

Table 4.2.1: Current Ratio

S/No.	Selected Banks	2000	2001	2002	2003	2004
1.	First Atlantic Bank	1.06	1.07	1.29	1.14	1.14
2.	First Bank of Nigeria Plc	1.06	1.05	1.04	1.05	1.10
3.	Standard Trust Bank Plc	1.02	1.03	1.05	1.08	1.14
4.	United Bank for Africa Plc	1.03	1.02	1.03	1.05	1.09
5.	Union Bank of Nigeria Plc	1.02	1.01	1.07	1.06	1.04

Source: Computed from Annual Reports & Accounts of the respective banks.

Quick Ratio

Quick ratio establishes a relationship between quick, or liquid, assets and current liabilities. An asset is liquid if it can be converted into cash immediately or reasonably soon without a loss of value. Generally, a quick ratio of 1 to 1 (1:1) is considered to represent a satisfactory current financial condition. Although quick ratio is ratio is a more penetrating test of liquidity than the current ratio, yet it should be used cautiously.

A quick ratio of 1 to 1 or more does not necessary imply sound liquidity position. It should be remembered that all debtors may not be liquid, and cash may be immediately needed to pay operating expenses. It should also be noted that inventories are not absolutely non-liquid. To a measurable extent, inventories are available to meet current obligations. Thus, a company with a high value of quick ratio can suffer from the shortage of funds if it has slow-paying, doubtful and long-duration outstanding debtors. On the other hand, a company with a low value of quick ratio may really be prospering and paying its current obligation in time if it has been turning over its inventories efficiently. Nevertheless, the quick ratio remains an important index of the firm's liquidity (Pandey, 2000: 115). The researcher, using the relevant banks and for the period under study has computed the following quick ratio as follows:

Table 4.2.2: Quick Ratio

S/No.	Selected Banks	2000	2001	2002	2003	2004
1.	First Atlantic Bank	1.06	1.07	1.29	1.14	1.14
2.	First Bank of Nigeria Plc	1.06	1.05	1.04	1.05	1.10
3.	Standard Trust Bank Plc	1.02	1.03	1.05	1.08	1.14
4.	United Bank for Africa Plc	1.03	1.02	1.03	1.05	1.09
5.	Union Bank of Nigeria Plc	1.02	1.01	1.07	1.06	1.04

Source: Computed from Annual Reports & Accounts of the respective banks.

4.2.2 Profitability Ratio

Profitability ratios are calculated to measure the operating efficiency of the company. Besides the management of a company, creditors and owners are also interested in the profitability of the firm. Creditors want to get interest and repayment of principal regularly. Owners want to get a required rate of return on their investment. This is possible only when the company earns enough profits. Generally, two major types of profitability ratios are calculated: (i) profitability in relation to sales and (ii) profitability in relation to investment (Pandey, 2000: 130-131).

Gross Profit Margin

The gross profit margin reflects the efficiency with which management produces each unit of product or service. This ratio indicates the average spread between the cost of goods and services sold and the sales revenue. When we subtract the gross profit margin from 100 per cent, we obtain the ratio of cost of goods sold to sales. Both these ratios show profits relative to sales after the deduction of production costs, and indicate the relations between production costs and selling price. A high gross profit margin ratio is a sign of good management. A gross margin ratio may increase due to any of the following factors (i) higher sales prices, cost of goods sold remaining constant, (ii) lower cost of goods sold, sales prices remaining constant, (iii) a combination of variations in sales prices and costs, then margin widening, and (iv) an increase in the proportionate volume of higher margin items. The analysis of these factors will reveal to the management how a depressed gross profit margin can be improved.

$$\text{Gross Profit Margin} = \frac{\text{Gross Profit}}{\text{Sales}}$$

For this work, the various gross profit margins for the relevant banks under study have been computed in the following table as follows:

Table 4.2.3: Gross Profit Margin

S/No.	Selected Banks	2000	2001	2002	2003	2004
1.	First Atlantic Bank	0.28	0.22	0.24	0.22	0.24
2.	First Bank of Nigeria Plc	0.24	0.21	0.12	0.30	0.31
3.	Standard Trust Bank Plc	0.31	0.29	0.29	0.35	0.39
4.	United Bank for Africa Plc	0.28	0.12	0.23	0.34	0.44
5.	Union Bank of Nigeria Plc	0.21	0.20	0.24	0.29	0.26

Source: Computed from Annual Reports & Accounts of the respective banks.

Net Profit Margin

Net profit margin ratio establishes a relationship between net profit and sales and indicates management's efficiency in manufacturing, administering and selling the products. This ratio is the overall measure of the firm's ability to turn each naira sales into net profit. If the net profit margin is inadequate, the firm will fail to achieve satisfactory return on shareholders' funds. The ratio also indicates the firm's capacity to withstand adverse economic conditions. A firm with a high net profit margin ratio would be in an advantageous position to survive in the face of falling selling prices, rising costs of production or declining demand for the products or service of a firm.

$$\text{Net Profit Margin} = \frac{\text{Profit after tax}}{\text{Sales}}$$

The net profit margins for the various banks under study were given below:

Table 4.2.4: Net Profit Margin

S/No.	Selected Banks	2000	2001	2002	2003	2004
1.	First Atlantic Bank	0.24	0.18	0.18	0.15	0.19
2.	First Bank of Nigeria Plc	0.19	0.16	0.10	0.23	0.25
3.	Standard Trust Bank Plc	0.25	0.24	0.22	0.32	0.35
4.	United Bank for Africa Plc	0.22	0.09	0.10	0.22	0.30
5.	Union Bank of Nigeria Plc	0.17	0.14	0.15	0.19	0.20

Source: Computed from Annual Reports & Accounts of the respective banks.

Considering the above two ratios, we can be able to gain insight into the operations of the banks. If the gross margin is unchanged over a period of several yeas, but the net profit margin has declined over the same period, we know that the cause is either increased expenses relative to sales or a higher tax rate. On the other hand, if the gross margin falls, we know the cost of producing and or distributing the goods relative to sales increase which may be due to problems in pricing or costs.

Return on Investment (ROI)

Return on investment, also referred to as return on total assets or net assets. The return on total assets seeks to measure the effectiveness with which the firm has employed its total resources. It is normally calculated as follows:

$$\text{Return on Investment (ROI)} = \frac{\text{EBIT}}{\text{Total Assets}}$$

For the selected firms under this study, ROI is presented below, where EBIT refers to Earnings Before Interests and Taxes:

Table 4.2.5: Return on Investment

S/No.	Selected Banks	2000	2001	2002	2003	2004
1.	First Atlantic Bank	0.04	0.06	0.05	0.03	0.05
2.	First Bank of Nigeria Plc	0.04	0.03	0.02	0.04	0.05
3.	Standard Trust Bank Plc	0.03	0.04	0.04	0.04	0.03
4.	United Bank for Africa Plc	0.03	0.01	0.01	0.03	0.03
5.	Union Bank of Nigeria Plc	0.03	0.03	0.03	0.03	0.03

Source: Computed from Annual Reports & Accounts of the respective banks.

Return on Net Worth

This ratio measures the rate of return on the shareholders' investment. It tells us the earning power on the shareholders' book investment and is frequently used in comparing two or more firms in the industry. The Return on Net Worth is obtained using the formula:

$$\text{Return on Net Worth} = \frac{\text{Net Income after Taxes}}{\text{Net Worth}}$$

4.2.3 Activity Ratio

Activity ratios are employed to evaluate the efficiency with which the firm manages and utilises its assets. These ratios are also called turn-over ratios because they indicate the speed with which assets are being converted or turned over into sales. Activity ratios, thus, involve a relationship between sales and assets. A proper balance between sales and assets generally reflects that assets are managed well. Several activity ratios can be calculated to judge the effectiveness of asset utilisation (Pandey, 2000: 123).

As mentioned above, several activity ratios can be calculated to judge the effectiveness of asset utilisation; but for the purpose of our study, only two ratios would be considered as they are the most relevant given the bank operations in question. These are fixed assets turnover and total assets turnover.

Fixed Assets Turnover

Fixed Assets Turnover ratio measures the turnover of plant and equipment. It is generally used to depict the efficiency with which the firm's fixed assets such as plant and machinery are used. The ratio could thus be computed as:

$$\text{Fixed Assets Turnover} = \frac{\text{Sales}}{\text{Net Fixed Assets}}$$

The Fixed Assets Turnover for the banks under study are given below:

Table 4.2.6: Fixed Assets Turnover

S/No.	Selected Banks	2000	2001	2002	2003	2004
1.	First Atlantic Bank	3.75	5.12	3.04	2.14	3.51
2.	First Bank of Nigeria Plc	4.82	3.98	5.33	5.23	4.72
3.	Standard Trust Bank Plc	3.02	3.45	2.96	3.19	3.74
4.	United Bank for Africa Plc	3.59	2.85	3.05	2.71	2.38
5.	Union Bank of Nigeria Plc	2.28	3.81	3.08	3.10	3.16

Source: Computed from Annual Reports & Accounts of the respective banks.

Total Assets Turnover

The Total Assets Turnover measures the overall firm's assets. It indicates the efficiency with which the firm utilises its assets. It is usually computed using the formula:

$$\text{Total Assets Turnover} = \frac{\text{Sales}}{\text{Total Assets}}$$

The findings in respect of this ratio for the selected firms are presented below:

Table 4.2.7: Total Assets turnover

S/No.	Selected Banks	2000	2001	2002	2003	2004
1.	First Atlantic Bank	0.14	0.28	0.19	0.14	0.19
2.	First Bank of Nigeria Plc	0.15	0.14	0.16	0.14	0.14
3.	Standard Trust Bank Plc	0.11	0.13	0.13	0.10	0.09
4.	United Bank for Africa Plc	0.12	0.07	0.07	0.07	0.07
5.	Union Bank of Nigeria Plc	0.14	0.16	0.12	0.11	0.11

Source: Computed from Annual Reports & Accounts of the respective banks.

In analysing both fixed and total assets turnover are strong measure of a company performance. If both ratios are high, it means that the firm is utilising its assets effectively to generate sales. If the turnover ratio is however low, the firm has two options; either to use its assets more effectively or dispose off the non-performing assets of the firm especially those approaching their useful life span. The difficulty faced by analysts is that calculations obtained places a premium on

using old assets because their book value is low. For this reason, a bad or low result achieved in this area should not be overemphasised in evaluating the efficiency of the company.

4.2.4 Leverage or Debt Ratio

Leverage ratio shows the extent that debt is used in a company's capital structure. Leverage ratios may be calculated from the balance sheet items to determine the proportion of debt in total financing. Many variations of these ratios exist; but all these ratios indicate the same thing – the extent to which the firm has relied on debt in financing assets. Leverage ratios are also computed from the profit and loss items by determining the extent to which operating profits are sufficient to cover the fixed charges (Pandey, 2000: 118).

Firms with low leverage ratios have less risks of loss when the economy is in downturn, they also have lower expected returns when the economy is undergoing boom. Conversely, firms with high leverage ratios run the risk of losses but also have a chance of gaining high profits. Usually, leverage is approached in two (2) ways; one approach examines balance sheet ratios and determines the extent to which borrowed funds have been used to finance the firm. The other approach measures the risks of debt by income statement ratios designed to determine the number of times fixed charges are covered by operating profits. These sets of ratios are complementary and have been covered by this study.

Debt Ratio

This measures the proportion of the interest-bearing debt in the capital structure. Total debt will include short and long-term borrowings from financial institutions, debentures/bonds, deferred payment arrangements for buying capital equipments, bank borrowings, public deposits and any other interest-paying bearing loan.

$$\text{Debt Ratio} = \frac{\text{Total Debt}}{\text{Capital Employed}}$$

For the banks under study, the Debt Ratio is presented below:

Table 4.2.8: Debt Ratio

S/No.	Selected Banks	2000	2001	2002	2003	2004
1.	First Atlantic Bank	0.00	0.00	0.00	0.00	0.00
2.	First Bank of Nigeria Plc	1.00	1.00	1.00	1.00	1.00
3.	Standard Trust Bank Plc	1.01	0.00	0.00	0.00	0.00
4.	United Bank for Africa Plc	1.00	1.00	1.00	1.00	1.00
5.	Union Bank of Nigeria Plc	1.01	1.01	1.01	1.01	1.02

Source: Computed from Annual Reports & Accounts of the respective banks.

Debt-Equity Ratio

This ratio shows the relationship describing the lenders' contribution for each naira of the owners' contribution. This is given by the formula:

$$\text{Debt-Equity Ratio} = \frac{\text{Total Debt}}{\text{Net Worth}}$$

The findings in respect of this ratio for the selected firms are presented below:

Table 4.2.9: Debt-Equity Ratio

S/No.	Selected Banks	2000	2001	2002	2003	2004
1.	First Atlantic Bank	10.83	5.59	3.62	5.50	6.39
2.	First Bank of Nigeria Plc	12.09	12.46	15.01	12.80	8.09
3.	Standard Trust Bank Plc	15.39	14.99	11.69	9.89	7.46
4.	United Bank for Africa Plc	16.47	18.84	13.68	10.85	11.32
5.	Union Bank of Nigeria Plc	11.87	15.59	9.08	10.07	10.22

Source: Computed from Annual Reports & Accounts of the respective banks.

4.3 Multivariate Discriminant Ratio Analysis

Altman's Model

Edward Altman was the first person to apply discriminant analysis in finance for studying bankruptcy. His study helped in identifying five ratios that were efficient in predicting bankruptcy. The model was developed from a sample of 66 firms – half of which went bankrupt. Altman, established a guideline Z score which can be used to classify firms as either financially sound – a score above 2.675 – or headed towards bankruptcy – a score below 2.675. The lower the score, the greater the likelihood of bankruptcy and vice versa (as earlier mentioned above).

Altman's index of risk is hereby presented with relevance to the banks under study:

Table 4.2.10: Altman's Model

S/No.	Selected Banks	2000	2001	2002	2003	2004
1.	First Atlantic Bank	0.48	0.71	1.07	0.66	0.74
2.	First Bank of Nigeria Plc	0.67	0.42	0.40	1.15	0.66
3.	Standard Trust Bank Plc	0.30	0.38	0.42	0.47	0.59
4.	United Bank for Africa Plc	0.33	0.19	0.21	0.34	0.39
5.	Union Bank of Nigeria Plc	0.37	0.37	0.49	0.45	0.45

Source: Computed from Annual Reports & Accounts of the respective banks.

Osaze's Index

Due to the limitations of ratios as univaried tools of financial analysis in determining the likely future survival or failure of corporate entities, Bob E. Osaze (1985), based on a country-wide research (survey) conducted, has developed what he called "A Financial Composite Index for Predicting Corporate Failure in Nigeria."

According to Osaze's research findings firms that score over 60 points are unlikely to fail, those with less than 40 points have a higher probability of failure, while firms with scores between 40 and 60 points need to be scrutinized properly before a decision is taken as to their potential for bankruptcy or success. This is where other subjective factors like management capacity and economic indicators would prove highly invaluable. The index has been tested on a sample of technically bankrupt firms and successful firms of similar ages and sizes sample of 30 each of the two classifications of firms of similar ages and sizes (turnover) in Nigeria, and the result has been very satisfactory. Osaze took a sample of 30 successful manufacturing firms in Nigeria, only 2 (6.72%) had less than 40 points while 24 had over 65 points. Thus, 6.72% of the successful firms were misclassified as bankrupt. On the other hand, the matching sample of bankrupt firms, 26, had less than 40 points (a successful factor of 86.67%), and 3 had over 60 points (a misclassification of 10%). Other firms fell into the gray area of 40-60 points; thus necessitating more in-depth scrutiny (Kurfi, 2003: 63).

Osaze's index of risk is hereby presented with relevance to the banks under study:

Table 4.2.11: Osaze's Index

S/No.	Selected Banks	2000	2001	2002	2003	2004
1.	First Atlantic Bank	36	48	58	46	48
2.	First Bank of Nigeria Plc	46	42	46	56	58
3.	Standard Trust Bank Plc	30	34	36	46	50
4.	United Bank for Africa Plc	34	38	34	38	42
5.	Union Bank of Nigeria Plc	38	42	50	50	50

Source: Computed from Annual Reports & Accounts of the respective banks.

4.4 Analysis and Comparison of Results

In the analysis of the findings of this research, the importance of univariate and traditional ratios were emphasised as tools for managerial decisions and control as well as in the evaluation of business performance in prediction of corporate failure and bankruptcy.

Liquidity Ratio Analysis

The average overall value of 1.14 for the current ratio of First Atlantic Bank was obtained during the period under review; this was below the traditional value of 2:1 ratio. The same goes for the remaining banks obtaining an average of value of 1.19, 1.06, 1.03 and 1.06 for First Bank of Nigeria Plc, Standard Trust Bank Plc, United Bank for Africa and Union Bank of Nigeria Plc respectively. This means that almost all the banks could have difficulty if they are to settle all their debts at once according to this ratio. As such, the management of the banks under study would have to make conscious effort to improve their current ratio position.

Quick Ratio

This ratio is the same as the current ratio, except that it excludes inventories – presumably the least liquid portion of current assets – from the numerator. From the result obtained the quick ratio is the same as those obtained for the current ratio, this is because, as already known, banks render financial services rather than production of goods; this means that financial institutions will have no inventories outstanding at any particular time. This makes their quick ratio equate their current ratio.

Gross Profit Margin

This ratio tells us the profit of the firm relative to sales after we deduct the cost of producing the goods sold or cost of operations. It indicates the efficiency of operations as well as how products are priced. With reference to the study conducted on the banks under review, the gross profit margin is fairly adequate as the average minimum contribution made by First Atlantic, First of Nigeria Plc and Union Bank of Nigeria Plc were 24%, United Bank for Africa contributing 28% and Standard Trust Bank Plc with the highest contribution of 33%.

Net Profit Margin

The net profit margin tells us the relative efficiency of the firms after taking into account all expenses and income taxes, but not extraordinary charges.

By considering both ratios jointly, we are able to gain considerable insight into the operations of the firms. If the gross margin is essentially unchanged over a period of several years, but the net profit margin has declined over the same period, we know that the cause is either higher selling, general, and administrative expenses relative to sales or a higher tax rate. On the other hand, if the gross profit margin falls, we know that the cost of production or rendering services relative to sales has increased. This occurrence, in turn, may be due to problems in pricing, high charges or costs. According to Table 4.2.4, it can be observed that on the average, First Atlantic Bank, First of Nigeria Plc and United Bank for Africa Plc all made a net profit margin of 19%, while Standard Trust Bank and Union of Nigeria Plc made a net profit margin of 28% and 17% respectively.

Return on Investment

This ratio tells us the relative efficiency with which the firm utilises its resources in order to generate output. It varies according to the type of company being studied. The turnover ratio is a function of the efficiency with which the various asset components are managed: receivables as depicted by the average collection period, inventories as portrayed by the inventory turnover ratio, and fixed assets as indicated by the throughout of product through the plant or the sales to net fixed asset ratio. Table 4.2.5 presents a summary of the percentage contribution on investment by each of the banks; First Atlantic Bank with highest return of 5%, it is closely followed by First Bank of Nigeria Plc and Standard Trust

Bank Plc with 4% each; Union Bank of Nigeria Plc followed closely with 3% and United Bank for Africa Plc had 2%.

Fixed Assets Turnover

This ratio is used by firms to know the efficiency of utilising fixed assets. In interpreting the reciprocals of these ratios (Table 4.2.6), from the results obtained; in order to generate a sale of one naira, the banks under study viz: First Atlantic Bank, First Bank of Nigeria Plc, Standard Trust Plc, United Bank for Africa Plc and Union Bank of Nigeria Plc need an investment in fixed assets of ₦0.05, ₦0.20, ₦0.31, ₦0.32, and ₦0.34 respectively.

Total Assets Turnover

The total assets turnover ratio shows the firm's ability in generating sales from all financial resources committed to total assets. Table 4.2.7 shows the total assets turnover of 0.19, 0.15, 0.56, 0.08 and 0.13 for First Atlantic Bank, First Bank of Nigeria Plc, Standard Trust Plc, United Bank for Africa Plc and Union Bank of Nigeria Plc respectively. This means that the respective banks generate a sale of ₦0.19, ₦0.15, ₦0.56, ₦0.08 and ₦0.13 naira for one naira investment in fixed and current assets together for the respective banks.

Debt Ratios

Debt ratios reflect the relative proportion of debt funds employed by the banks under study. A comparison of the debt ratio for a given company with those of similar firms gives us a general indication of the creditworthiness and financial risk of the firm. Table 4.2.8 shows the proportion of debt employed by the individual banks for the period under review.

Debt-Equity Ratios

This shows the ratio between capital invested by the owners and the funds provided by lenders. From Table 4.2.9, it is clear that the total debt ratios that the bank's lenders have contributed more funds than owners; lenders' contribution for First Atlantic Bank, First Bank of Nigeria Plc, Standard Trust Plc, United Bank for Africa Plc and Union Bank of Nigeria Plc are 6.39, 12.09, 11.88, 14.23 and 11.37 respectively.

Altman's Model

This model considers five financial ratios which were able to discriminate rather effectively between bankrupt and non-bankrupt companies, beginning up to 5 years prior to the bankruptcy event. This Z ratio is the overall index of the multiple discriminant function. Altman found that companies with Z scores below 1.81 (including negative amounts) always went bankrupt, whereas Z scores above 2.99 represented healthy firms. Firms with Z scores in between were sometimes misclassified, so this represents an area of grey. On the basis of these cut-offs, Altman suggests that one can predict whether or not a company is likely to go bankrupt in the near future (Van Horne, 2002: 366). With regards to the banks under our study, Table 4.2.10 shows that all the banks under study scored below the 1.81 points which means that in all the banks, there is a chance that they will go bankrupt in the near future; this means that their financial condition is not very good, according to the Altman's model.

Osaze's Index

According to the Osaze's research findings, firms that score over 60 points are unlikely to fail, those with less than 40 points have a higher probability of failure, while firms with scores between 40 and 60 points need to be scrutinised properly before a decision is taken as to their potential for bankruptcy or success. With regards to our research findings, Table 4.2.11 presents the points scored by the banks under study. Three banks fall under the gray area, that is between 40-60 points. Thus, First Atlantic Bank scored 47 points, First Bank of Nigeria Plc scored 50 points, Union Bank of Nigeria Plc scored 46 points. This means that they need more in-depth scrutiny. On the other hand, Standard Trust Bank Plc and United Bank for Africa Plc scored 39 and 37 points respectively. This means that the two banks have a higher probability of failure according to the Osaze's index.

REFERENCES

1. Pandey, I.M., Financial Management, Vikas Publishing House Pvt. Ltd., New Delhi, 2000, p. 151.
2. Ibid, p. 155.
3. Ibid, p. 114.
4. Annual Report & Financial Statement of First Atlantic Bank, 2000-2004.
5. Annual Report & Financial Statement of First Bank of Nigeria Plc, 2000-2004.
6. Annual Report & Financial Statement of Standard Trust Bank Plc, 2000-2004.
7. Annual Report & Financial Statement of United Bank for Africa Plc, 2000-2004.
8. Annual Report & Financial Statement of Union Bank of Nigeria Plc, 2000-2004.
9. Pandey, I.M., p. 115.
10. Ibid, pp. 130-131.
11. Ibid, p. 123.
12. Ibid, 118.
13. Osaze, B.E. (1992), Nigerian Capital Market: Its Nature and Operational Character, 1992 Uniben Press Benin-City, p. 52.
14. Kurfi, A.K., Principles of Financial Management, Benchmark Publishers Ltd., 2003, p. 63.
15. Van Horne, J.C., Financial Management & Policy, Pearson Education, Inc. 2002, p. 366.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.0 INTRODUCTION

Financial analysis is the process of identifying the financial strengths and weaknesses of the firm by properly establishing relationships between the items of balance sheet and the profit and loss account. Financial analysis can be undertaken by management of the firm, or by parties outside the firm, viz: owners, creditors, investors and others (Pandey, 2000: 108).

The nature of analysis will differ depending on the purpose of the analyst. To trade creditors, their interest is in firm's ability to meet their claims over a very short period of time. Their analysis will, therefore, confine to the evaluation of the firm's liquidity position. Suppliers of long-term debt, on the other hand, are concerned with the firm's long-term solvency and survival. They analyse the firm's profitability over time, its ability to generate cash to be able to pay interest and repay principal and the relationship between various sources of funds (capital structure relationships). Long-term creditors do analyse the historical financial statements, but they place more emphasis on the firm's projected, or pro forma, financial statements to make analysis about its future solvency and profitability. To the investors, who have invested their money in the firm's shares, their interests are most concerned about the firm's earnings. They restore more confidence in those firms that show steady growth in earnings. As such, they concentrate on the analysis of the firm's present and future profitability. They are also interested in the firm's financial structure to the extent it influences the firm's earnings ability and risk. Management of the firm on the other hand, would be interested in every aspect of the financial analysis. It is their overall responsibility to see that the resources of the firm are used most effectively and efficiently, and that the firm's financial condition is sound (Pandey, 2000: 109).

5.1 SUMMARY

A financial ratio is a relationship between two financial variables. It helps to ascertain the financial condition of a firm. Ratio analysis is a process of identifying the financial strengths and weaknesses of the firm. This may be accomplished either through a trend analysis of the firm's ratios over a period of time or through a

comparison of the firm's ratios with its nearest competitors and with the industry averages.

The four most important financial dimensions which a firm would like to analyse are: liquidity, leverage, activity and profitability. Liquidity ratios measure the firm's ability to meet current obligations, and are, calculated by establishing relationships between current assets and current liabilities. Leverage ratios measure the proportion of outsiders capital in financing the firm's assets, and are calculated by establishing relationships between borrowed capital and equity capital. Activity ratios reflect the firm's efficiency in utilising its assets in generating sales, and are calculated by establishing relationships between sales and assets. Profitability ratios measure the overall performance of the firm by determining the effectiveness of the firm in generating profit, and are calculated by establishing relationships between profit figures on the one hand, and sales and assets on the other (Pandey, 2000: 155).

Financial ratios can be derived from the balance sheet and the income statement. They are categorised into five types: liquidity, debt, coverage, profitability, and market value. Each type has a special use for the financial or security analyst. The usefulness of the ratios depends on the ingenuity and experience of the financial analyst who employs them. By themselves, financial ratios are fairly meaningless; they must be analysed on a comparative basis.

A comparison of ratios of the same firm over time uncovers leading clues in evaluating changes and trends in the firm's financial condition and profitability. The comparison may be historical and predictive. It may include an analysis of the future based on projected financial statements. Ratios may also be judged in comparison with those of similar firms in the same line of business and, when appropriate, with an industry average. From empirical testing in recent years, it appears that financial ratios can be used successfully to predict certain events, bankruptcy in particular. With this testing, financial ratio analysis has become more scientific and objective than ever before, and we can look to further progress in this regard.

Additional insight often is obtained when balance sheet and income statement items are expressed as percentages. The percentages can be in relation to total assets or total sales or to some base year called common size analysis and

index analysis, respectively, the idea is to study trends in financial statement items over time (Van Horne, 2002: 371-372).

5.2 CONCLUSION

The success or failure of any organisation depends on the outcome and quality of the decisions taken by management of that organisation. Decision making becomes more vital when it concerns finance because a faulty decision in the area of finance could spell doom for the organisation. For example, in periods of recession when business failures were common, the balance sheet takes an increase importance because the question of liquidity is uppermost in the minds of many in the business community. Likewise, when business conditions are good, the income statement receives more attention as people become absorbed in profit possibilities.

The importance of financial decision making in firms has become imperative for managers to rely more on evaluative techniques to provide them with hard and reliable facts on which to base their decisions. Business decisions are made on the basis of the best available estimates of the outcome of such decisions. The purpose of financial analysis is to provide information about a business unit for decision making purposes, and information needs not be limited to accounting data. While ratio and other relationships based on past performance may be helpful in predicting the future earning performance and financial health of a company, readers must be aware of the inherent limitations of such data. Financial statements are essentially summary records of the past and readers must go beyond the financial statements and look into the nature of the firms, its competitive position within the industry, its product lines, its research expenditure and above all, the quality of its management. Therefore, researchers must examine both qualitative and quantitative data in order to ascertain the quality of earnings and the quality and protection of assets.

In the analysis of financial statements of the selected banks, ratios no doubt are perhaps the most accurate and reliable financial evaluative tools available to managers for making effective decisions. After subjecting the financial statement of the selected banks to ratio analysis, it has become clear that ratios can be employed as tools for management decisions, appraisal of business performance, predictors of business failures and forecasting difficulties and prospects of a firm

over a wide range of time. Ratios provide the manager with facts about what has happened, what is happening and what is likely to happen in the future. With such information, the manager can plan his strategies to deal with given situations more effectively and efficiently.

In analysing and applying financial ratios of firms or organisations, some caveat has to be observed. The analyst should avoid using rules of thumb indiscriminately for all industries. For example, the criterion that all companies should have at least 2-to-1 current ratio is inappropriate. The analysis must be in relation to the type of business in which the firm is engaged and to the firm itself. The true test of liquidity is whether a company has the ability to pay its bills on time. Many sounds companies, including electric utilities, have this ability despite current ratios substantially below 2 to 1. It depends on the nature of the business. Only by comparing the financial ratios of one firm with those of similar firms can one make a realistic judgment.

Similarly, analysis of the deviation from the norm should be based on some knowledge of the distribution of ratios for the companies involved. If the company being studied has a current ratio of 1.4 and the industry norms is 1.8, one would like to know the proportion of companies whose ratios are below 1.4. If it is only 2 percent, we are likely to be much more concerned than if it is 25 per cent. Therefore, we need information on the dispersion of the distribution to judge the significance of the deviation of a financial ratio for a particular company from the industry norm.

Comparisons with the industry must be approached with caution. It may be that the financial condition and performance of the entire industry is less than satisfactory, and a company's being above average may not be sufficient. The company may have a number of problems on an absolute basis and should not take refuge in a favourable comparison with the industry. The industry ratios should not be treated as target asset and performance norms. Rather, they provide general guidelines. For benchmark purposes, a set of firms displaying "best practices" should be developed.

In addition, the analyst should realise that the various companies within an industry grouping may not be homogeneous. Companies with multiple product lines often defy precise industry categorisation. They may be placed in the most "appropriate" industry grouping, but comparison with other companies in that

industry may not be consistent. Also, companies in an industry may differ substantially in size.

Because reported financial data and the ratios computed from these data are numerical, there is a tendency to regard them as precise portrayals of a firm's true financial status. Accounting data such as depreciation, reserve for bad debts, and other reserves are estimates at best and may not reflect economic depreciation, bad debts, and other losses. To the extent possible, accounting data from different companies should be standardised figures, however, the analyst should use caution in interpreting the comparisons (Van Horne, 2002: 350-351).

Other cautions to be observed include:

- It is difficult to decide on the proper basis of comparison.
- The comparison is rendered difficult because of differences in situations of two companies or of one company over the years.
- The price level changes make the interpretations of ratios invalid.
- The differences in the definitions of items in the balance sheet and the profit and loss statement make the interpretation of ratios difficult.
- The ratios calculated at a point of time are less informative and defective as they suffer from short-term changes.
- The ratios are generally calculated from past financial statements and, thus are no indicators of future (Pandey, 2000: 153).
- Estimates - The financial statements contain numerous estimates. To the extent that these estimates are inaccurate, the financial ratios and percentages are inaccurate.
- Cost - Traditional financial statements are based on cost and are not adjusted for price-level changes.
- Alternative accounting methods - Variations among companies in the application of generally accepted accounting principles may hamper comparability.
- A typical data - Companies frequently establish a fiscal year-end that coincides with the low point in operating activity or in inventory levels. Therefore, year-end data may not be typical of the financial condition during the year.

5.3 RECOMMENDATIONS

Based on the findings of this research work, the following recommendations are made by the researcher. After analysing the financial statements of the selected firms using both univariate and multivariate ratio analysis over a five year period, it is evident that some of the banks have some problems regarding some single ratios, but on a combined effect assessment, all the banks have performed fairly well. However, on a closer look, all the banks were not liquid enough as they obtained less than the recommended 2:1 current ratio. Based on the findings of this research, the following recommendations are made:

1. It is therefore recommended the management of these banks should place a feasible and realistic credit and collection policies and encourage more customers to banks with them.
2. The management of the banks should also embark on policies that will encourage patronage from customers as well as settling their debts on time.
3. The net profit level when compared with the Gross profit level is very low. This indicates that either expenses are high or there is increase in taxation. Analysis shows that the selected banks' operating expenses has increased greatly. Based on these, the management of the banks should minimise their cost of operations.
4. The return on investments and net worth respectively were very low. It is therefore recommended that the management of the banks under study should carefully analyse all their assets both fixed and current and their subsidiaries with a view to selling off those considered as not contributing enough to their asset mix targets.
5. Apart from First Atlantic Bank, all the banks finance their operations with a total debt level of well over 50% of the total assets. This means that a lot of interest charges are paid annually to creditors. This equally implies that the banks will have difficulties in seeking for much needed external financing when the need arises. Consequently, it is recommended that the companies should seek means of reducing their total debt level as this will reduce their provision for liabilities and charges as well as clear tax liabilities that are outstanding which dominate their entries for amount due to creditors over a year.

6. Based on Osaze's index, most of the banks fall in the gray area which means that the management should look into its competence, abilities and capabilities and conduct the affairs of the banks in accordance with changing conditions and respond to environmental changes.

REFERENCES

1. Pandey, I.M., Financial Management, Vikas Publishing House Pvt. Ltd., New Delhi, 2000, p. 108.
2. Ibid, p. 109.
3. Ibid, p. 155.
4. Van Horne, J.C., pp. 371-372.
5. Ibid, pp. 350-351.
6. Pandey, I.M. p. 153.

BIBLIOGRAPHY

Beaver, W.H.; "Financial Ratios as Predictors of Failure." Empirical Research in Accounting. Selected Studies 1966. Journal of Accounting Research, 1967 (pp. 71-127).

Deakin, B.E. "Distributions of Financial Accounting Ratios: Some Empirical Evidence" Accounting Review, 50 (pp. 90-96), 1975.

Edminister, R.O. "An Empirical Test of Financial Ratio Analysis for Small Business Failure Prediction" Journal of Financial and Quantitative Analysis, Vol. 7 (March 1972), pp. 1477-1493.

Edward I. Altman, "Financial Ratios, Discriminant Analysis and the Prediction of Corporate Bankruptcy," Journal of Finance, 23 (September 1968), 589-609.

Fitzpatrick, P.J.; **A Comparison of Ratios of Successful Industrial Enterprises with those of the Failed Companies**, Washington D.C., The Accountants Publishing Co., 1932.

Fitzpatrick, P.J. **Symptoms of Industrial Failure**, Washington D.C. Catholic University of America Press, 1931.

Foster, G., **Financial Statement Analysis**, Prentice-Hall, 1986, pp. 2-7.

Galbraith, J.K. **The Great Crash***: 1929,* Boston: Houghton Mifflin, 1955, pp. 84-85.

Gordon, M.; **The Investment, Financing, and Valuation of the Corporation***,* Homewood, Ill.: Richard D. Irwin Publishers, 1962.

Hickman, W.B.; **Corporate Bond Quality and Investor Experience**, (Princeton University Press, 1958), pp. 395-431.

Horrigan, J.O. "A Short History of Financial Ratio Analysis." Accounting Review, 43 (pp. 284-294) April, 1968.

Kennedy, R.D. and McMuller, S.Y., **Financial Statements**, Richard D. Irwin, 1968, p. 404.

Kurfi, A.M., **Principles of Financial Management**, Benchmark Publishers Ltd., 2003, p. 61-65.

Lerner, E.M. and Carleton, W.T. (1966); **A Theory of Financial Analysis**, Harcourt, Brace & World Inc. pp. 3-12.

Markowitz, H.M.; **Portfolio Selection***,* New York: Wiley, 1959; and Donald E. Farrar, **The Investment Decision under Uncertainty***,* Englewood Cliffs, N.J.: Prentice-Hall, 1962.

Moore, G.H. & Atkinson, T.R. "Risks and Returns in Small Business Financing" 41st Annual Report, National Bureau of Economic Research, 1961, pp. 66-67.

Naechmias, D. & Naechmias, C. (1981), **Research Methods in the Social Sciences**. New York, St. Martins Press.

Ogler, Y.E. "A Credit Scoring Model for Commercial Loan." Journal of Money, Credit and Banking, 2 (Nov. 1970), pp. 434-445.

Osaze, B.E. (1992); **Nigerian Capital Market: Its Nature and Operational Character**, Uniben Press, Benin City.

Pandey, I.M.; **Financial Management**, Vikas Publishing House Pvt Ltd., 2000.

Salmi, T & Martikainen, T, "A Review of the Theoretical and Empirical Basis of Financial Ratio Analysis" Published in the Finnish Journal of Business Economics 4/94, 426-448, Runeberginkatu 14-16, FIN-00100 Helsinki, Finland. <www.uwasa.fi/~ts/ejre/ejre.html>

Sauliner, J.R., Halcrow, G.H. and Jacoby, H.N. **Federal Lending and Loan Insurance**, (Princeton University Press, 1958), p. 456-481.

Meyer, P.A & Pifer, H.W., "Prediction of Bank Failures" Journal of the American Finance Association, March 1970.

Van Horne, J.C.; **Financial Management & Policy**, Pearson Education, Inc. 2002.

Weston, J.F. and Brigham, E.F., **Essentials of Managerial Finance**, Dryden Press, New York, 1985.

William H. Beaver, "Financial Ratios as Predictors of Failure," *Empirical Research in Accounting: Selected Studies,* supplement to Journal of Accounting Research, 41 (1966), 71-111.

Winakor, H.A. & Smith, F.R.; "Changes in the Financial Structure of Unsuccessful Industrial Corporations" Bulletin No. 51, University of Illinois, Bureau of Business Research, 1935.