

**IMPACT OF CAPITAL STRUCTURE ON THE
CORPORATE PERFORMANCE OF
MANUFACTURING FIRMS IN NIGERIA:
A STUDY OF SELECTED FIRMS**

BY

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CERTIFICATION

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DEDICATION

TO Jude, my husband, who insists on nothing but the best.
You are an encouragement to me

TO Favour, Vivian, and Divine, my children, for their
understanding during this period of intense academic work.
You are my pride.

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ABSTRACT

This study is an appraisal of the impact of capital structure on the performance of manufacturing firms in Nigeria. The work attempts to examine the contributions of capital structure on corporate performance. It is prompted by the observation that the capital structure of most companies in Nigeria is sub-optimal and this accounts, in part, for the poor performance of many of the corporations, which has led some to liquidation. Data were collected through primary and secondary sources. The methodology involved the construction of multivariate models, which were analyzed using multiple regression and multiple discriminant analyses. The formulated hypotheses were tested. The results of the models analyzed show that, leverage exerts a significant impact on corporate profitability. We also found that there is a significant tax shield provided when firms undertake leverage. Moreover, there exists a significant relationship between a firm's corporate performance and its capital structure, and the summary effect of the change in the impact of leverage on profitability with or without corporate taxation, is significant. Factors militating against the effective use of capital structure to improve corporate performance include the non-financial characteristics of the firm, the industry-specific shocks, and the institutional environment in which the firm operates. It is recommended that firms should adopt appropriate Debt/Equity ratios depending on their risk peculiarities. Efforts should be made to improve the management of capital structure variables by manufacturing corporations in Nigeria in order to improve their performance. The firms, as a matter of prudence, should establish regulations that encourage them to increase their capital base by adopting appropriate capital structures that will help improve their performance. The significance of this work lies in the finding that firms with better capital structures perform better. Its major contribution to knowledge is that we have been able to develop a capital structure Prediction model useful in the determination of Corporate Performance amongst manufacturing firms in Nigeria. The study has also shown a remarkable departure from other studies on Capital Structure.

Keywords: Capital Structure, Leverage, Tax shield, Corporate Performance, Gearing, Weighted Average cost of capital, Optimal, Tobin's Q, Discriminant analysis, Effect models.

CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND INFORMATION

Finance is the life wire of any business. With adequate finances firms can expand already existing business, diversify their operation through new investments, acquire new assets, and pay salaries and wages promptly among others. Its absence or insufficiency could lead to disturbance or a complete stoppage of activities in the firm. A business organization that is adequately financed and with appropriate capital structure will definitely reap the associated benefits with proper management.

In Nigeria today, there are about 197 companies quoted (listed) in the first tier securities market of the Nigeria stock exchange. These companies as at January 1,2007 include the following:

Banking sector – 17 (out of the 25 licensed commercial banks);

Building-materials sector – 7; Construction sector –7;

Breweries –7; Chemical & Paints –7; Agricultural sector –5;

Food, Beverages & Tobacco –13; Footwear –2; Insurance Companies – 15; Automobiles and Tyre- 6; Airline – 2; Engineering – 3; Computer/ office equipment –3; petroleum sector – 8; Printing and Publishing – 4;

Textiles – 6; Health care – 11; Packaging – 9, among others (GTB Diary; 2007).

The methods of financing these companies differ. However, two distinct methods can be identified. These include:

- (i) Equity financing, and
- (ii) Debt financing.

Some of these firms rely wholly on equity financing while most of them rely on a combination of both equity and debt financing.

During the periods under review, the companies in Nigeria have experienced ugly history. For instance, the financial distress that swept through the economy led to the collapse of more than 80 banks (Chigbu: 2007). This also affected other companies in the other sectors of the economy. However, the Central Bank of Nigeria (CBN) introduced reforms to increase the capital base of banks (from less than ₦2 billion value to a minimum of ₦25b in 2005) which reduced the number of banks from 135 to 80 in 2005 and now 25 in 2006 through the current mergers and acquisitions. Also, the number of Insurance companies was reduced from about 25 to 17 following the increase in the capital base of Insurance Companies from less than ₦2 billion in 2005 to ₦ 5 billion in 2006.

Thus, the current reforms in the economy which emphasized dramatic increases in the capital base of companies now raises the question as to the appropriate capital structure of the manufacturing firms operating in Nigeria.

However, as a result the oil boom, since 2000, resulting from the dramatic increases in the International price of oil from about \$20 per barrel in 2000 to up to \$50 per barrel in 2006, many companies in the economy generally experienced positive growth. The growth was also attained with variations in the capital structure of these companies in terms of the debt and equity compositions. However, many companies also experienced a down-turn. For example, in January 2007, the Corporate Affairs Commission (CAC) threatened to de-list 30,000 of the 400,000 registered companies for failing to comply with the provisions of the Companies and Allied Matters Act (CAMA) of 1990 in their operations (Financial Standard: 2007). Also, government policy shifted mostly to privatization whereby the commanding heights of the economy that were previously under public sector investment were privatized in an effort to make Nigeria, a private- sector led economy. The number of firms in the petroleum sub-sector also increased. The cost of capital in Nigeria, including interest rate, has also remained a controversial issue.

In the area of bank lending, it has been observed that the difference in lending rate and deposit rate has generally remained very wide thereby discouraging both investment and lending (Chigbu: 2007).

This research therefore, investigates the relation between the leverage and the performance of corporations. The connection between capital structure and performance has been the subject of an important and ongoing debate in the corporate finance literature.

Capital structuring has for a long time, been a focus of attention in many academic and financial institutions that probe into this area (Cohen: 2005). Academically, the problem is appealing because it is fairly open ended and subject to controversies and criticisms. And, practically, there is great interest, especially in the areas of corporate and project finance, as well as in structured products, as there is a lot of money to be made advising firms on how to improve their capital structure.

The major breakthrough in capital structuring theory came with Modigliani and Miller's (M & M) propositions (Modigliani & Miller: 1958). These, not unexpectedly, have led to a considerable amount of literature both theoretical and practical, on how to determine and locate the appropriate capital structure. Overall, the approaches range from being

purely subjective to all analytical, with the former comprising qualitative descriptions and comprehensive graphs of the Weighted Average Cost of Capital (WACC) and Firm's Value (FV).

Although these results are mixed, one prominent finding, among others, is that the appropriate capital structure is not a unique point, but rather a range of values along the Firm's Value (FV) or Weighted Average Cost of Capital (WACC) curves (Cal & Ghosh: 2003). This, essentially, implies that it is difficult, if not impossible, for a firm to be able to achieve its optimum by simply interchanging debt, equity and assets the way the classical M&M methodology dictates. The cause of this is perhaps better attributed to a number of underlying factors and limitations; namely; credit, balance sheet constraints and financing decisions (Targgart: 1977), agency costs (Leland: 1998), debt maturity (Berglof and Von Thadden: 1994), asset's life (Yi: 2005), firm's size (Hutchinson: 1995); manager's judgement and risk profile (Chu: 1996), and market dynamics (Welch: 2004, Hovakimian: 2004), to name just a few.

With such limitation in place, therefore, it is not surprising that firms typically deviate from M&M's classical framework in their pursuit of the appropriate capital structure.

In Nigeria particularly, some of the authorities have argued that during periods of economic prosperity and recovery, that is, when the economy is expanding and firms are selling brisk, debt financing may be more appropriate, while during periods of economic fluctuations and recession or when profits are declining, the appropriate capital structure should be more of equity finance (Anyagwu: 1999; Nakamura: 1992). In reaction to this, several policies have been adopted by individual companies and government as a regulator of economic activities within the economy. These include: the Central Bank of Nigeria (CBN) Recapitalization policies (since 2004) for the Banks and Insurance Companies, the Companies and Allied Matters Act (CAMA) 1990, the Securities and Exchange Commission (SEC) Reforms on how companies in Nigeria should operate, among others.

Moreover, as the recommendations of previous authors have not fully solved the problem of inappropriate capital structure, nevertheless, it is commonly taken for granted that an appropriate capital structure, even under constrained conditions, should indeed exist and but the objective of this work to try to appraise the impact of capital structure on overall corporate performance.

However, judging by the performance of many companies now, the increasing phenomena of liquidations, mergers and acquisitions; the problem of optimal capital structure in Nigeria seems to persist.

Essentially, there is need to find out whether capital structure is a significant factor accounting for the corporate performance of manufacturing firms in Nigeria.

The general purpose of this study is therefore to examine the capital structures of quoted firms in Nigeria, in order to evaluate their impact on the performance of these firms.

This work leans more towards the analytical side, focusing on how we could use the capital structure of a corporation to serve as a useful metric to appraise a company's performance in accordance with Cohen (2004a). We thus hope to present here a generalized analytical process for assessing the impact of capital structure on corporate performance for corporate firms in Nigeria.

Capital structure refers to the way a corporation finances itself through some combination of equity sales, equity options, bonds and loans ([Http/wikipedia.org](http://wikipedia.org):2007). Optimal capital structure refers to the particular combination that minimizes the cost of capital while

maximizing the stock price. It is in fact, the combination that maximizes the value of the firm.

A firm capitalization describes the composition of its permanent or long-term capital, which consists of debt and equity. A healthy proportion of equity capital, as opposed to debt capital, in a company's capital structure is an indication of financial fitness (Loth:2006).

According to Investopedia.com (2006), capital structure means "a mix of a company's long-term debt, specific short-term debt, common equity and preferred equity". The capital structure is how a firm finances its overall operations and growth by using different sources of funds. Debt comes in the form of bond issues or long-term notes payable, while equity is classified as common stock, preferred stock or retained earnings. Short-term debt such as working capital requirements is also considered to be part of the capital structure. Thus, a company's proportion of short and long-term debt is considered when analyzing capital structure.

When people refer to capital structure, they are most likely, referring to a firm's debt-to- equity ratio, which provides insight into how risky a company is. Usually, a company more heavily financed by debt poses greater risk, as this firm is relatively highly levered.

According to Harvey(1995), "there are many methods for the firm to raise required funds. But the most basic and important instruments are stocks and bonds. The firm's mix of different securities is known as its capital structure".

A natural question arises: Is there an optimal capital structure, one that allows a corporation to extract maximum values from its funds?. If so, what is the structure and on what factors does this depend? What is the optimal debt-equity ratio? For example, if you need \$100 million for a project, should all this money be raised by issuing stocks, or 50% of stocks and 50% of bonds (debt-equity ratio equals 1), or some other ratios?. These are important question for further research. The identity of the factors that affect this optimum, if one exists, is important for the discipline of Financial Management.

In addition, attention should be given to risk, as excessive leverage can endanger the business through insolvency in adverse circumstances, and in turn adversely affect the stock price by increasing risk premium. These and other factors were left out of the Modigliani –Miller theorem (www.wikipedia.org: 2007).

Modigliani and Miller(1958) showed that the financing or capital structure decision does not matter in perfect capital markets. Their famous proposition 1 states that the total value of a firm is the same with whatever debt-equity ratio (assuming no taxes). If this is true, the basic exercise in Capital budgeting (bond valuation) can be directly applied to project evaluation for firms with different debt – equity ratios. However, in practice, capital structure does matter. The MM theory is only valid under certain conditions. If the theory is far from true, so are the conditions. An understanding of the MM theory helps us to understand those conditions, which in turn, helps us to understand why a particular capital structure is better than another. In addition, the theory tells us what kinds of market imperfections we need to look for and pay attention to. The imperfections that are more likely to make a difference are taxes, the costs of bankruptcy and the costs of writing and enforcing complicated debt contracts.

1.2 PROBLEM STATEMENT

The capital structure of most companies in Nigeria is sub-optimal and thus accounts in part for inefficiency of many corporations and this has led some to liquidations and shutdown (Titman: 1984, Ukaegbu: 1994). The problem of many businesses in Nigeria has for long been traced to inappropriate capital structure in terms of the ownership capital and

debt capital which formed the financing structure for managing such firms.

Financial management is concerned with the control of liabilities and stockholders equity, and as such with the control of assets. Since liabilities and stockholders equity are the major sources of assets, the two aspects of financial management are interrelated. This is because the following decisions concerning both must be made.

- (1) What kind and amount of assets to be acquired and maintained.
- (2) From what sources should the assets be sought.

Successful financial management therefore requires the judicious selection and administration of assets and sources.

A corporation with the right kinds and amount of assets may run into serious financial problems in periods of general business contraction, if it depend too much on creditors to supply the assets, that is, it may find itself with heavy debts.

On the other hand, a corporation that has made serious errors in acquisition and administration of assets can be saved from bankruptcy if its liabilities management has been wise. Also a corporation may suffer

losses year after year due to poor asset management and yet survive long enough for the correction of its mistakes, if the creditors' claims were held to a minimum and if most of the assets were supplied by stockholders. This is because stockholders are much more willing than creditors to wait for the correction of mistakes.

The liabilities, and stockholders' equity of a business corporation, as the sources of its assets, constitute its financial structure or capital structure. The management of liabilities and stockholders' equity is the building of financial or capital structure. The objective of sound liability and equity management is to erect and maintain the forms of the financial structure, that is, the various combination of amounts and types of liabilities and equity that is best suited to the individual corporation.

To achieve this objective, various decisions are required to be made, such as:

- (a) What proportion of the assets can be sought from creditors?
- (b) What proportion must be obtained from stockholders?

- (c) For those to be sought from creditors, what proportions to be sought for short, intermediate and longterms; and on the classes of creditors (trade suppliers, commercial banks, other classes of lenders)?
- (d) On those to be sought from stockholders – are they to be sought from only one class or two or more, common stockholders or preferred stockholders?
- (e) Decision on the extent to which the corporation should depend on contribution from accumulated profits, that is, retained earnings.

Common stockholders are the residual owners of the business. They neither receive promised dividends nor have any guarantee that their capital will ever be returned or refunded. Although there is no promise that any dividend will be paid on common stockholders, there is also no limit to the amount they will be paid as dividends.

The fundamental concepts that shape modern capital structuring theory were first put together by Modigliani & Miller (1958) in a series of propositions. These propositions have for many years, dominated the thought process by which firms choose their leverage ratio to enhance value.

A major contribution of M&M's proposition is that they allow one to select, via a formalized process, the right balance between debt, equity and assets that raises the overall value of a firm. Its major weakness is that it assumes a no-tax scenario. Unfortunately, things are not so in real life, as evidenced by the fact that taxation exists and debt interest is a tax-deductible expense, whereas equity dividends are not. Large number of studies on how a firm's leverage generally tend to affect their overall performance is lacking in Nigeria. More so, the possible effect of a tax shield on corporate leverage and profit is yet to be ascertained on Nigerian firms. This study tends to fill this gap.

1.3 OBJECTIVES OF THE STUDY

This study is set to appraise the impact of capital structure on the performance of corporate firms in Nigeria.

Based on the above statement of the research problem, the specific objectives of this study will include:

- (i) To examine if there is any relationship between the capital structure and the corporate performance of manufacturing firms in Nigeria.

- (ii) To evaluate the impact of leverage on general corporate performance.
- (iii) To assess the effects of a possible tax shield on corporate leverage and the performance of business organizations in Nigeria.
- (iv) To draw conclusions and make recommendations based on the above, for policy makers and other investors and for further education.

1.4 RESEARCH QUESTIONS

This research is meant to provide answers to the following questions relating to capital structure and the performance of corporate firms in Nigeria.

- (1) To what extent is there any significant relationship between the financing structure and firm's performance?
- (2) To what extent does leverage exert any significant impact on the profitability of corporate firms?
- (3) To what extent is there any tax shield provided to firms that undertake leverage in their capital structure?

1.5 RESEARCH HYPOTHESES

This research is based on the following Null Hypotheses, which will be tested:

HO₁: Leverage does not exert any significant impact on the profitability of corporate firms in Nigeria.

HO₂: There is no significant difference between the effects of tax shield and leverage on company performance.

HO₃: There is no significant impact between the corporate performance and the capital structure of manufacturing firms in Nigeria.

HO₄: The summary effect of the change on the leverage-impact on corporate performance brought in by the introduction of tax is not significant.

1.6 JUSTIFICATION OF THE STUDY

Basically, the main objectives of firms include profit maximization and shareholders' wealth maximization. These are achieved through the adoption of optimization strategies either by minimization of cost, increases in revenue (marginal or total) or increase at increasing rates of revenue/ incomes and increase at a decreasing rate of costs. This is achieved by adopting a cheaper but effective, efficient and reliable forms of financing.

Thus the significance of this work is all embracing and cuts across the banks, the companies, the regulatory authorities, the economy, the investors, and the public in general.

To the Banks: The banks will increasingly be challenged to become more innovative in their intermediation function and especially to increase financing to the productive sector. Also the banking system will proactively be positioned to become sound and reliable catalysts for development.

To the regulatory authorities: On the part of the regulatory authorities, appropriate capital structure will further restructure the regulatory framework and strengthen the supervisory capacity to ensure a sound, stable and efficient system.

To the business organizations: This research will also benefit the business organizations in understanding better the defects, impacts, expectations and payoffs of each of the various forms of financing vis-à-vis other forms of financing options.

To the economy: The changes will move the Nigerian economy forward and proactively stimulate the entire productive system. Hence, Nigeria as a country will be better positioned to be part of the global economic change.

To the general public: Nigerian with money abroad will be encouraged to repatriate their funds back home for investment. This will create investment consciousness amongst the populace, especially in the real sector of the economy.

To other researchers: This work will be very beneficial to other researchers who may wish to carry out further studies in this area.

Above all, corporate executives, organization development specialists, regulatory authorities, and others, who are interested in organizational efficiency, will be provided with an additional model. This will assist them as a useful guide on organization development activities.

Specifically, this investigation into the relationship between capital structure and corporate performance in Nigeria is timely, because:

1. The capital structure of most corporations in Nigeria has been observed to be sub-optimal.
2. There is need to incorporate the effects of tax on corporate leverage and general corporate performance.
3. Some argue that during periods of economic expansion, more of debt securities are preferable, while more of equity securities should be adopted during periods of economic decline or recession.

4. Not much have been done in this area, especially in the Nigerian situation.
5. This might be the reason why most of the companies in Nigeria are having problems and liquidating.
6. There is need to find out whether the problem of poor corporate performance is as a result of the capital structure, as well as finding ways of controlling them.
7. Practically, this is of great interest as it will save a lot of money spent on advising firms on how to improve their capital structure.
8. This calls for further studies in this area so as to find out what other factors are responsible for the problems of business organizations in Nigeria.

1.7 SCOPE OF THE STUDY

This work is generally designed to investigate and analyze the impact of capital structure on corporate performance for corporate firms in Nigeria.

It is delimited to some selected corporate organizations, which are quoted in the First-tier securities market of the Nigerian Stock Exchange (NSE) market. However, this study is intended to cover twenty (20)

companies which will be selected from each of the sectors of the Nigerian economy, that is, at least, a company will be selected from each of the sectors of the companies listed in the First-tier securities market of the NSE. This will be for the purpose of questionnaire administration as well as for secondary data collection. The results obtained will be analyzed in subsequent chapters. As is common in cross-sectional studies of capital structure determinants (Cohen:2004a), we excluded the financial institutions and firms because of the differences in the ways the two types of organizations operate.

Also, for the twenty firms specially selected, the current position of each of their Financial Statements - including an income statement and a balance sheet, for five years - will be expunged in details. For each of these firms, both the value of debt, and, the leverage ratio, will be analyzed in details. Their Profit After Tax (PAT), Earnings Per Share (EPS), Dividend Per Share (DPS), and Net Asset Per Share (NAPS) will as well be determined and analyzed for the sake of testing our research hypotheses.

This is considered an adequate sample to represent the population of corporate organizations in Nigeria.

One major limitation of this study is the paucity of reliable and dependable data in the country as a whole. However, effort will be made to reduce the inaccuracies to the barest minimum by using alternative, usually reliable data from published Financial Statements of the selected firms, and also through questionnaire administration. The study also involved spending a lot of money in the collection of statistical data through visiting the selected companies, and business centres to surf the Internet.

The limitations of this study thus includes such factors as:

1. Time: The researcher was faced with the problem of apportioning her limited time between writing this thesis and other personal but vital responsibilities.
2. Funding: The funding of this research was not an easy one, and is constrained by limited resources. However, with the available resources at our disposal, we were able to arrive at reasonable conclusions
3. Paucity of data: The paucity of data in this area was a handicap to the research. This is because information relating to this study is yet to have many publications researched on.

4. Attitude of respondents: Some respondents exhibit biased attitudes in their answers. This will however be reduced given the friendly disposition of the researcher in allaying the respondents' fears.

Sample errors: The researcher cannot claim perfect sampling technique as to remove entirely the presence of some errors in sampling. Again, the smallness of size is a limitation. The researcher will however be careful in choosing the sample and reviewing most available literature in this field.

The study is presented in five chapters. Chapter one briefly lays out the background of the study and gives an insight into the meaning of the core variables - capital structure and firm's performance as well as issues relating to the determination of the optimal capital structure. This chapter also addresses the objectives of the study and states a case for the justification of the study. It also provides the set of possible hypotheses to be tested.

Chapter two is a review of related literature and the analysis of other researchers scholarly views in the area of capital structure, corporate performance, and optimal capital structure.

The next chapter outlines the methodology used for the study which includes the research tool, and the analytical approaches to be adopted in data analysis.

Chapter four is the analysis of the data collected, testing of the hypothesized relationships, analyzing the process for generating the optimal capital structure, and interpretation of results.

Chapter five provides the summary, conclusions and recommendations for general policy formulation and implementation.

CHAPTER TWO

LITERATURE REVIEW

2.1. INTRODUCTION

In carrying out this research, there is need to look at the contribution of various Authors to this study area. This chapter therefore involves a review of related literature and the analysis of other researches and scholarly views in the area of Capital Structure, Corporate Performance and Optimal Capital Structure.

2.2. THE CONCEPT OF CAPITAL STRUCTURE

Investopedia (2006) defined capital structure as a mix of a company's long-term debt, specific short-term debt, common equity and preferred equity. In fact the capital structure is how a firm finances its overall operation and growth by using different sources of funds. When people refer to capital structure, they are most likely referring to a firm's debt-to-equity ratio, which provides insight into how risky a company is. Usually a company more heavily financed by debt poses greater risk, this firm is relatively highly levered.

The Modigliani- Miller theorem, proposed by Franco Modigliani and Merton Miller forms the basis for modern thinking on capital structure, though it is generally viewed as a purely theoretical result since it assumes away many important factors in the capital structure decision. The theorem states that, in the absence of tax effects, bankruptcy costs, transaction costs, and asymmetric information, and if the equity market is efficient, the value of the firm is unaffected by how that firm is financed. These, not unexpectedly, have led to a considerable amount of literature, both theoretical and practical. Thus. the greatest benefit of capital structure is this tax effect.

According to www.wikipedia.com (2007), capital structure refers to the way a corporation finances itself through combination of equity sales, equity options, bonds, and loans. Optimal capital structure refers to the particular combinations that maximizes the value of the firm.

In this work, therefore, capital structure will include the composition of a company's permanent or long-term capital, which consists of a combination of debt and equity. A healthy proportion of equity capital, as opposed to debt capital, in a company's capital structure is an indication of financial fitness.

The concept of capital structure of organizations are in fact very useful for the following:

- In Debt Reckoning: Here, we learn about the debt ratios and how to use them to assess a company's financial health. One could thus, save a lot of money.
- When Companies Borrow Money: Here, we explain how to evaluate whether a company's debt will pose a threat to investors.
- In Advanced Financial Statement Analysis: Here, we find out how analysts determine the fair value of a company in a step-by-step fashion, and learn how to evaluate an investment's attractiveness.
- In Evaluating A Company's Capital Structure: Here, we learn how to use the composition of debt and equity to evaluate balance sheet strength (Investopedia: 2006).

2.3. THEORETICAL FRAMEWORK OF CAPITAL STRUCTURE

There are two major approaches or views to capital structure principles:

1. The traditional view, and
2. The net operating income approach.

2.3.1 THE TRADITIONAL VIEW

The traditional view of capital structure is as follows:

- i. As the level of gearing increases the cost of debt remains unchanged up to a certain level of gearing. Beyond this 'significant' level, i.e., when the amount of debt capital has reached a certain size, the cost of debt will increase;
- ii. The cost of equity rises as the level of gearing increases;
- iii. The WACC does not remain constant, but rather falls initially as the proportion of debt capital increases, and then begins to increase as the rising cost of equity and possibly of debt becomes more significant;
- iv. The optimum level of gearing is where the company's WACC is minimized.

The traditional theory believes that as long as levels of borrowing are below a certain critical level, the risks to shareholders are negligible, and consequently they do not require a risk premium in the return. The traditional view is that the WACC, when measured against the level of gearing, is saucer shaped, therefore, the optimum capital structure is where the WACC is lowest.

2.4. THE NET OPERATING INCOME APPROACH

According to the Net operating income approach, otherwise called the Modigliani and Miller (M & M) approach, there is no optimal capital

structure. The financing mix does not affect the average cost of capital of the company; and the total value of the firm remains unchanged with changes in the gearing.

This alternative theory has received a great deal of attention mainly because of the theoretical and empirical work of M & M. (M & M) is a combination that rings bell in the ears of every finance student.

The theory implies that the value of the firm is independent of the proportion of debt to total capitalization. Irrespective of the effect of the debt/ equity ratio on interest rates, the capitalization rate on equity will change by an amount just sufficient to effect any possible saving or loss on the interest charge. As gearing increases, WACC will remain constant, and so no optimal level of capital gearing exists.

The basis of M & M thesis is an arbitrage process. Arbitrage is trading in shares and debt to profit by different prices in different companies. M&M assume that individuals can borrow and lend at the same rate of interest as companies. They assert that with this assumption, the capital structure of a firm does not matter, because whatever the financing mix, the market value of the firm will be the same. Assuming the validity of

the assumptions, the arbitrage process can be shown to be correct. An example is shown below;

If we have two companies identical in all respect except their level of gearing and if one firm had a higher market value than the other, the shareholders would engage in arbitrage until both companies were of the same value. This means that shareholders would sell the shares of the higher valued company and buy shares in the lower valued company, until the share price of both companies was the same.

2.5. CAPITAL STRUCTURE AS A MEASURE OF FINANCIAL HEALTH

Stock investors usually favour companies with good fundamentals. For stock investors, a “strong” balance sheet is an important consideration for investing in a company's stock.

The strength of a company's balance sheet can be evaluated by three broad categories of investment-quality measurements:

1. Working capital adequacy
2. Asset performance, and
3. capital structure (Loth: 2006)

In this research, we will look at evaluating balance sheet strength based on the composition of a company's capital structure. That is, using the composition of debt and equity to evaluate balance sheet strength, as well as appraise its impact on general corporate performance. A firm's capitalization (not to be confused with market capitalization) is the composition of a firm's permanent capital which consists of a combination of debt and equity. A healthy proportion of equity is an indication of financial fitness.

The equity part of the debt-equity relationship is the easiest to define. In a company capital structure, equity consists of a company's common and preferred stock plus retained earnings, which are summed up in the shareholders' equity account on a balance sheet. This invested capital and debt, generally of the long-term variety, comprises a company's capitalization, ie, a permanent type of funding to support a company's growth and related assets.

A discussion of debt is less straightforward. Investment literature often equates a company's debt with its liabilities. Investors should understand that there is a difference between operational and debt liabilities – it is the latter that forms the debt component of a company's

capitalization. Among financial analysts and investment research services, there is no universal agreement as to what constitutes a liability. For many analysts, the debt component in a company's capitalization is simply a balance sheet's long-term, debt. This definition is too simplistic. Investors should stick to a stricter interpretation of debt, while the debt component of a company's capitalization should consist of the following:

- short-term borrowing (notes payable)
- the current portion of debt
- long-term debt
- two-thirds (rule of thumb) of the principal amount of operating leases, and
- redeemable preferred stock (Loth: 2006).

Using a comprehensive total debt figure is a prudent analytical tool for stock investors. It's worth noting here that both international and U.S. Financial Accounting Standards Boards (FASB) are proposing a rule-change that would treat operating leases and pension "projected benefits" as balance sheet liabilities. The new proposed rules would thus alert investors to the true nature of these off-balance sheet obligations that have all the earmarks of debt.

In relation to performance, the use of leverage (debt) increases the amount of financial resources available to a company for growth and expansion. The assumption is that management earn more on borrowed funds than it pays in interest expense and fees on these funds. However, a company considered to be highly leveraged (too much debt versus equity) may find its freedom of action restricted by creditors and/or may have its profitability hurt as a result of paying high interest costs. Of course, the worse-case scene would be having trouble meeting operating and debt liabilities during periods of adverse economic conditions. Lastly, company in a highly competitive business, if hobbled by high debt, may find its competitors taking advantage of its problem to grab more market share (www.investopedia.com: 2006). However, because investors are better off putting their money into companies with strong balance sheets, common sense tells us that the companies should have, generally speaking, lower debt and higher equity levels.

2.5.1 CAPITAL RATIOS AND INDICATORS

In general, analysts use three different ratios to assess the financial strength of a company's capitalization structure. These are:

- (i) Debt ratio $= \text{Total Liabilities} / \text{Total Assets}$

(ii) Debt – equity ratio = $\text{Total Liabilities} / \text{Shareholder's Equity}$

(iii) Capitalization ratio = $\text{Total Debt} / \text{Total Capital}$.

The first two, the so-called debt and debt/ equity ratios, are popular measurements. However, it is the capitalization ratio that delivers the key insights to evaluating a company's capital position. The debt ratio compares total liabilities to total assets. Obviously, more of the former means less equity and, therefore indicates a more leveraged position. The problem with this measurement is that it is too broad in scope, and gives equal weight to operational and debt liabilities. The same criticism, can be applied to the debt-equity ratio, which compares total liabilities to shareholders' equity. The capitalization ratio (total debt/ total capitalization) compares the debt component of a company's capital structure (the sum of obligations categorized as debt + total shareholders' equity) to the equity component. Expressed as a percentage, a low number is indicative of a healthy equity cushion, which is always more desirable than a high percentage of debt (Loth: 2006).

Thus, a company's reasonable, proportional use of debt and equity to support its assets is a key indicator of balance sheet strength. A healthy capital structure that reflects a low level of debt and a corresponding

high level of equity is a very positive sign of investment quality (Loth: 2007).

2.6. CAPITAL STRUCTURE THEORIES

There are basically five categories of capital structure theories in use in modern capital structuring. They include:

- The Static Trade- off Theory (Titman: 1984),
- The Managerial Incentives Theory (Ravenscraft: 1993),
- The Pecking Order Theory (Taggart: 1997),
- The Neutral Mutation Hypothesis (Welch: 2004), and
- The Market timing Hypothesis (Wikipedia: 2007).

Each of these theories states thus:

(A) The Static Trade- off theory:

This theory states that the optimal capital structure represents a trade-off between tax benefits of debt and bankruptcy costs.

(B) The Managerial Incentives Theory:

The Managerial Incentives theory states that the optimal capital structure describes the optimal control mechanism for adverse incentives created by too little debt, and adverse incentives created by too much debt.

(C) The Pecking Order Theory:

This theory states that the optimal capital structure at anytime depends on minimum mispricing due to outsiders being less informed than insiders.

(D) The Neutral Mutation Hypothesis:

This states that firms fall into various habits of financing which do not impact on value.

(E) The Market Timing Hypothesis:

This capital structure theory states that capital structure is the outcome of the historical cumulative timing of the market by managers.

2.7. CAPITAL STRUCTURE, GEARING AND THE ARBITRAGE PROCESS

According to Ukaegbu (1994), Gearing is a term used to describe the relationship between shareholders' capital plus reserves, and either prior charge capital or borrowings or both. In the U.S.A., financial gearing is referred to as 'leverage'. Prior charge capital is capital which has a right to payment to interest or preference dividend before there can be any earnings for ordinary shareholders. It also has a prior claim on the company's assets in the event of a winding up. Prior charge capital is usually regarded as consisting of any preference share capital plus interest bearing debt.

Mathematically,

$$\text{Gearing} = \frac{\text{Fixed-interest bearing securities}}{\text{Ordinary shares}}$$

2.7.1. GEARING RATIOS: LOW AND HIGH GEARING

A company which is financed mainly by equity capital is said to be low geared. The higher the proportion of prior charge capital, the higher the gearing. A highly geared company is one in which equity capital (including reserves) is less than prior charge capital.

A company is low geared if the gearing ratio is less than 50% and highly geared if the ratio is over 50% and neutrally geared if it is exactly 50%.

The financial gearing of a company may have an important impact on management decisions. A company that is highly geared with heavy interest charges to meet is not in a good position to withstand movement in business cycles. Similarly, a company that is lowly geared may be viewed as being in a better position to withstand uncertainties in business because its financing charges are not so high.

2.7.2 THE EFFECT OF GEARING ON COST OF CAPITAL

A company has to consider the effect of gearing on its cost of capital. This is because a firm's cost of capital is dependent on its level of capital gearing (capital structure).

There are two main theories about the effect of changes in gearing. These are: (a) the 'traditional' view and (b) the net operating income approach, for which a behavioural justification has been provided by Modigliani and Miller (1958). As these theories of capital structures have been described, we must state the assumptions on which they are based.

Assumptions:

1. Only two types of capital are employed, long-term debt and ordinary shares;
2. There is no corporation tax for the time being;
3. The firm's total assets are given, but if capital structure can be changed by selling debt to repurchase shares, or shares to redeem debt:
4. All earnings are paid out as dividends;
5. The operating earnings of the firm are not expected to grow, that is, earnings before interest and taxes (EBIT) is the same in all future periods.
6. The firm's business risk is constant over time and is independent of its capital structure and financial risk;
7. The firm is expected to continue indefinitely.

2.7.3 THE ARBITRAGE PROCESS

Similar questions are also the concern of a variety of speculators known as a capital structure Arbitrageur.

A capital structure arbitrageur seeks opportunities created by differential pricing of various instruments issued by one corporation. Consider for example, traditional bonds and convertible bonds. The latter are bonds that are, under contracted- for conditions, convertible into shares of equity. The stock-option component of a convertible bond has a calculable value in itself. The value of the whole instrument should be the value of the traditional bonds plus the extra value of the option feature. If the spread, the difference between the convertible and the non-convertible bonds grows excessively, then the capital structure arbitrageur will bet that it will converge.

As stated earlier, if we have two companies identical in all respect except their gearing, and if one firm had a higher market value than the other, the shareholders would engage in arbitrage until both companies were of the same value. This means that shareholders would sell the shares of the higher valued company and buy shares in the lower valued company, until the share price of both companies are the same. This is the arbitrage process. An example is shown below.

2.7.4. ARBITRAGE – AN EXAMPLE

Let us consider two companies: Ungeared Plc and Geared Plc, in the same risk classes, which are identical in all respects except that Ungeared plc is financed entirely by equity, whereas the capital structure of Geared Plc includes ~~₦~~150,000 at 5% interest. We will assume that the earnings of both companies (before interest) are the same ~~₦~~60,000 per annum, and we will begin by considering the traditional view of the cost of capital, and suppose that the cost of equity in Ungeared Plc is 10% and in Geared Plc, it is higher at 11%.

The market valuation of each company, according to the traditional view would be as follows:

	<u>Ungeared Plc</u>	<u>Geared Plc</u>
Earnings	₦ 60,000	60,000
Debt Interest (5%)		7,500
Available for Equity		
Earnings = Dividends	<u>60,000</u>	<u>52,500</u>
Assume cost of equity	10%	11%
Market value of equity	600,000	477,273
Market value of debt		- 150,000
Market value of firm	<u>600,000</u>	<u>627,273</u>

Weighted Average Cost

of Capital (WACC)	60,000 = 10%	60,000 = 9.6%
	<u>600,000</u>	<u>627,273</u>
Gearing Ratio	0%	31.4%

The two companies, identical in every respect except their gearing, are therefore assumed by the traditional view to have different market values. M & M argue that this situation could not last for long because investors in Geared Plc would soon see that they could get the same return for a smaller investment by investing in Ung geared Plc. Exercising arbitrage, they would sell their shares in Geared Plc and buy shares in Ung geared Plc.

This sale would:

- Drive up the price of Ung geared Plc shares (thereby lowering the cost of the equity capital); and
- Force down the price of Ung geared Plc shares (thereby raising the cost of its equity capital) until the total market value of each company is the same. Arbitrage would then cease.

Arbitrage would occur as follows:

Suppose Mallam Adamu owns 5% of the equity in Geared Plc. These would have a market value of $(5\% \times 477,273) = \text{N}23,864$. Mallam Adamu would notice that Ung geared Plc makes the same annual earnings as Geared Plc

(~~₦~~60,000) but with a smaller investment ~~₦~~600,000 compared to ~~₦~~627,273). He could therefore switch his investment from Geared Plc to shares in Ungearred Plc, and become wealthier. We assume that he does not want to alter his investment risk.

- (a) Ungearred Plc and Geared Plc are identical except for capital structure, and so their business risk is the same;
- (b) Their capital structure is different and so their financial risk is different. But Mallam Adamu can offset this by personal borrowing, so that through his personal gearing, his financial risk remains the same as it was before when he invested in Geared Plc.

Mallam Adamu would therefore:

- (a) Sell his shares in Geared Plc for ~~₦~~23,864
- (b) Borrow ~~₦~~7,500 as 5% interest. This amount is equivalent to 5% for the debt of Geared Plc. In this way, Mallam Adamu would have substituted personal gearing for the corporate gearing of Geared Plc leaving his financial risk unchanged. Mallam Adamu will now have ~~₦~~31,364 (~~₦~~23,864 + 7,500).

23,864 (from the sale of his shares)

7,500 (debt at 5%)

31,364 which is 5% of the value of Geared Plc.

- (c) He would then buy 5% of the equity of Ungeared Plc for ~~₦~~30,00 (5% x 600,000). To do this, he would use the borrowed ~~₦~~7,500 plus ~~₦~~22,500 of his own money.
- (d) His annual earnings from Ungeared Plc would be 5% of 60,000 less the interest he must repay on his personal loan (5% x 7,500).
I.e, ~~₦~~3000 - ~~₦~~375 = ~~₦~~2625 (Net Earnings).

This is exactly the same as Mallam Adamu would earn from keeping 5% of the equity of Geared Plc (5% x 52,500) ~~₦~~2,625, but he can earn this from a smaller net investment of ~~₦~~22,500 rather than ~~₦~~23,864, leaving him with surplus capital (capital gain) of ~~₦~~1,364.

- (e) Alternatively, if he spends the entire ~~₦~~31,364 in purchasing shares of Ungeared Plc, his earnings would be a dividend of ~~₦~~31,364 / ~~₦~~600,000 x 50,000 = ~~₦~~2,614 less loan repayment of ~~₦~~375.00, leaving him with ~~₦~~2,239. This is ~~₦~~386 more than he currently earns from his investment in Geared Plc.

According to M & M, rational investors will continue to substitute personal gearing for corporate gearing and by buying shares in Ungeared Plc until the price of those shares has risen, the price of Geared Plc shares has fallen, and the market values of each firm are the same.

At this point:

- (a) The cost of equity in the company with the higher gearing (Geared Plc) will be higher than the cost of equity in the other company.
- (b) Because both the market value and the annual earnings of each company are the same, it follows that the WACC must be the same, regardless of gearing.

The weaknesses of Modigliani and Millers Argument:

1. Personal gearing does not carry the same risk as corporate gearing. The limited liability which companies enjoy means that the investor is safer if his company borrows on his behalf than he is if he borrows on his own account.
2. Personal borrowing is not at the same rate of interest as corporate borrowing. In fixing interest rates, bankers have regard to the credit worthiness of the customer and the absolute size of the loan amongst many other factors.
3. There is transaction costs in the arbitrage process. There are considerable costs involved in buying and selling investments and in the monitoring of their performance.
4. There are institutional factors against the arbitrage process. Many institutional investors would be prohibited from borrowing to finance

investment purchases. Similarly, small investors may find their banks unwilling to equity dividends lend to them for this purpose.

5. Taxation exists and debt interest is a tax deductible expense, whereas are not.

All of the above implies that even where one accepts the logic of M & M theory, one would have to anticipate that there would be distortion arising from its translation to a real life situation.

2.8 THE MODIGLIANI- MILLER THEORY

The Modigliani- Miller theory (Modigliani and Miller: 1958) forms the basis for modern thinking on capital structure. The basic theorem states that, in the absence of taxes, bankruptcy costs, and asymmetric information, and in an efficient market, the value of a firm is unaffected by how that firm is financed. It does not matter if the firm's capital is raised by issuing stock or selling debt. It does not matter what the firm's dividend policy is.

The theory is made up of two propositions which can also be extended to a situation with taxes.

Consider two firms which are identical except for their financial structures. The first (Firm U) is unlevered: that is, it is financed by equity only. The other (Firm L) is levered: it is financed partly by equity, and partly by debt.

The Modigliani – Miller theorem states that the value of the two firms is the same.

Without taxes

Proposition 1: $V_U = V_L$ where V_U is the value of an unlevered firm = price of buying a firm composed only of equity, and V_L is the value of a levered firm = price of buying a firm that is composed of some mix of debt and equity.

To see why this should be true, suppose an investor is considering buying one of the two firms U or L. Instead of purchasing the share of the levered firm L, he could purchase the shares of firm U and borrow the same amount of money B that firm L does. The eventual returns to either of these investments would be the same. Therefore the price of L must be the same as the price of U minus the money borrowed B, which is the value of L's debt.

This discussion also clarifies the role of some of the theorem's assumptions. We have implicitly assumed that the investor's cost of borrowing money is the same as that of the firm, which need not be true in the presence of asymmetric information or in the absence of efficient markets.

Proposition II:

$$r_S = r_O + \frac{B}{S} (r_O - r_B)$$

- r_S is the cost of equity.
- r_O is the cost of an all equity firm.
- r_B is the cost of debt.
- B/S is the debt-to-equity ratio.

This proposition states that the cost of equity is a linear function of the firm's debt to equity ratio. A higher debt-to-equity ratio leads to a higher required return on equity, because of the higher risk involved for equity-holders in a company with debt. The formula is derived from the theory of weighted average cost of capital.

These propositions are true assuming the following:

- no taxes exist,
- no transaction costs exist, and
- individuals and corporations borrow at the same rates.

These results might seem irrelevant (after all, none of the conditions are met in the real world), but the theorem is still taught and studied because

it tells us something very important. That is, if capital structure matters, it is precisely because one or more of the assumptions is violated. It tells us where to look for determinants of optimal capital structure and how those factors might affect optimal capital structure.

With taxes

Proposition I: $V_L = V_U + T_c B$

This means that there are advantages for firms to be levered, since corporations can deduct interest payments. Therefore leverage lowers tax payments. Dividend payments are non-deductible.

Proposition II: $r_S = r_O + \frac{B}{S} (r_O - r_B) (1 - T_c)$

The same relationship as earlier described stating that the cost of equity rises with leverage, because the risk to equity rises, still holds. The formula however has implications for the difference with the WACC. The following assumptions are made in the propositions with taxes:

- corporations are taxed at the rate T_c on earnings after interest,
- no transaction cost exist, and
- individuals and corporations borrow at the same rate.

Miller and Modigliani published a number of follow-up papers discussing some of these issues.

2.9 CAPITAL STRUCTURE AND THE M-M THEOREM

There are many methods for the firm to raise its required funds, but the most basic and important instruments are stocks or bonds. The firm's mix of different securities is known as its capital structure. A natural question arises: What is the optimal debt-equity ratio? For example, if you need \$100 million for a project, should all this money be raised by issuing stocks, or 50% of stocks and 50% of bonds (debt-equity ratio equals 1), or some other ratios? Modigliani and Miller (MM) showed that the financing decision doesn't matter in perfect capital markets. Their famous proposition 1 states that the total value of a firm is the same with whatever debt-equity ratio (assuming no taxes). If this is true, the basic exercise in capital budgeting (in Bond Valuation) can be directly applied to project evaluation for firms with different debt-equity ratios. However, in practice, capital structure does matter. Then why do we bother to learn the MM's theory? This theory is valid under certain conditions. If the theory is far from true, so are the conditions. An understanding of the MM's theory helps us to understand those conditions, which, in turn, helps us to understand why a particular capital structure is better than another. In addition, the theory tells us

what kinds of market imperfection we need to look for and pay attention to. The imperfections that are most likely to make a difference are taxes, the costs of bankruptcy and the costs writing and enforcing complicated debt contracts.

2.9.1 CONSEQUENCES OF THE M-M- THEOREM

MM Proposition I and proposition II: NO Tax Scenario

MM Proposition I concerns about the irrelevancy of the value to capital structure. Notice that financial instruments are assumed to take only two forms: stocks and bonds. In this set up, the value of a firm is defined as:

$$V = B + S$$

Where B is the market value of the firm's debt and S is the market value of the firm's equity.

Example 1

Suppose a firm has \$10 million debt and 5 million shares of stock. Assume the stock sells at a market price of \$20, then

$$V = 10,000,000 + (5,000,000 \times 20) = \$110,000,000.$$

To obtain MM Proposition 1, we make assumptions:

- Homogeneous expectations
- Homogeneous business risk
- Perpetual cash flows

- Perfect capital market
- Firms and investors can borrow and lend at the same rate
- Equal access to all relevant information
- No transaction cost (taxes or bankruptcy costs).

MM Proposition 1

The value of the levered firm, V_L , must be equal to the value of the unlevered firm, V_U .

Example 2

Suppose a firm earns \$100 in perpetuity. It is all-equity with 100 shares of stock. If each sells for \$10, the value

$$V_U = 100 \times \$10 = \$1,000$$

Now assume the CEO suddenly decided the firm should issue \$500 dollars of debt. The equilibrium price of the stock will drop to \$5 per share and so the value of the levered firm.

$$V_L = 500 + (100 \times 5) = \$1,000$$

The same as before.

Why should the stock price drop to \$5 per share? To understand it, suppose you own one share of the stock.

Case 1. Unlevered:

Assume the firm pays \$1 dividends in perpetuity and the interest rate is 10%. You are willing to pay \$10 for the stock because

$$P_0 = \frac{1}{.10} = \$10$$

Case 2. Levered:

After leverage, the firm has to pay interest, \$50 = 500 x 10%, on the \$500 debt each period. So it can only pay \$.50 dividends in perpetuity. As a result, the price for the stock is

$$P_0 = \frac{.50}{.10} = \$5$$

Assume the debt money was distributed to you today from the CEO, that is \$5 per share, then you still have in total \$10. So, for you, as a shareholder, you don't care what capital structure the firm has.

Proof of the MM Proposition 1

Assume two firms are identical except for the structure. One firm has no debt, with value $V_U = S_U$, while the other does have debt, with value $V_L = B_L + S_L$. Since the two firms are identical, they generate the same cash flows in the future. So, if you either buy the unlevered firm or buy the levered firm, you will get the same cash flows. By the law of one price, both firms must sell at the same price. What do you pay for the unlevered firm? $\$S_U$. What do you pay for the levered firm? $\$B_L + \S_L . Therefore

$$V_L = V_U$$

MM Proposition I says the debt-equity ratio doesn't matter to the value of the firm. As an investor, you are concerned about the expected return on your money, so you ask: what happens to the stock's expected return under different debt-equity ratios?

To answer the above question, let us define R_0 as the cost of capital to a firm, or the overall required rate of return:

$$R_0 = \frac{\text{Expected earnings to be paid to investors}}{\text{Value of the firm}}$$

Example 3

If Intel is expected to earn \$1 billion next year and its value is \$12 billion.

$$R_0 = \frac{1}{12} = 0.0833$$

Now let

B = the market value of the firm's debt

S = the market value of the firm's equity

R_B = the interest rate, or cost of debt

R_S = the expected return on equity, or the cost of equity

Then the expected earnings to be all investors:

Expected earnings = To bondholders + To shareholders

$$B \times R_B + S \times R_S$$

Dividing $S+B$ on both sides we get:

$$R_0 = \frac{B}{B + S} R_B + \frac{S}{B + S} R_S$$

Solving for R_S we have the MM Proposition

MM Proposition II

The expected return on equity is a linear function of the debt-equity ratio in the form:

$$B$$

$$R_S = R_0 + \frac{D}{S} (R_0 - R_E)$$

Notice that, by MM proposition 1, R_0 stays constant with different capital structures. In particular, it represents the expected return when the company is all-equity financed. Since the expected return on risky assets is generally greater than the riskless rate, we know $R_0 > R_B$ is generally true as well. Thus, MM Proposition II implies that, in general, the higher the debt-equity ratio, the higher the expected return on equity.

MM Proposition I and Proposition II: With Corporate Taxes

In the real world, corporations are taxed at rates as high as 34%. However, there is a quirk in the tax code that only those earnings after interest payments are taxable. This is one of the most important reasons for firms to use debt financing. To understand it, let us first examine Example 2 with a tax rate of 34%.

Example 4

Case 1. Unlevered:

The earnings after taxes is \$66, so the firm can pay only \$0.66 dividends in perpetuity.

$$P_0 = \frac{.66}{.10} = \$6.6 \qquad V_U = 100 \times 6.6 = \$660$$

Case 2. Levered:

After leverage, the firm has after interest payments earnings of \$50 each period. Then, after paying taxes, it can pay \$0.33 dividends in perpetuity.

So

$$P_0 = \frac{.33}{.10} = \$3.3 \qquad V_L = 500 + (100 \times 3.3) = \$830$$

Notice that the value with leverage has increased from \$660 to \$830. Where does the extra amount, \$170=\$830-\$660, come from? Intuitively, the value of the firm is a pie. It is sliced between the owners of the firm (shareholders and bondholder, if any) and the government. In the unlevered case, the government takes 34% away. But in the levered, only 50% of the pie is taxable and so the government effectively takes only 17%. The total pie is the present value of the earnings, \$1000. So the government takes 17% \times \$1000=\$170 less in the levered case than in the unlevered case. This amount adds to the value that the owners of the firm can enjoy.

$$V_L = 830 = 660 + 170 = V_U + 170 = V_U + (34\% \times 500)$$

Where the tax shield is the tax rate multiplied by the present value of the dollar interest payments.

In general, we have:

MM Proposition 1 (with corporate taxes)

The value of the levered firm is:

$$V_L = V_U + T_c B \quad (1)$$

And the value of the unlevered firm is computed from the formula:

$$V_U = \frac{\text{EBIT} \times (1 - T_c)}{R^*}$$

Where T_c is the corporate tax rate; EBIT is the expected earnings before interest and taxes' and R^* is the discount rate for an all-equity firm (after tax).

Proof of the MM Proposition 1

For the unlevered firm:

The earnings after the corporate taxes are:

$$\text{EBIT} \times (1 - T_c) \quad (2)$$

For the unlevered firm the taxable income is earnings minus interest payments, $\text{EBIT} - (R_B \times B)$, and so the earnings after interest payments and taxes are:

$$\text{EBIT} - T_c \times (\text{EBIT} - R_B B) = \text{EBIT} \times (1 - T_c) + T_c R_B B \quad (3)$$

The present value of the cash flow (2) gives V_U and that of (3) gives V_L . Together they give (1).

With a proof similar to the one we gave earlier, we can show:

MM Proposition II (with corporate taxes)

The expected return on equity is a linear function of the debt-equity ratio in the form:

$$R_S = R^* + \frac{B}{S} (1 - T_C)(R^* - R_E) \quad (4)$$

Notice that (1) and (4) include the no-tax case MM Propositions as special cases. This is because, in the no-tax case, the discount rate R^* is R_0 and $T_C = 0$.

2.9.2 IMPLICATIONS OF THE MM THEORY

The market value of a levered firm equals the market value of an unlevered firm plus the present value of interest tax shields. In order to get the simple expression above, we have assumed that the debt is perpetual. More generally, the tax shield term would be the present value of the interest tax shields.

The implication of the model with corporate taxes is that the value of the firm is maximized when it is financed entirely by debt. This is not a very

attractive implication for the model. Clearly, no firm is financed 100% by debt. There are a number of real world constraints that need to be considered. First, there are institutional and legal restrictions (some institutions will not purchase stock of a firm that has a debt-equity ratio that exceeds some cutoff). Second, there are costs imposed for going bankrupt that might persuade the firm's management not to increase the debt-equity ratio too high. Third, the interest tax shield may exhaust taxable income (this suggests an upper bound on the amount of debt). Finally, there may be conflicts of interest between stockholders and bondholders.

Each of these points suggests that the 100% debt policy may not be optimal for a firm. If we look to the market, the average debt to value ratio is less than 4%. Furthermore, a survey of 768 of the largest industrial firms shows that 126 (16%) have no debt in their capital structures. This empirical evidence suggests that the 100% debt policy is clearly not what is observed. The wide range of debt-equity ratios in the market could indicate that the original proposition about the irrelevance of the capital structure may have more merit than we initially gave it (Cohen: 2004).

1. Bankruptcy Costs

There are many costs involved in bankruptcy. The direct costs are legal fees and court costs. The indirect costs arise from discontinued operations, the hesitancy of customers to purchase the product and the unwillingness of suppliers to extend any credit. These costs make it unlikely that a firm will push its debt-equity ratio very high. If we take the bankruptcy costs into account, then there may be an optimal capital structure where the marginal tax advantage equals the marginal bankruptcy costs. Note that the marginal bankruptcy costs may be different across firms. This may explain why all firms do not have the same level of debt-equity.

2. Exhausting the Benefits

Obviously, if the firm is unlikely to earn taxable profits, the effective tax shield is small. As a result, it should not borrow.

3. Conflicts of interest

Once the debt is outstanding, shareholders have the incentive to take actions that benefit themselves at the expense of the bondholders. So if there is debt outstanding, the objectives of maximizing the value of the firm and the value of the equity are not identical. Some examples of bondholder- shareholder conflicts are: claim dilution, dividend payout and asset substitution. Let's examine in more detail some of these conflicts.

Consider claim dilution: with debt outstanding, stockholders have incentives to issue claims of equal or senior priority. The proceeds from the “new” debt issue will be greater, the higher the priority of the new debt. The claim dilution increases the risk of the “old” debt and its market value falls. The combined value of the new and old debt is fixed. By making new debt equal or higher priority, the value of the old debt falls and the proceeds from the new debt issue rises. Claim dilution benefits the stockholders at the expense of the “old” bondholders. The bondholders are not stupid. The price of the bonds equals the present value of the expected cash flows. The bondholders include the affects of conflicts of interest in estimating cash flows and pricing the debt. Bondholders only pay for what they expect to get.

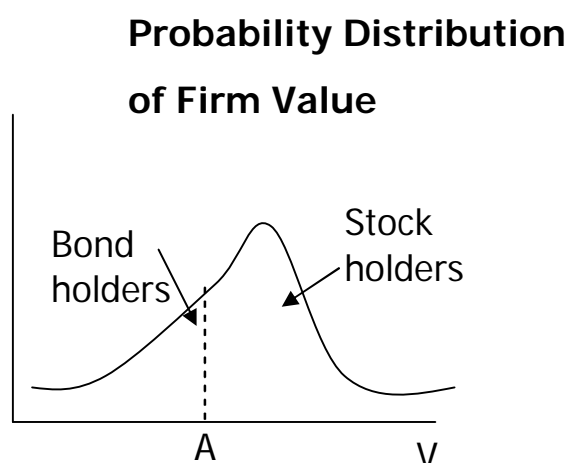
Since the conflicts of interest between stockholders and bondholders reduce the price of the debt, the stockholders bear all of the costs of the conflict. Even though the shareholders bear the costs of the conflict, there is still an incentive to extract value or expropriate from the bondholders after the debt is outstanding.

Since the stockholders bear the costs that arise from the conflicts of interest, they have an incentive to minimize the agency costs. Bond

covenants are detailed enforceable contracts that reduce agency costs by restricting the stockholders' actions after the debt is issued. The covenants may restrict the production and investment policy (i.e. mergers, sale of certain assets and lines of business). The covenants may restrict the financial policy of the firm (i.e. dividend payouts, priority and total debt). Furthermore, there is usually a provision for auditing. The bond covenants will reduce but will not eliminate these agency costs. Note that there are also costs involved in monitoring the firm's actions.

2.9.3 CAPITAL STRUCTURE AS OPTIONS

Both the debt and the equity of the firm could also be considered options. Let's explore this idea in some more detail. The bondholders are promised payments of $\$A$ next period. If default occurs, then the bondholders own the firm. The stockholders receive all residual cash flows after the payments to bondholders. Consider the distribution of the value of the firm.

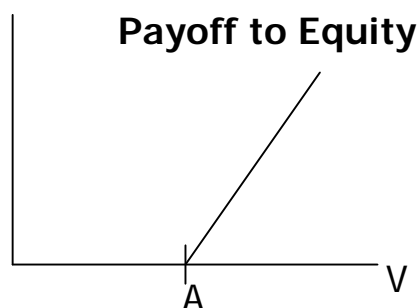


Now consider the payoff schedule. Suppose the debt has time to maturity, T . The standard deviation of the firm's value is STD .

Payments to	$V < A$	$V > A$	Position
Stockholders	0	$V - A$	$C(A, T, STD)$
Bondholders	V	A	$V - C(A, T, STD)$
Total	V	V	V

Note that $c(A, T, STD)$ is a call option. The call option is a function of the exercise price, A , the time to maturity, T , and the standard deviation of the return on the underlying asset, STD . The payments to the stockholders and bondholders add up to total cash flows of the firm.

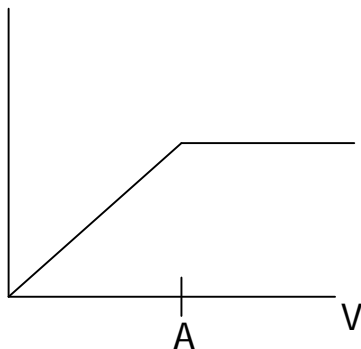
Consider the position diagrams. The position diagram for the call option is straightforward.



Note that V represents the value of the firm at the expiration or final payment of the principal on the debt. This diagram indicates that the

stockholders have a call option on the value of the firm. The payoff is determined by $\text{Max}[0, V-A]$.

The position diagram for bondholders is slightly more complicated.



The bondholders hold the value of the firm and write a call option (the shareholders buy it in the form of common equity). Combining the payoffs of the long position in the value of the firm with a short position in the call delivers the above diagram. The payoff stream is $\text{Min}[V, A]$.

2.10 APPLICATION OF THE M & M METHODOLOGY TO A

CORPORATE FIRM

An important implication of the M & M capital structuring theorems is that when there are taxes, debt-related tax benefits in terms of interest-tax shield accrue, which add value to the firm. The notion itself is surprisingly straightforward and could be presented as (Ross et al:1998):

$$\Delta V = DT \quad (1)$$

Where T is the tax rate and ΔV is the incremental value added by taking on a debt of D . The product DT is simply the present value of the interest tax shield.

In view of the above, it is possible to demonstrate numerically that debt and equity are coupled to each other, as well as to the firm's unlevered value, via the following relationship:

$$E + (1-T) D = V_u \quad (2)$$

Where E is the equity and V_u the unlevered value. The latter comprises the fundamental constant that goes into producing the Weighted Average Cost of Capital (WACC) curve. Putting equations (1) and (2) together, therefore leads to the classical relationship:

$$V_L = V_u + DT$$

Where V_L is the value i.e. $E + D$, of the levered firm.

In our study, we will extend the example to cover a wide range of debt, and to produce more continuous curves of WACC and Return Of Equity (ROE) as functions of leverage. This will also display the behaviour of the firms value (FV), i.e. $E + D$, as leverage, D/E increases.

We will also introduce some of the common variables ROA, firms value, leverage, etc- that play important roles in this research, and, also, re-state the assumptions that shape the relevant M&M theories, as well as go through the basic principles that led to the governing equations. The default risk will ultimately be brought into the picture also and its impact on the variables outlined above will be demonstrated.

2.11 THE WEIGHTED AVERAGE COST OF CAPITAL

When a company seeks to raise capital, it does not often resort to only one source. Usually it will raise the capital required by means of a variety of types of capital i.e. share capital, retained earnings and debt capital (lease is seen here as a form of debt financing).

This makes the calculation of the cost of the capital slightly more complex. The cost of each type of capital must first be calculated and then a weighted average must be used by which the importance and proportion of each capital within the financial structure is calculated.

The weighed cost of each type of capital structure or alternative is then added to give the overall cost.

The weighing of the different types of capital in the financial structure requires either the current market value of each to be identified, or the

identification of the book value of each type of capital. A Lesser WACC is preferred, because for appraisal purposes, a company must provide a rate of return, which is greater than the WACC in order to increase the value of the company.

The weighted average cost of capital (WACC) is used in finance to measure a firm's cost of capital. This has been used by many firm in the past as the discount rate for financed projects, as the cost of financing capital is regarded by some as a logical discount rate or required rate of return to use.

Corporations raise money from two main sources: equity and debt. Thus the capital structure of a firm comprises three main components: preferred equity, common equity and debt (typically bonds and notes). The WACC takes into account the relative weights of each component of the capital structure and present the expected cost of new capital for firm.

The formula

The weighted average of capital is defined by:

$$C = (E/K).y + (D/K).b (1-t_c)$$

Where:

$$K = D + E$$

Symbol	Meaning	Unit
C	Weighted average cost of capital	%
Y	Required or expected rate of return on equity, or cost of equity	%
B	Required or expected rate of return on borrowings, or cost of debt	%
T _c	Corporate tax rate	%
D	Total debt and leases	\$ Or ₦
E	<u>Total equity and equity equivalents</u>	\$ Or ₦
K	Total capital invested in the going concern	\$ Or ₦

This equation describes only the situation with homogeneous equity and debt. If part of the capital consists, for example, of preferred stock (with different cost of equity y), then the formula would include an additional source of capital.

How it works

Since we are measuring expected cost of new capital, we should use the market values of the components, rather than their book values (which can be significantly different). In addition, other, more, "exotic " source of financing, such as convertible /callable bonds, convertible preferred

stock, etc. would normally be included in the formula if they exist in any significant amounts – since the cost of those financing methods is usually different from the plain vanilla bonds and equity due to their extra features.

2.11.1 FINDING THE VALUES OF THE COMPONENTS

How do we find out the values of the components in the formula for WACC? First let us note that the “weight” of a source of financing is simply the market value of that piece divided by the sum of the values of all the pieces.

For example, the weight of common equity in the above formula would be determined as follows:

Market value of common equity / (market value of common equity + market value of debt + market value of preferred equity).

In finding the market values of each source of financing (namely the debt, preferred stock, and common stock):

↻ The market value for equity of a publicly traded company is simply the price per share multiplied by the number of shares outstanding, and tends to be the easiest component to find.

- ↻ The market value of the debt is easily found if the company has publicly traded bonds. Frequently, companies also have a significant amount of bank loans, whose market value is not easily found. However, since the market value of debt tends to be pretty close to the book value (for companies that have not experienced significant changes in credit rating, at least), the book value of debt is usually used in the WACC formula.
- ↻ The market value of preferred stock is again usually easily found on the market, and determined by multiplying the cost per share by number of number of shares outstanding.

In finding the costs:

- ↻ Preferred equity is equivalent to a perpetuity, where the holder is entitled to fixed payments forever. Thus the cost is determined by dividing the periodic payment by the price of the preferred stock, in percentage terms.
- ↻ The cost of common equity is usually determined using the capital asset pricing model (CAPM).
- ↻ The cost of debt is the yield to maturity on the publicly traded bonds of the company. Failing availability of that, the rates of

interest charged by the banks on recent loans to the company would also serve as a good cost of debt. Since corporation normally can write off taxes on the interest it pays on the debt, however, the cost of debt is further reduced by the tax rate that the corporation is subject to. Thus, the cost of debt for a company becomes (YTM on bonds or interest on loans) \times (1 – tax rate). In fact, the tax deduction is usually kept in the formula for WACC, rather than being rolled up into cost of debt. As such:

WACC = weight of preferred equity \times cost of preferred equity
+ weight of common equity \times cost of common equity
+ weight of debt \times cost debt \times (1 – tax rate).

2.12. FINANCIAL LEVERAGE

I. THE LEVERAGE RATIOS

1. Debt-to-equity (D/E):

$$D/E = \text{debt (liabilities)} / \text{Equity}$$

Sometimes only interest-bearing long-term debt is used instead of total liabilities in the calculation.

2. A similar ratio is debt to total assets (D/A):

$$D/A = \text{debt} / \text{assets} = \text{debt} / (\text{debt} + \text{equity})$$

3. In the financial industry (particularly banking), a similar concept is equity to total assets (or equity to risk-weighted assets), otherwise known as capital adequacy:

$$\text{Capital Adequacy} = E/A$$

Background

On a balance sheet, the formal definition is that debt (liabilities) plus equity equals assets, or any equivalent reformulation. The formulae below are therefore identical.

$$A = D + E$$

$$E = A - D$$

Debt to equity can also be reformulated in terms of assets or debt:

$$D/E = D/(A - D) = (A - E)/E$$

In a cost of capital calculation the equity in the debt/equity ratio is the market value of all equity (all shares), not just shareholders' equity.

Financial leverage (or gearing) is using given resources in such a way that the potential positive or negative outcome is magnified. It is generally referred to borrowing at a leverage.

Financial leverage takes the form of a loan or other borrowing (debt), the proceeds of which are reinvested with the intent to earn a greater rate of return than the cost of interest. If the firm's return on assets (ROA) is higher than the interest on the loan, then its return on equity (ROE) will be higher than when it did not borrow. On the other hand, if the firm's ROA is lower than the interest rate, then its ROE will be lower than when it did not borrow. Leverage allows greater potential return to the investor than otherwise would have been available. The potential for loss is also greater because if the investment becomes worthless, not only is that money lost, but the loan still needs to be repaid.

Margin buying is a common way of utilizing the concept of leverage in investing. An unlevered firm can be seen as an all-equity firm, whereas a levered firm is made up of ownership equity and debt. A firm's debt to equity ratio (measured at market value or book value, depending on the purpose of the analysis) is therefore an indication of its leverage. This debt to equity ratio's influence on the value of a firm is described in the Modigliani-Miller theorem. As is true of operating leverage, degree of financial leverage measures the effect of a change in one variable on another variable. Degree of financial leverage (DFA) may be defined as the percentage change in earnings (Earnings per Share) that occurs as a result of a percentage change in interest and taxes.

II. MEASURES OF FINANCIAL LEVERAGE

i. Debt-to-equity

Debt to equity is generally measured as the firm's total liabilities (excluding shareholders' equity) divided by shareholders' equity,. This is given as:

$$D/E = (A - E) / E$$

where D = liabilities, E = equity and A = total assets:

For different applications of leverage, analysts may include certain items, such as non-tangible balance sheet items, non-financial liabilities, and similar items, or may adjust the carrying value of other items. It is not uncommon to use only financial liabilities (long-term borrowings), thereby excluding, for example, accounts payable.

ii. Gearing and Du Pont Analysis

Use of the Du Pont Identity requires that leverage be measured in terms of total assets divided by shareholders' equity (which is further decomposed in the traditional analysis), and this is sometimes referred to as gearing or simply leverage:

$$\text{Leverage (gearing)} = A/E$$

The two measures are related. Since the terms used are the same throughout, debt-to-equity is equal to gearing times debt over assets (as the asset term cancels out):

$$D/E = (A/E) \times (D/A).$$

III. **COMPONENTS OF LEVERAGE**

i. **Operating leverage**

Operating leverage reflects the extent to which fixed assets and associated fixed costs are utilized in the business. Degree of operating leverage (DOL) may be defined as the percentage change in operating income that occurs as a result of a percentage change in units sold. To the extent that one goes with a heavy commitment to fixed costs in the operation of a firm, the firm has operating leverage.

ii. **Combined stand-alone leverage**

If both operating and financial leverage allow us to magnify our returns, then we will get maximum leverage through their combined use in the form of combined leverage. Operating leverage affects primarily the asset and operating expense structure of the firm, while financial leverage affects the debt-equity mix. From an income statement viewpoint, operating leverage determines return from operations, while financial leverage determines how the "fruits of labour" will be divided

between debt holders (in the form of payments of interest and principal on the debt) and stockholders (in the form of dividends). Degree of combined leverage (DCL) uses the entire income statement and shows the impact of a change in sales or volume on bottom-line earnings per share. Degree of operating leverage and degree of financial leverage are, in effect, being combined.

iii. **Correlation leverage**

Correlation leverage is a third concept that captures the degree to which the variability in the firm's revenue is correlated with that of other firms. If the correlation is low or negative, investors who hold a diversified portfolio will not see that variability as bad, and the firm will be able to carry a higher level of combined stand-alone leverage than if the variability in its revenue were highly correlated with that of other firms.

The measure known as the Beta coefficient captures the components of leverage above in a single measure.

iv. **Derivatives**

Derivatives allow leverage without borrowing explicitly, though the 'effect' of borrowing is implicit in the cost of the derivative.

- Buying a futures contract magnifies your exposure with little money down.
- Options do the same. The purchase of a call option on a security gives the buyer the right to purchase the underlying security at a given price in the future. If the price of the underlying security rises, the value of the call option will rise at a rate much greater than the value of the underlying security. However if the rate of the call option falls or does not rise, the call option may be worthless, involving a much greater loss than if the same money had been invested in the underlying instrument.
- Structured products that exist as either closed-ended funds, or public companies, or income trusts are responding to the public's demand for yield by leveraging. This is frequently not disclosed anywhere other than far down in the Prospectus.

v. Risk

Employing leverage amplifies the potential gain from an investment or project, but also increases the potential loss. Interest and principal payments (usually certain ex ante) may be higher than the investment returns (which are uncertain ex ante). This increased risk may still lead to the optimal outcome for the entity or person making the investment.

In fact, precisely managing risk utilizing strategies including leverage and security purchases, is the subject of a discipline known as financial engineering.

2.13.THE DEBT TO EQUITY RATIO

Capital structure theory, the study of the relative importance of debt and equity in influencing the firm's value, has begun to receive various analytical investigations.

The debt to equity ratio (D/E) is a financial ratio indicating the relative proportion of equity and debt used to finance a company's assets. It is equal to total liabilities divided by shareholders' equity. The two components are often taken from the firm's balance sheet or statement of financial position (so-called book value), but the ratio may also be calculated using market values for both, if the company's debt and equity are publicly traded, or using a combination of book value for debt and market value for equity.

Preferred shares can be considered part of debt or equity. Attributing preferred shares to one or the other is partially a subjective decision, but will also take into account the specific features of the preferred shares.

When used to calculate a company's "financial leverage" the debt usually includes only the Long Term Debt (LTD). Quoted ratios can even exclude the current portion of the LTD. The composition of equity and debt and its influence on the value of the firm is much debated and also described in the Modigliani-Miller theorem.

Financial economists and academic papers will usually refer to all liabilities as debt, and the statement that equity plus liabilities equals assets is therefore an accounting identity. Other definitions of debt to equity may not respect this accounting identity, and should be carefully compared.

2.13.1 IS THERE AN OPTIMAL DEBT-EQUITY RATIO

In financial terms, debt is a good example of the proverbial two-edged sword. Excess use of leverage (debt) increases the amount of financial resources available to a company for growth and expansion. The assumption is that management earns more on borrowed funds than it pays in interest expense and fees on these funds. However, as successful as the formula may seem, it does require that a company maintain a solid record of complying with its various borrowing commitments.

A company considered too highly leveraged (too much debt versus equity) may find freedom of action restricted by creditors and/or may have its profitability hurt as a result of paying high interest costs. Of course, the worst-case scenario would be having trouble meeting operating and debt liabilities during periods of adverse economic conditions. Lastly company in a highly competitive business, if hobbled by high debt, may find its competitors taking advantage of its problems to grab more market share.

Unfortunately, there is no magic proportion of debt that a company can taken on. The debt-equity relationship varies according to industries involved, a company's line of business and its stage of development. However, because investors are better off putting their money into companies with strong balance sheets, common sense tells us that the companies should have, generally speaking, lower debt and higher equity levels.

2.13.2. ADDITIONAL EVALUATIVE DEBT-EQUITY CONSIDERATIONS

Companies in an aggressive acquisition mode can rack up a large amount of purchased goodwill in their balance sheets. Investors need to

be alert to the impact of intangibles on the equity component of a company's capitalization. A material amount of intangible assets need to be considered carefully for its potential negative effect as a deduction (or impairment) of equity, which as a consequence, will adversely affect the capitalization ratio. Funded debt is the technical term applied to the portion of a company's long-term debt that is made up of bonds and other similar long-term, fixed-maturity types of borrowings. No matter how problematic a company's financial condition may be, the holders of these obligations cannot demand payment as long the company pays the interest on its funded debt. In contrast, bank debt is a usually subject to acceleration clauses and/or covenants that allow the lender to call it a loan. From the investor's perspective, the greater the percentage of funded debt to total debt disclosed in the debt notes in the notes to financial statements, the better. Funded debt gives a company more wiggle room.

Lastly, credit ratings are formal risk evaluations, by credit-rating agencies, of a company's ability to repay principal and interest on debt obligations, principally bonds and commercial paper. Here again, this information should appear in the footnotes. Obviously, investors should

be glad to see high quality rankings on the debt of companies they are considering as investment opportunities and be wary of the reverse.

In conclusion, therefore a company's reasonable, proportional use of debt and equity to support its assets is a key indicator of balance sheet strength. A healthy capital structure that reflects a low level of debt and a corresponding high level of equity is a very positive sign of investment quality.

2.14. CAPITAL STRUCTURE AND DIVIDEND PAYOUT POLICIES

2.14.1. DIVIDENDS: AN INTRODUCTION

There are many reasons for paying dividends and there are many reasons for not paying any dividends. As a result, 'dividend policy' is controversial.

The term "dividend" usually refers to a cash distribution of earnings. If it comes from other sources, it is called "liquidating dividend". It mainly has the following types:

- i. Regular: Regular dividends are those company expects to maintain, paid quarterly (sometimes monthly, semiannually or annually).
- ii. Extra: Those that may not be repeated.

- iii. Special: Those that are unlikely to be repeated
- iv. Stock Dividend: Paid in shares of stock. Similar to stock splits, both increase the number of shares outstanding and reduce the stock price.

2.14.2. HOW DO FIRMS VIEW DIVIDEND POLICY

In a classic study, Lintner surveyed a number of managers in the 1950's and asked how they set their dividend policy. Most of the respondents said that there were a target proportion of earnings that determined their policy. One firm's policy might be to pay out 40% of earnings as dividends whereas another company might have a target of 50%. This would suggest that dividends change with earnings. Empirically, dividends are slow to adjust to changes in earnings. Lintner suggested an empirical model whereby changes in dividends are linked to the level of the earnings, the target payout and the adjustment rate. He asserts that more "conservative" companies would be slower to adjust to the target payout if earnings increased.

2.14.3. MM DIVIDEND IRRELEVANCY WITHOUT PERSONAL TAXES

Under the assumptions of homogeneous expectations and perfect market, the Miller and Modigliani (MM) dividend irrelevancy proposition asserts:

While dividends are relevant, the dividend policy is irrelevant.

This proposition is perhaps best understood by studying two examples:

Example 1

Suppose a firm, with 100 shares of stocks, has cash flows of \$100 in perpetuity. Assume the discount rate is 10%. Consider the following dividend policies of the company:

1. Pay \$1 dividend each year. The stock price should be

$$P_0 = \frac{1}{.10} = \$10$$

2. Pay \$2 dividend next period and pay the remainder afterwards. To pay a \$2 dividend, the company has to issue a debt of \$100 next year. As a result, it also obliged to make interest payments of \$10 = 10% x \$100 in perpetuity starting from year 3. This implies that it has only \$90 leftover for dividends, or \$.90 per share. So, the price, $P_0 = .10$, the same as before.

3. Pay each shareholder 1 share of stock today. The firm then has 200 shares of stocks outstanding today. Since each entitles only \$.50 dividend, it must sell at, $P_0 = .10$.

However, each original owner now has two shares of stock, his or her wealth, $2 \times P_0 = \$10$, will be unchanged.

Example 2

Suppose an all-equity firm has \$2,000 cash flow residual (cash flow minus net investment). If the firm's value, including the \$2,000 residual, is \$42,000 and has 1,000 shares of stocks outstanding, consider two dividend policies of the firm:

1. Pay \$2 dividend, Ex-dividend price is $\$40,000/1,000 = \40 , so shareholder's wealth is \$42.
2. Pay \$3 dividend and raise \$1,000 in new equity, Ex-dividend price is $\$39,000/1,000 = \39 , number of new shares is $\$1,000/39 = 25.64$; Ex-dividend price after new equity financing is, $\$40,000/1,025.64 = \39 .

So original shareholder's wealth, $\$39 + \$3 = \$42$ remains unchanged.

2.14.4 SUMMARY OF FACTORS THAT COULD AFFECT DIVIDEND POLICY

Given that the firm's investment policy is fixed, MM showed that the dividend policy is irrelevant. However, if capital market imperfections (e.g., taxes) are important or if dividend announcements signal new information, dividend policy will be relevant. In fact, there are important factors in dividend policy decision that are against high dividend payout and factors are in favour of high dividend payout and those that may affect dividend payout either way. A list of them is:

Factors Against High Dividend Payout

- Personal Taxes: Dividends are taxed, but capital gains are deferred until realized; the latter tax rate used to be lower.
- Transaction Costs: From reinvesting and firm's financing.

Factors Favouring High Dividend Payout

- Tax Reasons: 80% dividend exclusion rule; institutional investors
- Legal and Institutional Reasons (e.g. 'Prudent man' rule)
- Desire for Current Income.

Other Factors

- The Clientele Effect
- Information Content of Dividends

Other than paying dividends, a company has alternatives

- Select Additional Capital Budgeting Projects
- Share Repurchase
- Acquire Other Companies
- Purchase Financial Assets

2.15. CAPITAL STRUCTURE OF DEPOSITORY INSTITUTIONS

The impact of regulations on depository institutions (also referred to as lending institutions, lenders or banks) has turned capital structuring into an important area of concern and interest (Cohen: 2004). Here as well as in the case of the corporate firms, attention should revolve around trying to identify the optimal capital structure, as this presumably enables the organization to operate more efficiently.

Unlike corporate firms, however, where the Mordglani- Miller (M & M) theorems have clear-cut consequences, applying capital structuring to banks is more subjective. The reason for this is that capital structuring relies heavily on risk management and value creation, two factors that are tightly entwined, owing to the nature of the business.

In contrast to a corporate firm, there is an underlying problem in accessing the capital structure of a bank. This problem rests on the lack of clarity on how one could define, let alone determine the location of

the optimal. The reason for this is rooted in the differences in the ways the two types of organizations operate. For instance, while a corporate firm generates income from rendering services and or selling manufactured products, a simple bank brings in revenue by lending its assets. To further complicate things, the type of borrower also plays a vital role, particularly when regulatory capital constraints are enforced on the lender.

It is therefore not hard to imagine that for a variety of reasons, namely:

1. The fundamental discrepancies between how banks and corporate firms operate, and
2. With risk and value management complex interactions between the lender and the borrower.

The task of determining the optimal capital structure of a bank, as opposed to that of a corporate firm is far from trivial.

Thus, according to Cohen (2004), major differences exist between the treatment of the capital structure of corporate firms and depository institutions. The optimal capital structure of a depository institution is not as easily identifiable as that of a corporate. The reasons for this include, among others,

- (1) the existence of regulatory capital restrictions,

- (2) an inter-dependence between the borrower and the lender
- (3) a dramatic change in the behaviour of the Return on Equity with respect to leverage when risks and credit spreads of both, lender and borrower, are accounted for.

By way of definition, a depository institution is a type of financial institution that, in its simplest form, borrows funds from deposits and/or other establishments and lends them to borrowers. In this process, revenue is created mainly from the margin between the rate of lending and the cost of borrowing.

2.16 CORPORATE GOVERNANCE, OWNERSHIP STRUCTURES AND CORPORATE PERFORMANCE: THE CASE OF UKRAINE

Zheka (2005) examined the effects of different ownership structures and the quality of corporate governance on the Farrell measure of performance. Data Envelopment Analysis and Limited Dependent Variable Estimations were applied to the set of Ukraine joint-stock Companies listed on the main Ukrainian Stock Exchange, First-securities Trading System. Domestic ownership of the organization was found to enhance performance the most, whereas managerial ownership has a detrimental effect on performance. Foreign-owned firms were relatively

inefficient, however, foreign ownership was found to have a positive and significant effect on corporate governance quality. Concentrated ownership rights (including state ownership) improve performance possibly reflecting country – specific factors. The quality of corporate governance was found to have a positive impact on performance and efficiency of domestically owned firms (Zheka; 2005).

2.17 MEASURES OF CORPORATE EFFICIENCY AND PERFORMANCE

A solid management team is at the top of fund managers' lists of key factors influencing long-run investment decisions. Other things that are on that list are qualities such as a sound corporate business model, good fundamentals, and positive industry and company growth outlook. Portfolio managers too often place particular emphasis on both the record and capability of an executive team when a company falls short of these other important traits. The numeric efficiency ratios are quick representations of the effectiveness of management from a strictly qualitative viewpoint.

Why Management Performance is of the Utmost Important For Fund Managers.

1. The financial press constantly covers stories on a new executive coming to the rescue of a distressed company. On the other hand, the money-management firms' daily search for insight into the corporate management of their portfolio companies is talked about less frequently. Fund managers attend industry conferences with top corporate executives, pay personal visits to new plants or corporate headquarters, and talk with key personnel. In essence, fund managers, more than any other financial professional, are always interested in personal contact with management. This dependence, however, goes both ways. Just as the fund managers need detailed research to guide their institutional trading, executives need to keep these influential money-managers happy. Executives need to ensure that the managers do not stimulate institutional selling of their companies' stock, which could significantly influence the market.

Using Revenue per Employee and Net Income per Employee.

One way to analyze management's effectiveness across either an industry or peer group is to assess the revenue and net income per employee. Both quantitative figures are derived as either the total revenue for the period or the total net income per period divided by the employee figure.

In essence, a well-balanced firm should have either revenue per employee or net income per employee trending upwards. Why? Because it is difficult to gauge the internal, qualitative workings or efficiency of management. From a related quantitative standpoint, employee figures may be used to indicate the competence of management in terms of workforce utilization. In sectors or industries where workforce is undeniably the most vital component of a firm, these figures deserve even more attention. From a fundamental standpoint, their usefulness must be measured in comparison to key competitors and the industry as a whole. Due to the differences in market capitalization across the range of industry participants, the most relevant statistic is the comparison of a company's revenue or net income per employee against that of other peer companies of equal size and scope. For instance, Oracle and Microsoft compared according to revenue and net income per employee is a valid comparison while comparing either of these industry leaders to a smaller software public company would be a waste of time. A benchmark comparison to the industry average may be helpful when the firm has a large percentage of overall market share.

Thus, measuring corporate efficiency using ratios, assesses other ratios as well as illustrates quantitatively the effectiveness of management in

regards to actual operations. For instance, the benefits of assessing a company's cash conversion cycle, is an internal efficiency ratio that combines efficiency ratios such as inventory turnover, receivables turnover, and payables turnover.

In summary, revenue per employee and net income per employee can be telling on two fronts. First, a direct comparison of either metric against a close competitor across a specified time horizon is a valid means of eliciting insight from these simple statistics. Second, trends in either direction, as in the case of any ratio or data analysis, provide more support for a ratio comparison conclusion based on a single time period. Naturally, accurate data is vital to any comparison. Most financial portals give either the revenue per employee or net income per employee for almost any company. If not, online financial statements can provide the information for any analysis. (Kuczmariski: 2002).

2.18 FIRM PERFORMANCE: ANALYSIS OF FINANCIAL STATEMENT

Financial analysis is the process by which the financial strengths and weaknesses of an organization is established by assessing the

relationship between the balance sheet items and the P&L accounts. It discusses:

- (i) How effective and efficient the resources and assets of the organization are utilized (Activity Ratios);
- (ii) We also analyze companies profitability overtime i.e. its overall performance (Profitability/ Efficiency Ratios);
- (iii) Its ability to generate more income to be able to pay dividends and repay principal (Liquidity Ratios); and
- (iv) The relationship between the various sources of funds (Leverage Ratios).

The investors, management, employees, depositors, government and general public, who have invested their funds in the company are more concerned about the organization's earnings. They tend to have more confidence in companies that show steady growth in earnings. They are in fact interested in the firm's financial structure to the extent at which it influences its earning position and risk.

The four classes/groups of ratios useable in financial statement analysis are evaluated below:

1. Liquidity Ratios: This measures the ability of the organization to generate enough income so as to be able to meet its maturing current obligations as they fall due.

Here we have:

$$(a) \text{ Current Ratio} = \frac{\text{Current Assets}}{\text{Current liabilities}}$$

$$(b) \text{ Quick Ratio} = \frac{\text{Current Assets} - \text{inventory}}{\text{Current Liabilities}}$$

2. Activity Ratios: This reflects the efficiency in utilizing the company's assets.

These include:

$$(a) \text{ Stock Turnover} = \frac{\text{Cost of goods sold}}{\text{Average Stock}}$$

$$(b) \text{ Debtors collection period} = \frac{\text{Debtors}}{\text{Sales}} \times 365 \text{ days}$$

$$(a) \text{ Total assets turnover} = \frac{\text{Sales}}{\text{Total assets}}$$

3. Profitability/Efficiency Ratios:

- Profitability in relation to sales
- Profitability in relation to investment

- Profitability in relation to assets

(a) In relation to sales:

$$\text{Gross profit margin} = \frac{\text{GP}}{\text{Sales}}$$

$$\text{Net profit margin} = \frac{\text{PAT}}{\text{Sales}}$$

(b) In relation to investment:

$$\text{ROI} = \frac{\text{PAT}}{\text{Total Assets}}$$

$$\text{ROE} = \frac{\text{PAT}}{\text{Networth}} = \frac{\text{PAT}}{\text{Equity}}$$

$$\text{EPS} = \frac{\text{PAT}}{\text{No of equity stocks outstanding}}$$

(EPS measures the profitability of common stock investment).

$$\text{DPS} = \frac{\text{Dividend on Equity}}{\text{No of shares outstanding}}$$

$$\text{P/E ratio} = \frac{\text{Market Price per Share}}{\text{EPS}}$$

$$\text{ROCE} = \frac{\text{Profit Before Tax}}{\text{Capital Employed}}$$

(c) In relation to Assets

$$\text{R.O. Total Assets} = \frac{\text{PAT}}{\text{Capital employed}} = \frac{\text{PAT}}{\text{Total Assets}}$$

$$\text{R.O. Net Assets} = \frac{\text{PAT}}{\text{Net assets}}$$

$$\text{R.O. Fixed Assets} = \frac{\text{PAT}}{\text{Fixed Assets}}$$

4. Leverage Ratios

This measures the proportion of debt and equity in financing the firm's assets. It thus measures the relationship between various sources of finance.

Debt ratios according to Nzotta (2002) must be taken into consideration in assessing the financial strengths of the firm.

They include:

$$\text{(a) Debt/Equity Ratio} = \frac{\text{Total debt}}{\text{Networth}} = \frac{\text{Total debt}}{\text{Shareholders' fund}}$$

This measures the debt exposure or level of risk in the firm.

(b) Debt-capitalization Ratio:

This measures the Long-term leverage position of the firm.

$$= \frac{\text{L-term Debt}}{\text{Capital}} \quad \text{or} \quad \frac{\text{Total debt}}{\text{Total capital}}$$

This thus determines the level of gearing in the capital structure. It shows the level of L-term debt (debt finance) in relation to capital fund (Networth).

(c) Total debt/Total Asset Ratio:

Measures the percentage of total funds provided by debt.

$$\text{Total Debt/total Asset ratio} = \frac{\text{Total Liabilities}}{\text{Total Assets}}$$

This determines the level of financial risk of the firm. A relatively high debt to total assets ratio indicates that the firm has exceeded its optimal capital structure.

(d) Capital Employed to Net worth Ratio:

Measures the relationship between funds contributed by both lenders and owners (i.e. total capital employed) relative to the funds contributed by owners alone.

$$= \frac{\text{Capital employed}}{\text{Networth}} = \frac{\text{Owners network} + \text{S-term and L-term debt}}{\text{Networth}}$$

$$(e) \text{ Cash flow ratio} = \frac{\text{Net cash Flow}}{\text{Total debt}}$$

2.18.1 IMPLICATION OF LEVERAGE/GEARING RATIOS

$$\text{Gearing} = \frac{\text{Fixed Interest bearing Securities}}{\text{Ordinary shares}}$$

The problem with high-gear company is that by definition there is a lot of debt. Debt carries a fixed rate of interest (a fixed rate of dividend if it is in form of preference shares), hence a large amount to be paid out from profits before arriving at a residue available for distribution to holders of equity.

A high geared coy has a large amount of interest to pay annually, and if thus is secured (e.g. debentures), the company is forced to realize assets if funds are not available.

2.19 FIRM PERFORMANCE: ACCOUNTING PROFIT AND

TOBIN'S Q

The Demstet and Lehn study (1985) used accounting profit rate to measure firm performance. All of the studies that followed used Tobin's Q. There are two important respects in which these two measures differ. One is in time perspective, backward-looking for accounting profit rate, forward-looking for Q. In attempting to assess the effect of ownership structure on firm performance, is it more sensible to look at an estimate of what management will accomplish? The second difference is in who is actually measuring performance. For the accounting profit rate, this is

the accountant constrained by standards set by his profession. For Q, this is primarily the community of investors constrained by their acumen, optimism, or pessimism. The proclivity of economists, most of whom have a better understanding of market constraints than of accounting, is to favour Q, but caution is needed here. Accounting profit rate is not affected by the psychology of investors, and it only partially involves estimates of future events, mainly in the valuations it places on goodwill and depreciation. Tobin's Q, however, is buffeted by investor psychology pertaining to forecasts of a multitude of world events that include the outcomes of present business strategies.

It is true that accounting profit rates are affected by accounting practices, such as the different methods applied to evaluations of tangible and intangible capital, but Tobin's Q also suffers from accounting artifact problems, and perhaps more severely. In fact, for the sample of firms studied here, variations in Q were better explained by variables that control for accounting artifacts than are variations in accounting profit rate. The numerator of Q, being the market value of the firm, partly reflects the value investors assign to a firm's intangible assets, yet the denominator of Q, the estimated replacement cost of the firm's tangible assets, does not include investments the firm has made in intangible assets. The firm's future revenue stream is treated as if it can

be generated from investments made only on tangible capital. This distorts performance comparisons of firms that rely in differing degrees on intangible capital (Demsetz:1983). Moreover, recent studies that used Tobin's Q did not attempt to measure the replacement cost of tangible capital when calculating the denominator of Q. Instead, they used the depreciated book value of tangible capital. This incorporated into Q a goodly portion of the accounting problems that make accounting profit rate calculations suspect, for many of these problems have to do with whether the depreciated value of intangible assets accords with the true economic rate of depreciation of capital.

The numerator of Q, to some significant degree surely, reflects accounting profit rates. Investors do not ignore the past in their attempts to determine reasonable expectations for the future profitability of firms. High accounting profit rates are usually accompanied by stock prices, whereas the denominator of Q, when this is measured by the book value of tangible assets rather than by replacement cost, is much like that used by accountants when estimating the firm's capital investment. Hence, we expect accounting profit rate and Tobin's Q to be correlated. The simple correlation between the Q and profit rate is about 0.60 (Demsetz and

Villalonga:2001). It is not our intent to argue for or against one of these measures of performance. Each carries its own bag of advantages and disadvantages. We simply note that Q's bag is far from empty, and that accounting profit rates have been ignored presumptuously in favour of Q in the studies that followed the Demsetz and Lehn study.

2.20 CAPITAL STRUCTURE: THE CONCEPT OF OWNERSHIP STRUCTURE

All the measures of ownership structures used by Demsetz and Lehn were based on the fraction of shares owned by a firm's most significant shareholders, with most attention being given by them to the fraction owned by a firm's management. Management holdings included shares owned by members of the corporate board, the CEO, and top management. Exclusive reliance in this measure to track the severity of the agency problems suggested that all shareholders classified as management have a common interest. This is not likely going to be true. A board member, for example, may have a position on the board because he has, or represents someone who has, large holdings of the company's stock. Board members like this do not have interests identical to those of professional management. More likely, their interests are more closely aligned with those of outside investors. Insider board

members that really are, or that really represent, outside investors' interest may not be rare. For the sample of firms in their study, the correlation between the fractions owned by management was 0.67. This positive correlation suggested that important shareholding families do have representation on corporate boards. These family board members, or their representatives, cannot be thought of as having interests in common with those of "pure" management personnel. A high level of management shareholdings, therefore, is not so reliable an index of the strength of professional management's representation in the firm's operations as most studies using this measure assume it to be. The empirical reality was that a person who is a professional member of the management team hardly ever holds enough shares to make him one of the five most important shareholders of a corporation. The variation in the importance of these two types of owners, the five largest shareholders and the management, correlated positively across the firms in their sample, but not so much so as to allow a claim that one of these measures is redundant if the other is used. In their sample, the correlation between them was 0.47. Therefore, other things being equal, a study that used both measures to account for the complexity of interests represented by a given ownership structure should give a more

accurate picture of the ownership performance relation than those on only one of the two measures.

2.21 OWNERSHIP STRUCTURE: THE ISSUE OF ENDOGENOUS OWNERSHIP

As argued by Demsetz (1983) and shown by Demsetz and Lehn (1985) and some of the subsequent studies, ownership structure is endogenous. Persistent diffuseness of a firm's ownership structure plausibly serves the firm's shareholders better than would a concentrated ownership structure, even if more diffuseness of ownership does allow professional management to divert more of the firm's resources to serve its own narrow interests. We have no doubt that management is self-serving to the degree that imperfect monitoring allows it to be, but this is largely irrelevant. Owners of a corporation would like all inputs to come without problem and, if possible without cost. The central issue is whether professional management and diffuse ownership structure bring special advantages to firms that are sufficient to offset the special disadvantages they may also bring. If there are compensating advantages, there should be no systematic relation between managerial shareholdings and firm performance. If the advantages are not fully compensating, there should be a systematic

relation, but then there arises a question: Why do diffuse ownership structures survive? There are costs to changing a non-optimal ownership structure, but these are not likely to insulate a clearly improper structure over periods as long as many diffuse ownership structures persist.

Moreover, due to considerations such as insider information and performance-based compensation, firm performance is at least as likely to affect ownership structure as ownership structure is to affect performance. The possible divergence between insider and market-based expectations for firm performance creates an incentive for management to vary its holdings of stock in accord with its expectation regarding future performance. A leverage buyout of non-management shares by management is an extreme example of how expected performances can affect ownership structure to change. Management compensation in the form of stock options offers another possibility for a “reverse” causation in which firm performance affects ownership structure.

The finding that ownership structure was endogenous and plausibly determined, among other factors, by firm performance itself, implies that this endogeneity must be taken into account when seeking to

ascertain the relation between ownership and performance. Failing to do so is bound to yield biased regression ownership estimates. The Demsetz and Lehn study, which took as its primary task the investigation of how ownership structure responds to aspects of the firm and of its environment, necessarily treated ownership structure as endogenous to determine whether it affects performance. Their two-stage least squares regression showed that studies which treated ownership as endogenous in one way or another arrived at a similar conclusion (Loderer and Martin:1997; Cho:1998). On the other hand, other studies failed to account for the endogeneity of ownership structure. These were the studies that yielded "evidence" of a statistically significant effect of ownership structure on performance.

2.22 OWNERSHIP STRUCTURE AND CORPORATE PERFORMANCE

In an investigation carried out by Demsetz and Villalonga (2001), on the relation between ownership structure and the performance of corporations, if ownership was made multi-dimensional and also treated as an endogenous variable, they found no statistically significant relation between ownership structure and firm performance. Their finding was consistent with the view that diffuse ownership, while it may exacerbate

some agency problems, also yields compensating advantages that generally offset such problems (Loderer and Martin:1997). Consequently, for data that reflect market-mediated ownership structures, no systematic relation between ownership structure and firm performance is to be expected.

This debate goes back to the Berle and Means (1932) thesis, which suggests that an inverse relationship should be observed between the diffuseness of shareholdings and firm performance. Their view has been challenged by Demsetz (1983), who argues that ownership structure of a corporation should be thought of as an endogenous outcome of decisions that reflects the influence of shareholders and of trading on the market shares. When owners of a privately-held company decides to sell shares, and when shareholders of a publicly-held corporation agree to a new secondary distribution, they are, in effect, deciding to alter the ownership structure of their firms and, with high probability, to make that structure more diffuse. Subsequently trading of shares will reflect the desire of potential and existing owners to change their ownership stakes in the firm. In the case of a corporate takeover, those who will be owners have a direct and dominating influence on the firm's ownership structure. In these ways, a firm's ownership structure reflects decisions made by those who own or who would own shares. The ownership

structure that emerge, whether concentrated or diffuse, ought to be influenced by the profit-maximizing interest of shareholders, so that, as a result, there should be no systematic relation between variations in ownership and firm performance.

The empirical studies about the relation between both variables seem to have yielded conflicting results. Demsetz and Lehn (1985) provided evidence of the endogeneity of a firm's ownership structure argued for by Demsetz (1983) and also assessed the validity of the Berle and Means thesis: A linear regression of an accounting measure of profit rate on the fraction of shares owned by the five largest shareholding interests (and on a set of control variables), in which ownership structure was treated as an endogenous variable, gave no evidence of a relation between profit rate and ownership concentration. He ignored the endogeneity issue altogether and re-examined the relation between corporate ownership structure and performance. Like Demetz and Lehn (1985), he found no significant relation in the linear regressions they estimated using Tobin's Q and accounting profit rate as alternative measures of performance. However, he also estimated a piecewise regression as positive for management holdings of shares between 0% and 5% of outstanding shares, negative for management holdings between 5% and 25%, and positive once more for management

holdings greater than 25%. Other articles have followed the study. Included among these are Servaes (2006), Loderer and Martin (1997), Cho (1998). All relied chiefly on Tobin's Q as a measure of firms performance, although a few also examine accounting profit rate, and all emphasized managerial shareholdings as a measure of ownership structure.

Differences abound across these studies, in measurements and samples used, in estimating techniques applied, in whether and how they account for the endogeneity of ownership structure, and in results obtained. These studies, viewed the totality, do not give strong evidence by which to reject the belief that firm performance and managerial equity ownership are unrelated. Their findings were consistent with the view that ownership structures, whether diffused or concentrated, that maximized shareholders expected returns were those that emerge from the interplay of market forces.

2.23 THE ROLE OF FINANCIAL CAPITAL STRUCTURE IN THE EAST ASIAN FINANCIAL CRISIS

The sharp decline in the once-stellar performance of East Asian Corporations following the 1997 financial crises had sparked an intense

debate. Some observers argued that external shocks, including a drop in aggregate demand and a shortage of working capital explained the corporate sector's poor performance. Others assert that the difficulties were apparent well before the crisis and that the risky financial policies pursued by these firms left them vulnerable. A survey of literature showed little microeconomic evidence to support either view (Kuminsky et al:1999). Only more recently have variables in the corporate sector itself – performance, financial structure, and corporate governance – been included as explanatory factors (Kim:1999). Classens et al (2000) studied the financing patterns of East-Asian corporations in the years before the crises with those in other countries. They found little microeconomic evidence that corporate growth was weakening, but some support for the argument that many firms had a weak financial structure that left them vulnerable to an economic down-turn. The corporate financial structure of many companies were too weak to withstand the combined shocks of increased interest rates, devalued currencies, and sharp declines in domestic demand. The high levels of investment dictated a heavy reliance on external financing, and because outside equity was used sparingly, debt levels were high in most of these economies and in fact were increasing in Malaysia, and Thailand. Short-term borrowing became increasingly important, especially in

Malaysia. Some of the vulnerabilities in corporate financial structures that were later seen as factors in triggering and aggravating the crises were thus already in existence in the early 1990's. (Classens:2000).

In a cross-sectional sample of publicly listed corporations in Thailand, for example, an increase in leverage in 1996 over 1995 was correlated with declines in profitability. It was evidenced that struggling firms relied on increased external financing to overcome declining earnings (Alba et al:1998). Several studies have shown that ownership structure may encourage a lack of discipline and induce risky behaviour.

2.24 SUMMARY

Here, the contributions of various authors to subject matter were sampled. Previous researches and findings of people were reviewed. For instance:

- Harold Demsetz and Belen Villalonga (2001) found no statistically significant relationship between Ownership Structure and firm's performance. This finding is consistent with the view that diffuse ownership, while it may exacerbate some agency problems, also yields compensating advantages that generally offsets such problems.
- Berle and Means (1932) linearly regressed an accounting measure of profit rate (Net income to book value of equity) on the fraction of

shares owned by the five largest shareholding interests (as a set of control variables) and found no evidence of a relationship between profit rate and ownership concentration.

- Demesetz and Lehn (1985) found no significant relationship in the linear regressions they estimated using Tobin' Q (Accounting Profit / Total Assets) and another accounting profit rate as alternative measures of performance. Average Tobin's Q was the average of annual values for the five years studied (1976 – 1980).

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 INTRODUCTION

In order to carryout an incisive analysis of our work, this chapter concentrates on the research methodology. It explains the methods used in data collection, data analysis, and data presentation. This will enable us to present the tools for testing our hypotheses. The rest of the work is divided into the following sections.

3.2 RESEARCH DESIGN

The design of this study is both descriptive and analytical. The descriptive part covers an examination of the main variables involved in the study, namely - capital structure comprising of the debt level and the value of equity computed as leverage ($\text{Leverage} = \text{Debt} / \text{Equity Ratio}$); corporate taxation (tax); and corporate performance comprising of Earnings Per Share, dividend per share and net assets per share. The focus here is an evaluation of the impact of capital structure, on firm's performance for corporate firms operating in Nigeria. The work examines the various combinations of debt and equity and how

this eventually will culminate in the improvement of corporate performance. Data were collected through the primary and secondary sources. The primary data were collected through the use of questionnaires and personal interview. The questionnaires were self administered and designed in a manner to allow for statistical analysis. The secondary data to be used here were based on the published annual financial reports of selected companies listed on the First-tier securities market of the Nigerian stock exchange (NSE). We excluded companies that reported less than five times between 2002 and 2006, and companies that did not report all of the following variables: net income after taxes, earnings per share, DPS, NAPS, corporate tax, total or net assets, level of debt securities, and the value of common equity, to mention but a few. Our measure of performance or the performance indicators include profit after tax (PAT), The EPS, DPS, and the Net assets Per Share (NAPS). The PAT is calculated as Profit of the firm before Taxation (PAT) less taxation for the year. The advantage of this measure is that it is not influenced by the liability structure of the firm because, it excludes interest payments, financial incomes and other incomes and expenses. At the same time, it is a complete measure of firm productivity (unlike total factor productivity),

because it does not have control for inputs other than capital (Classens et al: 2000b).

Another suitable measure of performance, we could as well use is firm's profit margin on sales, calculated as the earnings before interest and taxes divided by total sales. The advantage of this calculation is that, as a cash-flow measure, it excludes interest payments, financial incomes, and other incomes and expenses and is therefore not influenced by the liability structure of the corporation. This makes it possible to study the effects of real and financial shocks on operational performance (Nakamura:1992).

To illustrate the importance of the various capital structural factors in explaining changes in performance, we ran regressions using the profit after tax (PAT) as the dependant variable; the control variables are the financial characteristics of the firms and it captures the firm's financial structure and ownership variables. It includes the leverage ratio (defined as long-term debt divided by the market value of equity), and corporate taxation (tax).

Later, we ran a multiple discriminant analysis using leverage as the independent variable and the performance indicators and tax as the

dependent variables. The aim is to discriminate between the performance indicators, leverage and tax. In short, econometric models encompassing all the components of capital structure and corporate performance indicators were drawn to test the assumed effect of Capital Structure on corporate performance.

3.3 SAMPLE DESIGN AND PROCEDURE FOR DATA COLLECTION

The primary and secondary sources of data were employed in this research.

The primary data were collected with the use of a set of structured questionnaires which were given to the selected corporate organizations. A total of 197 companies grouped into about 19 manufacturing sectors were quoted in the First-tier securities market of the Nigerian stock exchange (NSE) as at 31st December 2006 (see background of the study). From each of these sectors, at least, a company were selected, and about ten(10) questionnaires were distributed to each company. A total of three hundred(300) questionnaires were distributed to the twenty (20) selected companies from the different sectors of the Nigerian economy. This forms our sample size. As the population of the study is heterogeneous, the stratified sampling method was adopted in order for the sample to be a representative of the population. This

method was chosen so that every quoted company would have equal opportunity of being selected (Ebiringa and Okoroafor: 2007).

The secondary data for this study was sourced from published annual financial reports (2002 - 2006) including - an income (profit & loss) statement and a balance sheet - of each of the selected companies with differing leverage positions.

Other secondary data were collected from the Nigerian Stock Exchange (NSE) **FACTBOOK 2007**, and the Securities and Exchange Commission (SEC) publications - the central organs for data collection, storage and retrieval in Nigeria - as well as, the International Network (Internet).

For each of the selected firms, calculations were carried out on the financial statements for the required variables: that is, both the leverage ratios, PAT, EPS, DPS, NAPS, and Taxation were computed for future analysis based on the share capital of the relevant year.

3.4 PROCEDURE FOR DATA ANALYSIS

3.4.1. Analysis of the primary data

The primary data were analyzed both qualitatively and quantitatively. As the questionnaire was mainly to answer the analysis questions on capital structure recommendations, we, therefore, presented only the results of the questions asked in the capital structure section of the survey. The

symbol \overline{X} denotes the mean of the data set, while \hat{X} denotes the median. N denotes the size of the data set. All questions in the survey are optional and some questions are not asked directly, depending on the answers to previous questions. Therefore, the number of responses, N , to different questions varies and will be shown for each question. This is an anonymous survey and to further protect the confidentiality of participants, results were shown on an aggregated basis and the statistics were only displayed if there were at least 5 data points in the sub-sample. Sub-samples without five data points were marked "<5" and the statistics were shown as "na".

3.4.2. Analysis of the secondary data

3.4.2.1. The Simple and Multiple Regression Analysis

In analyzing the secondary data, we ran a simple and multiple regression using one of the firm's performance indicators as the dependent variable. The control variables are the firms' financial structure and ownership variables and this captures the firm's financial or capital structure characteristics.

3.4.2.2. **Variables and Model Specification**

The variables are defined below:

- (i) The leverage ratio (defined by long-term debt divided by the market value of equity).
- (ii) Corporation tax (defined by profit before taxation less profit after taxation).
- (iii) Profit after taxation (defined by PBT less corporate tax).
- (iv) Earnings Per Share (defined by PAT divided by number of share capital outstanding).
- (v) Dividend per share (defined by dividend paid to shareholders divided by share capital outstanding).
- (vi) Net assets per share (defined by net assets of the firm divided by share capital).

We include these independent variables in a simple and multiple regression to explain the dependent variable.

Specifically, we estimate the following regression:

$$PAT = a_0 + a_1 \text{ lev} \quad \text{----- (1).}$$

$$PAT = x_0 + x_1 (\text{leverage ratio}) + x_2 (\text{tax}). \quad \text{..... (2).}$$

$$LEV = b_0 PAT + b_1 EPS + b_2 DPS + b_3 NAPS + b_4 \text{ tax} \quad \text{..... (3)}$$

(discriminant analysis).

Here $a_1, x_1, x_2, b_1, b_2, b_3, b_4$, indicate the coefficients to be estimated. To facilitate the interpretation, we also standardized the firm variables to obtain a normal distribution with a mean of 0. The results for different specifications is contained in tables. The data above were analyzed from the five-year (2002 -2006) annual financial reports of the selected companies.

Our econometric model had one equation at a time. It had firm performance as the dependant variable.

Where averages need to be computed, it was calculated as average of the five years of annual data, from 2002 -2006. The equation is as follows:

EQUATION (1):

The dependant variable; Firm Performance:

This is measured by Profit After Tax (PAT) which is equal to Profit Before Taxation less Corporate Tax.

$$PAT = PBT - Tax.$$

Explanatory variables:

(a) The leverage ratio (ϕ):

$$\text{Leverage} = \phi = \frac{\text{L-term debt}}{\text{Shareholders equity}}$$

(b) Corporate Tax:

= Profit before tax less profit after tax.

Mathematically,

$$\text{PAT} = f(\phi + \text{Tax}) \quad \dots\dots\dots (4)$$

It is expected that changes in the independent variables are most likely to induce changes in corporate performance. The data were analyzed using the SPSS software package, and the results of the analysis were used to test the hypotheses. The SPSS is a package that has the ability of providing the coefficient of determination (R^2) and adjusted R^2 , the correlation coefficient, the standard error of estimate, the t-value and the f-values which will be used in the analysis.

The equation of Y, the dependent variable, and the independent variables gave an equation of the form:

$$Y = b_0 + b_1X_1 + b_2X_2 \quad \dots\dots\dots (5).$$

Where,

Y = Profit After Taxation,

X_1 = Leverage Ratio, and

X_2 = Corporation tax.

b_0 , b_1 , and b_2 = The parameters to be estimated.

The dependent variable (y) here represents firm performance. The model assumes that there is a normal distribution of the dependent variable for every combination of the independent variables in the model.

3.4.2.3 ANALYSIS OF VARIANCE

An Analysis Of Variance (ANOVA) of the variables was carried out to test the significance of the regression model as a whole. The ANOVA is a statistical technique which is used to determine whether the mean score or more factors differ significantly from each other and whether the various factors interact significantly. It also shows whether sample variances differ significantly from each other.

3.4.2.4. THE MULTIPLE DISCRIMINANT ANALYSIS.

The aim here is to further analyze the effects of Capital Structure (Leverage) on the various performance indicators taken together. Here, we believe that every organization is either making use of leverage or it is not. Financial leverage, according to Hansen, (2007), is defined as "the portion of a firm's asset financed with debt instead of equity. It

involves both contractual interest and principal obligations. It benefits common stock holders as long as the borrowed funds generate a return in excess of the cost of borrowing, although the increased risk can offset the general cost of capital."

We are therefore discriminating against leverage and non-leverage. A leveraged-firm (whether from the successful or unsuccessful firm group) (see appendix), is designated by 1, while a non-leveraged-firm is designated by 0. After discriminating between the performance indicators, leverage and tax of the selected firms, we arrived at a standard discriminant function, which was used to explain the general relationship between capital structure and corporate performance in the presence of corporate tax.

3.5. TEST OF HYPOTHESES OF THE STUDY

The F- Test:

F-test will be used in testing the official significance of the explanatory variables taken together. The F-values of the independent variables were used to show if the difference between the mean is large enough to be statistically significant or they occurred by chance.

The T-Test:

The student t-test were also used to test for the significance of each explanatory variable contributing to the growth in PAT.

The correlation coefficient were used to explain if there is a positive or negative relationship between the dependent variable and the independent variables.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1. INTRODUCTION

This chapter deals with the analysis of data collected from various sources, the interpretation of results of the analysis and the discussion of findings.

The first part is the qualitative analysis of all the primary data based on our questionnaire distribution.

The second part is the quantitative analysis of all the secondary data collected to corroborate the primary data findings, and accept or reject the proposed hypotheses. The rest of the chapter is as follows:

4.1.1. RESULTS

4.1.2. PRESENTATION AND ANALYSIS OF PRIMARY DATA

AIM: To determine the appropriate Capital Structure combination for corporate firms in Nigeria.

A total of two hundred and sixty (260) respondents, out of the three hundred (300) questionnaires distributed returned their questionnaires, giving a response rate of 86.7%. Results from section A of the questionnaire showed that majority of the respondents have West African School Certificate and above.

The result from section B of the questionnaire are for the 8 questions on Capital Structure recommendations which attempted to appraise the effect of leverage and other financial Structure variables on Corporate Performance. The questions were grouped according to the variables and companies. The symbol \bar{x} denotes the mean of the data set, while N denotes the size of the data set.

As all questions in the survey were optional and some questions were not asked directly but dependent on the answer to the previous questions, there might be different N^s to different questions. Results are shown on the display if there are at least 5 data points in the sub-

sample. Sub-samples without five data points are marked "< 5" and the statistics are shown as "na".

4.1.3 ANALYSIS OF PRIMARY DATA

TABLE 4.1: Definition of Debt by Industry

Question: Which of the following do you include when you measure the level of “debt; for Capital Structure purposes?

	LT debt maturing > 1yr	LT debt maturing < 1yr	ST debt	Other Current liabilities	Capitalized Op. Leases	Unfunded Pension Liabilities	Debt Related Derivatives
All	96%	90%	86%	16%	39%	20%	15%
Industry:							
Building Materials	100%	80%	80%	20%	40%	30%	40%
Construction	100%	100%	80%	40%	20%	0%	20%
Breweries	94%	94%	89%	0%	33%	17%	17%
Chemicals and Paints	95%	90%	88%	15%	35%	15%	23%
Agriculture	100%	83%	83%	33%	50%	33%	17%
Food, Bev. And Tobacco	100%	83%	67%	33%	33%	17%	17%
Footwear	100%	92%	100%	8%	58%	17%	25%
Automobiles/Tyres	95%	93%	89%	14%	34%	18%	9%
Airline	100%	82%	100%	9%	27%	18%	18%
Engineering	89%	89%	78%	44%	22%	44%	11%
Computer/Office Equipment	100%	92%	92%	17%	50%	25%	25%
Petroleum	94%	94%	94%	18%	53%	12%	12%
Printing/Publishing	100%	100%	88%	25%	50%	25%	0%
Textiles	100%	84%	84%	16%	63%	32%	5%
Healthcare	100%	85%	69%	8%	15%	38%	15%
Packaging	90%	85%	75%	10%	35%	10%	10%

Source: Research Questionnaire

TABLE 4.2: **Capital Structure target by industry**

Question: Do you have a Target capital Structure?

	YES	NO	N
All	68%	32%	260
Industry:			
Building Materials	90%	10%	10
Construction	Na	Na	<5
Breweries	72%	28%	18
Chemicals and Paints	67%	33%	42
Agriculture	67%	33%	6
Food, Bev. And Tobacco	33%	67%	6
Footwear	75%	25%	12
Automobiles/Tyres	67%	33%	55
Airline	45%	55%	11
Engineering	56%	44%	9
Computer/Office Equipment	83%	17%	12
Petroleum	71%	29%	17
Printing/Publishing	75%	25%	8
Textiles	83%	17%	18
Healthcare	85%	15%	13
Packaging	53%	47%	19

Source: Research Questionnaire

TABLE 4.3: **Capital Structure target by industry**

Question: How do you grade the following measures in determining your target capital Structure?

	Primary	Secondary	Not Used	N
Absolute level of debt	53%	25%	22%	153
Debt relative / MV of equity	21%	37%	41%	155
Debt / BV of equity	55%	25%	20%	156
Debt / BV of total assets	38%	33%	29%	154
Debt / (MV of equity + BV of equity)	15%	30%	54%	149
Debt / (MV of equity and debt)	14%	31%	55%	148
EBIT / interest payment	32%	27%	40%	146
EBIT / fixed charges.	9%	32%	58%	142
Debt / EBIT	58%	25%	17%	151

Source: Research Questionnaire

TABLE 4.5: **Capital Structure measures by industry**

Question: Which of the following measures do you use to determine your target Capital Structure?

	All P S N	Building Materials P S N	Construction P S N	Breweries P S N	Chemicals and Paints P S N	Agriculture P S N	Food, Bev. And Tobacco P S N	Footwear P S N	Automobil es/Tyres P S N	Airline P S N	Engineerin g P S N	Compute r/Office Equipt. P S N	Petroleu m P S N	Printing/Pu blishing P S N	Textiles P S N	Healthcar e P S N	Packagi ng P S N
Absolute level of debt	53 25 153	29 29 7	Na na <5	33 17 12	43 26 23	Na na <5	Na na <5	67 33 9	47 32 34	20 60 5	Na na <5	40 30 10	64 27 11	Na na <5	77 8 13	71 14 7	89 11 9
Debt relative / MV of equity	21 37 155	13 13 8	Na na <5	0 50 12	59 38 24	Na na <5	Na na <5	0 38 8	26 32 34	Na na <5	Na na <5	20 30 10	40 60 10	Na na <5	23 31 13	22 67 9	11 22 9
Debt / BV of equity	55 25 156	8614 7	Na na <5	62 38 13	63 21 24	Na na <5	Na na <5	75 0 8	37 31 35	Na na <5	10 0 5	67 0 9	36 55 11	Na na <5	62 15 13	67 33 9	50 38 8
Debt / BV of total assets	38 33 154	29 29 7	Na na <5	54 15 13	43 35 23	Na na <5	Na na <5	38 25 8	39 39 33	Na na <5	Na na <5	30 20 10	30 50 10	Na na <5	31 46 13	44 44 9	22 44 9
Debt / (MV of equity + BV of equity)	15 30 149	14 14 7	Na na <5	17 8 12	9 50 22	Na na <5	Na na <5	13 25 8	23 29 35	Na na <5	Na na <5	20 10 10	30 50 10	Na na <5	8 17 12	14 29 7	22 22 9
Debt / (MV of equity and debt)	14 31 148	25 13 8	Na na <5	0 25 12	14 41 22	Na na <5	Na na <5	14 14 7	15 38 34	Na na <5	Na na <5	20 40 10	20 50 10	Na na <5	18 27 11	29 29 7	0 11 9
EBIT / interest payment	32 27 146	17 17 6	Na na <5	20 30 10	39 22 23	Na na <5	Na na <5	50 0 8	29 38 34	Na na <5	Na na <5	30 20 10	30 50 10	Na na <5	46 23 13	33 33 6	33 22 9
EBIT / fixed charges.	9 32 142	0 14 7	Na na <5	10 20 10	4 35 23	Na na <5	Na na <5	13 25 8	6 44 32	Na na <5	Na na <5	10 20 10	20 30 10	Na na <5	9 55 11	17 33 6	11 33 9
Debt / EBIT	58 25 151	38 13 8	Na na <5	27 45 11	74 22 23	Na na <5	Na na <5	50 13 8	57 34 35	Na na <5	Na na <5	70 20 10	60 30 10	Na na <5	31 46 13	71 14 7	56 11 9

Key:

P = Percentage of respondents who chose this as a primary measure

S = Percentage of respondents who chose this as a secondary measure

N = Number of respondents.

Source: Research Questionnaire

TABLE 4.6 Target Leverage by industry

Question: Approximately, what would your leverage ratio be if you were at your target Capital Structure purposes?

—	0 %	1 – 10 %	11 – 20 %	21 – 30 %	31 – 40 %	41 – 50 %	51 – 60 %	61 – 70 %	71 – 80 %	81 – 90 %	91 – 100 %	\bar{X}	X	N
All	2%	2%	4%	15%	19%	27%	14%	37%	56%	2%	1%	70.0	71.0	162
Industry														
Building Materials	0%	0%	13%	13%	13%	38%	0%	25%	0%	0%	0%	38.5	8.0	8
Construction	Na	Na	Na	Na	Na	Na	Na	Na	Na	Na	Na	Na	Na	<5
Breweries	0%	0%	8%	8%	15%	31%	23%	15%	0%	0%	0%	41.0	13.0	13
Chemicals and Paints	4%	0%	0%	17%	13%	33%	8%	13%	8%	4%	0%	42.2	24.0	24
Agriculture	Na	Na	Na	Na	Na	Na	Na	Na	Na	Na	Na	Na	Na	<5
Food, Bev. And Tobacco	Na	Na	Na	Na	Na	Na	Na	Na	Na	Na	Na	Na	Na	<5
Footwear	0%	11%	0%	56%	0%	0%	22%	0%	11%	0%	0%	31.0	9.0	9
Automobiles/Tyres	0%	0%	6%	9%	29%	34%	6%	9%	9%	0%	0%	39.6	35.0	35
Airline	0%	0%	0%	40%	40%	20%	0%	0%	0%	0%	0%	29.0	5.0	5
Engineering	0%	0%	20%	40%	0%	0%	0%	0%	20%	0%	20%	43.0	5.0	5
Computer/Office Equipment	0%	0%	0%	30%	20%	30%	20%	0%	0%	0%	0%	35.0	10.0	10
Petroleum	22%	11%	11%	22%	11%	22%	0%	0%	0%	0%	0%	18.6	9.0	9
Printing/Publishing	Na	Na	Na	Na	Na	Na	Na	Na	Na	Na	Na	Na	Na	<5
Textiles	0%	0%	0%	7%	27%	33%	27%	7%	0%	0%	0%	31.7	15.0	15
Healthcare	0%	0%	0%	10%	10%	30%	30%	10%	10%	0%	0%	46.0	10.0	10
Packaging	0%	22%	0%	0%	22%	0%	44%	0%	0%	11%	0%	38.8	9.0	9

Source: Research Questionnaire

TABLE 4.7: **Factors Limiting Debt Usage by Industry.**

Question: How important are the following factors in your decision not to use more debt in your Capital Structure?

	All X X N	Building Materials X X N	Construct ion X X N	Breweries X X N	Chemicals and Paints X X N	Agriculture X X N	Food, Bev. And Tobacco X X N	Footwear X X N	Automobiles /Tyres X X N	Airline X X N	Engineering X X N	Computer/O ffice Equip. X X N	Petroleum X X N	Printing/Publ ishing X X N	Textiles X X N	Healthcare X X N	Packagin g X X N
Target debt level	3.6 4.0 161	4.0 4.0 7	Na na <5	2.9 3.0 12	3.7 4.0 25	na na <5	na na <5	3.4 4.0 9	3.3 4.0 5	3.2 3.0 5	3.2 4.0 5	4.1 4.5 10	3.2 4.0 10	3.6 4.0 5	3.7 4.0 13	4.4 4.5 10	3.9 4.0 9
Credit rating	3.5 4.0 159	2.9 3.0 7	Na na <5	3.1 3.5 12	3.3 4.0 25	na na <5	na na <5	3.9 4.5 8	3.4 4.0 34	na na <5	3.0 4.0 5	3.6 3.5 10	3.6 3.5 10	3.2 4.0 5	3.6 4.0 14	4.7 5.0 9	3.4 4.0 9
Financial covenants	3.4 4.0 161	2.7 3.0 7	Na na <5	3.5 4.0 13	3.6 4.0 25	na na <5	na na <5	3.5 4.5 8	3.5 4.0 35	3.2 5.0 5	3.0 2.0 5	3.4 4.5 10	3.2 3.5 10	4.8 5.0 5	3.0 3.0 13	3/0 3.5 10	3.7 4.0 9
Interest rates are too high	2.4 2.0 161	1.6 1.0 7	Na na <5	2.2 2.0 13	2.6 3.0 25	na na <5	na na <5	3.0 3.0 9	2.0 2.0 35	2.0 2.0 5	1.8 2.0 5	3.0 3.5 10	2.6 3.0 10	2.2 3.0 5	2.2 3.0 13	2.5 2.5 8	3.0 3.0 9
Transaction costs	2.0 2.0 161	1.6 1.0 7	Na na <5	1.5 1.0 13	2.2 2.0 25	na na <5	na na <5	2.7 3.0 9	1.6 1.0 34	2.0 2.0 5	1.6 1.0 5	1.9 2.0 10	2.6 2.5 10	2.4 2.0 5	1.8 2.0 14	2.8 3.0 8	2.6 3.0 9
More debts would constrain us financially	2.9 3.0 161	2.7 2.5 6	Na na <5	2.7 3.0 13	3.2 3.0 25	na na <5	na na <5	3.1 3.0 9	2.7 3.0 35	2.4 3.0 5	2.2 3.0 5	3.2 4.0 10	3.3 4.0 10	2.4 3.0 5	2.9 3.0 14	2.9 3.0 8	3.0 2.0 9
More debts would cost financial distress	2.6 3.0 156	1.8 1.0 6	Na na <5	2.8 3.0 12	3.0 3.0 25	na na <5	na na <5	2.9 4.0 9	2.5 2.0 34	2.8 2.0 5	1.8 1.0 5	2.9 3.5 10	2.7 3.0 10	2.6 3.0 5	2.2 2.0 14	2.0 2.0 8	3.1 3.0 8
Investors distrust our judgment	1.4 1.0 153	0.4 0.0 7	Na na <5	0.6 0.0 12	1.4 1.0 23	na na <5	na na <5	2.1 2.0 9	1.4 1.0 33	0.6 0.0 5	0.6 0.0 5	1.8 2.0 10	1.6 1.5 10	1.8 2.0 5	1.3 1.0 13	1.5 1.0 8	1.6 1.0 8
We cannot raise any more debt	1.8 1.0 155	1.0 0.0 7	Na na <5	1.5 0.0 13	2.2 1.0 23	na na <5	na na <5	2.7 3.0 9	1.6 1.0 34	na na <5	1.8 0.0 5	2.2 1.5 10	2.3 1.5 10	2.4 3.0 5	0.7 0.0 13	2.3 1.0 8	2.1 2.0 8
The cost of disclosure are too high	1.1 1.0 153	1.1 1.0 7	Na na <5	0.8 0.0 13	1.5 1.0 23	na na <5	na na <5	1.4 1.0 9	0.9 1.0 34	na na <5	1.2 1.0 5	1.1 0.0 9	1.3 1.0 10	2.0 3.0 5	0.5 0.0 13	1.1 1.0 8	1.5 1.0 8
Not the cheapest source of financing	2.0 2.0 155	2.4 2.0 7	Na na <5	1.1 0.5 12	2.3 2.0 23	na na <5	na na <5	2.2 2.0 9	1.8 2.0 34	0.4 0.0 5	1.4 1.0 5	2.3 2.5 10	2.4 2.0 10	2.2 3.0 5	1.2 1.0 13	2.4 1.0 8	3.1 4.0 8

Means and medians in percent

Source: Research Questionnaire

TABLE 4.8: **Factors limiting Equity Usage by Industry**

Question: How important are the following factors in your decision not to use more equity in your Capital Structure?

	All	Building Materials	Construction	Breweries	Chemicals and Paints	Agriculture	Food, Bev. And Tobacco	Footwear	Automobiles/T yres	Airline	Engineering	Computer/Offic e Equipmt.	Petroleum	Printing/Pu blishing	Textiles	Healthcare	Packaging
	X X N	X X N	X X N	X X N	X X N	X X N	X X N	X X N	X X N	X X N	X X N	X X N	X X N	X X N	X X N	X X N	X X N
Debt target	2.3 2.0 149	2.3. 3.0 6	Na na <5	2.2 2.0 12	1.9 1.5 22	na na <5	na na <5	2.8 2.5 8	2.4 2.5 34	Na na <5	1.8 1.0 5	2.0 2.0 8	2.1 1.0 10	1.6 1.0 5	2.8 3.5 12	2.9 3.0 9	2.9 3.0 7
Equity is undervalued	2.4 2.5 146	2.0 1.0 5	Na na <5	1.3 1.0 12	2.7 2.5 22	na na <5	na na <5	3.9 5.0 9	2.3 2.0 34	na na <5	2.8 3.0 5	2.1 1.5 8	2.9 3.5 10	2.6 4.0 5	2.3 2.5 12	1.5 1.0 8	2.8 3.0 6
EPS dilution	3.4 4.0 161	2.7 3.0 7	Na na <5	3.5 4.0 13	3.6 4.0 25	na na <5	na na <5	3.5 4.5 8	3.5 4.0 35	3.2 5.0 5	3.0 2.0 5	3.4 4.5 10	3.2 3.5 10	4.8 5.0 5	3.0 3.0 13	3/0 3.5 10	3.7 4.0 9
Share price	2.4 2.0 161	1.6 1.0 7	Na na <5	2.2 2.0 13	2.6 3.0 25	na na <5	na na <5	3.0 3.0 9	2.0 2.0 35	2.0 2.0 5	1.8 2.0 5	3.0 3.5 10	2.6 3.0 10	2.2 3.0 5	2.2 3.0 13	2.5 2.5 8	3.0 3.0 9
Ownership stakes of key shareholders	2.0 2.0 161	1.6 1.0 7	Na na <5	1.5 1.0 13	2.2 2.0 25	na na <5	na na <5	2.7 3.0 9	1.6 1.0 34	2.0 2.0 5	1.6 1.0 5	1.9 2.0 10	2.6 2.5 10	2.4 2.0 5	1.8 2.0 14	2.8 3.0 8	2.6 3.0 9
Investors distrust our judgment	2.9 3.0 161	2.7 2.5 6	Na na <5	2.7 3.0 13	3.2 3.0 25	na na <5	na na <5	3.1 3.0 9	2.7 3.0 35	2.4 3.0 5	2.2 3.0 5	3.2 4.0 10	3.3 4.0 10	2.4 3.0 5	2.9 3.0 14	2.9 3.0 8	3.0 2.0 9
We cannot raise any more equity	2.6 3.0 156	1.8 1.0 6	Na na <5	2.8 3.0 12	3.0 3.0 25	na na <5	na na <5	2.9 4.0 9	2.5 2.0 34	2.8 2.0 5	1.8 1.0 5	2.9 3.5 10	2.7 3.0 10	2.6 3.0 5	2.2 2.0 14	2.0 2.0 8	3.1 3.0 8
Transaction costs	1.4 1.0 153	0.4 0.0 7	Na na <5	0.6 0.0 12	1.4 1.0 23	na na <5	na na <5	2.1 2.0 9	1.4 1.0 33	0.6 0.0 5	0.6 0.0 5	1.8 2.0 10	1.6 1.5 10	1.8 2.0 5	1.3 1.0 13	1.5 1.0 8	1.6 1.0 8
Our shares are illiquid	1.8 1.0 155	1.0 0.0 7	Na na <5	1.5 0.0 13	2.2 1.0 23	na na <5	na na <5	2.7 3.0 9	1.6 1.0 34	na na <5	1.8 0.0 5	2.2 1.5 10	2.3 1.5 10	2.4 3.0 5	0.7 0.0 13	2.3 1.0 8	2.1 2.0 8
The cost of disclosure are too high	1.1 1.0 153	1.1 1.0 7	Na na <5	0.8 0.0 13	1.5 1.0 23	na na <5	na na <5	1.4 1.0 9	0.9 1.0 34	na na <5	1.2 1.0 5	1.1 0.0 9	1.3 1.0 10	2.0 3.0 5	0.5 0.0 13	1.1 1.0 8	1.5 1.0 8
Not the cheapest source of financing	2.0 2.0 155	2.4 2.0 7	Na na <5	1.1 0.5 12	2.3 2.0 23	na na <5	na na <5	2.2 2.0 9	1.8 2.0 34	0.4 0.0 5	1.4 1.0 5	2.3 2.5 10	2.4 2.0 10	2.2 3.0 5	1.2 1.0 13	2.4 1.0 8	3.1 4.0 8

Means and medians in percent

Source: Research Questionnaire

4.1.4. INTERPRETATION OF PRIMARY DATA RESULTS

These are done table by table. Based on the results, the following interpretations are obtained:

TABLE 4.1: DEFINITION OF DEBT BY INDUSTRY

Question: Which of the following do you include when you measure the level of debt for Capital Structure purposes?

Table 4.1 showed that 96% of the total respondents said that in their measuring debt for Capital Structure purposes, they include L-term debt maturing greater than (>) one year. 90% said they also include those maturing in less than 1 year.

86% include Short-term debts, while only 16% include capitalized operational leases, 20% include unfunded pension liabilities, while only 15% include debt-related derivatives.

The definitions of debt by each industry were also clearly disclosed in the table. 100% of the respondents in the following sectors – Building Materials, Construction, Agriculture, Food Beverage and Tobacco, Footwear, Airline, Computer and Office Equipment, Printing and Publishing, Healthcare, etc, said they must include all “Long-term debts maturing in less than 1 year” in the Capital Structure, and so on.

The least items that are usually included when compared with others are:

Related derivatives - (15%); Automobiles (9%); Printing (0%), etc.

Other current liabilities - (16%); Breweries (0%); Footwear and Health Care (8%) of all the respondents respectively.

TABLE 4.2: CAPITAL STRUCTURE TARGET BY INDUSTRY

Question: Do you have a target Capital Structure?

Table 4.2 showed that 68% of all the respondents put together have a target Capital Structure, while only 32% said "No".

For each given company selected, the percentage of the respondents that answered "Yes" to the above question were outlined. For instance:

Building Materials sector - 90% answered "Yes"

Automobiles - 67% answered "Yes"

Printing - 75% answered "Yes"

And so on.

Also the number of questionnaires from which these percentages were derived were also disclosed. The highest number of questionnaires were distributed to and also returned by the Chemicals and Paints Company.

TABLE 4.3: CAPITAL STRUCTURE TARGET BY INDUSTRY

Question: How do you grade the following measures in determining your target Capital Structure?

Table 4.3 discloses the results obtained for the above question from the respondents.

Of the 153 out of the 260 respondents that responded to “the Absolute Level of debt” in determining the target Capital Structure, 53% will use it as a primary measure, 25% as a secondary measure, while 22% will not use this at all.

The one that had the highest response rate was Debt/Book value of Equity (which is a measure of leverage (D/E) ratio), with 156 respondents. 55% will adopt this as a primary measure, 25% will adopt this as a secondary measure, while 20% will not use it at all.

It is only “Debt/Earnings Before Interest and Taxes” (Debt/EBIT) that will attract 58% primary measure. The measure that a lot of the respondents will not use at all is EBIT/Fixed charges which 58% will not use.

TABLE 4.5: CAPITAL STRUCTURE MEASURE BY INDUSTRY

Question: Which of the following measures do you use to determine your target Capital Structure?

Table 4.5 discloses the responses from each of the selected companies / industries, giving a table of industry-specific measure of capital structure.

P = Percentage of respondents who chose each of the given items as a primary measure.

S = Percentage who chose it as a secondary measure, and

N = Number of respondents

Na = Not available.

“Debt / BV of equity” attracted the highest measure with the following taking it as a primary measure:

Building Materials (86%), Breweries (62%), Chemical and Paints (63%), , Computer and Office Equipment (67%), Textiles (62%), and Healthcare (67%) respectively, etc.

TABLE 4.6: TARGET LEVERAGE BY INDUSTRY / DETERMINATION OF APPROPRIATE CAPITAL STRUCTURE.

Question: Approximately, what would your leverage ratio be if you were at your target Capital Structure?

In Table 4.6, of all the respondents, majority (56%) said they will accept a leverage ratio of between 71% – 80%.

Only 2% and 1% will accept the two extremes of 0 – 10% leverage ratios, and 91 – 100% leverage ratios respectively.

Looking at the mean and median respectively, we got mean \bar{x} 70.0%, and median \hat{x} 71.0% leverage ratios respectively.

The Industry-specific values were also given in the same table.

A total of 162 respondents answered this question.

This means that an appropriate debt /equity (leverage) ratio of at least 70% is recommended by this research. This is in line with the findings of Cohen (2005), who recommended an appropriate leverage position of 77% for the companies studied.

TABLE 4.7: FACTORS LIMITING DEBT USAGE BY INDUSTRY

Question: How important are the following factors in your decision not to use more debt in your Capital Structure?

Critical analysis of table 4.7 discloses that of all the respondents put together, “the target debt level”, “Credit rating”, and “Financial Covenants” were the most important factors when compared to the others listed therein, in determining the various decisions not to use more debt in a given company’s capital structure by having the highest mean(\bar{x}) and median (\hat{x}) values.

Also, the industry-specific values were articulated therein, confirming also that the three factors listed above were actually the most important.

The least important factors were: (I) Investors distrust our judgment, and (ii) The cost of disclosure is too high.

TABLE 4.8: FACTORS LIMITING EQUITY USAGE BY INDUSTRY

Question: How important are the following factors in your decision not to use more equity in your capital structure.

Table 4.8 also discloses the relative importance of the listed factors in determining our decision to either use or not use more equity in our Capital Structure. Of all the factors, "EPS dilution" ranks the highest with a mean (\bar{x}) of 3.4 and median (\hat{x}) of 4.0 out of the 161 respondents, while "The cost of disclosure is too high" ranks the least with only a mean of 1.1 and median of 1.0.

The industry-specific values were also analyzed accordingly and also confirms the above finding.

4.1.5 PRESENTATION OF SECONDARY DATA

This part of the work contains the data collected from the published Annual Financial Reports for a 5-year period(2002 – 2006) of the 20 selected companies listed on the first-tier Securities Market of the Nigerian Stock Exchange (NSE) market with at least two companies from a given sector.

The tables contain:

- a. Data for five years period from 2002 – 2006 each for the twenty firms.
- b. Y , the dependent variable, representing one of our measures of corporate performance – the Profit After Taxation (PAT).
- c. X_1 , and X_2 are the independent variables that influence the Y . They are the components of Capital Structure and are the regressors in the regression model.

X_1 = Leverage.

X_2 = Corporate Tax.

The dependent and independent variables are estimated in their percentage medians.

- d. The performance indicators for the multiple discriminant analysis.

They include:

- i. b_0 = PAT

- ii. $b_1 = \text{EPS}$
- iii. $b_2 = \text{DPS}$
- iv. $b_3 = \text{NAPS}$ and
- v. $b_4 = \text{Tax}$.

Here,

Y = Leverage or Capital Structure indicator.

We made use of both successful and non-successful manufacturing industries based on their performance profile and trend of performance over the period of study, and their leverage ratios, PAT, EPS, DPS, NAPS as well as corporate tax, were computed accordingly. We decided to sample the firms irrespective of the sector, or whether they are leveraged or wholly financed by equity.

The aim is to avoid having any bias from our multiple regression analysis.

The selected firms and their records are attached in the appendix.

The SPSS software package and the multiple discriminant analysis software were used to perform multiple regression and multiple discriminant analysis on the data.

4.1.6 ANALYSIS OF SECONDARY DATA AND INTERPRETATION OF RESULTS

This was done using:

- i. Simple Regression Analysis
- ii. The Multiple Regression Analysis, and
- iii. Multiple Discriminant Analysis.

4.1.7. TEST OF HYPOTHESES

4.1.7.1. HYPOTHESIS ONE.

H_0 : Leverage does not exert any significant impact on corporate profitability.

H_1 : Leverage exerts significant impact on corporate profitability.

The hypothesis attempts to test whether leverage is a significant factor accounting for corporate performance among Nigerian firms. This hypothesis assumes that the application of appropriate leverage ratios by firms induces a positive growth in corporate performance, which implies that as more firms adopt appropriate leverages comprising of some equitable proportion of debts in their capital structure, they contribute positively to the growth of corporate performance through overall reduction of the tax effects of debts, bankruptcy costs, and enhancing of effective shareholders' control of business.

To determine if a relationship exist, the researcher applied the Simple Regression Analysis technique using equation of the form:

$$Y_1 = b_0 + b_1X_1 \quad \dots\dots\dots (6).$$

Where Y_1 = PAT (Performance Indicator),

X_1 = ϕ (leverage ratio).

From the computer results using the SPSS system (see attached below):

FINDINGS:

EFFECT MODEL WITHOUT TAX:

$$Y = PAT = 440.421 + 134.915 \text{ lev.} \dots\dots\dots (\text{Model 1})$$

The effect model is significant as F calculated (15.307) is significant at 0.0001 level, which is less than 0.01.

Also the effect of leverage is significant as T calculated (3.912) is significant at 0.01).

Leverage has a positive impact on the performance regression model.

Decision.

We therefore conclude that there is a significant impact between a firm's leverage and corporate profitability.

This result therefore confirms that leverage structure is a significant factor accounting for corporate performance in Nigeria. This is in contrast with the findings of Modigliani and Miller (1958) which states that the value of a firm is unaffected by how that firm is financed. That is, it does not matter if the firm's capital is raised by issuing stock or selling debt. It also

does not matter what the firm's dividend policy is. Note that this was because his was "in the absence of corporation tax"

4.1.7.2. HYPOTHESIS TWO

H0: There is no significant difference between the effects of tax shield and leverage on company performance.

H1: There is a significant difference between the effects of tax shield and leverage on company performance.

Attached is the model summary and findings from the multiple regression analysis conducted on the variables

FINDINGS:

EFFECT MODEL WITH TAX:

$$Y = PAT = 94.341 + 9.432 \text{ lev} + 2.081 \text{ tax} \dots\dots\dots (\text{Model 2})$$

The model is significant as F calculated (530.803) is significant at 0.001 level, which is less than 0.01.

However, tax effect is significant as T calculated (29.103) is significant at 0.01.

The conclusion therefore is that the tax shield associated with leverage makes significant effect on corporate profit of firms. The significance increases in the parameters (R, R^2 , and F values) confirms the above conclusion.

This positive value of leverage shows that a higher leverage could improve the Firm Performance. This is in line with the findings of Claessens (2000) that the higher leverage of East Asian firms contributed to their post-crises improved performance in their study period.

Decision: There is a tax shield provided when firms undertake leverage.

4.1.7.3 HYPOTHESIS THREE

H_0 : There is no significant relationship between a firm's performance and capital structure.

H_1 : There is a significant relationship between a firm's performance and capital structure.

Here, the multiple discriminant analysis technique was used to discriminate between the performance indicators, leverage and tax of the selected firms for the period under study.

The result of the analysis is attached below.

FINDINGS:

STANDARDIZED DISCRIMINANT FUNCTION:

$Lev = -0.194 PAT + 1.975 EPS - 0.993 DPS + 0.092 NAPS - 0.02 Tax.$ (Model 3).

The above function implies that as the leverage level of an organization increases, its tax burden, profit after tax, and dividend per share reduces; while the earnings per share and net assets per share increases.

IMPLICATIONS

1. It means here that leverage led to a negative in PAT, which meant that as leverage increases, interest payments on the debts increase, which therefore reduces the PAT.

2 Also, as leverage increases, tax burden should reduce. This is the tax shield. Higher leverage, lower tax.

2. DPS is equally expected to decrease, meaning that if organizations are to be paying out money as interest to debt, the amount of money available to shareholders as dividends will decrease, as the PAT also decreases.
3. On the other hand, the Earnings Per Share (EPS), and the Net Asset Per Share (NAPS) will increase as the leverage increases. These variables, on their own, are based on the number of share capital outstanding.

4.1.7.4. HYPOTHESIS FOUR

H_0 : The summary effect of the change on the leverage-impact on corporate performance brought in by the introduction of tax is not significant.

H_1 : The summary effect of the change on the leverage-impact on corporate performance brought in by the introduction of tax is significant.

Firstly, we tried to analyze its effects without corporation tax, and, secondly, we introduced the issue of corporate taxation.

Analysis of effects of leverage on corporate profitability

a. WITHOUT TAX

$R = 0.369$

$$R^2 = 0.136$$

$$\text{Adjusted } R^2 = 0.127$$

b. WITH TAX

$$R = 0.966$$

$$R^2 = 0.932$$

$$\text{Adjusted } R^2 = 0.931$$

This shows there is an improvement.

Equally, for **the F values**:

WITHOUT TAX, f value = 15.307

WITH Tax, F value = 530.803.

This also shows that there is a very significant improvement with tax.

Further confirmation:

EFFECT MODEL:

Here, without tax, leverage becomes insignificant because T value is 0.695 . But, with tax, leverage becomes significant with a T value of 29.103. Therefore, there is a significant improvement with tax.

To ascertain if the change or improvement is significant, below is a summary table, which is developed in order to analyze how significant is the effect of the change.

TABLE 4.15: SUMMARY OF THE EFFECT OF LEVERAGE

	R	R ²	Adjusted R ²	F value
Without tax	0.369	0.136	0.127	15.307
Wit tax	0.966	0.932	0.931	530.803
Change	+0.597	+0.796	+0.804	+515.496

From the above result, the F value calculated for change is 515.496.

When this is compared with the F tabulated – F (2,77) – from the table value, we have F-tabulated = 3.09.

Since F calculated is greater than F tabulated, we conclude that the effect of the change is significant.

4.1.8. THE INSTITUTIONAL FACTORS

The institutional factors that could militate against the effective use of capital structure to improve corporate performance could include:

(i) The non-financial characteristics of the firm.

This includes:

- a. Sales margin,
- b. Real sales growth, and
- c. Logarithm of sales (as a measure of size).

(ii) The industry-specific shocks to which a firm may be exposed.

This includes:

- a. The difference in market structures across industries.
- b. Other changes in the degree of relative competitiveness.

(iii) The institutional environment in which the firm operates.

This includes:

- a. The indexes of protection of share holders' rights, and
- b. The indexes of protection of creditors' rights (Claessens et al: 2000).

4.2. DISCUSSION

A closer look at the results so far show that Capital Structure and leverage specifically is important for the enhancement of corporate performance in manufacturing firms in Nigeria.

According to the Camel's rating, also very important for overall company growth and efficiency is the "CAPITAL ADEQUACY" in addition to the composition or components of this capital, that is, the capital structure.

Capital adequacy has in fact been identified as one of the measures and determinants of the level of corporate performance (Nzotta: 2002).

The first model aptly explains the relationship between firm performance and capital structure. It was necessary to bring in the indicators of corporate performance to enable us have a more comprehensive view of what is involved. The last model (model 3) is all-inclusive and explains this relationship.

Leverage was found to have a positive relationship with firm performance, EPS and NAPS and these are statistically significant. This positive relationship with performance implies that an increase in leverage up to a certain level will tends to improve operational performance.

Many scholars have established these relationships especially in the developed countries like USA (Demsetz and Villalonga: 2001); Hong Kong, Indonesia, Japan, Korea Republic, Malaysia, Phillipeans, Singapore, Taiwan, Thailand and Germany (Claessens et al: 2000).

Moreso, Morck et al (1988) found a non-monotonic relation between capital structure and performance in a cross section of firms studied. They measured performance primarily by Tobin's Q, and ownership concentration as the combined shareholdings of all members who have a minimum stake of 0.2%. They estimated a piece-wise linear regression and found a significant relation (increasing between 0% and 5%, decreasing between 5% and 25%, and increasing beyond 25%).

Claessens, Djankov and Colin (2000) in their study of 46 companies found in particular that firms with higher leverage tended to perform better (and the coefficients are statistically significant in the median regression) than did firms without this characteristic.

These explanations do contradict the fact that many firms confronted problems arising from high leverage and low (risk-adjusted) rates of return and were thus very much at risk. One explanation of the preference for debt – apart from the need for external financing to

maintain high growth rate – maybe that it enabled large shareholders to retain control over firm's operations and thus, to continue to benefit from a disproportional share of firm's cash flows.

Had firms instead relied on equity financing, the bond holders would have controlled the decision to expand into new businesses, based on clear, objective criteria. Claessens, Djankov, and Collins (2000) found that many firms in Eastern Asia were controlled by a few large shareholders. Two thirds of those controlling owners also held senior management positions and thus, had ample opportunities to deliver profit and indulge in high levels of risk. In cases where only a few owners held all or substantially all control, greed was a strong incentive. Empirical evidence revealed that minority rights were often violated in firms controlled by inside shareholders. Valuation of such companies were far below those of comparable firms, suggesting large scale expropriation (Claessens and others: 2000).

Ownership structures may also have mitigated or exacerbated the impact of the shocks. Claessens and others (2000) showed that ownership structure can explain excessive diversification which lowered firm's market valuation before the crisis. Group affiliation may also have been a factor because it could have allowed for more diversification of risk. Indeed, Claessens and others (2000) found that the market valuation of

companies associated with groups was 3% higher after the crises than that of non-affiliated firms, suggesting that there were some benefits from diversification with the group. It appears that group affiliation gives rise to trade-offs: lower performance in normal times, but some risk diversification in turbulent periods. At the same time, group affiliation was found to be associated with expropriation.

Looking at the robustness of the results, we observe the following: Variations on the models just examined are not presented here because they do not have results that will make us question the central findings in this study. We estimated these models using PAT, and other performance indicators as the measures of firm performance. We also found in all cases that there is a significant relationship between capital structure components and firm performance. We also found that leverage has a significant relation with firm performance, confirming Claessens, Djankov and Colin (2000).

Results obtained give no reason to alter the conclusions we reached above about the relation between share ownership and control. The coefficients in other variables were not altered in ways that require commentary.

Finally, we used our new sample to investigate the breakpoints found by Morck et al (1988) when estimating a segmented linear regression of firm performance on shareholdings.

Our results for the segment they identified were the same sign with theirs, but only different on statistical significance. This suggests, as do some studies earlier described that the segment uncovered by Morck et al are more likely an accidental occurrence than an enduring aspect of the performance – ownership structure relation.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATION

5.1 CONCLUSION

Evidence from the empirical analysis showed the following:

- a. There is a significant relationship between Capital Structure and the performance of corporate firms in Nigeria.
- b. There is a significant relationship between Leverage and the performance of manufacturing firms in Nigeria.
- c. Higher leverages tend to have a positive effect on the overall firm performance.
- d. A debt/Equity ratio of at least 70% is considered as appropriate for manufacturing firms operating in Nigeria. So, companies should, generally speaking, have higher debt and lower equities in order to take care of the tax advantage of debt interest.
- e. There is a tax shield provided when firms undertake leverage.
- f. The summary effect of the change on the leverage-impact on corporate performance with introduction of corporation tax is significant. As the introduction of tax led to a 0.597 increase in R , 0.796 increase in R^2 , 0.804 increase in adjusted R^2 , and 515.496 increase in F value, which is significant.

In conclusion, we appraised whether Capital Structure is an essential factor for enhancing corporate performance in manufacturing companies in Nigeria. We investigated how a firm's capital structure decisions can affect corporate performance in a setting that includes both the leverage, and taxation as variables. Our study contributes to the literature on how the firm may use its choice of equity level to affect corporate profits. Modigliani and Miller theories suggest that in the absence of taxes, a firm's value and profit remain the same irrespective of how that firm is financed. Contrary to this hypothesis, we showed that a firm's leverage is positively related to the Profit After Tax (PAT). Further tests proved this relationship significant confirming Demsetz and Villalonga (2001). Taxation on its own has a positive significant relation with profitability.

The major contribution to knowledge of this study is that we have been able to develop a Capital Structure prediction model useful in the determination of corporate performance amongst manufacturing firms in Nigeria. This study has also shown a remarkable departure from other studies on Capital Structure of corporate manufacturing firms in Nigeria.

Capital Structure has therefore been proved to be useful in the determination of corporate performance among manufacturing firms in

Nigeria. The study has established the fact that Capital Structure decisions have not been properly handled in this country and this has significantly affected the level of performance of corporations operating in the country. Some prediction models have been developed for efficient allocation of capital structure in the various sectors of the economy. The researcher is of the opinion that if this model is applied, the benefits of capital structure will be realized.

5.2. RECOMMENDATIONS

1. Efforts should be made to improve the management of capital structure variables by manufacturing corporations in Nigeria in order to help improve their performance.
2. The firms, as a matter of prudence, through the Companies and Allied Matters Decree (CAMD), Securities and Exchange Commission (SEC), as well as the Central Bank of Nigeria (CBN) should establish regulations that encourage them increase their capital base by adopting appropriate capital structures that will help improve their performance.
3. The SEC, the Corporate Affairs Commission (CAC) as well as the CBN should also, through their supervisory role, ensure that the companies adopt the appropriate capital structures by ensuring that

funds made for equity and debt securities actually reach the target population.

4. The regulatory organizations should start off a process of integrating the formal and informal sectors of the economy as this is a means of expanding the Nigeria corporate, financial and economic system.
5. Appropriate sanctions should be mated out to companies that default in this direction.
6. Tax relief should be offered to companies that meet the policy decisions on the appropriate capital structure for the different manufacturing firms in Nigeria.
7. An appropriate Debt/Equity (leverage) ratio is recommended for "Blue-Chip" firms operating in Nigeria. Firms should have, generally speaking, higher debt and lower equities (Investopedia:2006).
8. Further studies should be carried out in this area as well as in "Capital Resources Adequacy" which has been confirmed to have a positive significant impact on corporate performance.

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APPENDICES

APPENDIX I: RESEARCH QUESTIONNAIRE

Dear respondent,

I am a student of the Federal University of Technology Owerri carrying out a research on **"IMPACT OF CAPITAL STRUCTURE ON THE CORPORATE PERFORMANCE OF MANUFACTURING FIRMS IN NIGERIA (A STUDY OF SELECTED FIRMS)"**

This study is part of the request for the completion of my Ph.D. programme in Financial Management Technology. The information sought is purely for academic purpose.

I therefore implore you to answer the questions sincerely, and to the best of your knowledge. All the information supplied will be treated in strict confidence.

Thank you for your patience.

PART ONE

PERSONAL DATA:

1. Name -----

2. Type of company \ Industry:

- ☐ Building Materials
- ☐ Construction
- ☐ Breweries
- ☐ Chemicals and Paints
- ☐ Agriculture
- ☐ Food, Beverages and Tobacco
- ☐ Footwear
- ☐ Airline
- ☐ Engineering
- ☐ Computer / Office Equipment
- ☐ Petroleum
- ☐ Printing/Publishing
- ☐ Textile
- ☐ Healthcare
- ☐ Packaging

2 Position held:

CEO ☐ Financial Manager ☐ Chief Accountant ☐

Board Member/Director ☐ Senior Employee/ staff ☐

Junior employee ☐ Others(specify)

3 Qualification:

☐ Primary six

☐ WASC/ GCE

☐ OND / NCE / HND

☐ B.Sc / MBA / M.Sc / Ph.D.

PART TWO

CAPITAL STRUCTURE DECISION:

1. Definition of debt by industry:

Question: Which of the following do you include when you measure the level of "debt" for capital structure purposes?

Long term debt maturity > 1 year

☐ Long term debt maturity < 1 year

☐ Short term debt

☐ Other current liabilities

☐ Capital operational leases

☐ Unfunded pension liabilities

☐ Debt related derivatives

4. Factors determining level of debt by industry:

Question: How important are the following factors in determining the appropriate level of debt for your company?

☐ Tax shield

☐ Customer attitudes

☐ Supplier attitudes

- ☐ Employee attitudes to high debt
- ☐ Ability to continue making investments
- ☐ Ability to maintain dividends
- ☐ Competitor actions when debt is high
- ☐ Credit rating
- ☐ Transaction costs on debt issue
- ☐ Shareholders maintaining control
- ☐ Debt improves bargaining with employees
- ☐ EPS (Earnings per share)
- ☐ Other companies in industry.

3. Capital structure target by industry:

Question: Do you have a target capital structure?

☐ Yes

☐ No

4. Capital structure measures:

Question: How do you grade the following measures in determining your target capital structure?

	Primary Measure	Secondary measure	Not used
(a) Absolute level of debt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(b) Debt / MV of equity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(c) Debt / BV of equity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(d) Debt / BV of total assets	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(e) Debt / (MV of equity + BV of debt)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(f) Debt / (MV of equity and debt)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(g) EBIT / interest payments	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(h) EBIT / fixed charges	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(i) Debt / EBIT	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

5. Capital structure measures by industry:

Question: Which of the following measures do you use to determine your target capital structure?

- ☐ Absolute level of debt
- ☐ Debt/ MV of equity
- ☐ Debt / BV of equity
- ☐ Debt / BV of total assets
- ☐ Debt / (MV of equity + BV of debt)
- ☐ Debt / (MV of equity and debt)
- ☐ EBIT/ interest charges
- ☐ EBIT / fixed charges
- ☐ Debt / EBIT

6. Target leverage by industry:

Question: Approximately what would your leverage ratio be if you were at your target capital structure?

- ☐ 0%
- ☐ 1% - 10%
- ☐ 11% - 20%
- ☐ 21% -30%
- ☐ 31% - 40%
- ☐ 41% - 50%
- ☐ 51% - 60%
- ☐ 61% - 70%
- ☐ 71% - 80%
- ☐ 81% - 90%
- ☐ 91% - 100%

7. Factors limiting debt usage by industry:

Question: How important are the following factors in your decision not to use more debt in your capital structure?

- ☐ Target debt level
- ☐ Credit rating
- ☐ Financial covenants
- ☐ Interest rates are too high
- ☐ Transaction costs
- ☐ More debt would constrain us financially
- ☐ More debt would cost financial distress
- ☐ Investors distrust our judgement
- ☐ We cannot raise anymore debt
- ☐ The costs of disclosure are too high
- ☐ Not the cheapest source of financing

8. Factors limiting equity usage by industry:

Question: How important are the following factors in your decision not to use more equity in your capital structure?

- ☐ Debt target
- ☐ Equity is undervalued
- ☐ EPS dilution
- ☐ Share price
- ☐ Ownership stakes of key shareholders
- ☐ Investors distrust our judgement
- ☐ We cannot raise anymore equity
- ☐ Transaction costs
- ☐ Our shares are illiquid
- ☐ The costs of disclosure are too high
- ☐ Not the cheapest source of financing.

