ST CLEMENTS UNIVERSITY

DYNAMICS OF OPTIMAL CAPITAL STRUCTURE AND BUSINESS CONTINUITY

(A CASE STUDY OF NIGERIAN AND INTERNATIONAL MARKETS)

Being Thesis Submitted to St. Clements University Turks and Caicos Islands-British West Indies in partial fulfillment of the requirements for the award of **Doctor of Philosophy (PhD) Degree in Financial Management**

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Certification

This certifies that ***OLUKOGBON FRANCIS TAIWO*** has successfully completed and fulfilled the requirements for the award of Doctor of Philosophy in Financial Management

The undersigned certify that they have read and accepted by the Faculty of Business Administration, St Clement University a thesis titled Dynamics of Optimal Capital Structure and Business Continuity (A case Study of Nigerian and International Markets) in partial fulfillment of the requirements for the award of degree of Doctor of Philosophy (PhD) in Financial Management of St Clements University

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Abstract

This research work presents the empirical findings on the impact of optimal capital structure on the performance (Growth) of an organization. It is typically examined the implication of capital structure as it affects business continuity and to untie the knotty nature of capital structure as this has been considered as the most complex and contentious issues in the theory of Finance.

This study is to also align the effect of capital structure with other organ of financial planning to ensure it is optimally established when an organization chooses to alter its existing capital structure with a view to increasing debt-equity ratio or reducing debt-equity ratio as the case may be. This is basically raising bonds to use proceeds to buy back stock or issuing stock to pay off some debt

Chapter 1 began with a highlight on the background of the topic problem to be investigated.

Chapter 2 was related to a review of relevant literature, a general analysis of capital structure as it could operates optimally to guarantee a firm to run as a going concern. It explores the possibilities of the previous researcher's findings, thoughts and conclusions on the optimal capital structure as reasonable choice for organization financial policy.

Chapter 3 was on the research methodology, the various techniques employed to collect information for the study.

Chapter 4 was concerned with the presentation, interpretation and discussion of findings that revealed how financial system affects economic growth.

Chapter 5 is the summary of the findings, implications, recommendations, conclusion and suggestion for further studies

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CHAPTER ONE
INTRODCTION

1.1 BACKGROUND TO THE STUDY

Financial management is part of managerial process that involves financing, acquisition and management of equity, liabilities and assets in order to achieve the overall goal of maximizing the value of an organization.

The study of financial management originally centered on the acquisition of the funds and the problems encountered when financial obligations could not be met on schedule. As a result, financial texts, articles, journals and magazines were replete with information on the liability and equity portion of the Balance Sheet. Now known to be "Statement of Financial Position" as described in the provisions of International Financial Statements.

Very little attention paid to assets. Various source of funds i.e., common stock, long-term debt, bank loans, trade credit were written about in detail. Unfortunately, there was little underlying economic theory to help in determining the optimal mix of financing.

However, after the World War II, the subject of business finance began to include the study of working capital management, e.g. management of cash, stock, account receivables, payables etc. Towards the late 1950s, two things occurred simultaneously within the field of finance. In the instance, financial management began to get involved seriously in the analysis of Fixed Assets Acquisition. This brought into jurisdiction the entire Balance Sheet items of the firm. The second thing that happened was the development of an economic theory applied to financial management. For instance, portfolio theory by Harry, M. Markowitz (1959); theory of Capital Structure by F. Modigliani and M.H Miller (1956) usually referred to as M & M Theory. These theories have been augmented since then, and, today they provide financial management the necessary conceptual framework and tools to systematically address problems encountered in managing Equity, Liabilities and Assets.

Capital structure decisions offer opportunities to create value for shareholders. Yet, these opportunities are often neglected because of difficulties in identifying optimal capital structure that will maximize the value of the firm. Researchers in the field of capital structure have

observed that many companies are geared below the optimal levels that are predicted by theory (Graham, 2000, Strebulaev, 2007).

Financing policy by firms requires managers to identify ways of funding new investment. The managers may exercise three main choices: use retained earnings, borrow through debt instruments or issuing new shares. Hence, the standard capital structure of a firm includes retained earnings, debt and equity. These three components of capital structure reflect company ownership structure in the sense that the first and third components ownership by shareholders while the second component represents ownership by debt holder. This is the pattern found in developing and developed countries alike (See La Porta, Lopez-de-Silanes and Shleifer, 1999). Capital structure affects corporate behavior (Hutton and Kenc, 1998).

This paper presents empirical findings on the impact of capital structure on firm's continuity. The main objective of this study is to determine the overall effect of capital structure on continued existence of firms by establishing the relationship that exists between the capital structure and their return on assets, return on equity. The effect of optimal capital structure on firms' ability to reflect on its value was also established. The study employed panel data analysis by using Fixed-effect estimation, Random-effect estimation and Pooled Regression Model. The usual identification tests and the Hausman's Chi-square statistics for testing whether the Fixed Effects model estimator is an appropriate alternative to the Random Effects model were also computed for each model. The empirical results based on 2003 to 2007 accounting and marketing data for 101 quoted firms in Nigeria lend some support to the pecking order and static tradeoff theories of capital structure. A firm's leverage was found to have a significant negative impact on the firm's accounting performance measure (ROA). An interesting finding is that all the leverage measures have a positive and highly significant relationship with the market performance measure (Tobin's Q). It was also established that the maturity structure of debts affects the performance of firms significantly and the size of the firm has a significant positive effect on the performance of firms in Nigeria the study further reveals a salient fact that Nigerian firms are either majorly financed by equity capital or a mix of equity capital and short-term financing. It is therefore suggested that Nigerian firms should try to match their high market performance with real activities that can help make the market performance reflect on their internal growth and a list of factors relative to capital structure decisions such as profitability, growth of the firm, size of the firm, debt maturity, debt ratio, tax and tangibility have been

identified; however, considerations affecting the capital structure decisions can be studied in the light of minimization of risk. A firm's capital structure must be developed with an eye towards risk because it has a direct link with the value (Krishnan and Moyer, 1997). Risk may be factored for two considerations: (1) that capital structure must be consistent with the firm's business risk, and (2) that capital structure results in a certain level of financial risk.

Business risk may be defined as the relationship between the firm's sales and its earnings before interest and taxes (EBIT). In general, the greater the firm's operating leverage-the use of fixed operating cost- the higher its business risk. Although operating leverage is an important factor affecting business risk, two other factors also affect it-revenue stability and cost stability. Revenue stability refers to the relative variability of the firm's sales revenues.

This behavior depends on both the stability of demand and the price of the firm's products.
Firms with reasonably stable levels of demand, and products with stable prices have stable revenues that result in low levels of fixed costs. Firms with highly volatile demand, products and prices have unstable revenues that result in high levels of business risk. Cost stability is concerned with the relative predictability of input price. The more predictable and stable these input prices are, the lower is the business risk, and vice-versa. Business risk varies among firms, regardless of the line of business, and is not affected by capital structure decisions (Krishnan and Moyer, 1997). Thus, the level of business risk must be taken as given. The higher a firm's business risk, the more cautious the firm must be in establishing its capital structure. Firms with high business risk therefore tend toward less levered capital structure, and vice-versa (Stohs and Mauer, 1996).

The firm's capital structure directly affects its financial risk, which may be described as the risk resulting from the use of financial leverage. Financial leverage is concerned with the relationship between earnings before interest and taxes (EBIT) and earnings before tax (EBT). The more fixed-cost financing, i.e., debt (including financial leases) and preferred stock, a firm has in its capital structure, the greater its financial risk. Since the level of this risk and the associated level of returns are key inputs to the valuation process, the firm must estimate the potential impact of alternative capital structures on these factors and ultimately on value in order to select the best capital structure.

From the foregoing, a capital structure is said to be efficient, if it keeps the total risk of the firm to the minimum level. The long-term solvency and financial risk of a firm is usually assessed for a given capital structure. Since increase in debt financing affects the solvency as well as the financial risk of the firm, the excessive use of debt financing is generally avoided. It may be noted that the balancing of both the financial and business risk is implied so that the total risk of the firm is kept within desirable limits. A firm having higher business risk usually keeps the financial risk to the minimum level; otherwise, the firm becomes a high-risk proposition resulting to higher cost of capital.

After over half a century of studies on this great topic, economists and financial experts have not reached an agreement on how and to which extent firms‟ capital structure impacts the value of firms, their performance and governance. However, the studies and empirical findings of the last decades have at least demonstrated that capital structure has more importance than was found with the pioneering Miller-Modigliani model. We might probably be far from the ideal combination between equity and debt, but the efforts of fifty years of studies have provided the evidence that capital structure does affect firms‟ value and future performance. This study is an attempt to contribute to the empirical studies on how capital structure affects firm's performance in the Nigerian context.

Jensen (2001) as cited in Baker and Martin (2011) indicated that among most financial economists, the criterion for evaluating performance and deciding between alternative courses of action should be the "maximization of the long-term market value of the organization" Rauterberg (2016). The value maximization proposition has its roots dated back to 200 years of research in economics and finance.

Therefore, in maximizing 'organization' value, financial managers are charged with responsibilities, to take investment decision and capital structure choices according to Watson and Head (2010). Capital structure refers to the sources of financing that are employed by the organizations either through debt or equity or the hybrid securities that are used to finance assets acquisition, operations, and future growth. The capital structure defined by different researchers such as Brealey and Myers (1991),described the capital structure as "comprising of debt, equity

or hybrid(http://ijecm.co.uk/wp-content/uploads/2015/10/31029.pdf)of securities issued by the organizations." Haugen and Senbet (1988) defined the capital structure as a choice of companies using either an internal or external source of financing instruments. Schlosser (1989) described the capital structure in other terms as the proportion of debt to the total asset capital employed by the organizations. However, Bos and Fetherston (1993) defined the capital structure as the total debt to the total asset at book value that influences both the profitability and riskiness of the organization.

When financial leverage increases, there are better returns to some existing shareholders while its risks may also double as such could cause financial distress as well as the agency cost according to Jensen and Meckling (1976). Therefore, the cost of financial distress may both be direct and indirect. For instance, bankruptcy is a perfect example of direct financial distress cost. While administrative costs, loss of trade credit, loss of sales and critical personnel are examples of indirect financial distress costs. Therefore, an optimal capital structure could determine the trade-off between benefits and costs of debt financing. Their gain stypically taxed savings, and the costs are financial distress and agency costs according to Titman and Tsyplakov (2004).

Borrowing however not only increases the risk of default for an organization but also the volatility of the organization's earnings per share and its return on equity. Therefore, the benefits of a lower cost of debt decrease as leverage increases due to the increasing financial risk and the likelihood of financial distress and bankruptcy as with most business decisions where financing decisions involve risk-return trade-off. The importance of capital structure and corporate financing of an organizations, however, significant given the changes that recently happened in the world economy due to the financial crisis that engulfed the USA stock market. Barclay and Smith (1999) as cited by Baker and Martin (2011) made the following observation: "a perennial debate in corporate finance concerns the question of the optimal capital structure; given a level of total capital necessary to support a company's activities. Is there a way of dividing that capital into debt and equity that maximizes current organization value. Moreover, what are the critical factors in setting the leverage ratio for a given company?"

Therefore, an optimal capital structure is the financing mix that maximizes the value of the organization. Given those above, there are mixed views on whether there is an actual optimal

capital structure that exists, as some people believed that the asset value does not depend on its financing mix. Hence, an optimal capital structure does not exist (http://www.researchgate.net/publication/268398353_Capital_Structure_An_Overview).

The history of the capital structure started with Modigliani and Miller (1958) as they pioneered the research on the capital structure and the value of the organization. In their seminal research work, they show that under stringent conditions of competitive frictionless of the entire stock market, the value of an organization is independent of its capital structure. Furthermore, business risk alone determines the cost of capital. Therefore, they propose that financing and capital structure decisions are not to be shareholders' value enhancing and are irrelevant.

However, other researchers believe that managers can theoretically determine an organization's optimal capital structure (http://www.zikaobj.com/jy/zck_cg_yy2_12.htm).Lately, financial economists have introduced capital market frictions such as taxes, bankruptcy costs, and asymmetric information into their models that can explain some of the factors that are driving capital structure decisions. Therefore, they can set forth some theories such as trade-off theory as in Kraus and Litzenberger 1973.Pecking order theory as in Myers 1984, Myers and Majluf 1984; signaling theory as in Ross 1977; and market timing theory as in Baker and Wurgler 2002 were used to explain the relevance of capital structure. However, these theories relate directly to taxes, asymmetric information, bankruptcy costs, and agency problem.

Therefore, pecking order theory popularized by Myers (1984) was a theory that explained the relevance of debt and optimum capital structure. He presented two sides of the capital structure issue that are called static trade-off theory and pecking order hypothesis. Therefore, the static trade-off theory postulates that the trade-off may explain the capital structure choices between 'benefits and costs of debt 'versus equity; as a company sets "a target debt level by moving gradually towards it" (https://www.coursehero.com/file/pe6k7a/The-trade-off-theory-explained-the-relevance).

However, the pecking order hypothesis postulates that there is no well-defined target ratio as an organization has an ordered preference for financing. Myers (1984) states that companies prefer retained earnings as sources of fund for their investment activities and then follow by debt

astheinternally generated fund are believed to be cheap as it is not subject to outside inferences. Externally generated debt is ranked next to be less expensive than issuing equity as is somewhat having minor restrictions. However, issuing equity is considered most costly and dangerous as it could lead to potential loss of control of the organization by the original owner and manager of the enterprise, and hence ranked last.

In Bharathetal (2009) postulation on pecking order hypothesis that revolves around asymmetric information, the proxies used is market liquidity and transactions costs that have three components that are as follows:

- Order processing costs
- Inventory costs
- Adverse selection costs

Bharathet al(2009) argued that adverse selection could correlate positively with the level of information asymmetry. Moreover, that if the assumption of pecking order theory, asymmetry information, "is dominant in the data, then the theory performs better in predicting capital structure" (http://www.economicissues.org.uk/Files/2014/214harrison.pdf) choice as cited in Harrison and Widjaja (2014).

In a perfect capital market situation, capital structure decision should not have an impact on the market value of an organization. However, when capital market frictions such as bankruptcy costs, taxes, and asymmetric information introduced into the perfect capital market model, the resultant effect is that the factors related to these frictions could affect the capital structure decisions. However, survey evidence indicates that the most dominant factors that hinder the decision to issue debt are to maintain financial flexibility as the significant factors for the issuance of equity stock is earnings per share that may result in its over valuation or undervaluation. Therefore, the result from the regression analysis studies by using organization-level data sets indicates the factors to measure the corporate leverage as the following:

- Market-to-book ratio ended in negative
- The tangibility of asset finished in positive
- Profitability ended in negative
- Organization size ended in positive
- Expected inflation ended in positive

- Median industry leverage ended in positive on leverage

The determinants of the capital structure popularized through the research carried out targeting companies in the United States. Wherein Antoniou et al (2002) postulated that studies based on "an experience of a single country might not represent the effect of diversity of economic tradition and financial environment on the corporate's capital structure." In the 1980s, research on the determinants of capital structure widened to cover Europe and Japan (Nagano, 2003).

However, Rajan and Zingales (1995) broadened the understanding of determinants of capital structure choice of capital structure in their study of G7 nations based on the related factors that influence capital structure of US organizations. It showed many similarities than differences in the underlying factors of organization's debt-equity choices of the US with other countries. They noted, however, that asset tangibility is positive with leverage as suggested that companies that have more capital structure mix will use it as collateral for more loans or debt borrowing.

Furthermore, the market-to-book ratio, the proxy for growth, seemed to be negatively correlated with leverage except for Italy. Also, high market values of stocks will enable organizations to issue more stock than seek debt financing of their operations. Organization size is positively correlated, and profitability negatively associated with the leverage with all countries except Germany. Also, other nations' companies studied are Poland and Hungary by Devic and Krstic (2001).In Holland, the research was done by Chen and Jiang (2001). IntheUK, France, and Germany, the studywas doneby Antoniou et al (2002).In Spanish organizations, it was by Padron et al(2005), and in Switzerland by Drobetz and Fix (2003).

The thesis will investigate the significant determinants of the capital structure decision of the "companies and the speed of adjustment towards their target level" (http://nettt.ir/wp-content/uploads/edd/1-s2.0-S1877042812007215-main-11.pdf).Also, it will examine whether some classical capital structure theories explain one's findings. Furthermore, one will be able to establish whether the result of the findings corresponds well with other capital structure analysis for the companies with industry-specific deviations.

The naive theory: The naive theory of capital structure assumes that the value of the organization maximized when debt entirely finances the organization. Therefore, the cost of debt and the cost of equity remain stable irrespective of the amount of the debt or equity issued (Baver, 2004). The value of the organization increased when more debt published as "the cost of debt is lower than the cost of equity" (HTTP://www.investopedia.com/articles/fundamental-analysis/12/4-leverage-ratios-u.). As more debt is issued, the organization would be able to reduce the weighted average cost of capital (WACC).

The WACC is the average after-tax "cost of a company's various capital sources, including common stock, preferred stock, bonds, and any other long-term debt. A company has two primary sources of financing - debt and equity - and, in simple terms, WACC is the average cost of raising that money" (http://www.qsstudy.com/accounting/how-to-calculate-weighted-average-cost-of-capi.).The calculation of WACC is by multiplying the cost of each capital source (debt and equity) by its appropriate "weight, and then adding the products together to determine the WACC value" (http://www.investopedia.com/ask/answers/063014/what-formula-calculating-weighted.):

WACC = * Re + * Rd * (1 – Tc)

Where:

- Re = cost of equity
- Rd = cost of debt
- E = the market value of the organization's equity
- D = the market value of the organization's debt
- V = E + D
- E/V = percentage of financing that is equity
- D/V = percentage of financing that is debt
- Tc = corporate tax rate

When calculating an organization's WACC, the first step is to determine what proportion of an organization is financed by equity and what (http://www.qsstudy.com/accounting/how-to-calculate-weighted-average-cost-of-capi.)debt finances proportion by entering the appropriate values into the and components of the equation. Next, the ratio of equity () multiplied by the cost of equity (Re), and the ratio of debt ( ) multiplied by the cost of debt (Rd).

The debt side of the equation (* Rd) then multiplied by (1 - Tc) to get the after-tax cost of debt (there is a tax shield associated with interest). The final step is to add the equity side of the

equation to the debt of the equation to determine WACC (http://www.qsstudy.com/accounting/how-to-calculate-weighted-average-cost-of-capi.).

Furthermore, Prace (2004) sees the following weak points in the theory:

- The assumption that the cost of debt remains the same for all levels of leverage is only applicable when changes in them are small. However, as leverages increase, the risk increases and investors demand a higher return for their debt funding. Also, the cost of debt at times grows and not remains the same.
- Ignore the cost of financial distress in this theory.

Capital structure irrelevance theory: M&M (1958) were the first researchers that introduced the capital structure "irrelevance" theorem in their famous "The Cost of Capital, Corporation Finance, and the Theory of Investment," in which arbitrage concept was employed. Arbitrage process occurs when two sets of shares old at different prices. Wherein, the undervalued shares were bought, and the overvalued shares were sold on the other hand at a profit in a perfect market situation. The forces of demand and supply cause the prices for the two assets to be equal.

However, there are assumptions for MM arbitrage process. These are as follows according to "Complete Guide to Corporate Finance – Investopedia.com" (http://www.investopedia.com/walkthrough/corporate-finance/5/capital-structure/mo), accessed April 29, 2016):

- There are no personal or corporate "taxes
- No transaction costs(https://www.coursehero.com/file/19313274/week-6/)
- No bankruptcy costs(https://www.coursehero.com/file/19313274/week-6/)
- Equivalence in borrowing costs for both companies and investors(https://www.coursehero.com/file/19313274/week-6/)
- The symmetry of market information, meaning businesses and investors have the same information
- No effect of debt on a company's earnings before interest and taxes" (https://www.coursehero.com/file/19313274/week-6/)

  One should note that M&M postulation was viewed with much seriousness by Somers (1955) as follows:

- The corporate finance specialist concerned with the techniques of financing organizations to ensure their survival and growth.

- The managerial economist is concerned with capital budgeting.
- "The economic theorist concerned with explaining investment behavior at both the micro and macro levels.
  "(https://www.aeaweb.org/aer/top20/48.3.261-297.pdf)

Given the preceding, M&M made two propositions:

M&M Proposition 1: "The perfect capital market of the total value of
An organization is equal to the market value of the total cash flows that
are generated by its assets,
(https://www.coursehero.com/file/p3d371c/2-There-are-no-taxes-transaction-costs-o.).

Also, Berk & DeMarzo (2007) postulated that they are not affected by their choice of capital structure. M&M argued with the law of one price, arbitrage possibilities, and homemade

A further cursory look at the three arguments is necessary and as follows:

- Law of One Price: In a perfect capital market, "the total cash flow paid out to all of the organization's security holders is equal to the total cash flow generated by the" company's assets (https://www.coursehero.com/file/p3d371c/2-There-are-no-taxes-transaction-costs-o.). As long as the choice of securities does not change the cash flow produced by the assets, the value of the organization is given by the cash flows of the assets and not the choice of securities. The consequence of this claim is that decisions about financing and investments become independent(https://www.coursehero.com/file/p3d371c/2-There-are-no-taxes-transaction-costs-o.).

- Arbitrage possibilities: M&M (1958) used the proof of a contradiction in Proposition 1. If Proposition 1 does not hold, investors could exploit arbitrage opportunities, by short selling overpriced stock and buy underpriced stock with same income streams. Since there are no transaction costs and the stocks are the same except for the price, the investor would immediately increase their wealth (Baker & Martin, 2011).

- Homemade leverage: If investors prefer an alternative capital structure to the one that the organization has chosen, he could borrow and lend on his own to achieve the superior leverage level(https://www.coursehero.com/file/p3d371c/2-There-are-no-taxes-transaction-costs-o.). It is possible because as long as investors can borrow or lend at the

same rate as the organization and there is no transaction cost, which is two of the stated assumptions. Then homemade leverage becomes a perfect substitute for the use of leverage for the organization, (https://www.coursehero.com/file/p3d371c/2-There-are-no-taxes-transaction-costs-o.).

MM Proposition 2: It states that the expected rate of return on the common stock of levered organization increases "in proportion to the debt-equity ratio expressed in market values" (https://www.coursehero.com/file/p3d371c/2-There-are-no-taxes-transaction-costs-o.).Berk and DeMarzo(2007), stated that "the cost of capital of levered equity increases with the company's market valuedebt-equity ratio. "Debt issues have an explicit and implicit cost.

Theexactcost is the rate of interest charged on the organization's debt. The implicit cost is that it increases the company's financial risk and therefore causes shareholders to demand a higher return on their investment (https://www.coursehero.com/file/p3d371c/2-There-are-no-taxes-transaction-costs-o.). The implicit and explicit cost together makes that debt is no cheaper than equity, and the return that the investors require on their investment is unaffected by the organization's capital structure (Brealeyet al, 2007).

Equation 1: Cost of Capital

$$Re = RA + (D/E) * (RA – Rd)$$

Where:
Re = expected rate of return on equity
Rd = expected return on debt
RA = expected return on asset
D = market value of debt
E = market value of equity

Equation 1, reveals the effect of leverage on their situation of the levered equity. The levered equity returns equals unleveraged return, plus some additional caused by leverage. However, the insight from M&M can be used to understand the company cost of capital on new investments

when leveraged. Thus, a levered organization financed with both equity and debt; and the risk of the "underlying assets will match the danger of a portfolio of its equity and debt" (https://www.coursehero.com/file/prums6/Both-Modigliani-Miller-Propositions-offer.).The appropriate cost of capital of this portfolio is the right price of capital for the organization's assets. It thus gives the weighted average of the company's equity and debt cost of capital.

Equation 2: The un-levered cost of capital (pre-tax WACC).

RA = E/ (D+E) * Re+ D/ (D + E) * Rd

Where:

Re = expected rate of return on equity

Rd = expected return on debt

RA = expected return on asset

D = Market value of debt

E = market value of equity

Agency costs theory: The agency cost theory of capital structure emanated from the principal-agency theory where shareholders defined as principal that hired managers of the company to look after their interest, thereby maximizing the shareholders' value. The theory considered debt to be a factor that creates conflict between equity holders and managers (Jensen and Meckling, 1976). However, the two scholars argued that the probability distribution of cash flows provided by the organization is un-independent of its ownership structure and that this fact may be used to explain the optimal capital structure. The two theorists recommended that, given increasing agency costs with both equity-holders and debt-holders, there would be an optimum combination of external debt and equity to reduce total agency costs (https://www.coursehero.com/file/p1jih0r/332-Agency-Cost-Theory-The-next-important.).

Grossman and Hart (1982) argued that debt could reduce the "agency costs by increasing the possibility of bankruptcy and providing a managerial discipline" (https://www.coursehero.com/file/p1jih0r/332-Agency-Cost-Theory-The-next-important.).Bradley et al (1984) found that volatility in earnings would increase bankruptcy costs and thus, in turn, will increase the agency costs while companies will tend to use less debt.

Ryenet al (1997) provided a general summary of the agency cost theory, in which two sets of agency problems faced by the organizations are explored. These problems are a conflict between managers and stockholders on the one hand, and conflict between stockholders and the bondholders. In the managers and stockholders' conflict, the managers usually overspend or take less leverage, and they are seen not benefitting the stockholder. Managers make lesser leverage to avoid total risks such as the danger of losing a job, reputation, and wealth. Otherwise, overspending by managers too, make opportunity loss of organizations' cash flow that could be used for the activities that may benefit stockholders.

Trade-off theory: The trade-off theory assumes that there are benefits to leveraging within a capital structure up until the optimal capital structure is reached. The theory recognizes the tax benefit from interest payments, (https://quizlet.com/145924747/reading-37-measure-of-leverage-flash-cards/).Studies suggest that most companies have less leverage than this theory would suggest optimally (HTTP: //www.investopedia.com/Walkthrough/corporate-finance/5/capital-structure/mo.).

In comparing M&M and trade-off theories, the main difference between them is the potential benefit from debt in a capital structure. This benefit comes from a "tax benefit of the interest payments. Since the MM capital-structure irrelevance theory assumes no taxes, the benefit not recognized, unlike the trade-off theory of leverage, where taxes and a tax benefit of interest payments are recognized" (HTTP://www.investopedia.com/Walkthrough/corporate-finance/5/capital-structure/mo.). According to the static trade-off hypothesis, an organization's performance affects its target debt ratio.

1.2 STATEMENT OF THE PROLEMS

The importance of this study cannot be over emphasized. The role of capital structure in a business concern is a complex one. The goal of a good capital mix is to run optimal business activities.

The capital structure determines both the cost of equity and debt capital to know how much capital will be available to run a business equitably for the thousands of different goods and services it purchases daily. Equally important, capital choice decision has a powerful impact upon the health of the organization's continuity. When debt finance becomes more costly and

less available, total spending for goods and services generally falls. As a result, it stagnates the organization's growth and cut back production and reduces inventories. In contrast, when the cost of debt declines and loan able funds become more readily available, total spending in the organization usually increases, more jobs are created and the business rate of growth accelerates. The financing decision mix of debt and equity represents a fundamental issue faced by financial managers of firms.

According to Kochar (1997), poor capital structure decisions may lead to a possible reduction/loss in the value derived from strategic assets. Hence, the capability of a firm in managing its financial policies is important if the firm is to realize gains from its specialized resources. The raising of appropriate fund in an organization will aid the firm in its operation; hence, it is important for firms in Nigeria to know the debt-equity mix that gives effective and efficient performance after a good analysis of business operations and obligations.

The actual impact of optimal capital structure on business continuity in Nigeria and the rest of the world has been a major problem among researchers that has not been resolved. Hitherto, there is still no conclusive empirical evidence in the literature about how optimal capital structure influences business continuity of firms in Nigeria and rest of the world.
From our preliminary observation of the financial reports of firms considered in this study,debt financing for quoted companies in Nigeria corresponds mainly to short term debts. Also, external finance for Nigerian listed firms as observed from their annual reports often far exceed investments for most of the firms. However, using excessive amounts of external financing can result in the overleveraging of a company, which means the business has extensive obligations to institutional and individual investors who can disrupt the company's operations and financial returns.

Debt financing affects a company's performance because companies will usually agree to fixed repayments for a specific period. These repayments occur regardless of the firm's performance. Although equity financing typically avoids these repayments, it requires companies to give an ownership stake in the company to venture capitalist or investors. Thus, the choice of capital structure is fundamentally a financing decision problem which becomes even more difficult in times when the economic environment in which the company operates presents a high degree of

instability like the case of Nigeria. Hence, making appropriate capital structure decision becomes crucial for Nigerian firms and rest of the world.

In Nigeria, investors and stakeholders appear not to look in detail the effect of capital structure in measuring their firm's performance as they may assume that attributions of capital structure are not related to their firms‟ value. Indeed, a well attribution of capital structure will lead to the success of firms; hence, the issues of capital structure, which may influence the continuity of Nigerian firms and rest of the world, have to be resolved. In addition, the capital structure choice of a firm can lead to bankruptcy and have an adverse effect on the performance of the firm if not properly utilized. The research problem therefore is to find an appropriate mix of debts and stocks through which a firm can increase its financial performance more efficiently and effectively.

1.3 PURPOSE OF THE STUDY

The purpose of this study is to examine capital decision policies usually determined by the top management of the organization how they affect business growth and continuity. The study will then accomplish the following objectives:

1. To determine capital structure policy, which championed by the Organization's policy makers upon which, it can control and manage optimally the capital mix as it affects the mobilization of resources in the firm through effective financial management models.
2. To make appropriate recommendations on the ways to assist the business run as going concern.
3. To establish the relationship between the capital structures of the firms in Nigeria and the rest of the world and their return on assets;
4. To determine the effect of capital structures of the firms in Nigeria and the rest of the world on their return on equity;
5. To ascertain the effect capital structures of firms in Nigeria have on their Tobin‟s Q as a market performance measure;
6. To examine how Nigerian firms‟ sizes impact their performance.
7. To establish the effect of tax on corporate performance; and
8. To ascertain the effect of the industrial sector on the performance of firms in Nigeria.

1.4 SIGNIFICANCE OF THE STUDY

This study would be of tremendous value to the business owners, captains of industries, financial managers, lecturers, students, users of financial information generally and the general public as a whole. It will enable the business owners and the major players in the management of the affairs of a firm to have a right perception towards capital restructuring. Capital structure alteration is generally to improve the firm's capital and to generate enough resources to fund it operations. Capital structure is about how the firm obtains the financing it needs to support its long-term investments. Also focus on how the firm manages equity it uses to finance its operations. The subsequent chapters shall throw more light on this.

Furthermore, the study will also be of immense value to anyone who might wish to further research on this area finance. An appropriate capital structure is a critical decision for any business organization. The decision is important not only because of the need to maximize returns to various organizational constituencies, but also because of the impact such a decision has on an organization's ability to deal with its competitive environment. A company can finance investment decision by debt and/or equity. This is known as financing decision which could affect the debt- equity mix of firms.

The debt-equity mix has an overall implication for the shareholders earnings and risk which will in turn affect the cost of capital and market value of the company. It is therefore imperative for financial managers of firms to determine the proportion of equity capital and debt capital (capital structure) to obtain the debt financing mix. The prediction of the Modigliani and Miller Model that in a perfect capital market the value of the firm is independent of its capital structure, and hence debt and equity are perfect substitutes for each other, is widely accepted. However, once the assumption of perfect capital markets is relaxed, the choice of capital structure becomes an important value-determining factor.

This paved the way for the development of alternative theories of capital structure decision and their empirical analysis. Although it is now recognized that the choice between debt and equity depends on firm-specific characteristics, the empirical evidence is mixed and often difficult to interpret. Moreover, very little is still understood about the determinants of firms‟ financing mix outside the US and other major developed markets with only a few papers analyzing data from developing countries.

Inter-country comparative studies highlighting differences in capital structure started to appear only during the lasttwo decades i.e. 1990 to 2010. An early investigation of seven advanced industrialized countries (G7) was performed by Rajan and Zingales (1995) where they argued that although common firm-specific factors significantly influence the capital structure of firms across the countries, several country-specific factors also play an important role. This led to further studies on developing versus developed economies.

Dirmirguc-Kunt and Maksimovic (1999) compared capital structure of firms from 19 developed countries and 11 developing countries. They found that institutional differences between developed and developing countries explained a large portion of the variation in the use of long-term debt. They also observed that some institutional factors in developing countries influence the leverage of large and small firms differently.

In an analysis of ten developing countries, Booth, Aivaziam, Demirguc-Kunt and Maksimovic, (2001) found that capital structure decisions of firms in these countries were affected by the same firm-specific factors as in developed countries. They assessed whether existing capital structure theories applied across countries with different structures in firms in ten developing countries and the G7 countries between 1980 and1991 and found consistent relations in both the pooled data results between firm's profitability, asset tangibility, growth option and leverage. However, they found out that there are differences in the way leverage is affected by country-specific factors such as GDP growth and capital market development.

They therefore concluded that more research needs to be done to understand the impact of institutional factors on firms‟ capital structure choices in different countries. This study, therefore, has contributed to the literature by examining firm-specific factors that influence the optimal capital structure of Nigerian firms and the rest of the world from the view point of their capital structure choices. This has help to understand the impact of institutional factors on Nigerian firms‟ capital structure choices and how it affects their performance. It also helps us to establish the western capital structure models exhibit robustness for companies in the Nigerian markets

This study also differs from other studies conducted so far in the country based on the fact that the study employs a larger number of quoted firms (a total of 101 quoted firms yielding 505 observation); employs Tobin‟s Q as a market performance measure in the study of capital structure and performance of Nigerian firms; increased the number of estimation parameters/measurement variables based on the theories of capital structure; and employs five-year averages in the analysis to avoid problems of short term measurement instability and to reduce estimation bias and noises. Therefore, the study is also contributing to methodological discourse as the study employed both pooled, cross-section and time series data in a panel data framework. In effect, this study has improved on previous studies in terms of techniques used in the analysis of the data of Nigerian firms, by employing the use of panel data estimation model. Consequently, the results obtained from the study has helped the recommendation of some policies and guidelines that will help in decision making and directions of the capital structure of firms in Nigeria in order to improve their performance. Hence, scholars, CEOs of firms and finance managers in Nigeria would find the outcome of this study a useful resource material.

1.5 REASEARCH QUESTIONS

To ensure that the results from this research work are directed at providing solutions to the problem, the following research questions are posed:

1. Has there been any reasonable decision taken by Financial Manager or in his advising role to the top management when to choose equity to finance its operation in the process of capital alteration and ensure optimal capital structure?
2. Is capital structure can be arranged in such a manner that firm operations and
3. decision makers are not overly sensitive to the debt-equity ratio?
4. Should capital structure maintain a reasonable degree of debt in the face of adverse business events?
5. Is the value of the business truly independent of its capital structure?
6. Is cost of equity capital a positive linear function of its capital structure

1.6 RESEARCH HYPOTHESES

The following hypotheses will be statistically tested to empirically answer the research questions and achieve the purpose of the study:

From the literature, there is evidence that a firm's going concern is affected by the capital structure (Tian and Zeitun, 2007, Salawu, 2007, Kim et al, 1998, Krisnnan & Moyer, 1997, Rajan & Zingles, 1995, Blaine, 1994).

If capital structure does not affect a firm's going concern and value, then a strong relationship between firm's continuity and capital structure is expected. This study therefore argues that a firm's debt ratio affects its going concern negatively. Hence, hypothesis 1 and 2 can be stated as follows:

1. Ho: A firm's capital structure does not significantly influence its continuity as measured by cost of capital, returns on assets and equity.

2. H1: A firm's capital structure has a significant influence on its going concern as measured by cost of capital, returns and equity.
   It has been further argued that short-term debt exposes firms to the risk of refinancing. (Tian & Zeitum, 2007, Pandey, 2001, Kim et al, 1998, Stohs and Manuer, 1996,). It is therefore expected that the debt maturity (Short-term debt) will have a significant Impact on short term financing needs of a firm. Thus, the third hypothesis

3. Ho: Short term debt does not significantly affect business continuity
   H1: Short-term debt significantly affects business continuity
   From past empirical studies firm's going concern, which is also measured by optimal capital structure. It has also been suggested that firm's survival should be positively related to borrowing capacity because potential bankruptcy costs make up a smaller portion of value for larger firms. (Kristinan & Moyer 1997).

   Tian & Zeitun (2007) and Gleason et al. (2000) found that firm's going concern has a positive and significant effect on capital structure (ROA). Murambi & Nicosia (1998) found an insignificant effect of firm's going concern on capital structure. Based on the discussion above, the hypothesis is stated as:

4. Ho: A firm's size does not have significant effect on a firm's capital structure
   H1: A firm's size has a significant effect on a firm's capital structure

   De Angelo and Masulis (1980) present a trade-off model of optimal capital structure that incorporates the impact of debt and non-debt corporate tax shield. They argued that deductions for depreciation and tax-loss carry forwards are substitutes for the tax benefits relative to assets should also include less debt in their capital structure. According to kahle and Shastri ignoring the effect of these tax benefits can potentially impact our understanding of firm profitability and capital structure. However, in the case of organizations with heavy tax benefits from option exercise, operating earnings can increase even if the profitability of the company's basic business has not varied. Hence, we state hereunder these hypotheses:

5. Ho: A firm's tax does not have a significant effect on the firm's going concern
   H1: A firm's tax has a significant effect on the firm's going concern

6. H0: A firm's capital structure does not have significant influence on its accounting performance as measured by the return on assets and return on equity.
   H1: A firm's capital structure has a significant influence on its accounting performance measured by the return on assets and return on equity.

7. H0: A firm's capital structure does not have significant influence on its market value.
   H1: A firm's capital structure has a significant influence on its market value.

   It has further argued that short-term debt influences firm's performance negatively because short-term debt exposes firms to the risk of refinancing (Tian & Zeitun, 2007, Pandey, 2001, Kim et al., 1998, Stohs and Mauer, 1996). It is therefore expected that the debt maturity ratio (short-term debt) will have a significant impact on corporate performance because of banking credit policy. Thus, the third hypothesis;

8. H0: Short term debt does not significantly affect firm continuity
H1: Short-term debt significantly affect firm continuity

From past empirical studies, the firm's size that is measured as log of sales or turnover have been hypothesized to be positively related to the firm's performance, as bankruptcy costs decrease with size. It has been suggested as well that firm size should be positively related to borrowing capacity, because potential bankruptcy costs make up a smaller portion of value for larger firms. In addition, there are economies of scale in transactions costs associated with long-term debt that are not available to smaller firms (Krishnan and Moyer, 1997). Tian & Zeitun (2007) and Gleason et al. (2000) found that firm's size has a positive and significant effect on firm's performance – return on asset (ROA) while in contrast, other researchers such as Tzelepis & Skuras (2004), Durand & Coeuderoy (2001), Lauterbach & Vaninsky (1999), and Mudambi & Nicosia (1998) found
Insignificant effect of firm's size on firm's optimal capital structure failure. Based on the discussion above, the fourth hypothesis is stated as:

9. H0: A firm's size does not have a significant influence on a firm's performance.
H1: A firm's size does have a significant influence on a firm's performance
Modigliani and Miller 1963 work incorporated corporate taxes and concluded that with corporate income taxes, leverage will increase a firm's value. This occurs because interest is a tax-deductible expense; hence more of a levered firm's operating income flows through to investors. DeAngelo and Masulis (1980) present a trade-off model of optimal capital structure that incorporates the impact of debt and non-debt corporate tax shields. They argue that deductions for depreciation and tax-loss carry forwards are substitutes for the tax benefits of debt financing. Their model suggests that firms with large tax benefits relative to assets should also include less debt in their capital structure.

According to Kahle and Shastri (2005), ignoring the effect of these tax benefits can potentially impact our understanding of firm profitability and capital structure. However, in the case of companies with large tax benefits from option exercise, operating earnings can increase even if the profitability of the company's basic business has not changed. Hence, we state the following hypothesis:

1.7 SCOPE OF DELIMITATION

1. There is no much limitation on this research. This is because many works have been done in this area of study across the globe.
2. The limitation experienced is time constraint that limited the scope of this work.
3. Other limitations include the sample for the study, which is not really
4. exhaustive of the target population. Also, the answers supplied by the respondents, which were clouded by their individual biases. All these served as obstacles to the study.
5. This study is limited in scope to only selected firms in Nigeria and selected international firms given that comparison with quoted companies in advance countries will be practically impossible. This is attributable in the differences in reporting standard and the size of the market. The attitude of companies to debt also differs across countries. All companies whose business engineering in nature are excluded as they exhibit different characteristics from manufacturing and selected financial companies since their debt-like liabilities are not strictly comparable to the debt issued by engineering companies

1.8 DEFINITION OF TERMS

Capital Structure: It represents the major claim to a firm's assets such as equities and debts employed by a firm to finance its business operations.

Optimal Capital Structure: This is the appropriate finance mix of equity and debt where cost of capital is minimized to maximize owners' equity (value of the firm).

Leverage: This refers to the use fixed charges source of funds such as debt, bond, debenture capital etc. coupled with owners' equity in the capital structure mix.

Homemade Leverage: This is use of personal borrowing to alter degree of financial leverage.

Equity: This simply defines ownership interest in a firm in the form of common stocks or preferred stocks. Long-Term Debts: These are the firm's liabilities whose settlements are beyond one year.

Short-Term Debts: These are the firm's liabilities whose settlements are within a year.

Risk: The possibility of suffering damage or loss in the face of uncertainty about the outcome of an action, future events or circumstances. It is the deviation of an actual outcome from the

expected outcome in the presence of uncertainty. Financial Risk: This refers to the extra risk that arises from the use of debt financing. Business Risk: It refers to the inherent risk lying in the firm's operations.

Weighted Average Cost of Capital (WACC): This is the overall return the firm must on its existing assets to maintain the value of the stock. It is also the required return on any investments by the firm that have essentially the same risks as existing operations.

Corporate Income Tax: Corporate income tax is a tax based on the income made by a corporation. The corporation begins with Federal Taxable Income from the federal tax return. Corporate income tax is paid after the end of the taxable year based on the income made during the year. Company income subject to tax is often determined much like taxable income, assessable profit to determine education tax and to establish capital allowance claimable

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 INTRODUCTION

This chapter begins with the review of theoretical literature of optimal capital structure as a panacea to business going concern and related studies. It represents the overview of the background information on the subject of capital structure as it affects the continuity of a business or a firm to run as a going concern. It further reviews literature on the capital structure and the available options for business on capital mix decision and the last section reviewed past empirical studies on optimal capital structure.

2.2 THEORETICAL LITERATURE REVIEW

The literature review will mirror the in depth of capital structure as it affects the organization in terms of size, industry, and related competition etc. The researcher will also be looking at the work of other scholars published on the subject of capital structure to argue his findings and robust recommendations for further studies on this topic to create avenue for future scholars research on this topic. Capital structure or financial structure refers to the specific mixture of long-term debt and equity the firm uses to finance its operations. Financial structure is not an easy decision to take by firms when it comes to choose of capital mix. It centers on how firms

obtain financing, the costs associated with various types of financing and the selection of different financing vehicles.

Financial manager plays a critical role in this aspect of financial decision. There are two concerns here: First, how much should the firm raise and two, what are the least expensive sources of funds for the firm? In addition to deciding on the financing mix, the financial manager has to decide or advise the firm exactly how and where to raise the fund, so different possibilities must ensure careful evaluation.

One of the most contentious issues in the theory of finance during the past quarter century has been the theory of Capital structure. The geneses of this controversy were the seminal contributions by Modigliani and Miller. The general academic view by the mid-1970s, although not a consensus, was that the optimal capital structure involves balancing the tax advantage of debt against the present value of bankruptcy costs. No sooner did this general view become prevalent in the profession than Miller presented a new challenge by showing that under certain conditions the tax advantage of debt financing at the firm level is exactly offset by the tax disadvantage of debt at the personal level. Since then, there has been a developed burgeoning theoretical literature attempting to reconcile Miller's model with the balancing theory of optimal capital structure [e.g., DeAngelo and Masulis, Kim, and Modigliani.

The general result of this work is that if there are significant "leverage-related" costs, such as bankruptcy costs, agency costs of debt, and loss of non-debt tax shields, and if the income from equity is untaxed, then the marginal bondholder's tax rate will be less than the corporate tax rate and there will be a positive net tax advantage to corporate debt financing. The firm's optimal capital structure will involve the tradeoff between the tax advantage of debt and various leverage-related costs.

The upshot of these extensions of Miller's model is the recognition that the existence of an optimal capital structure is essentially an empirical issue as to whether or not the various leverage related costs are economically significant enough to influence the costs of corporate borrowing.

The Miller model and its theoretical extensions have inspired several time series studies, which provide evidence on the existence of leverage related costs. Trczinka reports that from examining

differences in average yields between taxable corporate bonds and tax-exempt municipal bonds, one cannot reject the Miller hypothesis that the marginal bondholder's tax rate is not different from the corporate tax rate.

However, Trczinka is careful to point out that this finding does not necessarily imply that there is no tax advantage of corporate debt if the personal tax rate on equity is positive. Indeed, Buser and Hess, using a longer time series of data and more sophisticated econometric techniques, estimate that the average effective personal tax rate on equity is statistically positive and is not of a trivial magnitude. More importantly, they document evidence that is consistent with the existence of significant leverage-related costs in the economy.

2.3 EMPIRICAL LITERATURE REVIEW

This study will be incomplete without taking a critical look at some past empirical studies in terms of the purpose of the studies, the methodology that was adopted and the findings of the studies as are related to this current study. This is necessary in order to enable the researcher to see the gaps that might have been left or get the glimpse of some recommendations for further studies that might have been reported in previous studies. If there has been any aspect of theory of finance that attracts highest attention with an attendant controversy most, it is obviously theory of capital structure and leverage and how it affects business to run as a going concern Modigliani & Miller (1958). Firstly, to raise the question of relevance of capital structure for a firm, they argue that under certain conditions, the choice between debt and equity does not affect the value of an organization. Hence, the capital structure decision is "irrelevant" The conditions in which irrelevant conditions apply include but not limited to firm's cost of equity capital is a positive linear function of its capital structure, taxes, no transaction cost in capital market, no information asymmetries among various market player.

2.3.1 Agency Theory and Capital Structure

The background: reconciling Modigliani-Miller and the traditional theories

The background to the modern debate on corporate capital structure derives from Modigliani and Miller (MM, 1958). MM's paper overturned the traditional view of corporate finance (TV). The latter is based on the firm's weighted average cost of capital (ra) i.e., the weighted sum of debt

and equity costs or the minimum overall return that is required on existing operations to satisfy the demands of all stakeholders. TV begins with the observation that debt is generally cheaper than equity as a source of investment finance.

Hence, a firm can lower its average cost of capital by increasing its debt relative to equity (i.e., its leverage), provided the firm's cost of debt and equity remain constant. However, this process cannot be extended indefinitely because, in reality, higher levels of debt increase the likelihood of default resulting in debt holders and shareholders each demanding greater returns on their capital.

Therefore, the ra schedule is U-shaped when plotted against leverage, with the cost of debt and equity both rising at an increasing rate as bankruptcy risk increases. The corresponding company market value schedule is an inverted U-shape. Optimal leverage occurs where ra is minimized and the value of the firm is maximized.

Unlike the TV, MM assumes a perfect capital market and uses a simple arbitrage mechanism to derive three, now well-known, propositions relating to: the value of the firm, the behavior of the equity cost of capital, and the cut-off rate for new investment. MM's Proposition I state that the market value of any firm is independent of its capital structure. Hence, the firm's average cost of capital is also independent of its capital structure.

It does not have an "optimal", market-value maximizing, debt-equity ratio: any degree of leverage is as good as any other. This is a consequence of the perfect capital markets assumption, which implies that both the ra and the market value schedules are horizontal, when plotted against leverage. MM's Proposition II states that the rate of return required by shareholders rises linearly as the firm's debt-equity ratio increases. That is, the cost of equity rises so as to offset exactly any benefits accrued by the use of cheap debt. However, some criticisms of this proposition show that a disparity normally exists between the capitalization rate and the cut-off rate (see, for

Example, Peyser, 1999). Proposition III states that a firm will only undertake investments whose returns are at least equal to r

There are two essential differences between the conclusions of TV and those of MM. First, under TV, the firm's value and cost of capital are related to its capital structure, whereas MM's Proposition I state that they are independent of capital structure. Second, under MM's Proposition II, if management aims to maximize shareholder returns, they would employ debt until 100 percent leverage is reached. Clearly, this cannot be precisely true, since a firm, which is 100% debt-financed, is technically bankrupt.3 However, MM's Proposition II does imply a linear relationship between shareholders' rate of return and firm leverage. Thus, at low levels of debt, the cost of equity rises faster under MM than under TV. At higher levels of debt, the risk of default increases, and the cost of equity rises faster under TV than under MM's Proposition II.

An alternative argument for the TV relates to the comparative advantage of firms over households in the debt market. If transactions costs are such that the costs of borrowing are higher for shareholders than for firms, it may be cheaper for investors to borrow via a firm by purchasing its shares. Investors who have higher costs of borrowing will be willing to pay a higher premium for the shares of levered firms than will low-cost borrowers. Also, as a firm's leverage increases, the number of investors willing to hold its shares will decrease. The counter-argument in the spirit of MM is to question the assumption that firms do, in fact, have a comparative advantage in the debt market. If they do not, investors will be indifferent between the shares of a leveraged firm and "home-made" leverage: a combination of shares in an unlevered firm and their own debt.

2.3.2 Agency costs

The seminal work on agency theory and capital structure is Jensen and Meckling (1976); the main extensions of the seminal work include Ross (1973), Shavell (1979), Fama (1980, 1990), Arrow (1985) and Jensen and Meckling (1992). Here, a particular single-owner firm wishes to finance projects in excess of the firm's internal resources. The firm has two options: to issue equity or debt. If the firm issues equity, the owner manager's fractional interest within the firm decreases. This increases the incentives for an owner-manager to undertake excessive perk consumption since the costs to the owner of such activities have been lowered as a result of a reduction in his fractional interest. Such costs include: (i) the monitoring expenses of the principal (the equity holders); (ii) the bonding expenses of the agent (the manager); and (iii) the

money value of the reduction in welfare experienced by the principal due to the divergence between the agent's decisions and those which maximize the welfare of the principal.

However, in the presence of efficient markets, which incorporate expectations, external investors anticipate such actions by the owner-manager of the firm (see, for example, James, 1999). Accordingly, the price of new equity is discounted to take into account the monitoring costs of external shareholders. Under these circumstances, the owner-manager would prefer to finance new projects using debt rather than equity.

If the managers want to maximize the value of the firm, the difference between the benefits and costs of debt must be maximized. The optimal level of debt is determined at the point when the marginal gain from leverage is equal to the marginal expected loss associated with increased financial distress. Accordingly, the value of the firm is inversely related to its probability of financial distress and to the discount at which its assets may be disposed of in a forced sale

However, issuing debt to finance investment also incurs agency costs. These arise as a result of the conflict of interest between external lenders and the owner-manager. The issue of debt increases the owner-manager's incentive to invest in high-risk projects, which, if successful, offer high returns which accrue exclusively to the owner-manager, but at the same time, increase the likelihood of failure. If the projects fail, the owner-manager's exposure is limited to the value of his equity holdings. Debt-holders on the other hand do not share the profits of success, but will share in the costs of a bankruptcy: they are incurring extra risk without additional expected returns. Debt-holders can be thought of as having written a European Put on the firm's assets, with bankruptcy corresponding to exercise of the Put by shareholders. As the amount of debt increases, debt holders will demand a higher premium to compensate them for the increased probability of failure.

Thus, the agency costs of debt include the opportunity costs caused by the impact of debt on the investment decisions of the firm; the monitoring and bond expenditures by both the bondholders and the owner-manager; and the costs associated with bankruptcy and reorganization (see, for example, Hunsaker, 1999).

Since equity and debt both incur agency costs; the optimal debt-equity ratio involves a trade-off between the two types of cost. Agency costs associated with equity are at a maximum when the owner-manager's share of equity is zero, and the firm is wholly owned by outside shareholders. These costs fall to zero as the owner-manager's equity share rises to 100%.
Similarly, the agency costs of debt are at a maximum when all external funds are obtained from debt. As the level of debt falls, agency costs are reduced: first, because the amount of wealth that can be reallocated away from debt-holders falls; and second, since the fraction of equity held by the owner-manager is being reduced, the owner-manager's share of any reallocation also falls.

The total agency cost schedule is therefore a U-shaped function of the ratio of debt to outside equity; and the optimal ratio of debt to outside equity is that which minimizes total agency costs. When a firm is close to bankruptcy, equity holders have no incentive to inject new capital into value-increasing projects since the returns of such a venture will accrue mainly to debt holders.

Thus, the larger the debt level of the firm, the less the incentive to invest in value-increasing projects. Myers (1977) notes that this has specific implications for the nature of debt contracts, and for the characteristics of highly levered firms. First, we would expect bond contracts to include features which prevent "asset substitution", such as the sale of profitable parts of the business to finance new high-risk projects. Second, industries that have limited scope for such asset substitution.

Should have higher levels of debt, ceteris paribus; for example: regulated public utilities, banks and firms in mature industries with low growth potential. Third, firms with low growth prospects and strong cash flows should have high amounts of debt that would use up resources that would otherwise be used for perquisites. Such firms are typically thought to be those in "mature" industries, such as steel, chemicals, brewing and tobacco.

2.3.3 Conflicts between Equity holders and Managers

The conflict between equity holders and managers takes several distinct forms. The first, pointed out by Jensen and Meckling (1976), is that managers prefer to have greater perquisite levels and lower effort levels, provided that they do not have to pay for these through lower wages or by a

lower market value of their personal equity holdings. A second arises because managers may prefer short-term projects, which produce early results and enhance their reputation, integrity, quickly, rather than more profitable long-term projects. On this point, see Masulis (1988). Third, managers may prefer less risky investments and lower leverage to lessen the probability of bankruptcy. See Hunsaker (1999).

Fourth, managers will wish to minimize the likelihood of employment termination. As these increases with changes in corporate control, management may resist take-over, irrespective of their effect on shareholder value. See Garvey and Hanka (1999). Managers and shareholders may also disagree over a firm's operating decisions: Harris and Raviv (1990) observe that managers will typically wish to continue operating the firm even if liquidation is preferred by shareholders managers may also prefer to invest all available funds even if shareholders want to be paid dividends on both these points, see Stulz (1990). An equally varied menu of solutions has been proposed to resolve or at least limit these principal-agent problems.

For example, Jensen
(1986) argued that management prefers to increase firm size, whereas shareholders are seeking. Debt gives investors the option of liquidation if cash flow is poor. The costs here are the information costs associated with determining whether liquidation should occur. Higher levels of debt make default more likely thereby making the liquidation decision more appetizing. Consequently, firms with higher liquidation values will have more debt than those with lower liquidation values, ceteris paribus. Here, the optimal capital structure is determined by trading off the benefit of debt in preventing investment in value-decreasing projects against the cost of debt in impeding investment in value-increasing projects. Thus, firms with good investment opportunities have low debts. Furthermore, those firms that have more value-increasing investments than value- decreasing investments will have less debt, ceterisparibus to maximize the value of their shares.

Management will attempt to evade shareholder control by financing less profitable projects using internal funds, which are subject to a minimum of external monitoring. Shareholders can prevent management from undertaking unprofitable expansion by reducing this "free" cash flow. This can be done either by increasing the firm's dividend payment or by increasing its leverage. As

Hunsaker (1999) points out, an increase in leverage also increases the risk of bankruptcy, and therefore limits management's consumption of perquisites.

Other vehicles for removing shareholder-manager conflicts include the provision of incentive-compatible managerial contracts, and the role of the managerial labor market in exerting discipline on managerial behavior. Shleifer and Vishny (1989) develop a model in which a manager has an incentive to invest the firm's resources in those assets that are more highly valued under that manager than under the next best alternative manager. By this means, the manager counters the disciplinary forces: of the managerial labor market, of product market competition, of the threat of take-over, and of a monitoring board of directors. If successful, managers can demand higher compensation together with greater autonomy.

Shleifer and Vishny show that, when investment projects are irreversible, the firm over-invests in those specific projects whose value is greater under one particular manager than under the next best manager. Such specific projects incur two distinct types of loss: (i) a social cost in relation to investments not being value maximizing, and (ii) a transfer of economic rent from shareholders to managers.

This analysis helps explain why managers like growth: growth promotes those areas specific to the manager's skills and provides management benefits through entrenchment. However, Jensen and Meckling (1976), Green (1984), and Smith and Warner (1979) argue that management can still be disciplined by the use of convertible debt. Convertibles reduce the agency costs of monitoring because they give lenders an opportunity to share in a firm's profits. It may be expected that the greater the growth opportunities available to a firm, the greater the probability that management will over- invest. This implies a positive relationship between firm growth opportunities and the level of convertible debt, and a negative relationship between growth and ordinary (long-term) debt.

Kensinger and Martin (1986) propose a more radical solution to shareholder-manager conflicts. They argue that, if the firm is reorganized into a limited partnership (or royalty trusts), the managing partner has limited discretion in dividend/re-investment decisions. The re-investment

of profits is in the hands of individual partners (shareholders) which reduces the manager shareholder agency costs by removing the management's decision-making power.

An alternative approach to analyzing shareholder-manager conflicts uses transactions-cost economics, developed particularly by Williamson (1988). In this approach debt and equity are regarded as vehicles for corporate governance rather than as financial instruments; see, for example, Core, Holthausen and Larcker (1999), Brada and Singh (1999), and Vilasuso and Minkler (2001). Williamson (1988) argued that the financial structure of a firm is affected by the "specificity" of the different types of assets that it owns. "Specificity" concerns the extent to which assets can be redeployed in different investment projects, with only limited modifications.

Evidently, the more specific the asset, the lower will be its liquidation value. In this context, debt acts as a straitjacket for investment opportunities: lenders will not lend to very specific projects since, in the event of failure (liquidation), the amount realized will be very low. Thus, leverage should decrease as the degree of asset specificity rises. Equity-holders are less affected by specificity, since they necessarily surrender the firm's assets to lenders at liquidation. In total, as asset specificity rises, the costs of debt and equity rise, with the costs of debt rising faster than equity. Consequently, highly redeploy able assets should be financed by debt whilst equity should be used for highly non-redeploy able assets.

Williamson (1988) concluded that this argument was at odds with more conventional corporate finance literature, as it suggests that debt is a neutral financial instrument with equity being the instrument of last resort. However, this conclusion was foreshadowed by the pecking order theory of Myers (1984), and Myers and Majluf (1984), which we discuss in section 3.

Corporate strategy may also impact on capital structure. Strategy consists of those actions and plans that influence the portfolio of activities in which the firm is involved. It determines how assets are allocated and the level of debt the firm carries. Most important, the goals of management strategy may conflict with those of shareholders. The relationship between corporate strategy and capital structure is less commonly examined in the mainstream corporate finance literature.

Nevertheless, five themes can be identified within the literature that has appeared:

(i) The application of applied discounted cash flow techniques to the development of value-based planning models; see Hax and Majluf (1984).

(ii) The relationships among the strategic decisions of a firm, stock market performance and the level of systematic risk; see Chang and Thomas (1989).

(iii) The dependence between stochastic inflation rates and the firm's asset structure, which reflects the firm's strategic decisions; see Kracaw et al. (1994).

(iv) The relationship between corporate strategy and the debt-equity ratio; see Barton and Gordon (1987, 1988), Lowe et al. (1994) and Krishnaswami, Spindt and Subramaniam (1999). It is argued that the goals, risks, and strength of external monitoring influence the firm's capital structure. Specifically, firms that adopt single and related strategies are the most conservative and are therefore most risk averse while those having unrelated strategies are likely to be least risk averse. This runs counter to standard diversification arguments, and suggests that strategic "focus" implies a lesser willingness to take risks.

(v) The relationship between the structure of the firm and the leverage of the firm. Riahi-Belkaoui and Bannister (1994), amongst others, assert that a change in a firm's organizational structure will result in a change in its capital structure. They argue that the adaptation of a multi-divisional ("M-form") corporate strategy is associated with an increase in free cash flow. If so, and as noted above, the capital market may force such firms to finance new capital by debt rather than by equity in order to reduce management's misuse of cash (Jensen 1986).

2.3.4 Conflict between Equity holders and Debt holder Various underlying factors have been identified within the literature on the conflict of interest between equity holders and debt holders. Smith and Warner (1979) identify four major sources of conflict:

(i) Dividend payments: Here bonds are priced according to the level of dividends paid by the firm. In the limit, a firm could sell all its assets and pay a liquidating dividend to its shareholders with the bondholders being left with valueless claims.

(ii) Claim dilution: Bonds are normally priced assuming that the firm will not carry any more leverage. If the firm does issue additional debt, then existing debt will fall in value if the

newly issued debt has higher priority. Even if it does not, existing debt will fall in value if the risk of bankruptcy is perceived to have increased.

(iii) Asset substitution: Bonds are priced in relation to the risk of the project which is being financed. Thus, lenders' claims are reduced if the firm substitutes projects that increase the firm's variance. This transfers wealth from bondholders to shareholders.

(iv) Under-investment and mis-investment: Here, a firm in financial difficulties has an incentive to reject low-risk, low (positive) net present value projects whose benefits accrue mainly to bondholders, in favor of high-risk, high net present value projects, thus creating under- investment or misallocation of investment.

Myers (1977) argues that the greater is the proportion of growth assets in a firm, the greater is the potential conflict of interest between stockholders and bondholders, because the easier it is to alter a firm's market value and risk in such a way as to benefit stockholders at the expense of bondholders. To minimize these conflicts, firms with high growth opportunities should have higher leverage and use a greater amount of long-term debt than firms in more mature industries. Alternatively, if capital market participants have rational expectations and perfect information, they will anticipate these conflicts of interest and counteract them by adjusting the price and conditions on a firm's bond. In fact, information in capital markets is far from perfect; and the two main competing hypotheses concerning the impact on firm value of bondholder-stockholder conflicts are built on the assumption of imperfect information: the Irrelevance Hypothesis and the Costly Contracting Hypothesis.

The Irrelevance Hypothesis predicts that the conflict of interest between bondholders and stockholders does not change the value of the firm. Smith and Warner (1979) argue that this is true, regardless of whether the firm's investments and therefore its cash flows are fixed. If investment is fixed, debt covenants will only alter the distribution of payoffs between bondholders and stockholders, but will not alter the overall value of the firm. If the firm's investment policy is not fixed, dividend payouts, asset substitution and under-investment may cause changes in the investment policies of the firm.

In principle therefore, the value of the firm may change if stockholders engage in activities that maximize their wealth at the expense of bondholders. Galai and Masulis (1976) utilize an option model7 to show that a redistribution of wealth from bondholders to shareholders will result from any of: an increase in the risk of the firm, an increase in debt, or a distribution (payout) of assets to shareholders.

However, as Jensen and Meckling (1976) observe, if investors are aware of the conflict between stockholders and bondholders and discount any bonds, which are issued, stockholders will not gain from such actions since any ex-post transfers to stockholders will be sub-optimal to the firm. Moreover, Galai and Masulis (1976) argue that the problem of conflict can always be circumvented if investors hold an equal proportion of their portfolio in equity and debt. Any redistribution of income streams amongst different types of claim holders would still leave each individual investor with unchanged wealth. There can only be conflict if different agents hold debt and equity. See also Harris and Raviv (1991) on this point.

The Costly Contracting Hypothesis predicts that the use of contracts to control stockholder-bondholder conflicts of interest will increase the value of the firm. By imposing restrictive covenants on debt, the value of the firm will increase, for two reasons. First, the covenants reduce the costs, which debt holders incur if shareholders do not maximize the value of the firm. Second, they reduce the monitoring costs of bondholders. This leads to increased monitoring, improved management decisions, and hence an increase in the value of the firm as a whole. However, restrictive covenants involve costs, particularly the transactions costs of writing the contracts. In principle therefore, the benefits of covenants can be traded against their costs to arrive at a unique set of optimal contracts that will maximize the value of the firm. In this setting, information asymmetry and monitoring problems play an important role. See Krishnaswami, Spindt and Subramaniam (1999).

Agency costs have several important implications for the features of debt contracts. Green (1984) and Masulis (1988) argue that convertible debt will have lower agency costs than plain debt. The conversion rights enable bondholders to share in any positive wealth transfers to stockholders and to gain from any increase in risk. Consequently, stockholders have fewer opportunities to engage in those activities that would result in the increase of stock values at the expense of

bondholders. Thus, convertible debt tends to moderate both shareholder-manager conflicts and shareholder-bondholder conflicts.

Such debt issues should therefore be less discounted than plain debt issues. This conclusion is also supported by the work of Thatcher (1985), who argues that the gain accruing to convertible bondholders from investments in profitable low risk projects, which would otherwise be rejected by shareholders, is reduced to the conversion premium, since bondholders have less incentive to convert. This allows shareholders to capture most of the profits in these profitable low risk projects thereby reducing the agency problem.

A potential problem with covenanted debt is that the partitioning of debt into various separate classes with different rights creates a potential for new conflicts of interest among the various classes of debt holders. According to Masulis (1988), such conflicts are greatest during periods of financial distress. Bulow and Shoven (1978) focus on conflicts of interest arising from differences in the seniority and time priority of debt. When a firm has net negative worth, shareholders will not buy additional stock to enable the firm to avoid bankruptcy. However, short-term debt holders may extend additional credit in exchange for a partial payment of their existing claims so that the firm can avoid default (Hunsaker, 1999).

This is beneficial to the firm since it prevents immediate bankruptcy and allows short-term debt to be paid off, thereby maintaining the time priority of short-term debt. On the other hand, if bankruptcy was declared, the claims of long-term debt will be accelerated which in turn may result in non-payment to short-term debt holders, if the long-term claims are of senior or equal standing to the short-term debt claims. Hart and Moore (1990) consider the relationship between the seniority of debt and the firm's capital structure8. They show that either an increase in the return on the firm's initial dowry of assets or in the return on new assets will be associated with an increase in the firm's debt-equity ratio. Moreover, for profitable investments, the debt-to-equity ratio falls as the variance of the return on existing assets increases, but increases as the rate of return on debt rises; but for unprofitable investments, the reverse is true.

The opposite occurs for the case where the investment is unprofitable. Given the multitude of different bond covenants used in practice, it is not altogether surprising that the theoretical

literature has produced a host of special cases, but fewer general conclusions about the implications of covenants. See Smith and Warner (1979).

If debt covenants can be used to help resolve stockholder-bondholder conflicts then, in principle, other forms of constraint may also work. Since dividend payments are the main route by which stockholders divert cash from bondholders, it is natural to consider constraints on dividend payments. Wald (1999) develops a model in which conflict arises, not because of information
Hart and Moore's model has some parallels to that of Jensen (1986).

However, Jensen analyses the role of the firm's financial structure in controlling funds out of the firm, whereas Hart and Moore consider the role of the financial structure in controlling the funds into the firm. asymmetries, but because of incomplete contracts: debt contracts cannot cover all possible future contingencies. Wald shows that a dividend constraint can solve the moral hazard problem that arises in the presence of incomplete contracts. In this setting, more profitable firms that can afford higher dividends will have lower debt-equity ratios so as to avoid hitting the dividend constraint.

A further important issue in situations of conflict of interest and imperfect information is that of managerial reputation. Diamond (1989) analyses the influence of managerial reputation on reducing the problems of adverse selection and moral hazard. A firm can invest in a safe asset, a risky asset, or a combination of the two. Firms investing in a safe project will not default; those investing in the risky project may default. Investors, ex-ante, cannot distinguish between firms, consequently, the lending rate will reflect their beliefs regarding the riskiness of a firm's investment. Diamond assumes that investors can only observe defaults. It follows that, the longer the period of non-default, the better is a firm's reputation as a safe firm, and the lower will be its borrowing costs. This suggests that older firms will choose the safe project to maintain reputation. Younger firms with a lesser reputation may choose risky projects with higher prospective returns; but, if they survive, they will eventually choose the safe project. Accordingly, older firms will have lower levels of debt, ceteris paribus.

This analysis can be extended in terms of individual managerial reputations. Hirshleifer and Thakor (1989) analyse the financial decisions of a firm in which a manager may alter investment

policy so that he/she can develop a reputation for high ability. Thus, the manager is motivated by the perceived value of her human capital.

If the market for managerial labor infers ability by the success or failure of projects, managers will choose those projects that have the greatest probability of success even though they may have poor or inadequate risk adjusted cash flows. This divergence of interests between the manager and the shareholder, and the resulting moral hazard, create managerial conservatism in project selection. Hirshleifer and Thakor (1989) conclude "for an unlevered firm, ceteris paribus, managerial reputation building can cause excessive conservatism in investment policy relative to the shareholders' optimum".

This observation suggests that the value of the firm is lower when such an outcome occurs than in the case when it does not. However, agency costs between shareholders and debt holders may be reduced as a result of management being concerned about its reputation, because managers will choose the risky projects. This results in lower rates of expropriation of debt by Shareholders, thus reducing the cost of debt. As the cost of debt falls and leverage increases, there is an increase in the value of the interest tax shield of the debt, and the value of the firm rises. Managerial reputation is one method by which management signals to outsiders. If, however, there is a high level of managerial share ownership, reputation is less important. Under these circumstances, various conflicting theories of the relationship between equity holders and debt holders have been proposed.

One line of argument draws on three basic points. First, firms with high inside ownership may face high equity agency costs. Second, firms with high inside ownership will face lower agency debt costs arising from the lower divergence of managerial and shareholder interests. Third, firms with high inside ownership may issue more debt than is optimal simply for the insiders to maintain control of the firm.

As Kim and Sorenson (1986) conclude, the arguments all suggest that firms with high inside ownership will issue more debt (and possibly excessive debt) than those in which ownership is more dispersed. Grossman and Hart (1982) argue that managers increase the level of debt to commit themselves to generating the necessary cash flows to meet debt repayments and

consequently reducing the possibility of management engaging in excessive perquisites. This in turn increases the value of the firm's equity. Correspondingly, the costs of issuing additional equity should fall as a result of external investors perceiving that management have reduced their "shirking".

However, other theories suggest that high levels of insider ownership will be associated with lower levels of debt. For example, Jensen (1986) argues that owner-managers will prefer lower debt levels so as to increase their discretion over the use of free cash flow. Friend and Lang (1988) and Hunsaker (1999) point out that lower debt levels will reduce the risk of bankruptcy, and therefore help preserve the management's stake in the firm. Thus owner- managers will have a level of debt which is lower than optimal; and the greater the concentration of management ownership the lower will be the firm's level of debt. A further consideration, due to Short and Keasey (1999), is that well-diversified external shareholders would be willing to incur higher debt levels than those, which would rationally be sought by less diversified risk-averse owner-managers.

It is also worth noting that in levered firms, the pressure for reputation building and managerial preservation may become so acute as to incline management to the rejection of any slightly risky but profitable project; thus, resulting in the value of the firm falling. This argument is consistent with that of Ross (1977), as we explain in what follows. Notwithstanding the arguments of the previous two paragraphs, it can be claimed that firms with a high degree of insider ownership would not, in fact, suffer from equity holder-debt holder conflicts. It is natural to suppose that the higher the proportion of shares owned by the management, the more difficult it becomes for outsiders to discipline such owner-managers, without the aid of high levels of debt.

However, Grossman and Hart (1982) show that if we start from a situation in which managers do not have any equity, then, as their ownership increases, owner-managers' and external shareholders' interests are increasingly tied together. The dispersion of external shareholders is also important. For example, Zeckhauser and Pound (1990) and Chen and Steiner (2000) argue that the presence of a few large external shareholders in a firm may prevent owner-managers from adjusting debt ratios to suit their own interests. Large external shareholders, by acting as monitors, help to lower some of the agency problems of debt financing.

Thus, such firms should have a higher level of debt than those firms with no large external shareholders. Alternatively, large external shareholders may act as a signal to the market that managers are less able to engage in profit-reducing activities, thereby mitigating the need for debt to be used as a signal of firm quality. As a practical matter, these arguments obviously suggest important questions about the role of investment funds in the monitoring process.

2.4 The Reality of an Optimal Capital Structure

Optimal capital structure is the one with the highest net benefits for shareholders (Opler et al., 1997) In a study of 821firms (Bradley, Jarrell and Kim, 1984) found that there is strong intra-industry similarities in firm leverage ratios and persistent inter-industry differences. They also found a significant inverse relationship between firm leverage and earnings volatility. (Bradley et at., 1984) concluded that these findings supported the existence of optimal capital structure. In other words, intra-industry similarities and inter-industry differences indicate that there exists target or optimum gearing levels in each industry. While the inverse relationship between leverage and earnings volatility suggests that mangers will target certain leverage levels depending on the earnings volatility of their firms and industries. Consistent with the trade-off theory Bradley et at. (1984) show that optimal capital structure is inversely related to expected costs of financial distress.

2.4.1 Firm credit rating

Most executives would agree that, ceteris paribus, it is better to have a good credit rating. Yet very few firms have either a “AAA’ or “AA’ rating. The reason is that achieving a high rating requires a firm to include a substantial amount of equity in its capital structure, and this can be very costly

In a survey of 392, CFO’s Graham and Harvey (2001) found that a good credit rating, assigned by rating agencies, is the second most important factor of concern to CFO’s in determining their capital structure. With 57.1% of CFO’s saying, a good credit rating was important or very important in how they chose the appropriate amount of debt for their firms. Graham and Harvey (2001) conclude that this can be viewed as an indication of concern about distress. Hovakimian

et. Al (2009) argued that credit ratings are a more precise measure of a firm's default probability than measures of capital structure which are based only on the firm's balance sheet because they bring together information from various sources and include soft as well as hard information

2.4.2 Credit rating criteria

Ratings incorporate many subjective judgments, and remain as such an art as a science. Two companies with identical financial metrics are rated very differently to the extent that their business challenges and prospects differ. Having said that, Standard & Poor's has developed a matrix to make explicit the rating outcomes that are typical for various business risk/financial risk combinations. The rating matrix, shown in Table 2.1 is a guideline that shows what is typically observed and is not meant to give guarantees of rating opinions. However, actual ratings should be within one notch of the rating indicated on the matrix (Standard & Poor's, 2009). Some matrix cells are blank because the underlying combinations are highly unusual and presumably would involve complicated factors and analysis

Table 2.1 Standard & Poor's rating matrix

Business Risk Profile	**Financial Risk Profile**									
	Minimal			**Intermediate**		**Significant**		**Aggressive**		**Highly**
Excellent	MSE	AAA	AA	See	A	A-	MSE	BBB	-	
Strong		AA	A		A-	BB		BB		BB-
Satisfactory		A-	BBB+		BBB	BB+		BB-	B+	
Fair		-	BBB-		BB+	BB		BB-		B
Weak		-	-		BB	BB-		BB+	B-	
Vulnerable		-	-		-	B+		B	CCC+	

Financial Risk Indicative			

Cash Flow Funds	MSE			eeM			MSE		
Operations/Debt		>60	45-60		30-45	20-30		12-20	<12
Debt/EBITDA (x)		<1.5	1.5-2		2-3	3-4		4-5	>5
Debt/Capital (%)		<25	25-35		35-45	45-50		50-60	>60

The categories underlying business risk assessments include country risk, industry factors, competitive position and profitability (Standard & Poor's, 2008). Factors included in financial risk assessments are governance, accounting policies, cash flow adequacy, capital structure and liquidity. There are no predetermined weights to each of these categories. The significance of specific factors varies from situation to situation. This is only taken as standard. However, cash flow adequacy is usually the single most critical aspect of credit rating decisions

2.4.3 Relevant financial ratios

The literature is somewhat mixed about whether one should use market or book leverage ratios. Market based leverage ratios describe the relative ownership of the firm by debt holders and equity holders (Welch, 2004). Welch argued for use of market-based ratios since they are essential inputs in calculations of WACC and target leverage ratios are about minimizing WACC A commonly used measure of market leverage in literature is debt-to-capital (Bevan and Danbolt, 2002, Kayhan and Titman, 2007, Welch, 2004). Welch (2007) argued that the financial-debt-to-asset ratio is flawed as a measure of leverage, because the converse of financial debt is not equity. This is because most of the opposite of the financial-debt-to asset ratio is the non-financial-liabilities-to-asset ratio. The most appropriate measures for leverage are debt-to-capital ratio or a liabilities-to-asset ratio. The converse of either is an equity ratio. The formulas for the market and book debt-to-capital ratios are given below:

$$\text{Market debt to capital} = \frac{De}{Db + Em + PS}$$

$$\text{Book debt to capital} = \frac{De}{Db + Eb + PS}$$

Where Db = Book value of debt

Em = Market value of equity

Eb = Book value of equity

PS = Preference shares

2.4.4 Debt service ratios

A ratio used to measure how well a company has its interest obligations covered is the interest coverage ratio (Firer et al., 2008). It is commonly defined as: Interest Coverage = Earnings Before Interest and Taxes (EBIT) Interest Expense

Lending institutions often impose a minimum interest coverage ratio on firms. With minimum interest coverage ratio, creditors impose the point of default and do not leave the choice of when to default to the shareholders. with such a covenant, the borrowing firm is in default when earnings fall below a specified minimum interest coverage. Dothan (2006) concluded that with nonlinear costs of financial distress, an interest coverage ratio covenant may create greater investor value than a endogenous default by stock holders.

In a sample of 8,004 loans made by 2,810 firms between 1989 and 1999 Dichev and Skinner (2002) found that the median interest coverage ratio for firms that did not violate their loan conditions was 3.9 Dichev and Skinner (2002) also discovered that firms that had violated their loan conditions in at least one quarter had a median interest cover of 2.8. The conditions referred to here are a covenant that are imposed by lenders.

Firer et al. (2008) state that the problem with interest cover ratio is that it is based on EBIT, which is not really a measure of cash available to pay interest. Another useful ratio they suggest is the cash coverage ratio, which can be defined as:

Cash Coverage = EBITDA

Interest Expense

Where, EBITDA is earnings before interest, taxes, depreciation and amortization. This ratio is useful because of its simplicity, wide usage and industry reference (Standard & Poor's 2008).

According to Standard & Poor's (2008), while EBITDA is a widely used indicator of cash flow, it has significant limitations. The limitations have to do with the fact that EBITDA derives only from income statement inputs, can be distorted by the same accounting issues that limit the use of earnings as a basis of cash flow (Standard & Poor's, 2008). In this regard free cashflow (FCF) is a more comprehensive measure of cash flow as it takes into account capital expenditure and

changes in working capital. FCF can be used as a proxy of a company's cash generated from core operations. Industry relative ratios have been found to offer several advantages over unadjusted ratios when used to predict corporate failure (Platt and Platt, 1990).

Platt and Platt (1990) suggest that this is because, over a time period, industry relative ratios measure all companies on the same scale regardless of industry and across time periods they are more stable yielding more accurate forecast of financial status. Based on this it might be best to calculate industry optimum debt coverage ratios in determining whether companies are operating at their optimal debt coverage ratio or not.

Table 2.2 shows key ratios by rating category achieved by US industrial

Example 2.4 Unlevering the Stock. In our SS example, suppose management adopted the proposed capital structure. Further, suppose that an investor who owned 100 shares preferred the original capital structure. Show how this investor could "unlevel" the stock to recreate the original payoffs.

	Recession	Expected	Expansion
EPS(Proposed structure)	$ 3	$ 8	$ 13
Earnings for 50 shares			
Plus: Interest on $1,000@10%	150	400	650

	100	100	100
	250	500	750

To create leverage, investors borrow on their own. To undo leverage, investors must loan out money. For Sweet Sensation Confectionery borrowed an amount equal to half its value. The investor can unlevel the stock by simply loaning out money in the same proportion. In this case, the investor sells 50 shares for $1,000 total and then loans out the $1,000 at 10 percent. The payoffs are calculated below. These are precisely the payoffs the investor would have experienced under the original capital structure.

2.4.5 Theories of the Impact of Taxation on Capital Structure

The theoretical literature has examined two main aspects of the impact of tax on the firm's capital structure. The first concentrates on aspects of the corporate tax deductibility of debt, whilst the second looks at the way in which taxes influence the decisions of the firm's security holders, and hence their willingness to hold the firm's securities. Modigliani and Miller (1963) recognized at an early stage that their perfect capital markets assumptions need modifying to allow for corporate tax. In particular, debt typically offers a tax shelter, because interest is deducted before taxable profits are struck.

Thus, in the presence of corporate taxes, MM showed that the value of the firm as a whole rise as the level of leverage increases, suggesting that firms have no constraint on the incentive to issue debt, other than the direct threat of bankruptcy.
However, owners of debt and shares are also subject to tax on their security

CHAPTER THREE

3.1 Introduction

In this section, the theoretical framework showing the different underlying theories of optimal capital structure and business continuity is enunciated. The methods adopted in analyzing the relationship between capital structure of firms and their continuity vis-à-vis the population, sample size and research design is presented. The empirical model for the study of Nigerian and international firms' capital structure and continuity is also formulated. This empirically linked the performance of quoted Nigerian firms, both their accounting and market performance to their capital structure. This section further shows the data description; discusses the techniques of estimation adopted for the model as well as the sources of data.

3.2 Theoretical Framework and Research Methodology

3.2.1 Leverage and Capital Structure

Modigliani and Miller challenge the traditional view as to the effect of leverage on the cost of capital. They develop a behavioral justification support for the net operating income approach. Without taxes, the cost of capital and market value of the firm remain constant throughout all degrees of leverage (Modigliani and Miller, 1958). The Modigliani and Miller(MM) theory proves that under a very restrictive set of conditions, a firms value is unaffected by its capital structure which implies that the financing choice of firms is irrelevant.

	AAA	AA	A	BBB	BB	B	CCC
EBIT interest coverage (x)	23.8	19.5	8	4.7	2.5	1.2	0.4
EBITDA interest coverage (x)	25.5	24.6	10.2	6.5	3.5	1.9	0.9
FFO/total debt (%)	203.3	79.9	48	35.9	22.4	11.5	5
Free operating cash flow/total debt (%)	127.6	44.5	25	17.3	8.3	2.8	-2.1
Total debt/EBITDA (x)	0.4	0.9	1.6	2.2	3.5	5.3	7.9
Return on capital (%)	27.6	27	17.5	13.4	11.3	8.7	3.2
Total debt/total	12.4	28.3	37.5	42.5	53.7	75.9	113.5

debt + equity							

Table 3.2 Key Industrial Financial Ratios, Long-Term Debt that could Impact on the firm's Capital Structure Optimally or Otherwise This research work is going to be more practical than theory because I intend to make this study a solution proffer document to assist organization in managing the cap structure optimally as to when and how to source for fund and the use of it equitably. This is to ensure that the organization runs a going concern.

I will reflect on a literature that underpins the striking of capital structure issue on the U.S consumer-rating firm, Equifax. When Equifax adopted economic value added (EVA), it thoroughly restructures its finances by taking on additional debt. Coca-Cola also moved to substantially higher levels of debt after it adopted EVA, however, it did not go as far in adding debt as some proponents of EVA would have recommended. One of the major components of EVA is the cost of capital. One of the major themes of the proponents of EVA is that a firm should use a significant amount of debt to finance its operations.

These same individuals are quick to agree, however, that the amount of debt a firm should have is a complicated issue and that there is no single set of recommendations that automatically fits all firms or organizations. This question of how much debt a firm should have relative to equity, known as its capital structure, has many implications for a firm and is far from being a settled issue in either theory or practice. In this section, I will discuss the basic ideas underlying capital structures and how firms choose them. A firm's capital structure is really just a reflection of its borrowing policy.

Should we borrow a lot of money, or just a little? At first glance, it probably seems that debt is something to be avoided. After all, the more debt a firm has the greater is the risk of bankruptcy. What we learn is that debt is really a double-edged sword, and, properly used, debt can be enormously beneficial to the firm. A good understanding of the effects of debt financing is

important simply because the role of debt is so misunderstood, and many firms and individuals are far too conservative in their use of debt.

Having said this, we can also say that firms sometimes err in the opposite direction, becoming much too heavily indebted, with bankruptcy as the unfortunate consequence. Striking the right balance is what the optimal capital structure issue is all about

Thus far, we have taken the firm's capital structure as given. Debt-equity ratios do not just drop on firms from the sky, of course, so now it is time to wonder where they do come from. A firm can choose any capital structure that it wants. If management so desired, a firm could issue some bonds and use the proceeds to buy back some stock, thereby increasing the debt-equity ratio. Alternatively, it could issue stock and use the money to pay off some debt, thereby reducing the debt-equity ratio. Activities, such as these, that alter the firm's existing capital structure are called capital restructurings.

In general, such restructurings take place whenever the firm substitutes one capital structure for another while leaving the firm's assets unchanged. Since the assets of a firm are not directly affected by a capital restructuring, we can examine the firm's capital structure decision separately from its activities. This means that a firm can consider capital-restructuring decisions in isolation from its investment decisions. Is a known fact that the WACC tells us that the firm's overall cost of capital is a weighted average of the costs of the various components of the firm's capital structure.

When we described the WACC, we took the firm's capital structure as given. Thus, one important issue that I will want to explore in this section is what happens to the cost of capital when we vary the amount of debt financing, or the debt-equity ratio. A primary reason for studying the WACC is that the value of the firm is maximized when the WACC is minimized. To see to this, recall that the WACC is the discount rate appropriate for the firm's overall cash flows. Since values and discount rates move in opposite directions, minimizing the WACC will maximize the value of the firm's cash flows. Thus, we will want to choose the firm's capital structure so that the WACC is minimized.

Thus, we reiterate that one capital structure is better than another if it results in a lower weighted average cost of capital. Further, we say that a particular debt-equity ratio represents the optimal capital structure if it results in the lowest possible WACC. This optimal capital structure sometimes called the firm's target capital structure.

3.2.2 The Effect of Financial Leverage

In this section, we will examine the impact of financial leverage on the payoffs to stock holders. Financial leverage refers to the extent to which a firm relies on debt. The more debt financing a firm uses in its capital structure, the more financial leverage it employs. As we describe, financial leverage can dramatically alter the payoffs to shareholders in the firm. Remarkably, however, financial leverage may not affect the overall cost of capital. If this is true, a then a firm's capital structure is irrelevant because changes in capital structure will not affect the value of the firm.

3.2.3 The Impact of Financial Leverage

I will start by illustrating how financial leverage works. For now, I ignore the impact of taxes. In addition, for ease of presentation, we describe the impact of leverage in terms of its effects on earnings per share, EPS and return on equity, ROE. These are of course accounting numbers and as such are not our primary concern. Using cash flows instead of these accounting numbers would lead to precisely the same conclusions.

Financial Leverage, EPS, and ROE: A scenario Sweet Sensation Confectionery currently has no debt in its capital structure. The CFO is considering a restructuring that would involve issuing debt and using the proceeds to buy back some of the outstanding equity. Table 3.3 presents both current and proposed capital structures. As shown, the firm's assets have a market value of $4 million, and there are 200,000 shares outstanding. Because Sweet Sensation Confectionery is an all-equity firm, the price is $20.

The proposed debt issue would raise $2 million, the interest rate would be 10%, since the stock sells for $20 per share, the $2 million in new debt would be used to purchase $2 million/20 = 100,000 shares, leaving 100,000 outstanding. After the restructuring, Sweet Sensation Confectionery has a capital that was percent debt, so the debt-equity ratio would be 1. Note that

for now, we assume that the stock price will remain at $20. To investigate the impact of the proposed restructuring, CFO has prepared Table 2.4 that compares the firm's current capital structure to the proposed capital structure under three scenarios. The scenarios reflect different assumptions about the firm's EBIT. Under the expected scenario, the EBIT is $1 million. In the recession scenario, EBIT falls to $500,000. In the expansion scenario, it rises $1.5 million. To illustrate some of the calculations in Table 3.4, consider the expansion case. EBIT is $1.5 million. With no debt (the current capital structure) and no taxes, net income is $1.5 million. In this case, there are 200,000 shares worth $4 million total. EPS is therefore $1.5 million/200,000 = $7.5 per share. In addition, since accounting return on equity, ROE, is net income divided by total equity, ROE is $1.5 million/4 million = 3.75%.

Table 3.2 Current and proposed capital structures for Sweet Sensation Confectionery

	Current	Proposed
Assets	$4,000,000	$4,000,000
Debt	$0	$2,000,000
Equity	$4,000,000	$2,000,000
Debt-equity ratio	0	1
Share price	$20	$20
Shares outstanding	200,000	100,000

Interest rate	10%	10%

With $2 million debt (the proposed capital structure), things are somewhat different. Since the interest rate is 10%, the interest bill is $200,000. With EBIT of $1.5 million, interest of $200,000, and no taxes, net income of $1.3 million. Now there are only 100,000 shares worth $2 million total. EPS is $1.3 million/100,000 = $13 per share versus the $7.5 per share that we calculated above. Furthermore, ROE is $1.3 million/2 million = 65%. This is well above 3.75% we calculated for the current capital structure. EPS versus EBIT The impact of leverage is evident in Table 3.4 when the effect of the restructuring on EPS and ROE is examined. In particular, the variability in both EPS and ROE is much larger under the proposed capital structure. This illustrates how financial leverage acts to magnify gains and losses to shareholders.

- In figure 3.2, we take a closer look at the effect of the proposed restructuring. This figure plots earnings per share, EPS, against earnings before interest and taxes, EBIT, for the current and proposed capital structures. The first line, labeled "No debt," represents the case of no leverage. This line begins at the origin, indicating that EPS would be zero if EBIT were zero. From there, every $200,000 increase in EBIT increases by $1 (because there are 200,000 shares outstanding). The second line represents the proposed capital structure. Here, EPS is negative if EBIT is zero. This follows because $200,000 of

- interest must be paid regardless of the firm's profits. Since there are 100,000 shares in this case, the EPS is -$2 per share as shown. Similarly, if EBIT were $200,000, EPS would be exactly zero.

Table 3.2 Capital structure scenarios for Sweet Sensation Confectionery

Current Capital Structure: No Debt

	Recession	Expected	Expansion
EBIT	$500,000	$1,000,000	$1,500,000
Interest	0	0	0
Net Income	$500,000	$1,000,000	$1,500,000
ROE	6.25%	125.5%	3.75%
EPS	$1.25	$2.50	$7.5
Proposed Capital Structure: Debt = $2 million			
	Recession	**Expected**	**Expansion**
EBIT	$500,000	$1,000,000	$1,500,000
Interest	200,000	200,000	200,000
Net Income	$300,000	$800,000	$1,300,000
ROE	15%	40%	65%

EPS	$3	$8	$13

Corporate Borrowing and Homemade Leverage

Based on Tables 3.2 and 3.2, The CFO draws the conclusions:

1. The effect of financial leverage depends on the Company's EBIT. When is relatively high, leverage is beneficial.
2. Under the expected scenario, leverage increases the returns to shareholders as measured by both ROE and EPS.
3. Shareholders are exposed to more risk under the proposed capital structure since the EPS and ROE are much more sensitive to changes in EBIT in this case.
4. Because of the impact of financial leverage has on both the expected return to stock-holders and the riskiness of the stock, capital structure is an important consideration.

   The first three of these conclusions are clearly correct. Does the last conclusion necessarily follow? Surprisingly, the answer is no. As I progress further in my study, the reason will be illustrated and proved because shareholders can actually adjust the amount of financial leverage by borrowing and lending on their own. This is use of personal borrowing to alter the degree of financial leverage is called HOMEMADE LEVERAGE.

I will now illustrate that it actually makes no difference whether or not Sweet Sensation adopts the proposed capital structure, because any stockholder who prefers the proposed capital structure can simply create it using homemade leverage. To begin, the first part of Table 2.5 shows what will happen to an investor who buys $2,000 worth of Sweet Sensation stock if the proposed capital structure is adopted. This investor purchases 50 shares of stock from table 2.4. EPS will be $3, $8, or $13, so the total earnings for 50 shares will be either $150, $400 or $650 under the proposed capital structure.

Now, suppose Sweet Sensation does not adopt the proposed capital structure. In the case, EPS will be $1.25, $2.5 or $7.5. The second part of Table 2.5 demonstrates how a stockholder who

prefers the payoffs under the proposed capital structure can create them using personal borrowing. To do this, the stockholders borrow $1,000 at 10% on their own. Our investor uses this amount, along with original $1,000 to buy 100 shares of stock. As shown, the net payoffs are the same as those for the proposed capital structure.

How did we know to borrow $1,000 to create the right payoffs? We are trying to replicate Sweet Sensation's proposed capital structure at the personal level. The proposed capital structure results in a debt-equity ratio of 1. To replicate this personal level, the stockholder must borrow enough to create this same debt-equity ratio. Since the stockholder has $1,000 in equity invested, borrowing another $1,000 will create a personal debt-equity ratio of 1. This illustration demonstrates that investors can always increase financial leverage themselves to create a different pattern of payoffs. It thus makes no difference whether or not Sweet Sensation chooses the proposed capital structure.

Table 3.2 Proposed capital structure versus original capital structure

Proposed Capital Structure			
	Recession	Expected	Expansion
EPS	$3	$8	$13
Earnings for 50 shares			
Net cost = 50 shares at $20 = $1,000	$150	$400	$650

Original Capital Structure and Homemade Leverage			
	Recession	Expected	Expansion
EPS	$1.25	$2.50	$7.5
Earnings for 100 shares			
Less: interest on $1,000	125	250	750
Net earnings			
Net cost = 100 shares at $20 – Amount borrowed = $2,000 – 1,000 = $1,000	100	100	100
	$25	$100	$650

3.2.4 Capital Structure and Financial Market

The financial market is the same in all market economies. Its framework and structure consist of a network of various financial institutions that facilitate the transfer of the savings of the surplus units in the economy to the deficit units and the regulators superintending the laws, the rules and regulations that govern the operators and their activities. Unlike the everyday markets for tactile commodities, the financial market does not exist within some defined spatial boundaries.

The Financial Market is generally often classified into two:

a. The Money Market and

b. The Capital Market

Liquidity

The financial market also operates on two levels or segments – the primary market where new issues of securities or financial instruments are sold, with the proceeds going to the issuer, and the secondary market where securities previously issued and held by investors are continuously traded between the current holders (sellers) and the new investors (buyers). Proceeds of secondary market transactions do not go the issuers of the securities but to the sellers, except where the sale is from Treasury stock or from ware housed instruments not previously paid for.
The two levels of the market complement each other. While the primary market feeds the secondary market with no securities, the success of the new issues of securities in the primary market depends to a large extend on the receptivity of the securities in the secondary market and the level of liquidity the secondary market is unlikely to attract investors in the primary market.

Liquidity is the ability to sell a security at any time in the secondary market allows an investor to change its tenor preference and/or switch to alternative securities or cash. Because of the flexibility and the lowering of risk that a secondary market affords investors, the primary market is deepened. The ability of investors to switch between investments allows the market to rationally and efficiently allocate resources, a critical element in the efficiency of the whole economy.

In Nigeria, the capital market is one segment of the financial market that has an organized secondary market that is large, active, transparent and relatively liquid – the minimum attributes sought by international portfolio investors. In the money market, only Government securities have an active secondary market holds out the potential of mobilizing increasingly larger savings from domestic and foreign investors who take comfort in the liquidity it affords. In essence it is a superior medium for accessing a wider variety of investors.

Money Market

The money market is the market for short-term instruments. These are instruments maturing within one year of issue such as the various deposit products of banks – Certificates of Deposits, Bankers Acceptances, Commercial Paper, Treasury Bills
And Treasury Certificates. In Nigeria, it is by far more developed than the capital market, not in terms of sophistication but in the penetration of the society. It is therefore much larger in its overall size and in transaction sizes. There exist some differences between countries in the structure of their markets. In Nigeria, the money market is made up of all banks and discount houses, which generally intermediate between the general public and institutional investors as savers and borrowers (the deficit units). In intermediating, banks, other deposit taking financial institutions and discount houses take deposits, add their own margin and on-lend to the borrowers. Some, mainly the discount houses and banks with investment banking capacity, sometimes also act in dis-intermediating roles, selling directly to the institutional investors and high net worth individuals, instruments issued by third party borrowers with no obligation on their part.
Treasury Bills and Commercial Paper fall into this latter category.

Some of the instruments are trade-able. In Nigeria, a secondary market does exist, for mostly Government Securities through discount houses and Central Bank and to a much lesser degree, Commercial Paper. The money market's secondary market is neither as well developed nor as transparent as the Capital Market.

The Central Bank of Nigeria regulates the money market.

Capital Market

The Capital Market is essentially the long-term end of the Financial Market, transferring long-term end of the Financial Market, transferring long term savings in the economy (however defined, local or global) to corporate bodies and Governments. All instruments with maturities of more than one year are regarded as Capital Market instruments. Securities and Exchange Commission (SEC) regulates the Capital Market. SEC however delimits the maturity threshold for securities requiring registration at 270 days.

The transfer of savings in the Capital Market are through financial claims called securities issued by corporate bodies and Governments to investors (the savers) who could be dispersed and have no direct contact with each other or with the issuers of the instruments. The investors' only contacts with the issuers are often the prospectuses or placement memoranda offering the securities, prepared by the Issuing House, giving the description of the instruments, setting out the background information on the issuers and in a vast majority of cases, indicating possible or promising definite returns to investors. It is a dis-intermediated market with the instruments being sold to the public at large or in the case of private placements, to restricted groups of investors.

For a market, that is driven largely by promises of future returns to investors as well as issuers' presentation of themselves and their ventures, the temptation for the crooked to take advantage of the public is ever present. Indeed, the history of the market in its early days is replete with stories of outright fraud and collusion in the sale of securities to the public. The case of the South Sea Bubble in the 1720s with the fanciful stories about prospects that never materialized is a popular one. In recent times, the Enron saga in the United States of America and closer home, the African Petroleum Plc privatization issue illustrate the vulnerability of the public to deceptive devices and false information that can be inflicted on the hapless public by unscrupulous issuers.

The primary financial institutions in the Capital market are:-

- Issuing Houses (largely banks and some stock broking firms).
- Stock broking Firms.

Investors/Savers are: -

- Individual investors.
- Institutional investors (Unit Trusts, Investment Trusts, Pension Funds and Insurance Companies).

The Users of the Funds could be:-

- Companies.
- Governments and their agencies

Obviously, for savers to continue to have confidence in the market, they must have reasonable expectation that they will not be defrauded. Indeed, they must expect transparency, integrity, fairness and commercial honour in their undertakings in the market. Early efforts to regulate the

market as a result of market rigging and insider trading can be traced back to 1697 when the UK Government decided to limit stockbrokers and stockjobbers to 100 and each was required to take an oath to "truly and faithfully execute and perform the office and employment as a broker between parties without fraud or collusion".

Regulation of the Capital Market

To ensure that transactions are conducted in an orderly, transparent and efficient manner and that investors are duly protected from unwholesome acts of issuers and operators, the market has an elaborate legal and regulatory framework consisting of laws, regulatory institutions and their respective rules, regulations and Codes of Conduct. Specific governing laws include: -

- Companies and Allied Matters Act 1990.
- Investments and securities Act 1999.
- Trustee Investments Act 1962.
- Corporate Income Tax Act.
- Insurance Act.

The main regulatory bodies for the Capital Market are: -

(i) The Securities & Exchange Commission (SEC): which by law is the apex regulatory Organ of the Capital market with wide powers vested in it to, among others, register and regulate stock exchanges, all Capital Market operators and new issues of securities.

(ii) The Nigerian Stock Exchange (NSE): It is a self-regulatory organization (SRO) that provides the framework and facilities for the trading of securities in the secondary market and also through its listing requirements, opportunities for companies and governments to list shares/stock/bonds through new issues of securities in the primary market. Bringing together the large number of participants required to create and sustain a robust secondary market dictates that there are structures to bring the sellers and buyers together in an orderly and efficient manner. For a seller to find a potential buyer himself and negotiate price will certainly be cumbersome and unlikely to lead to fair pricing. A system by which buyers and sellers can be brought together in a way that allows for the full interplay of market forces is critical to achieving fairness and making the search for transaction counter parties less unwieldy.

The Nigerian Stock Exchange, and its dealing members (i.e., stock broking firms) achieve this. No significant level of secondary market activity can thus exist without The Exchange. Stockbrokers by acting for their clients through the structures of the stock exchange manage this process.

(iii) Chartered institute of Stockbrokers (CIS): CIS is by law empowered to train, set standards of training required by those who seek to practice stock broking and to license such individuals. It shoulders the responsibility to train for the market, high quality manpower, set ethical standards of practice to ensure commercial honour and integrity as well as enforce discipline.

The various regulators have investigative, arbitrative, disciplinary and enforcement procedures to ensure that the market continues to be safe and fair to all participants in the market.

Medium Term Market

While the two-tier classification of the Financial Market is theoretically useful, it ignores the reality of the market place. Given the time, complexity and cost of floatation of Capital Market instruments, it is doubtful if any issuer will go to the Capital Market to issue securities for maturities of 270 days or for that matter issue securities maturing within three years of issue and face the registration requirements of SEC.

A potential issuer will rather approach a bank or other financial institutions for its needs. It is basically an intermediate market. Unless through securitization, or novation, or such like structures, the financing structures are not readily traded and are not liquid.

A bank can arrange solely or jointly with others, to meet financing requirements of less than three years through a loan or financial lease in a variety of structures open to the banks. Where the need exceeds the capacity of a single lending bank, the need can be met by a group of banks and other financial institutions acting jointly. This called a syndicated loan. The types of loans that can be syndicated can vary from Overdraft facilities to medium term loans of up to 7 years. Where the financing structure includes more than one type of facilities, they are referred to as Multiple Term Facilities. These could involve medium term loans, overdraft and finance leases.

Another common medium-term financing structure is Finance (or Full-Payout) Lease. Finance Leases are contracts by financial institutions (the lessor) to finance acquisition of assets for an operator who will own the asset at the end of the contract (the lessee) In adequate legal framework in Nigeria unlike Ghana forces most lessors to exclude purchase option in the Lease. Agreements. The contracts generally have tenors ranging from 18 months to 5 years. The lessor holding the title to the assets until the lessee at whom point title passes to the lessee makes all payments provides security.

The classical structure is similar to annuity with monthly or quarterly rentals payable by the lessee. Consequently, it is ideal for the investor with a medium-term annuity requirement. Each rental payment has embedded in it two elements, income and principal repayment.

Appropriate Use of Each Market

Given the delineation of the various segments of the financial market in terms of tenors offered, the choice of which market to approach for one's financing requirements may appear simple. It probably is with the tenor of the instruments offered by the Money Market limited to a year, the financing is best suited for short-term transactions, with cash conversion cycles of one year or less. Hence, most sovereign Government's issue Treasury Bills and Certificates to bridge the timing gaps between tax receipts and expenditure.

For companies, prudent Treasurers, strictly for the fluctuating portion of their working capital requirements, use short term financing. The permanent portion of working capital is best financed by medium term facilities. If available. This is referred to as tenor matching. It is inappropriate to finance a piece of machinery with a useful life of twenty years and may be with a cash payback' period of seven years with overdraft.

You will often be beholden to the bank in times of stress in the Money Market. The precarious liquidity of the company and tenor mis-match will automatically show up on the balance sheet as negative working capital. This will also be reflected in the usual ratios measuring liquidity. Most corporate failures are often preceded by illiquidity.

The credit risk in such situations in normal markets shows up in the risk ratings for such companies, which will be compensated for, in higher interest rates imposed on such companies. Even suppliers may become reticent to grant credit facilities to such companies and investors in such securities will demand higher returns to compensate for the increased risk.

As Accountants, you all know too well the pressures under which you can placed each time the Money Market experiences some turbulence. For those who have had to manage the Treasury function in companies between 1985 and 1996, they need not be told the virtue of tenor matching.

Furthermore, an inappropriately tenured instrument will invariably limit the projects that a given cash flow can support, thus sub-optimizing the performance that the company or what the Government entity can achieve at that level of cash flow generation. In essence, an instrument with a shorter tenor reduces the capacity of the entity seeking finance to undertake the optimum quantum of projects it can otherwise profitably and comfortably finance.

Whilst financing short-term assets with medium or long-term funds, will not leave the recipient of the funds in as precarious a situation as described above, it could be

expensive. In times of business slack, the borrower could be left with funds that the business cannot use profitably. A company in this situation, will certainly be liquid, but would not have optimized its profit.

Structuring the approach to the Financial Market for a potential user of the market to achieve optimum combination of the market segments and their various instruments is the forte of those who make a living out of Financial Advisory Services business. Until the advent of universal banking, these were mainly merchant banks, some financial services companies (principally stock broking firms) and a few commercial banks with delivery capacity and knowledge that span all segments of the Financial Market. They bring into transactions not only the theoretical constructs but also intimate knowledge of the laws, rules, regulations, players, experience from recent deals, current market conditions and for the best of them capacity to innovate to meet the peculiar circumstances of every client.

The key to efficient use of the Financial Market therefore, is to ensure that various asset types are financed in the appropriate segment of the market but more importantly by the optimum instrument.

We have at the beginning of this section outlined the nature of the investments needed to propel economic development. These investments, whether for the development of socio-economic infrastructures or production facilities, by nature are not investments for Money market financing. Some may be financed on a medium-term basis, which in the traditional classification belongs to the Capital Market. The Capital Market in terms of its tenor offerings therefore provides the best fit for financing economic development projects. However, the uniqueness of the Capital Market, its versatility and its centrality to the economic development process can only be fully appreciated by a review of the financing instruments offered by the market.

Capital Market Instruments

Capital Market financing instruments fall into three main categories: -

1. Equity:
2. Debt Instruments or Fixed Income Instruments: and 121
3. Hybrids.

Equity

Equity – the Ordinary Shares – constitute the primary capital of companies. It is that portion of capital provided by the entrepreneur. The Capital Market, apart from providing leverage or gearing in the terms of loans can also help the promoters of projects share the burden of the risk of the project by bringing in savers (investors) with the capacity to share the risk of ownership – the rewards of success and the losses of failure.

Such investors and equity holders are known as shareholders and regarded as the owners of the business. They have claims on the earnings of the company and on its assets after all creditors (including preference shareholders) have been paid off, in the event of liquidation. Equity investments have no maturity dates and cease to exist only when the company is dissolved or liquidated.

Through equity issues, the Capital Market strengthens the economic development process by multiplying the number and the financial capacity of entrepreneurs. Indeed, through public issues of equities, millions of investors can be mobilized to invest as risk takers (entrepreneurs) in a project. In short, 'passive entrepreneurs' are created through their savings. This translates into an ability to undertake not only more projects but bigger projects alike. In addition, it enhances the chances of success of projects by reducing the financial risk inherent in projects.
No other segment of the Financial Market offers this type of financing.

Fixed Income Instruments

Debt instruments are generally referred to as fixed income securities. The fixed income tag on debt instruments came about because debt instruments used to carry fixed coupons or interest rate volatility became a common occurrence in the 70's debt instruments no longer necessarily carry fixed interest rates. Nonetheless, the return on debt instruments do not depend, as in equity, on the performance of the borrowing or issuing entities, they depend solely on pre-determined payment streams, the method of calculation notwithstanding. The factor payment may vary but it will vary only to the extent dictated by a fixed formula. While this used to hold strictly true, it is no longer the case. In recent times, innovation-driven changes have created an array of instruments that defy this traditional feature of fixed income instruments without changing the fundamental nature of the instruments.

Before we proceed, it is also important to clear the air about other terminologies.
In the U.S., Bonds are regarded as secured indebtedness while debentures are regarded as unsecured. In the U.K. and Nigeria, debenture is simply the acknowledgement of indebtedness by a borrower. A debenture can be a document executed in favour of one person, or it can be sub-divided into units of varying amounts. When so divided, each unit is called stock. Thus, we have debenture stocks. Loan stock is also a terminology in common use. From the Euro-dollar market and the commercial paper (note), we also have long dated 'Notes'. For the purpose of this paper, bonds, debenture stocks, loan stocks, long dated notes mean the same thing.
Interest or Coupon.

As has been set out earlier, interest rate volatility has made fixed rate regimes on debt instruments less common, with Euro-dollar market that is dominated by banks setting the pace. It is understandable that banks with their funding bases on deposits that are vulnerable to volatility interest rates will prefer to invest in instruments that mirror that volatility to some degree. Even non-banks in environments that have experienced substantial volatility will prefer instruments that move with market rates. Insurance companies would however like to hold some fixed coupon instruments to underpin their annuity contracts. Since 1985 when the first floating rate instrument was introduced in the Nigerian Capital Market, most debt issues have carried floating rates. Indeed, no fixed coupon instrument has been issued until the recently issued four tranche Federal Government Bonds with two of the tranches carrying fixed coupons.

Zero coupon bonds are bonds with no defined coupon and no interest is ever paid. Instead, investors buy the bonds at very steep discounts and at maturity receive the face value of the bonds.

Income or Revenue Bond: Here interest payments are cumulative and tied to the cash flow generated by the project. When due interest payment are unable to be met, they are deferred to a future date when the project's cash flow will be adequate. Principal repayments are however expected to be met as and when due. Income bonds are typically issued by corporate bodies and are akin to preferred stock, but unlike preferred stocks, interest payments are tax-deductible. All State Government bonds issued in Nigeria to-date and generally referred to as revenue bonds are actually general obligation bonds.

There are also Indexed Bonds. There are bonds on which factor payments (i.e., interest payable) are tied to the price of a commodity or an index. A good example was an issue for a silver mining company. The interest payable on the borrowing of the company was indexed to the price of silver. Thus, if silver's price rose, which would translate to higher profit for the company, higher interest will also be paid to the debenture holders. The reverse will also hold true.

Maturity/Redemption

In 1751, U.K. Government debts were consolidated into what was known as Consolidated Annuities or console with no maturity date. No other is known to have been issued. Most bonds today carry specific maturity dates.

Repayment of bonds with one repayment at maturity is referred to as "bullet" or "balloon" repayment. Most debt instruments issued in Nigeria, except Federal

Government obligations and in the past, companies like UAC, UTC, PZ, have installment repayment plans.

Serial Bonds

These are bonds issued in series such that each redemption is regarded as a bond. For example, a bond with ten redemptions is treated as if it were ten different bonds each with a certificate for every redemption. A total investment of N100,000 with ten redemptions will consequently have ten certificates of N10,000 each. Each certificate will represent the different redemption dates.

Serial Bonds allow investor in the secondary market to choose maturity profiles that suit their requirements.

3.2.5 Capital Structure and the Cost of Equity Capital

We have seen that there is nothing special about corporate borrowing because investors can borrow or lend on their own. As a result, whichever capital structure Sweet Sensation Confectionery chooses, the stock price will be the same. Sweet Sensation's capital structure is thus irrelevant, at least in the simple world I have in this research project.

Sweet Sensation Confectionery example is based on a famous argument advanced by two Nobel laureates, Franco Modigliani and Merton Miller, whom I will henceforth call M&M. What I illustrated for the Sweet Sensation is a special case of M&M proposition I. M&M proposition I states that it completely irrelevant how a firm chooses to arrange its finances.

M&M Proposition I: The Pie Model

One-way to illustrate M&M proposition I is to imagine two firms that are identical on the left-hand side of the balance sheet. Their assets and operations are the same. The right-hand sides are different because the two firms finance their operations differently. In this case, we can view the

capital structure question in terms of a "pie" model. Why I choose this name is apparent in Figure 3.1. Figure 3.1 gives two possible ways of cutting up this pie between the equity slice, E, and the debt slice, D: 40%-60% and 60%-40%. However, the size of the pie in Figure 2.1 is the same for both firms because the value of the assets is the same. This is precisely what M&M proposition I states: The size of the pie does not depend on how it is sliced.

The Cost of Equity and Financial Leverage: M&M Proposition II

Although changing the capital structure of the firm may not change the firm's total value, it does cause important changes in the firm's debt and equity ratio is changed. To simplify our analysis, we will continue to ignore taxes.

Based on our discussion in previous section, if we ignore taxes, the weighted average cost of capital, WACC, is:

$$WACC = (E/V) \times RE + (D/V) \times RD$$

Where V = E+D. we also saw that one way of interpreting the WACC is as the required return on the firm's overall assets. To remind us of this, I will use the symbol RA to stand for the WACC and write:

$$RA = (E/V) \times RE + (D/V) \times RD$$

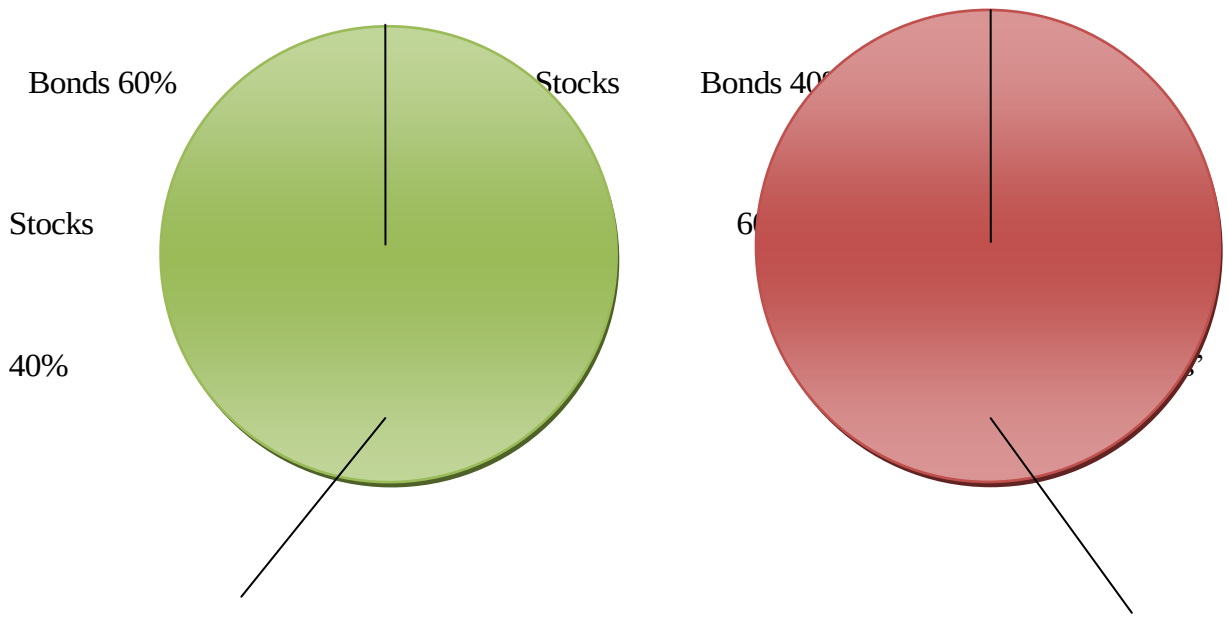
If I rearrange this to solve for the cost of equity capital, we see that:

$$RE = RA + (RA - RD) \times (D/E)$$

This is the famous M&M Proposition II, which tells us that the cost of equity depends on three things, the required rate of return on the firm's assets RA the firm's cost of debt, RD, and the firm's debt-equity ratio, D/E.

Figure 2.2 summarizes our discussion thus far by plotting the cost of equity capital, RE against the debt-equity ratio. As shown, M&M proposition II indicates that the cost of equity, RE is given by a straight line with a slope of (RA-RD). the y-intercept corresponds to a firm with a debt equity ratio of zero, so RA=RE in that case, Figure 2.2 shows that, as the firm raises its debt-equity ratio, the increase in leverage raises the risk of the equity and therefore the required return or cost of equity (RE)

FIGURE 3.2 Two pie models of Capital Structure



Notice in Figure 3.2 that the WACC does not depend on the debt-equity ratio; it is the same no matter what the debt-equity ratio is. This is another way of stating M&M proposition me: The firm's overall cost of capital is unaffected by its capital structure. As illustrated, the fact that the cost of debt is lower than the cost of equity is exactly offset by the increase in the cost of equity from borrowing. In other words, the change in the capital structure weighs (E/V and D/V) is exactly offset by the change in the cost of equity (RE), so the WACC stays the same.

Example 3.2 The Cost of Equity Capital

The Ricardo Corporation has a weighted average cost of capital (ignoring taxes) of 12 percent. It can borrow at 8%. Assuming that Ricardo has a target capital structure of 80% equity and 20% debt, what is cost of equity? What is the cost of equity if the target capital structure is 50% equity? Calculation of WACC using the workings below verify that it is the same

According to M&M Proposition II, the cost of equity, RE is:

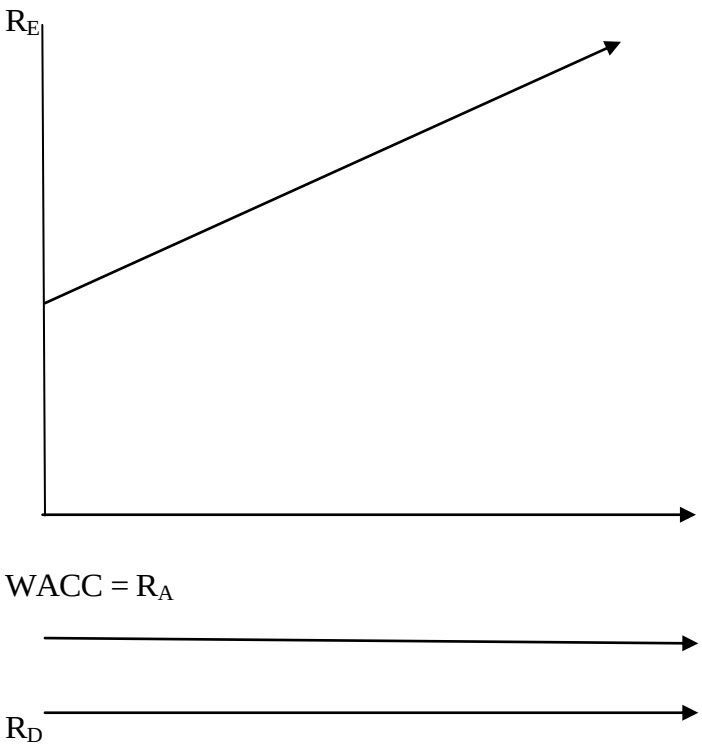
RE=RA + (RA-RD) x (D/E)

In the first case, the debt-equity ratio is .2/.8 = 25, so the cost of the equity is:

RE = 12% + (12% - 8%) x .25 = 13%

FIGURE 3.2 The Cost of Equity and the WACC: M&M Propositions I and II with no taxes

Cost of capital (%)



Debt-equity ratio

(D/E)

RE = RA +(RA – RD) X (D/E) by M&M Proposition II

RA = WACC = E/V x RE + D/V x RD

Where V = D + E

In the second case, verify that the debt-equity ratio is 1.0, so the cost of equity is 16 percent. We can now calculate the WACC assuming that the percentage of equity financing is 80 percent, the cost of equity is 13 percent, and the tax rate is zero:

WACC = (E/V) x RE + (D/V) x RD

= .80 X 13% + .20 x 8%

= 12%

In the second case, the percentage of equity financing is 50 percent and the cost of equity is 16 percent. The WACC is:

WACC = (E/V) x RE + (D/V) x RD

= .50 x 16% + .50 x 8%

= 12%

The calculation shows the WACC is 12 percent in both cases.

Business and Financial Risk

M&M Proposition II shows that the firm's cost of equity can be broken down into two components. The first component, RA, is the required return on the firm's overall assets and it depends on the nature of the firm's operating activities. The risk inherent in a firm's operations is called the business risk of the firm's equity. Business risk depends on the systematic risk of the firm's assets. The greater a firm's business risk, the greater RA will be and all other things being equal, the greater will be the firm's cost of equity. The second component in the cost of equity, (RA – RD) x (D/E), is determined by the firm's financial structure. For an all-equity firm, this component is zero. As the firm begins to rely on debt financing, the required return on equity rises. This occurs because the debt financing increases the risks borne by the stockholders.

This extra risk that arises from the use of debt financing is called the financial risk of the company's equity. The total systematic risk of the firm's equity thus has two parts: business and financial risks. The first part (the business risk) depends on the firm's assets and operations, but not affected by capital structure. Given the firm's business risk (and it's cost of debt), the second part (the financial risk) is completely determined by financial policy. As has been illustrated, the firm's cost of equity rises when it increases its use of financial leverage because the financial risk of the equity increases while the business risk remains the same.

3.2.6 Capital Structure and Corporate Taxes

Debt has two distinguished features that we have not taken into proper account. First, as we have mentioned in a number of places, interest paid on debt is tax deductible. This is good for the firm, and it may be an added benefit to debt financing. Second, failure to meet debt obligations can result in bankruptcy. This is not good for the firm, and it may be an added cost of debt

financing. Since we have not explicitly considered either of these two features of debt, we may get a different answer about capital structure once we do. Accordingly, we consider taxes in this section and bankruptcy in the next one.

We can start by considering what happens when we consider the effect of corporate taxes. To do this, we examine two firms, Firm U (Unlevered) and Firm L (levered). These two firms are identical on the left-hand side of the balance sheet, so their assets and operations are the same.
We assume that EBIT is expected to be $1,000 every year forever for both firms. The difference between the two firms is that Firm L has issued $1,000 worth of perpetual bonds on which it pays 8 percent interest each year. The interest bill is thus .08 x $1,000 = $80 every year forever. Also, we assume that the corporate tax rate is 30%.

	Firm U	**Firm L**

For our two firms, U and L, we can now calculate the following:

EBIT	$1,000	$1,000
Interest	0	80
Taxable income	$1,000	$ 920
Taxes (30%)	300	276
Net income	$ 700	$ 644

The Interest Tax Shield

To simply things, we will assume that depreciation is zero. We will also assume that capital spending is zero and that there are no additions to NWC. In this case, cash flow from assets is simply equal to EBIT – Taxes. For Firms U and L, we thus have:

Cash Flow from Assets

Cash Flow	Firm U	Firm L
EBIT	$1,000	$1,000
Taxes	300	276
Total	$ 700	$ 724

We immediately see that capital structure is now having some effect because the cash flows from U and L are not the same even though the two firms have identical assets. To see what is going on, we can compute the cash flow to stockholders and bondholders.

Cash Flow	Firm U	Firm L
To stockholders	$700	$644
To bondholders	0	80
Total	$ 700	$ 724

What we are seeing is that the total to L is $24 more. This occurs because L's tax bill (which is a cash outflow) is $24 less. The fact that interest is deductible for tax purposes has generated a tax saving equal to the interest payment ($80) multiplied by the corporate tax rate (30 percent): $80 x .30 = $24. We call this tax saving the interest tax shield.

Taxes and M & M Proposition I

Since the debt is perpetual, the same $24 shield will be generated every year forever. The after-tax cash flow to L will thus be the same $700 that U earns plus the $24 tax shield. Since L's cash flow is always $24 greater, Firm L is worth more than Firm U by the value of this $24 perpetuity.

Because the tax shield is generated by paying interest, it has the same risk as the debt, and 8 percent (the cost of debt) is therefore the appropriate discount rate. The value of the debt tax shield is thus:

PV = $24 = ,30 x $1,000 x .08 = .30 x $1,000 = $300

.08 .08

As our example illustrates, the present value of the interest tax shield can be written as:

Present value of the interest tax shield = (Tc x D x RD)/RD

= Tc x D

We have now come up with another famous result, M & M Proposition I with corporate taxes. We have seen that the value of Firm L, VL, exceeds the value of Firm U, VU, by the present value of the interest tax shield, TC x D. M & M Proposition I with taxes therefore states that:

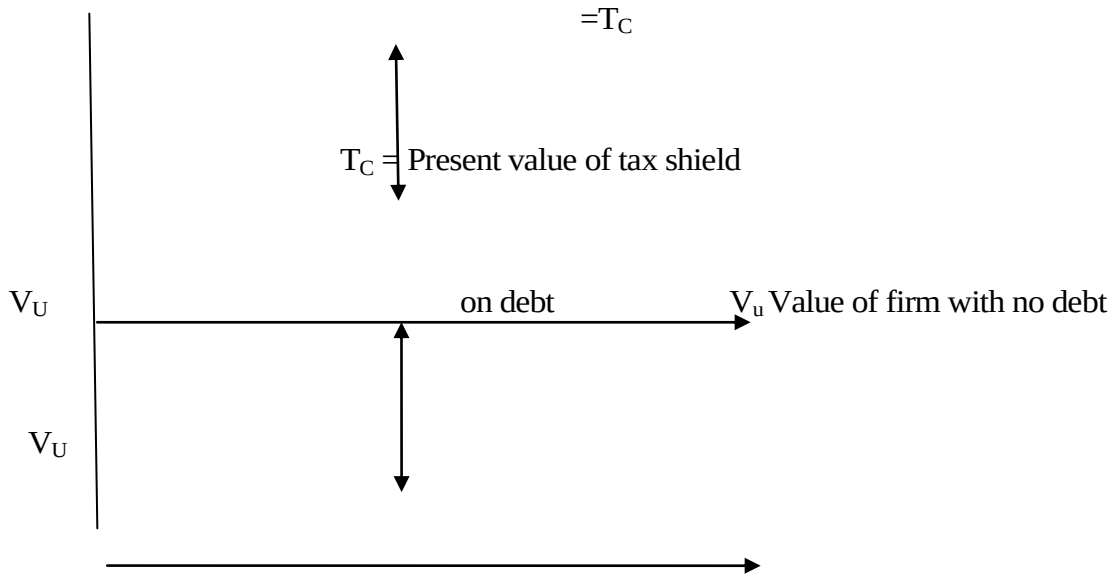
VL, = VU, + TC, x

FIGURE 3.2 M&M Propositions I with taxes

Value of the firm (VL)

VL = VU + TC x D

= Value of firm with debt



Total debt

(D)

The value of the firm increases as total debt increases because of the interest tax shield. This is the basis of M&M Proposition I with taxes.

The effect of borrowing in this case is illustrated in figure 3.3. We have plotted the value of the levered firm, VL, against the amount of debt, D. M & M Proposition I with corporate taxes implies that the relationship is given by a straight line with a slope of TC.

In Figure 3.3, we have also drawn a horizontal line representing VU, As shown, the distance between the two lines is TC x D, the present value of the tax shield.

The no-tax case

A. Proposition I: The value of the firm levered (VL) is equal to the value of the firm unlevered (VU)):

VL = VU

B. Implications of Proposition I:

1. A firm's capital structure is irrelevant.
2. A firm's weighted average cost of capital, WACC, is the same no matter what mixture of debt and equity is used to finance the firm.

C. Proposition II: The cost of equity, RE is :

RE = RA + (RA – RD) x D/E

Where RA is the WACC, RD is the cost of debt, and D/E is debt-equity ratio.

D. Implications of Proposition II:

1. The cost of equity rises as the firm increases its use of debt financing.
2. The risk of the equity depends on things: the riskiness of the firm's operations (business risk) and the degree of financial leverage (financial risk). Business risk determines RA; financial risk is determined by D/E.
3. A firm's weighted average

I. The tax cases

A. Proposition I with taxes: The value of the firm levered (VL) is equal to the value of the firm unlevered (VU)) plus the present value of the interest tax shield:

VL = VU + TC x D

Where TC is the corporate tax rate and D is the amount of debt.

Implications of Proposition I with taxes:

53

I As Figure 3.2 indicates; the value of the firm goes up by $.30 for every $1 in debt. In other words, the NPV per dollar of debt is $.30. It is difficult to imagine why any corporation would not borrow to the absolute maximum under these circumstances.

Debt financing is highly advantageous, and, in the extreme

TABLE 3.2 - Modigliani and Miller Summary

1. , a firm's optimal capital structure is 100 percent debt.
2. A firm's weighted average cost of capital, WACC, decreases as the firm relies more heavily on debt financing.

3.2.7 Bankruptcy Costs Theory

One limit to the amount of debt a firm might use comes in the form of bankruptcy costs. As the debt-equity ratio rises, so too does the probability that the firm will be unable to pay its bondholders what was promised to them. When this happens, ownership of the firm's assets is ultimately transferred from the stockholders to the bondholders.

In principle, a firm becomes bankrupt when the value of its assets equals the value of its debt. When this occurs, the value of equity is zero and stockholders turn over control of the firm to the bondholders. At this point, the bondholders hold assets whose value is exactly equal to what is owed on the debt. In a perfect world, there are no costs associated with this transfer of ownership, and the bondholders do not lose anything. This idealized view of bankruptcy is not of course what happens in the real world. Ironically, it is expensive to go bankrupt. As I discuss, the costs associated with bankruptcy may eventually offset the tax-related gains from leverage.

Direct Bankruptcy Costs

When the value of a firm's assets equals the value of its debt, the firm is economically bankrupt in the sense that the equity has no value. However, the formal turning over of the assets to the bondholders is a legal process, not an economic one. There are legal and administrative costs to bankruptcy, and it has been remarked that bankruptcies are to lawyer's what blood is to sharks.

Because of the expenses associated with bankruptcy, bondholders will not get all that they are owed. Some fraction of the firm's assets will disappear in the legal process of going bankrupt. These are the legal and administrative expenses associated with the bankruptcy proceeding. We call these costs Direct Bankruptcy Costs.

Indirect Bankruptcy Costs

Because is expensive to go bankrupt, a firm will spend resources to avoid doing so.
When a firm is having significant problems in meeting its debt obligations, we say that it is experiencing financial distress. Some financially distressed firms ultimately file for bankruptcy, but most do not because they are able to recover or otherwise survive.

The costs of avoiding a bankruptcy filing incurred by a financially distressed firm are called Indirect Bankruptcy Costs. I use the term financially distressed costs to refer generically to the direct and indirect costs associated with going bankrupt and/or avoiding a bankruptcy filing.

The problems that come up in financial distress are particularly severe, and the financial distress costs are thus larger, when the stockholders and the bondholders are different groups. Until the firm is legally bankrupt, the stockholders control it. They, of course, will take actions in their own economic interests. Since the stockholders can be wiped out in a legal bankruptcy, they have a very strong incentive to avoid a bankruptcy filing.

The bondholders, on the other hand, are primarily concerned with protecting the value of the firm's assets and will try to take control away from the stockholders. They have a strong incentive to seek bankruptcy to protect their interests and keep stockholders from further

dissipating the assets of the firm. The net effect of all this fighting is that a long, drawn-out, and potentially quite expensive legal battle gets started. Meanwhile, as the wheels of justice turn in their ponderous way, the assets of the firm lose value because management is busy trying to avoid bankruptcy instead of running the business. Normal operations are disrupted, and sales are lost.

Valuable employees leave, potentially fruitful programs are dropped to preserve cash, and otherwise profitable investments are not taken. These are all indirect bankruptcy costs, or costs of financial distress. Whether or not the firm ultimately goes bankrupt, the net effect is a loss of value because the firm chose to use debt in its capital structure. It is this possibility of loss that limits the amount of debt that a firm will choose to use.

3.2.8 Optimal Capital Structure

My previous two sections have established the basis for an optimal capital structure. A firm will borrow because the interest tax shield is valuable. At relatively low debt levels, the probability of bankruptcy and financial distress is low, and the benefit from debt outweighs the cost. At very high debt levels, the possibility of financial distress is a chronic, ongoing problem for the firm, so benefit from debt financing may be more than offset by the financial distress costs. Based on my discussion, it would appear that an optimal capital structure exists somewhere in between these extremes.

3.2.9 The Static Theory of Capital Structure

The theory of capital structure that I have outlined is called the Static Theory of Capital Structure. It says that firms borrow up to the point where the tax benefit from an extra dollar in debt is exactly equal to the cost that comes from the increased probability of financial distress. We call this the static theory because it assumes that the firm is fixed in terms of its assets and operations and it only considers possible changes in debt-equity ratio.

The static theory is illustrated in figure 3.4, which plots the value of the firm, VL, against the amount of debt, D. In figure 3.4, we have drawn lines corresponding to three different stories.

The first is M&M Proposition I with no taxes. This is the horizontal line extending from VU, and it indicates that value of the firm is unaffected by its capital structure. The second case, M&M Proposition I with corporate with taxes, is given by the upward-sloping straight line.
These two cases are exactly the same as the ones we previously illustrated in figure 3.3.

The third case in figure 3.4 illustrates our current discussion: The value of the firm rises to a maximum and then declines beyond that point. We get this picture from our static theory. The maximum value of the firm, VL, is reached at a debt level of D*, so this is optimal amount of borrowing. Put another way, the firm's optimal capital structure is composed of D*/VL* in debt and (1-D*/VL) in equity.

The final thing to notice in figure 2.4 is that the difference between the value of the firm in our static theory and the M&M value of the firm with taxes is the loss in value from the possibility of financial distress. Also, the difference between the static theory value of the firm and the M&M value with no taxes is the gain from leverage, net of distress costs.
This theory postulates that the tax-deductibility of interest payment induces a company to borrow up to the margin where the present value of interest tax shield is just offset by the

value loss due to agency cost from issuing risky debt as well as the cost of possible liquidation or re-organization. This hypothesis by Miller (1977) is based on the proposition that the optimal leverage ratio of the firm is determined by the tradeoff between current tax shield benefits of debt and higher bankruptcy costs implied by the higher degree of corporate indebtedness. It assumes that firms balance the marginal present values of interest tax shields against the costs of financial distress.

According to the static trade off models, the optimal capital structure does exist. A firm is regarded as setting a target debt level and gradually moving towards it. The firm's optimal capital structure will involve the tradeoff among the effect of corporate and personal taxes, bankruptcy costs and agency costs. Both tax-based and agency-based theories belong to the static tradeoff theory. (Jensen and Meckling, 1976; Chang, 1999; Harris and Raviv, 1991). It has been established that the tax advantage is most important for large, regulated and dividend-paying

firms – companies that probably have high corporate tax rates and therefore large tax incentives to use debt (Desai, 1998; Graham and Harvey, 2001).

Graham and Harvey (2001) survey of 392 CFOs on their capital structure provide moderate support for the static trade-off theory. The study reveals that 44% of the CFOs responded to have a somewhat tight target or strict target debt ratio, 55% of which are very large firms. This finding shows that most large firms have target debt ratios and are more common among investment grade and regulated firms.

Myers (1984) says "the firm is portrayed as balancing the value of interest tax shields against various costs of bankruptcy of financial embarrassment though there is controversy about how valuable the tax shields are, and which, if any, of the costs of financial embarrassment are material". According to the literature, the firm is supposed to substitute debt for equity or equity for debt until the value of the firm is maximized.

3.2.10 Optimal Capital Structure and the Cost of Capital

As I have discussed earlier, the capital structure that maximizes the value of the firm is also the one that minimizes the cost of capital. With the help of figure 3.5, I can illustrate this point and tie together my discussion of capital structure and cost of capital. It is topically seen, there are essentially three cases. I will use the simplest of the three cases as a starting point and then build up to the static theory of capital structure. Along the way, I will pay particular attention to the nexus between capital structure, firm value and cost of capital.

Figure 3.5 illustrates the original Modigliani and Miller, M&M, no-tax, no-bankruptcy argument in Case I. This is the most basic case. In the top part, I have plotted the value of the firm, VL, against total debt, D. when there are no taxes, bankruptcy costs, or other real-world imperfections; I know the total value of the firm is not affected by its debt policy, so VL is simply constant. The bottom part of figure 2.5 narrates the same story in terms of the cost of capital. Here, the weighted average cost of capital, WACC, is plotted against the debt-to-equity ratio, D/E. As with total firm value, the overall cost of capital is not affected by debt policy in this basic case, so the WACC is constant.

Next, I will consider what happens to the original M&M arguments once taxes are introduced.

As case II illustrates, it will be apparent that the firm's value critically depends on its debt policy. The more the firm borrows the more it is worth. From my earlier discussion, I know that this happens because interest payments are tax deductible and the gain in firm is just equal to the present value of the interest tax shield.

FIGURE 3.2 The Static Theory of Capital Structure:

The Optimal Capital Structure and the Value of the Firm

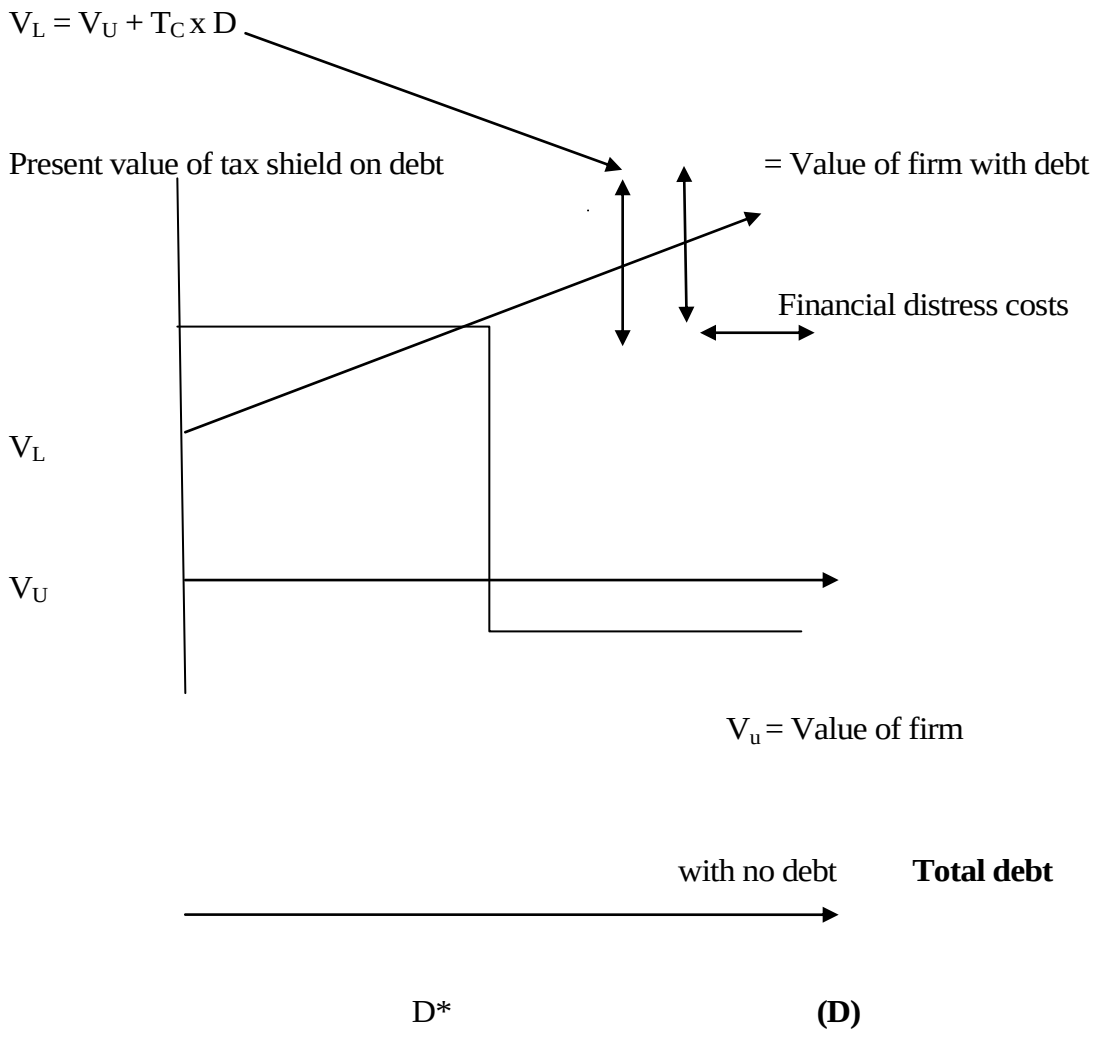
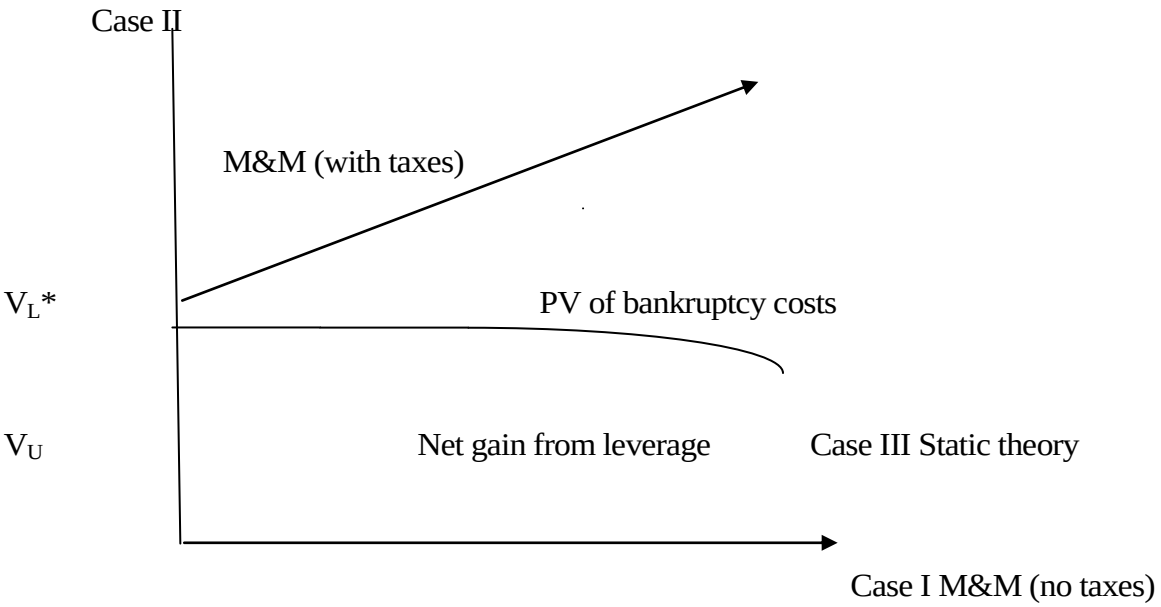
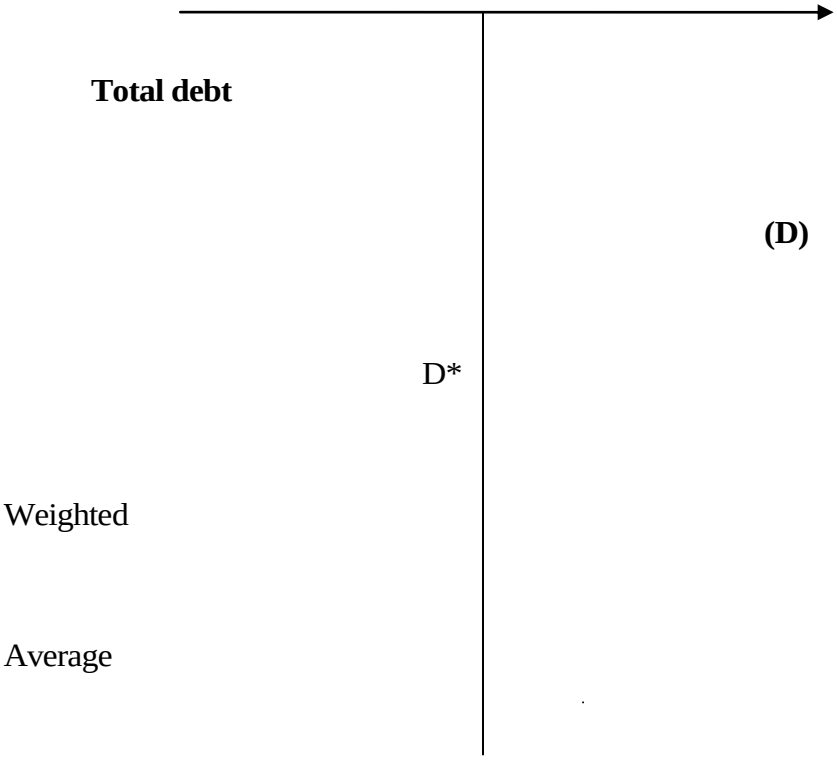
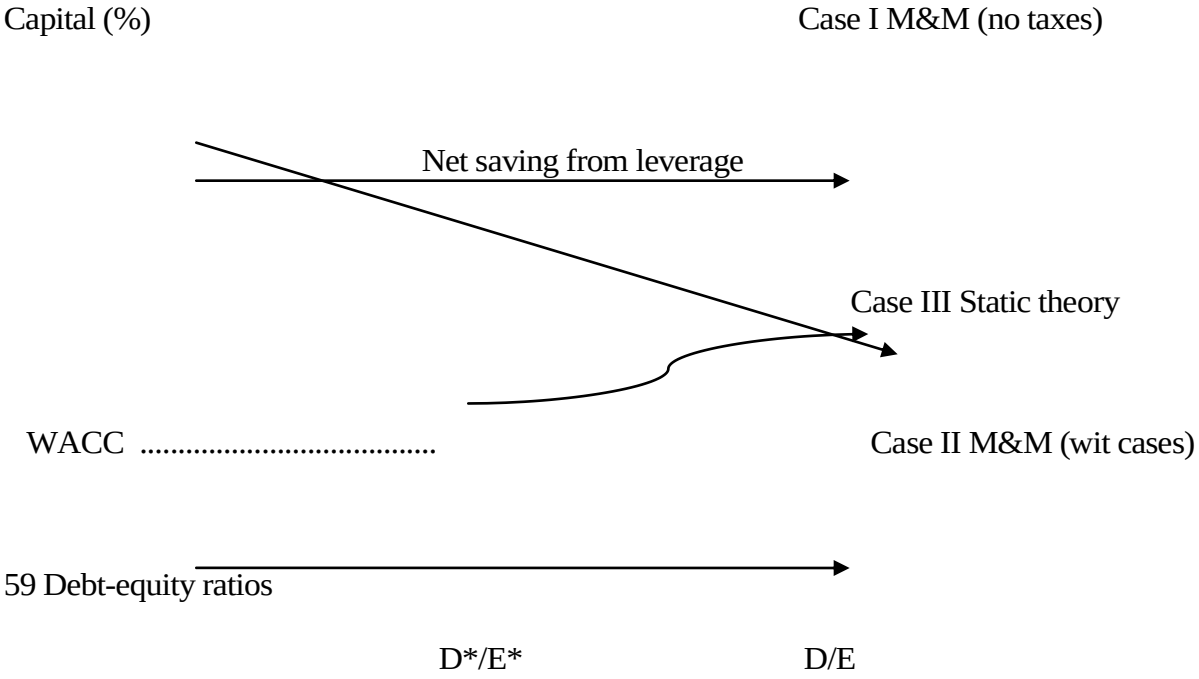


FIGURE 3.2 The Capital Structure Question

Value of the firm (V_L)







Case I

With no taxes or bankruptcy costs, the value of the firm and its weighted average cost of capital are not affected by capital structures.

Case II

With corporate taxes and no bankruptcy costs, the value of the firm increases and the weighted average cost of capital decreases as the amount of debt goes up.

Case III

With corporate taxes and bankruptcy costs, the value of the firm, VL reaches a maximum at D*, the optimal amount of borrowing. At the same time, the weighted average cost of capital, WACC, is minimized at D*/E*

Taxes: First, the tax benefits from leverage is obviously only important to firms that are in a tax-paying position. Firms with substantial accumulated losses will get little value from the interest shield. Furthermore, firms that have substantial tax shields from other sources, such as depreciation, will get less benefit from leverage. Also, not all firms have the same tax rate. The higher the tax rate, the greater the incentive to borrow. Financial Distress: Firms with a greater risk of experiencing financial distress will borrow less than firms with a lower risk of financial

distress. For example, all other things being equal, the greater the volatility in EBIT, the less a firm should borrow.

In addition, financial distress is more costly for some firms than others. The costs of financial distress depend primarily on the firm's assets. In particular, financial distress costs will be determined by how easily ownership of those assets can be transferred. For example, a firm with mostly tangible assets that can sold without great loss in value will have an incentive to borrow more. For firms that rely heavily on intangible, such as employee talent or growth opportunities, debt will be less attractive since these assets effectively cannot be sold.
In the bottom part of figure 3.5, notice how the WACC declines as the firm uses more and more debt financing. As the firm increases its financial leverage, the cost of equity does increase, but this increase is more than offset by the tax break associated with debt financing. As a result, the firm's overall cost of capital declines.

To this end, I include the impact of bankruptcy, or financial distress, costs to get Case III. As shown in the top part of figure 3.5, the value of the firm will not be as large as I previously indicated. The reason is that the firm's value is reduced by the present value of the potential future bankruptcy costs. These costs grow as the firm borrows more and more, and they eventually overwhelm the tax advantage of debt financing. The optimal capital structure occurs at D*, the point at which the tax saving from an additional dollar in debt financing exactly balanced by the increased bankruptcy costs associated with the additional borrowing. This is the essence of the static theory of capital structure.

The bottom part of figure 3.5 represents the optimal capital structure in terms of the cost of capital. Corresponding to D*, the optimal debt level, the optimal debt-equity ratio, D*/E*. At this level of debt financing, the lowest possible weighted average cost of capital, WACC* occurs.

3.2.11 Understanding Capital Structure

As companies grow and continue to operate, they must decide how to fund their various projects and operations as well as how to pay employees and keep the lights on. While sales revenues are key source of income, most companies also seek capital from investors or lenders as well.

Nevertheless, what is the right mix of equity stock sold to investors and bonds sold to creditors? Capital structure theory is the analysis of this key business question.

The net income approach, static trade-off theory, and the pecking order theory are two financial principles that help a company choose its capital structure. Each plays a role in the decision-making process depending on the type of capital structure the company wishes to achieve. The pecking order theory, however, has been empirically observed to be most used in determining a company's capital structure.

KEYWORDS

- Capital structure refers to the mix of revenues, equity capital, and debt that a firm uses to fund its growth and operations.
- Several economists have devised approaches to identify and optimize the ideal capital structure for a firm.
- Here, we look at three popular methods: the net income approach; static trade-off theory; and pecking order theory.

The Net Income Approach

Economist David Durand first suggested this approach in 1952, and he was a proponent of financial leverage. He postulated that a change in financial leverage results in a change in capital costs. In other words, if there is an increase in the debt ratio, capital structure increases, and the weighted average cost of capital (WACC) decreases, which results in higher firm value.

Also proposed by Durand, this approach is the opposite of the Net Income Approach, in the absence of taxes. In this approach, WACC remains constant. It postulates that the market analyzes a whole firm, and any discount is not related to the debt/equity ratio. If tax information is provided, it states that WACC reduces with an increase in debt financing, and the value of a firm will increase.

In this approach to Capital Structure Theory, the cost of capital is a function of the capital structure. It is important to remember, however, that this approach assumes an optimal capital structure. Optimal capital structure implies that at a certain ratio of debt and equity, the cost of capital is at a minimum, and the value of the firm is at a maximum.

3.2.12 Pecking Order Theory

This model considers the possibility of asymmetric information whereby firm managers are assumed to know more about the characteristics of the firm's return stream or investment opportunities (Harris and Raviv, 1991; Riahi-Belkaoni, 1999). The choice of capital structure by management therefore signals to outside investors some insider information. This asymmetry of information influences the choice between internal and external financing and between new issues of debt and equity securities. This choice is based on the „pecking order "hypothesis (Baskin, 1989).

The pecking order theory of capital structure was first presented by Myers and Majluf (1984), and relies heavily on information cost to explain corporate behaviour. They show in their pioneering work that, if investors are less well-informed than current firm insiders about the value of the firm's assets, then equity may be mispriced by the market. If firms are required to finance new projects by issuing equity, underpricing may be so severe that new investors capture more than the NPV of the new project, resulting in a net loss to existing shareholders.

Myers (1984), challenges the notion of an optimal capital structure based purely on the tradeoff of debt-related benefits and costs in a world of information asymmetry between corporate managers and investors. He further observes that corporate financing practice does not conform to a simple trade off model and he suggests the existence of a pecking order among the financing sources used by firm. According to this theory, internally generated cash is at the top of the order, followed by external debt financing while external equity financing is used only as a last resort.

Shyam-Sunder and Myers (1999) also find support for the pecking order theory among U.S. firms. They claim that the tradeoff model can be rejected since the pecking order model has much greater time-series explanatory power than the tradeoff model after testing the statistical power of alternative hypothesis. They opine that changes in debt ratios are driven by the need for external funds, not by any attempt to reach an optimal capital structure.

Allen (1991) investigates the financial managers‟ perceptions of the broad determinants of capital structure decisions of listed Australian companies and finds out that the companies appear to follow a pecking order with respect to funding sources. His study provides a practical explanation of why debt level and company profitability might be inversely related. Fama and French (2002) in their study agree that the negative effects of profitability on leverage is consistent with the pecking order model, but also find that there is an off-setting response of leverage to changes in earnings, implying that the profitability effects are in part due to transitory changes in leverage rather than changes in the target.

Baner (2004) examines the capital structure of listed companies in Visegrad countries (Czech Republic, Hungary, Poland and Slovak Republic) during the period from 2000 to 2001 and find that leverage of listed firms in these countries is negatively correlated with profitability but positively correlated with size. This finding is consistent with the pecking order hypothesis.

Chen (2004) using panel data, explores the determinants of capital structure of Chinese listed companies for the period 1995-2000 applying the tradeoff and pecking order models. The author concludes that the capital structure choices of Chinese companies follow a „New Pecking Order" model – retained earnings, followed by equity before long term debt- due to the unique institutional, legal and financial constraints in the Chinese banking sector. He finds that Chinese companies rely heavily on short term financing, and managers prefer equity to debt financing. De Miguel and Pindado‟s (2001) examination of the determinants of capital structure of Spanish companies also supports the pecking order theory.

The pecking order theory states that a company should prefer to finance itself first internally through retained earnings. If this source of financing is unavailable, a company should then finance itself through debt. Finally, and as a last resort, a company should finance itself through the issuing of new equity. This pecking order is important because it signals to the public how the company is performing.

If a company finances itself internally, that means it is strong. If a company finances itself through debt, it is a signal that management is confident the company can meet its monthly obligations. If a company finances itself through issuing new stock, it is normally a negative

signal, as the company thinks its stock is overvalued and it seeks to make money prior to its share price falling.

The Bottom Line

There are several ways that firms can decide what the ideal capital structure is between cash coming in from sales, stock sold to investors, and debt sold to bondholders. Accurate analysis of capital structure can help a company by optimizing the cost of capital and hence improving profitability.

3.2.13 Capital Structure and Governance

In the mid-1990s, it was cross-country comparisons of legal systems, governance, enforcement, and financial development, often with implications for emerging institutions in the transitional economies of Eastern Europe and the former Soviet Union. The phenomena were studied with firm-level, market, and institutional data, and with then-novel empirical technologies. Notably, these included event studies and the quasi-experimental analysis of colonial legal origins. The applied theoretical lens was, for the most part, agency problems arising from the separation of ownership and control.

The influence of "issues of current importance" remains as apparent now as in the program's first report. The defining moment for corporate finance over the past decade has been the financial crisis of 2008. Broadly speaking, the research has found its greatest impact in exploring the role of credit cycles, the fragility of financial institutions, the behavior of households, and the associated macroeconomic consequences. A boom and bust in credit conditions, stretched bank balance sheets, and contagious defaults in the mortgage market were the proximate causes of the crisis, and the consequences were macroeconomic. So, credit markets, financial institutions, and household finance, including their macroeconomic and regulatory implications, are the current centers of activity among researchers in corporate finance. Traditional topics of corporate investment and financing are receiving less attention.

New empirical tools also have emerged. Techniques have been imported from labor economics and other fields. For example, NBER researchers exploit discontinuities in policy, which generate fruitful natural experiments, and design randomized controlled trials in partnership with

firms, government agencies, and nongovernmental organizations. The rising demand for empirical rigor in identifying policy-relevant causal mechanisms has meant a micro empirical shift, with the study of household financial products, for example, serving as an auspicious lamppost. At the same time, structural estimation of theoretical models is often used to tease out the macroeconomic implications of micro empirical insights.

The program's empirical studies are grounded in a wider range of "relevant, applied theory." The seminal work of Merton Miller and Franco Modigliani, approaching its 62th anniversary, continues to be the organizing framework for understanding the market imperfections that allow finance to create or destroy value: whether in firms, as the authors originally intended, or more broadly in households, financial institutions, and the macro economy. Agency and information problems remain central imperfections, with a recent focus on conflicts of interest along the chain from savers to household borrowers; so do the costs of financial distress, fire sales, and the fragility of short-term financing, experienced on a systemic scale with the 2008 failure of Lehman Brothers.

In a new trend, affiliates of the program have become increasingly attentive to behavioral factors, frequently delving into the role of bias in households, managers, investors, and, ultimately, markets. Traditional theoretical lenses and new behavioral ones are at the forefront of research that could help mitigate the effect of the past crisis and inform macro prudential regulation for lowering the probability of a sequel.

In particular, corporate finance has played a key role in enhancing traditional macro models, some of which were narrowly focused on a single policy instrument. Tweaking the federal funds rate without completely understanding its mechanism proved effective when the global economic engine required routine maintenance. But the economic breakdown of the financial crisis revealed limitations of the New Keynesian models. Without an explicit modeling of the financial sector, these models were less useful for restarting the engine. In contrast, the corporate finance toolkit proved essential in analyzing the alphabet soup of the Troubled Asset Relief Program (TARP), Quantitative Easing (QE), Home Affordable Refinance Program (HARP), and many other regulatory interventions.

3.2.14 Firm’s balance sheet and Institutions

Leaving aside the individuals involved, corporate finance is concerned with the sources and uses of funds. This suggests a natural delineation: Banks or firms raise money, accounting for the components of fundraising on the right side of their balance sheets, and invest the proceeds, accounting for the components of investment on the left side. The 2008 financial crisis has concentrated research efforts of the Corporate Finance on banks and the less regulated, but functionally similar, shadow banking system. Banks are special because their defining source of funds is ultra-safe deposits and because their defining uses of funds are, for practical and regulatory reasons, much safer than the investments of industrial firms. They specialize in maximally diversified portfolios of loans, which are expected to produce a stable cash flow and are often collateralized by specific and transferable assets that can be quickly converted into cash in the event of default. As an illustration of the power of collateral and the bank lending channel, Thomas Chaney, David Sraer, and David Thesmar show a high propensity of firms to invest following the price appreciation of their real estate holdings, a traditional form of collateral for lenders.

On the right or funding side of the balance sheet, Gary Gorton argues that financial history is marked by the continual search for truly safe assets, which are prized for their ability to avoid adverse selection, eliminate costly information production, and hence provide a means for the exchange of goods and services. Thus, any risk in banks' assets is optimally opaque, avoiding mark-to-market pricing: to work as money, short-term bank liabilities must trade at par. The essential feature of banks in this view is their transforming risky assets into safer, more useful ones. Gorton, Stefan Lewellen, and Andrew Metrick find that the percentage of all assets that is safe has remained stable, suggesting limits on their overall production.

The creation of safe assets has shifted, though, toward the shadow banking system, suggesting a functional view of risk transformation and the substitution of money market mutual funds for deposit-taking banks. Meanwhile, Harry DeAngelo and Stulz emphasize banks' central role in liquidity production as a driver of high leverage ratios; they conclude that stringent capital requirements for regulated banks have fueled the growth of the shadow banking system.

By this logic, the essential positive feature of deposits and other ultra-safe assets is that they require no monitoring. This makes things simple for depositors. A behavioral version developed by Gennaioli, Shleifer, and Vishny says that investors, for the most part, consider assets that pay in most states of the world to be ultra-safe, neglecting tail risks and obviating monitoring. This helps banks. Hanson, Shleifer, Jeremy Stein, and Vishny argue that banks are able to invest more patiently in fixed income assets because the stability of their deposit funding helps them endure transitory price volatility.

At the same time, the essential negative feature of deposits and other ultrasafe assets is that they elicit no private monitoring. Securities deemed ultra-safe are by their nature a low-cost source of finance, and invite ex post risk-shifting. Oliver Hart and Luigi Zingales argue that regulation is needed to limit private sector creation of safe assets that are close substitutes for money. Zhiguo He and Asaf Manela analyze limited information and rumors about bank solvency, while Gorton and Guillermo Ordoñez and Viral Acharya, Douglas Gale, and Tanju Yorulmazer argue that private parties will underinvest in information production, leading to credit booms, crises, freezes, and fragility that comes from runs.

Deposit insurance and regulation help, but they lead non-core liabilities to be indicators of vulnerability, according to Joon-Ho Hahm, Hyun Song Shin, and Kwanho Shin. In light of excessive private incentives to create ultrasafe deposits and securities, Stein argues for monetary policy as a tool to limit their negative externalities. In this sense, the bank lending channel is an alternative to traditional models of monetary policy, which emphasize sticky prices. With a distinctive access to low-cost deposits and short-term funding, banks and shadow banks view equity as the more costly form of finance, pushing bank leverage ratios to much higher levels than those of industrial firms.

For example, Acharya, Philipp Schnabl, and Gustavo Suarez show how banks used conduits to skirt capital requirements, moving assets off their balance sheets without a complete transfer of risk. Ivo Welch and Mathias Hoeyer, Wurgler, and I emphasize a complementary channel of high-cost bank equity that comes from the mispricing of safe, low-leverage, and bond-like firms in the equity market. These private incentives again provide a rationale for regulation, this time of bank capital. However, Agarwal, David Lucca, Seru, and Francesco Trebbi show how the

capture of state regulators, whose revenues depend on the size of the banks they regulate, abetted reductions in risk-weighted capital ratios.

On the left or investing side of the balance sheet, demand deposits and concomitant fragility mean that banks must hold some portion of their assets in ultra-liquid securities. By analogy, Sergey Chernenko and Aditya Sunderam show how open-end equity mutual funds, like banks, use cash management to accommodate liquidity demands even when the underlying securities are illiquid. But, private incentives are once again limited. Douglas Diamond and Anil Kashyap argue that because their depositors have imperfect information, banks, left to their own devices, do not hold enough liquid assets to survive runs.

While the creation of ultrasafe liabilities is the key function on the liability side of the banking system's balance sheet, screening and monitoring a diverse pool of risky borrowers is the key function on the asset side. Konstantin Milbradt and Martin Oehmke point to an interdependence between financing and investing horizons, suggesting that banks might hold
short-duration loan portfolios, even when their highest return investments are long-term, as a result of financial frictions that grow with loan maturity.

A critical question is whether banks price loans appropriately, given a borrower's risk and the bank's ability to absorb losses without resorting to government intervention and support. In traditional banks, Antonio Falato and David Scharfstein show that pressure coming from public equity markets to increase current stock price through short-term earnings causes banks to increase risk. In shadow banks, Marcin Kacperczyk and Schnabl find that risk-taking by money market funds is higher when the fund sponsor does not provide an implicit guarantee. Agarwal and Ben-David find that when bankers are encouraged to generate revenue through loan prospecting versus screening, risk also rises.

Even with new commu-nications technology, banking deregulation, and consolidation, banking often remains local. Distance matters in Scharfstein and Sunderam, where concentrated local banking markets do not fully pass on reductions in yields on mortgage-backed securities to their customers. Itamar Drechsler, Alexi Savov, and Schnabl examine the macroeconomic implications of concentration in banking for monetary policy: Interest rate spreads increase as

interest rates rise, reflecting bank market power and shifting deposits into higher yielding instruments.

3.2.12 Capital structure and Markets' Dynamics

The banking system has always been somewhat transactional, preserving high-cost equity capital by originating loans and underwriting securities of various types, with the goal of transferring ownership to non-bank market participants through securitization, syndication, and public offerings. The ability to sell assets insulates the broader economy from the health of the banking system. For example, Tobias Adrian, Paolo Colla, and Shin show that bonds made up much of the shortfall in bank lending during the 2008 financial crisis. But bond and equity markets can themselves be sources of fluctuations, and the process of transferring assets from banks is fragile. Asset fire sales were a source of contagion in the crisis.

Natural and informed buyers were also stressed and unable to absorb the sales of bank assets, creating a downward spiral in prices and bank capital when measured at fire sale prices. This is the source of bank vulnerability in Greenwood, Augustin Landier, and Thesmar. Along with a shift in focus from industrial firms to banks, researchers have turned their attention from equity to credit markets. A variety of factors appears to capture credit market sentiment: the share of low-quality issuers; the ratio of bank loans to bonds in corporate capital structure; intermediary leverage; growth in credit that is delinked from productivity; and insurance companies reaching for yield, holding the highest yielding issuers within any credit rating category. David López-Salido, Stein, and Egon Zakrajšek argue that credit market sentiment predicts a decline in economic activity with a lag, suggesting that policy makers might use these measures of asset prices alongside the traditional objectives of price stability and employment in dictating monetary policy.

There has been less focus on equity markets, which were not the epicenter of the 2008 crisis. One area of emphasis has been corporate governance and investor activism. In some sense the successful private equity model described in Steven Davis, John Haltiwanger, Ron Jarmin, Josh Lerner, and Javier Miranda and Robert Harris, Tim Jenkinson, and Kaplan, for example, has been imported into public equity markets, in a reprise of the 1980s. Lucian Bebchuk, Alon Brav, and Wei Jiang and Brav, Jiang, Song Ma, and Xuan Tian find analogous long-run benefits of

activism in public markets, while Craig Doidge, Andrew Karolyi, and Stulz show that a new wave of acquisitions has thinned the ranks of publicly listed firms. Even without activism, Philip Bond, Alex Edmans, and Itay Goldstein point to positive feedback effects from equity markets: Movements in stock price inform real decision making, and are in part self-fulfilling

3.2.15 Capital Structure Model

I begin by presenting a one period version of the model. I extend my results to a dynamic model in a later section. There are a large number of risks neutral outside investors who are endowed with capital which they can rent in the market at rental rate r. There are also a large number of identical risks aversed managers. These managers have an outside opportunity that offers them utility U0. We assume that the managers have a utility function u(c) with $u(0) = -\infty$ and $u0(0) = \infty$.

There is a production technology that transforms capital and the labor of a manager into output. The production process takes place over the course of three sub periods within the period. In the first sub period, a manager is chosen to operate the production technology and capital K is installed. In the second sub period, this production technology yields output

$y = \theta F(K)$

Where θ is a productivity shock that is idiosyncratic to this technology. In this sub-period, this productivity shock θ and hence, output y as well, is private information to the manager. The set of possible shocks is an interval given by Θ and the distribution of these shocks has c.d.f. P with density p and an expected value of one. I assume that there are diminishing returns to scale in the sense that $F00(K) < 0$.

In the second sub-period, the outside investors have the option of monitoring the output of the project to learn the realization of the shock θ (and hence output y as well) at a cost of $\gamma F(K)$ units of output. At the end of the second sub period, the manager has the option of spending up to fraction τ of whatever output of the firm that he has not paid out to the outside investors during this sub-period on perquisites that he alone enjoys.

That output that the manager does not spend on perquisites is productively reinvested in the firm. For simplicity, we assume that the gross return on this productive reinvestment in the firm between the second and third sub-periods is one.

In the third sub-period, the outside investors can freely observe both the output of the firm $y = \theta F(K)$ and the division of this output between spending on perks for the manager and productive reinvestment.

The contracting problem between the outside investors and the manager can be described as follows. A contract between these parties specifies a level of capital K to be hired in the first sub-period, a decision by the outside investors to monitor m and a payment from the manager to the outside investors in the second sub-period v, and a payment from the outside investors to the manager in the third sub period x. I assume that the outside investors can commit to a deterministic strategy for paying the cost to monitor the output of the project in the second sub-period as a function of the manager's announcement $\hat{\theta}$of the realization of the productivity shock θ.

Denote this strategy by $m(\hat{\theta})$ and denote set of announced shocks for which monitoring takes place by $M \subseteq \Theta$. The payments v from the manager to the outside investors in the second sub-period are contingent on the manager's announcement of the productivity shock $\hat{\theta}$ as well as the outcome of the monitoring decision. Let $v0\ (\hat{\theta})$ denote the payment that the manager makes to the outside investors in the second sub-period as a function of the announcement $\hat{\theta}$ in case monitoring does not take place, and let $v1\ (\hat{\theta},\theta)$ denote the payment that the manager makes as a function both of the announcement $\hat{\theta}$ and the true value ofθ in case monitoring does take place.

Finally, let $x\ (\hat{\theta},\theta)$ denote the payment from the outside investors to the manager in the third sub-period as a function of his report $\hat{\theta}$ in the second sub-period and the realized production shock θ. Note that it is not necessary for x to depend on the monitoring decision because the true value of θ is revealed to outside investors in the third sub-period at zero cost. For reasons of limited liability,

I require

(1) $v0(\hat{\theta}) \leq \hat{\theta}F(K)$, $v1(\hat{\theta},\theta) \leq \theta F(K)$, and $x(\hat{\theta},\theta) \geq 0$.

I assume, without loss of generality, that $x(\hat{\theta},\theta)$ is chosen to ensure that the manager chooses not to take any perks for himself. This assumption implies a constraint on $x(\hat{\theta},\theta)$ that

(2) $u(x(\theta\hat{},\theta)) \geq u(\tau(\theta F(K) - v0(\theta\hat{})))$ for all $\theta\hat{} \in/ M$, and
$u(x(\theta\hat{},\theta)) \geq u(\tau(\theta F(K) - v1(\theta\hat{},\theta)))$ for all $\theta\hat{} \in M$.

Given the terms of the contract, m, v0, v1, and x, the manager chooses a strategy for reporting θ denoted σ(θ). We say that the report $\sigma(\theta) = \theta\hat{}$ is feasible given v0 and θ if either $\theta\hat{} \in M$ or $\theta\hat{} \in/ M$ and $v0(\theta\hat{}) \leq \theta F(K)$. Note that this definition requires that the manager has the resources to make the payment $v0(\sigma(\theta))$ in the event that he reports $\sigma(\theta) = \theta\hat{} \in/ M$. We restrict the manager to choose reporting strategies such that $\sigma(\theta)$ is feasible given v0 for all θ. We interpret this constraint as following from the assumption that there is an optimal contract in which the outside investors choose to monitor if the manager announces $\theta\hat{} \in/ M$ but then does not pay $v0(\theta\hat{})$ and that $x(\theta\hat{},\theta) = 0$ in this event. We restrict attention to contracts in which the manager truthfully reports θ. Hence, we impose the incentive constraint

(3) $U(x(\theta,\theta)) \geq u(x(\theta\hat{},\theta))$ for all $\theta \in \Theta$ and feasible $\theta\hat{}$ given θ and v0.

The manager's expected utility under the contract is given by the expectation of $u(x(\theta,\theta))$. Since managers have an outside opportunity that delivers them utility U0, we require the individual rationality constraint

(4) $\int u(x(\theta,\theta))p(\theta)d\theta \geq U0$. Note that this contracting problem is a partial equilibrium problem in the sense I assume that the outside investors have already purchased this production opportunity from the entrepreneur who created it and now they simply seek to design a contract with the manager that they hire on a competitive market to run this production opportunity. I do not model the costs that entrepreneurs pay to create these production opportunities or the price that they receive when they sell a newly created production opportunity to outside investors.

3.2.16 Dynamic Model of Capital structure

In this section, I discussed two issues that arise in interpreting an efficient contract in my model as a theory of the capital structure of the firm and the compensation of the firm's manager. The first of these issues concerns my model's implications for the optimal debt-equity ratio of the firm. We showed here that while my model does have implications for the payments to debt and

equity holders, it does not pin down the debt-equity ratio of the firm. The second of these issues concerns the interpretation of the monitoring of the firm by outside investors as bankruptcy.

My dynamic model delivers a theory of the division of the gross payments out of an ongoing firm between holders of the firm's debt, outside equity, and the firm's manager. This division of gross payments is not sufficient, however, to pin down the relative value of the firm's debt and equity. This is because my model does not pin down whether it is the debt holders or the outside equity holders who pay for the investments K in future periods. This issue is not new to my model and can arise in any financial contract in which there are multiple flows out of the firm.

I illustrate this problem with the following simple example. Imagine that an entrepreneur has created a project that can be operated for 2 periods in which an investment of 1 at the beginning of each period produces an output of 2 at the end of each period. Assume that this entrepreneur sells this project to outside investors after having made the initial investment at the beginning of period 1 and that there is no discounting, so that the total value of this project is equal to 3 units of output (2 units of output in period 1 plus two more units in period 2 less 1 unit of investment in period 2). Hence, it is clear in a competitive capital market, the outside investors must pay the entrepreneur 3 units of output at the beginning of period 1 to purchase this project.

What is to be determined is the division of this value between outside investors who hold debt and outside investors who hold equity. Imagine further that a theory such has ours has yielded the implication that, each period, the gross output of 2 is divided equally between debt and equity holders, so 1 unit is paid to the debt holders and 1 unit is paid to the equity holders. As the following examples make clear, the division of the value of this firm between debt and equity is not pinned down under these assumptions, despite the fact that the division of the gross payments to the outside investors is pinned down.

To see this, assume first that the firm is financed with a combination of short-term debt and equity. In particular, assume that short-term debt holders lend one unit at the beginning of each period and are repaid that one unit at the end of each period. In period 1, the equity holders pay 2 units to the entrepreneur to purchase the project and the remainder of the purchase is financed with the first issuance of 1 unit of short-term debt. The equity holders in this case receive a

dividend of one unit each period in exchange for their investment while the investment of 1 unit required at the beginning of the second period is financed by a second issuance of short-term debt at the beginning of period 2. Under these assumptions, in the first period, after the initial investment of 1 unit has been made, the value of the debt is 1 unit and the value of the equity is 2 units.

Next assume that the investment of one unit in the firm at the beginning of the second period is financed by the outside equity holders (through retained earnings) while the debt is long-term debt. In this case, to purchase this project, one group of outside investors puts forward 2 units of output in exchange for a long-term debt claim that pays 1 unit at the end of each of the two periods while another group of outside investors puts forward 1 unit of output in exchange for an equity stake that pays no dividend in the first period and a dividend of 1 unit at the end of the second period.

The three units of output raised in this way are used to purchase the project from the entrepreneur. Under this financing scheme, the firm's debt is worth 2 units and the firm's equity is worth 1 unit.

As this simple example makes clear, under different assumptions about the division of responsibility for ongoing investments in the firm, one obtains different implications for the debt-equity ratio of the firm. I conjecture that this issue will arise in any well-specified "trade-off" theory of optimal capital structure.

In interpreting my efficient contract as a theory of capital structure, I associate monitoring with bankruptcy. Monitoring in my model occurs whenever the current gross output of the firm fall below a threshold $\theta * F(K)$ determined by the optimal contract. In my one-period version of the model, in the event that $\theta \leq \theta *$, monitoring occurred, all of the remaining value of the firm was paid to debt-holders and the outside equity holders received nothing. In this sense, in the one-period model, monitoring corresponds to a stylized notion of bankruptcy.

In a multi-period, version of my model, the division of the value of the firm between debt and equity holders in the event of monitoring is not so stark. In the event that $\theta \leq \theta *$, monitoring occurs, but the firm still has a value to the outside investors as an ongoing concern (denoted by

the continuation value V (W(θ))). In the event that this continuation value exceeds the face value of the debt, then the equity holders emerge from this episode of bankruptcy with shares that still have positive value. In this sense, monitoring in the dynamic model does not necessarily correspond to the liquidation of the firm. Of course, the same is true of bankruptcy in the data.

3.2.17 Theories of Asymmetric Information between Firms and the Capital Market

It is generally thought that there are informational asymmetries between borrowers and investors. When the firm issues a debt, it enters into a contract with debtholders that by itself provides information, since the firm is a going concern. Also, when management defaults on repayments, wide dissemination of information is needed to placate investors. We follow and draw on Harris and Raviv (1991) in picking three main theoretical strands of literature on asymmetric information between the firm and the capital market: the interaction of investment and capital structure; signaling with the proportion of debt; and models based on marginal risk aversion.

3.2.18 The interaction of investment and capital structure

Myers and Majluf (My M, 1984) is the seminal contribution to this literature, draws attention to the use of debt to avoid the inefficiencies in a firm's investment decisions which would otherwise result from information asymmetries. The nature of the asymmetric information in this case is that managers know more about their companies' prospects, risks and values than do outside investors. Asymmetric information leads to adverse selection and moral hazard; in some respects, the problem is similar to the one originally identified by Akerlof (1970) in that potential investors can purchase securities which are "lemons"– a product whose quality cannot be ascertained by its buyer. If there exists an asymmetry of information between investors and firm insiders, then the firm's equity may be underpriced by the market. This has the effect of also underpricing new equity which is used to finance new investment projects.

If management's objective is to maximize the return to all shareholders, the net effect is that new investors obtain a higher capitalized cash flow from this investment than pre-existing shareholders, which may cause the project not to be accepted on these grounds even when it has a positive NPV. See Rock (1986) for a detailed analysis. In principle, the problem of underpricing of new equity could be solved by using financial securities that may not be undervalued by the market, particularly internally generated funds. In Cleary (1999) is

representative of some recent contributions contrast to MM, this suggests that there will exist a specific hierarchy or "pecking order" of securities to be used in the financing of projects.

Moreover, if the firm has financial "slack", but asymmetric information means that the market does not know this, managers will not issue fresh equity, even though it may involve passing up a good investment opportunity, so that the interests of present shareholders are protected. If investors understand this point, then the market will assume that a decision not to issue shares is "good" news. If management does propose a new share issue, it will be interpreted as "bad" news, and the share issue will precipitate a fall in the firm's share price. My M also show that if a firm can issue debt, it will do so rather than issue equity, and this will result in the ex-ante value of the firm being higher, since the loss in market value is reduced due to the reduction in under-investment losses.

These results lead to the Pecking Order Hypothesis, which Myers (1984) summarized in four parts:

(i) To finance new investment, firms prefer internal finance to external finance. 104

Asymmetric information creates the possibility that they may choose not to issue new securities and therefore miss a positive NPV investment; or may issue equity at a low price which disadvantages existing shareholders.

(ii) Managers adapt their target dividend payout rates to their investment opportunities, notwithstanding the downward inflexibility of dividends. In setting the target payout rates, managers try to ensure that "normal" investment plans can be met by internal finance.

(iii) If retained earnings are less than investment outlays, the firm first depletes its financial "slack" (its cash balances or marketable securities). If instead, retained earnings exceed investment, it first invests in cash or marketable securities, and then pays off debt. If the firm is persistently in surplus, it may increase its target payout rate.

(iv) If financial slack is depleted and a sufficiently favorable investment opportunity is presented, the firm will resort to external finance. In this

More recent work by Guariglia (1999) suggests also that there exists a strong linkage between internal finance and inventory investment, especially work-in-progress and material inventories.

Event, it starts with the safest security (plain debt); then hybrid securities such as convertible bonds. As it climbs up the pecking order, a firm face increasing costs of financial distress inherent in the risk class of debt and equity securities. Only when it runs out of debt capacity, and the potential costs of financial distress become important, will it finally resort to a new equity issue.

Thus, internal finance is at the top, and equity is at the bottom, of the pecking order. A single "optimal" debt-equity ratio does not exist: a result which takes us back to the original no-tax MM proposition I, but by a very different route. The original MM propositions would suggest that firm financial policy is irrelevant; and this is obviously not an implication of the Pecking Order hypothesis.

Like the MM propositions, My M's Pecking Order hypothesis has generated substantial debate. My M's model is not easily applied to new firms. This omission was rectified by Narayanan (1988) who considers the information asymmetries associated with assets-in-place. He also allows for the possibility of risky debt. The conclusions of Narayanan's model are that:

(i) the firm should issue less risky securities over more risky ones;
(ii) (ii) debt should be used in preference to equity;
(iii) internal finance should be used in preference to external finance; and
(iv) if equity is used, the stock price falls since the market views the firm as a "lemon". Evidently, these conclusions are consistent with MyM. However, when this model is extended, by Heinkel and Zechner (1990), to allow the firm to choose an optimal capital structure before its investment decision, it transpires that the use of debt or hybrid securities, such as preferred stock, tends to cause under-investment. This implies that the firm does once more have an optimal capital structure, consisting of a mixture of debt and equity, a result that remains robust when the analysis is extended to include corporate taxes.

Brennan and Kraus (1987) argue that My M's model only incorporates equity and riskless debt. Since the pecking order theory relies in part on the costs of distress and bankruptcy, this is potentially an inconsistency. They present a counter-example to the essential ingredients of which are asymmetric information, and the existence of a signaling equilibrium in which the market will still underprice shares as lemons13. In their model, if firms choose a financing mix that minimizes the cost of raising the required investment

The concept of a signaling equilibrium is discussed in the section.

Funds, then, depending on the structure of the investment payoff function; it is possible that investors can infer the main parameters of this function from the financing mix chosen. This amounts to costless signaling of information to the market. Less formally, it can be thought of as a (complex) form of revealed preference. If the market can infer a firm's financial position from its observable financial policy, the firm cannot improve on the pricing of its securities by changing that policy. It transpires that the cost-minimizing financial policy includes a share issue, and will often involve using part of the proceeds of the issue to retire debt. Constantin ides and Grundy (1989) show that similar arguments are applicable to firms in which managers have an equity stake. Such firms can invest in positive NPV projects by issuing sufficient amounts of a hybrid security, such as convertible debt, so as to undertake the projects and repurchase some of the firm's existing equity. Evidently, both these results contradict the pecking order prediction that equity is the financing of last resort.

3.2.19 Models based on marginal risk aversion

Models based on marginal risk aversion invariably assume that there is an owner-manager of the firm who is risk averse.15 Therefore, the level of debt that the firm incurs depends, in part, on the degree of risk-aversion of the entrepreneur. The riskier a project, the smaller will be the entrepreneur's desired stake. In a seminal work, Leland and Pyle (1977) consider an entrepreneur who wants to undertake an investment project and plans to hold a certain fraction, a, of the firm's equity. The remaining equity is raised from outside lenders.

As before, a signaling equilibrium exists in which the entrepreneur's ownership increases with the quality of the firm, because the amount of equity retained by the entrepreneur is interpreted by the market as a signal of quality. Since entrepreneurs are known to be risk-averse, one who

takes a high stake in a risky project must be confident of its success. Entrepreneurs with inferior projects will not choose a higher equity stake (to signal a higher quality firm), because it would increase their exposure to the project's idiosyncratic risk, and thus reduce their utility.

In most developing economies, owner-manager firms are predominant; almost all local firms start as owner-managed and expand their businesses for later flotation on the stock market. The firms are predominantly risk-averse, although Green, Lensink and Murinde (1999) have found evidence to suggest that in Poland (as a transition economy) firms are risk-lovers.

Leland and Pyle (1977) derive several implications from the signaling equilibrium. First, it has the desirable property that a project will be undertaken only if its true market value exceeds its cost. Second, the market treats higher entrepreneurial ownership as a signal for a more favorable project. Third, entrepreneurs make larger investments in their own projects than would be the case if they could effortlessly communicate their true expected return. Thus, the entrepreneur suffers a welfare loss of investing more than is optimal in a project, so as to communicate its worth. This may cause some profitable projects to be rejected. Leland and Pyle suggest that intermediaries which specialize in information-gathering and monitoring of entrepreneurial projects could reduce this welfare loss by offering entrepreneurs better terms of finance. Fourth, an increase in the specific risk of the project, or the risk aversion of the entrepreneur, will reduce their equilibrium stake in the project. Fifth, an increase in the specific risk of a project will result in a greater expected utility for the entrepreneur.

3.3 Research design

This is the framework or plan used for guiding the data collection process. According to Baridam (1990), Research design answers the fundamental questions of how the subject study will be brought into scope of the research and how they will be employed within the research setting to yield the required data. Such a plan will be realized in the selection of the most appropriate concepts hypotheses, analytical paradigms, specific sampling techniques, instruments and tools of data collection, test for the hypotheses and also the most effective format to present the research report (Anikpo 1886).

The Quasi-experimental design was considered appropriate for this study. According to Baridam (1990), the quasi – experimental designs are widely used in administrative or social sciences because of the complex relationships that exist between variables. It constitutes a class of empirical studies with human beings that lack two of the usual features experimentally, that is, very rarely occur in a laboratory and they involve the random assignment of units to the treatments being conducted.

3.4 Area of study

The study area of the work, Dynamics of optimal capital structure and business continuity: Needs a quasi-experimental design because the natural observation of the characteristics of the research subjects without interventional manipulation of the variables of the research

From the literature a firm's continuity could be affected by the capital structure choice and by the structure of debt maturity as debt maturity affects a firm's investment options. So investigating the impact of capital structure variables on a firm's performance will provide evidence of the effect of capital structure on firms‟ performance. Following the hypotheses earlier formulated, a regression model is formulated to capture the effect of capital structure (measures of leverage) on continuity. This model will help in testing the stated hypotheses of the study and in achieving the objectives earlier stated. Tian and Zeitun (2007) states that the usefulness of a measure of continuity may be affected by the objective of a firm which could affect its choice of capital measure and the development of the stock market.

For example, if the stock market is not highly developed and active, then the market performance measures may not provide a good result. The most common performance measure proxies that have been used by many authors are return on assets (ROA), return on equity (ROE) and/or return on investment (ROI) Gorton and Rosen (1995), Mehran (1995), Krishnan and Moyer (1997), Ang, Cole and Lin (2000) and Tian and Zeitun (2007)]. However, the ROA is widely regarded as the most useful measure to test firm performance (Abdel Shahid (2003), Tian and Zeitun (2007). Other measures of performance called market performance measures are price per share to the earnings per share (P/E) (Abdel Shahid ,2003) and Tobin‟s Q which mixes market value with accounting value and has been used to measure the firm‟s value in many studies [see McConnel and Serveas (1990), Zhou (2001) and Tian and Zeitun (2007)].

3.5 Population

In order to make a comprehensive and objective analysis of the data gathered, the researcher made use of the following subjects in conducting the study.

1. Players in the financial sector of the Nigerian Economy
2. Decision makers in the area of financing structure of an Organization (Nigeria and International)
3. Money and capital markets instruments.
4. International Liquidity Management
5. Foreign Exchange Stability measures (i.e., Bretton Woods, Smithsonian agreement etc.) at international level.

3.6 Samples and sampling technique

The study is on dynamics of optimal capital structure and business continuity: A study of firms financing structure and its optimal management in Nigeria and some major economies of the world. The players (i.e. blue chips firms) therefore constitute the population of the study. The response got would not only be characteristic of means of financing business in Nigeria but lend itself to the generalization of the dynamics of optimal capital structure and business continuity in the entire world.

The number of players (i.e., financial institutions, manufacturing firms, investors, etc.) as to optimal capital structure of firms studied is 120.

The sample size was determined using YARO YAMEA's formulas (Baridam 1995:96) for determining sample size given by

$$\cap = \frac{N}{1+N(€)^2}$$

Where N = Size of the population

$\cap$ = Sample Size

€ = Level of significance for the study

The sample size therefore is

N= 120

€= 0.05

$\cap$ = 120

143

= 1+120(0.05) 2 = 1.3

The players in the manufacturing sector of the Nigeria economy and selected blue chip firms in the world were sample.

Convenience sampling method was used to reach the respondents, since the study is specific on Nigeria Economy with little comparison with some major economies of the world through compiled literature. According to Baridam (1990) a convenience sample was chosen purely on the basis of convenience. The variables in the study were chosen simply because they are accessible or easy to measure.

Panel regression analysis also applied in this study, is a regression that involves the combination of time series and cross-sectional data: panel data. Panel data are said to be repeated observations on the same cross section, typically of individual variables that are observed for several time periods (Pesaran, Shin and Smith, 2000; Wooldridge, 2003).

Panel data is an important method of longitudinal data analysis because it allows for a number of regression analyses in both spatial (units) and temporal (time) dimensions. The spatial aspect refers to a number of cross-sectional units of observation, which could be countries, states, firms (as used in this study), commodities, and so on while the temporal aspect refers to regular episodic observations of a set of variables in the cross-section units over a particular period of time (i.e. 2003 – 2007).

Panel data also provides a major means to analyses data longitudinally especially when the data are from various sources and the time series are rather short for separate time series analysis. Even in a situation when the observations are long enough for separate analyses, panel data analysis gives a number of techniques that can help examine changes over time common to a particular type of cross-sectional unit.

The combination of time series with cross-section data made possible by the use of panel data regression technique, usually improve the degree of freedom and quantity of data which may not be possible when using only one of them (Gujarati, 2003). Other advantages of using panel data techniques according to the same author include the following:

i) It gives more informative data, more variability, less-co-linearity among variables, more degree of freedom, and more efficiency because of its combination of cross-section and time series observations;

ii) It can detect and measure effects that are not commonly observed when using only cross sectional or time series data;

iii) It minimizes the bias that might result from aggregation of individual units into broad aggregates. This is due to the fact that data are made available for several units in a panel data setting;

iv) It helps in handling more complicated behavioral models such as technological change, which may not be easy with only cross-sectional or time series data;

v) It helps to take off heterogeneity in the estimation process because it allows for individual specific variables; It is better suited when a study is dealing with the dynamics of changes

3.7 Method of data collection

The data collection methods used for this study are primary and secondary.

The researcher collected the primary data by distributing questionnaire and conducting face-to-face interviews with respondents.

This enables the researcher to reach a good number of respondents and obtain the exact information required for the study. The respondents were informed of the objectives of the study as to get their co-operation. The researcher distributed the questionnaires personally.

Secondary data include data that are related to this study and prior to this study were in existence. In most research works; they provide a stepping-stone. This is vital because view and opinions expressed in other related work or material equip the student in his effort to elicit further information. Also, the use of secondary data became unavoidable because the primary data collection process was not able to supply all information needed.

Sources of Secondary Data included Textbooks

Journals, Libraries, Scholars Publications, previous research works on the study area

government publications and internet extracts.

3.8 Research instruments

Relevant literature on financial management was used. In essence, the method of data collection was from both primary and secondary sources. The primary data was collected by the researcher distributing questionnaire and conducting face-to-face interviews with the respondents.
The secondary source is concerned with various documents and related statistical data.

3.9 Validity of research instruments

Apart from reconciling the information gathered through the primary and secondary sources, during the course of study, an attempt was made to verify the truthfulness of some of the information obtained. The method used here was on – the spot assessment.
The independent variable that the study was addressed to is dynamics of optimal capital structure and business continuity, defined as ways and means of resolving problems and crisis of managing source of funds for business going concern concept. They are measured in nominal form, this is, the extent to which it affects the dependent variable.
The dependent variables are dialogue and committee. The variables are both measured in normal scale, the extent to which they are affected, that is great moderate and little extend.

3.10 Reliability of research instrument

This research instrument is reliable this is seen from the on-the-spot assessment of the sources of the primary and secondary data.
Moreover, the variables used have both been measured in nominal scale and the extent to which they are affected, is great, moderate and little extent.

3.11 Proposed method of data analysis

Mathematical or statistical models were used in the data analysis as to reduce the data
Into a Compact form. The data used were edited to ensure accuracy and consistency. The chi-square (x2) statistical tool was used in testing the two hypotheses formulated for this study.
In the chi-square (x2) that procedure, two sets of frequencies (observed and expected) are compared. The observed frequencies are the theoretical frequencies which are used for comparison.

The formula for chi-square is thus

$$X2 = \frac{(Fo-Fe)2}{Fe}$$

Where x2 = chi-square

fo = actual or observed frequency

fe = expected frequency

The level of significance chosen for the purpose of testing the hypotheses is 0.05 since this seems to be more acceptable and realistic. The degree of freedom is 2.

3.12 Treatment of data

The data gathered, both the primary and secondary sources were critically assessed by reconciling the information obtained through the secondary source with the figures contained in the original statistical data collected from the primary source. These had been helpful in arriving at accurate conclusions.

Some of the data collected are presented in series of tales Some of them are also subjected to simple statistical analysis by making use of chi-squares where method of data collection are stated

CHAPTER FOUR

4.0 Analysis and presentation of data

This is the fundamental and critical aspect of this study. This chapter deals with the analysis and interpretation of data collected in the study. The research questions, hypothesis raised, and

formulation in chapter one will be analyzed and tested, it is organized under the following subheadings.

4.1 Descriptive Analysis

Building on the idea that internal and external finance becomes imperfect substitute of each other under the presence of market imperfections, most of the theoretical and empirical studies investigate the effect of financing constraints on firms' investment decisions. The results show relatively higher sensitivity of investment to internally generated funds for firms which are likely to be more severely affected by these market imperfection problems, hence are financially constrained.

Chapter three of this thesis is not an exception where we agree with Fazzari et al. (1988) that the cashflow sensitivity is a useful indicator for the relative importance of financing problems across different groups of firms after taking into account the critiques of this approach. Following this strand of literature, empirical studies investigating the effect of financing constraints on firm growth have recently started to flourish as well. Most of these studies start with Gibrat (1931) "Law of Proportionate Effects" (LPE) as an empirical benchmark, which states that the growth rate of any firm is independent of its size at the beginning of the period examined and that the firm size distribution (FSD) is stable over time and approximately log normal. A large body of empirical studies challenge three main implications of this law while working on its further implications upon industrial organization.

Firstly, firm size distribution (FSD) often displays shapes diverse from the lognormal. Secondly, both growth and volatility of growth at the firm level decrease with firm size and age, generating heteroskedasticity in firm size and growth distribution. Finally, firm growth rates often display a fat-tailed empirical distribution which cannot be easily explained if growth shocks to firms are assumed to be identically and independently distributed. An extensive survey of 60 papers made by Santarelli et al. (2006) concludes that evidence is rather mixed and it is not possible either to generally validate or systematically reject this law. However, Stam (2010) express that Gibrat's Law still plays a remarkable and prominent role in the progress made by most recent studies involving firm growth.

Based on this set of findings on the size-growth relationships, recent papers propose an explanation for this behavior of the FSD based on financing constraints after it has been clarified that the departure from the LPE cannot be entirely explained by firms' age. In particular, Cooley and Quadrini (2001), Cabral and Mata (2003) and Desai et al. (2003) argue that the presence of financial constraints can account for the observed skewness in the firm size distribution and firm size distribution becomes more symmetric as financial constraints eases up.

In contrast, studies by Fagiolo and Luzzi (2006) and Angelini and Generale (2008) fail to affirm that financial constraints are the main determinant of FSD evolution. In a different approach, Carpenter and Petersen (2002) employ the internal finance theory of growth to help explain the stylized facts of firm growth. They also rely on the Fazzari et al. (1988) approach, but switched to investigating how possible finance constraints could affect the growth of total assets instead of investment in fixed capital only. Thus, their test on the relevance of finance constraints uses the same principle as that applied to investment models: higher growth-cash flow sensitivities are a sign of bigger financing problems.

They prefer to examine the growth of the whole firm as it allows controlling firm's all potential uses of internal finance and it helps to make a quantitative prediction about the relationship between internal finance and growth in contrast to the qualitative predictions usually made with the investment cash flow sensitivity. They prescribe this quantitative prediction as a stronger test for the existence of financing constraints as it is more likely to be unbiased from measurement error problem of investment opportunities, more restrictive and allows fewer alternative interpretations of the results.13 Therefore, their methodological approach

And finally, if panel data regressions investigating the growth-size relationships are carried on without controlling for other determinants of firm growth and size dynamics, such as financial factors (Becchetti and Trovato, 2002).

It can be recalled here from the literature review section of chapter three that, if the Hayashi (1982) conditions are not satisfied or if investment opportunity is not properly measured, a positive investment cash flow sensitivity may still be generated by a regression which not necessarily indicate the presence of financing constraints. According to Carpenter and Petersen (2002), their suggested quantitative prediction are unlikely to be affected by the bias from an

omitted variable or mismeasured investment opportunities and any alternative explanations gives a different resolution to the highly debated issue of detecting the presence of financial constraints.

The model developed by Carpenter and Petersen (2002) further predicts that a small firm facing a binding financing constraint may generate more than a one-to-one relationship between internal finance and the growth of it's assets through "leverage effect" which occurs when firm's access to debt depends on collateral. Bernanke et al. (1999) explain this leverage effect through their model which shows that each firm's capital expenditures are proportional to the net worth of the owner or entrepreneur and the proportionality factor is positively related to the expected discounted return to capital or external finance premium.

For financially constrained firms, a rise in this expected discounted return to capital induce entrepreneurs to finance more of their capital investment out of their net worth and the expected default probability will reduce as a result. Also, a rise in net worth for a given project size can be considered as a rise in their collateral value and hence can give a positive signal to the lenders about future prospects of these firms in situations with asymmetric information. These will require less monitoring from the lenders and reduce the required premium on external finance. As a result, these firms will be able to take on more debt to expand the size of the firm and enjoy a magnified effect of a positive income shock on growth (Gilchrist and Zakrajsek, 1995).

The graphical presentation of this leverage effect by Carpenter and Petersen (2002) is given as figure C.1 in appendix C of this thesis. When firms' access to external financing become easier or firms become less financially constrained, their new assets can be easily financed by new debt or equity along with their undistributed retained earnings. Therefore, growth is expected to become less sensitive to internally generated funds or net worth and the relationship between internal finance and growth should become much weaker. Later, this model is followed by Oliveira and Fortunato (2006) for Portugal, Hutchinson and Xavier (2006) for Belgium and Slovenia, Fagiolo and Luzzi (2006) for Italy and Wagenvoort (2003) and Coluzzi et al. (2012) for Europe of their results accounting for such bias would generate the same quantitative predictions that their model generates.

A major problem affecting almost all these investigations arises from the fact that financial constraints are not directly observable. To overcome this issue, this strand of literature follows the conventional way of classifying financially constrained and unconstrained firms a priori using proxies such as size or age of the firm in order to estimate the sensitivity of a firm's growth rate to its cash flow. They implicitly assume that firms' records with respect to the chosen proxy determine the lenders' willingness to grant credit to them. Introducing financial constraints within the framework of firm growth dynamics may also create a new problem. This is because, firms' size and age used to identify financial constraints, are themselves related to the FSD independently of their effect through financial constraints.

Angelini and Generale (2008) use an alternative survey-based measure of financial constraints where firms are asked to give a self-assessment of the difficulty, they face to access financing from banks or other institutions. However, such survey-based measures can also suffer from misreporting and sample selection bias, whose effect is difficult to quantify. Moreover, such measures only take account of the demand side of credit relations by collecting the opinion of the credit seeker about their own financing conditions. But, practically the opinion of the credit supplier on the credit seeker plays the crucial role in determining credit conditions in capital market suffering from strong informational asymmetry-tries.

This chapter attempts to tackle this issue by using the outcomes from previous two empirical chapters of this thesis. The main motivation of using switching regression model in chapter three was to overcome the static and dynamic misclassification problem associated with this issue, but will not be suitable for estimating dynamic growth equations as they are expected to suffer from dynamic panel bias and give inconsistent results. These are explained in more details in the methodology section. But, one additional benefit of using the switching regression model is that it predicts the probability of facing unconstrained financial status. This is a single time varying and continuous indicator of financial status for all firm year observations, accounts for the different degree of difficulty a firm faces in accessing external finance and generated from a multivariate selection equation which simultaneously considers all possible aspects of firm financial structure used in the literature. All these are prescribed as necessary features to be a good financial constraint proxy (Cleary, 1999, Lamont et al., 2001). This index is mainly used in this chapter to classify financially constrained and unconstrained status.

Apart from that, the predicted corporate efficiency index from chapter two is used as well to serve the same purpose. According to theoretical background, this predicted efficiency originates from managerial routine and can affect firms' technical capabilities, organizational characteristics and overall competence. All these are likely to affect firms' recognition as a borrower and thus set their financial constraint status as well. The selection equation of the switching regression model in chapter three also strongly suggests that a firm's constrained credit status improves with the level of its corporate efficiency.

Therefore, the empirical strategy in this chapter employs the financing constraint literature to explain whether the heterogeneity in firms' growth can be explained by the degree of financial constraints they face by developing the Carpenter and Petersen (2002) model. Even though such analysis is done by Wagenvoort (2003) and Coluzzi et al. (2012) for Europe, this is the first time UK data has been used. The complex interactions of size, age and financial constraints within the framework of an augmented Gibrat's regression to determine growth dynamics of firms is going to be the main contribution of this chapter.

On the way to achieve that, our two novel proxies for financial constraints allow us to make quantitative assessment of the extent to which different degrees of financial constraints are interlinked with these interactions. To do this, the cash flow variable is interacted with different category financial constraint dummy variables created using the unique proxies for financial constraint status, rather than splitting the sample based on firm size or age. This specification is another improvement from the contemporary studies in this field which allows the estimated cash flow coefficient to differ across observations in the different financial constraint categories without estimating the equations on separate sub-samples of firms. This approach can help to avoid problems of endogenous sample selection, to gain degrees of freedom besides allowing transition between groups (Carpenter and Guariglia, 2008, Guariglia, 2008).
Finally, we use system-GMM estimator developed by Arellano and Bover (1995) and Blundell and Bond (1998) because of its considerable advantages over simple cross-section regressions or other estimation methods for dynamic panel data according to a growing consensus in the context of empirical growth models (Bond et al., 2001). This estimation procedure controls for the presence of unobserved firm-specific effects that can be correlated with the firm growth rate

and with the explanatory variables and hence avoids the bias that arises in this context. This also allows parameters to be estimated consistently in models that include endogenous right-hand side variables, for example cash flow in this case. Using the unbalanced panel of 1122 firms listed on London stock exchange during the period 1981-2009, we estimate our dynamic regression models to check the following key hypothesis:

1. Smaller firms grow more after controlling for liquidity constraints.
2. Younger firms grow more after controlling for liquidity constraints and firm size.
3. Liquidity constraints negatively affect growth after controlling for size and age.
4. The effect of liquidity constraints on firm growth differs according to the degree of financial constraint.

The rest of this chapter is structured into different sections as follows. Section 4.2 draws literature survey, section 4.3 describes the methodology, section
4.4 brings model specification and description of the variables, section 4.5 introduces data and descriptive statistics, section 4.6 presents the empirical results and analysis and finally section 4.7 concludes the chapter.

Table 4.1: Descriptive Statistics for Dependent and Explanatory Variables (2007 – 2011)

Variables	Obs	Mean	Median	Std Dev.	Minimum	Maximum

ROA	505	0.0804	0.0927	0.448	-6.0208	3.7104
ROE	505	4.5907	0.70697	77.3011	-696.34	1558.61
TOB Q	505	0.9332	0.7038	0.9872	0.0871	7.1684
TDTA	505	0.73495	0.52091	0.9195	0.0143	6.8064
LTDTA	505	0.2757	0.1377	0.4704	0.0000	6.5521
STDTA	505	0.4592	0.2642	0.69293	0.0000	5.5809
SIZE	505	6.1719	6.3017	1.2999	0.0000	8.1378
TAX	505	0.2307	0.2456	0.8095	-2.5859	14.9367

Note: **ROA = the return on assets (EBIT/ total assets); ROE = return on equity (EBIT/total equity); Tob Q (Tobin's Q) = Market value of equity + book value of debt/book value of assets; TDTA = total debt**

The market performance measure Tobin's Q is positively correlated with the three leverage measures and size with high coefficients ranging from 96.62% to 33.6% but negatively correlated with tax at 5.53%. This result implies that leverage has a positive strong degree of association with the market performance of Nigerian firms while tax impact negatively on the market performance of the firms.

The results also show that size has a positive relationship with the two accounting performance measures (ROA and ROE) as well as the market performance measure (Tobin's). This implies that larger companies tend to have a higher leverage ratio with lower growth opportunities. It also implies that Nigerian firms (which are small relative to firms in developed economy) have high opportunity of growth in size which is consistent with Myers(1977). Size however has a negative relationship with all leverage ratios. This is contrary to the findings of Tian and Zeitun (2007) that reported positive relationship between size and all leverage ratios except short term leverage STDTA and also in line with the findings of Salawu (2007) who reported a negative relationship between size and short-term leverage in his study of the capital structure of selected quoted companies in Nigeria. This implies that Nigerian companies tend to have a lower leverage ratio when they get larger in size.

The results further show that tax has a positive relationship with the two accounting performance measures (ROA and ROE) but a negative relationship with the market performance measure (Tobin's Q). This implies that Nigerian firms enjoy tax benefits which increase their operating earnings though not reflected on the market performance. It also

SIZE	0.2218	0.0155	0.33596	-0.2697	-0.2521	-0.1867	1.0000
TAX	0.0776	0.0018	-0.0553	-0.0427	-0.0719	-0.0079	0.04345

Note: ROA = the return on assets (EBIT/ total assets); ROE = return on equity (EBIT/total equity assets); Tob Q(Tobin's Q) = Market value of equity + book value of debt/book value of assets; TDTA = total debt divided by total assets; LTDTA = long-term debt divided by total assets; STDTA = short term debt divided by total assets;
Size = log of turnover, Tax = total tax to earnings before interest and tax (EBIT)

Source: Results obtained from data analysis using the E-Views statistical software package
The results of the Pooled Ordinary Least Square (OLS), Fixed Effects and the Random Effects estimation models for the panel data for each of the performance measures and for the full sample of observations for the period 2007 to 2011 are displayed in Table 4.3to Table

11. The regression model results using return on equity (ROE) though presented in Table 4.9 to Table 11 is not significant using any measure of capital structure and hence is not fully discussed. These results make the ROA and the Tobin's Q, the most useful and powerful measures of performance in the Nigerian case. Therefore, the discussion of results is more concentrated and centered on these two measures of performance. The estimation was done using the White Standard Error for robustness in order to tackle any instantaneous effect of auto-correlation which could bias the results.

From the results in Table 4.3, the total leverage measure TDTA has a positive and significant relationship with the market performance measure Tobin's Q. It is interesting to note that the results of the three different estimators of the Tobin's Q equation i.e. the fixed effects model, random effect model and pooled OLS give consistent results that are all significant at 1%level. Size also has a positive relationship with the performance measure and the results as given by the random effects and pooled OLS models are significant at 1% level with the exception of the fixed effects model which showed a non-significant positive relationship.

Tax shows a non-significant negative relationship with the performance measure as given by the random effects and pooled OLS models with the exception of the fixed effects model which showed a non-significant positive relationship. However, if we are to go by the identification test i.e., the Hausman's Chi-square statistics, the fixed effect result is more reliable as the P-value of

the test is significant at 5% level while the P-values for the other two estimators are not significant.

The adjusted R2 is also satisfactory in all cases. The adjusted R2 is 0.9856 for the fixed effects model, while it is 0.9668 and 0.9397 for the random effects and pooled OLS models respectively. This indicates that more than 90% of the variation in Tobin's Q as a measurement of performance of Nigerian firms is explained by the variations in their total leverage, size and tax. The F-statistics and Durbin-Watson (DW) statistics also indicate that the regression equations are significant. The DW statistics of 1.7661 further indicates that the regression equation is free from the problem of autocorrelation. The implication of this is that the estimated equation can be relied upon in making valid inference about the influence of the explanatory variables on the market performance of Nigerian firms.

4.2 Descriptive Testing

We previously discussed the investment and financing constraint literature in chapter three. To study the relationship between financing constraints and firm growth and to explain the dynamics of firm growth, we make use of that corporate finance literature in this chapter in combination with the industrial economics literature. Since Gibrat (1931)'s seminal study, the patterns of firm growth and their implications for the observed firm size distribution have been studied both from a theoretical and an empirical perspective by several authors and the evidence provided by them is rather mixed.

Overall, the recent research trying to establish a link between financial constraints and firm dynamics, has developed into two interrelated directions. One of them highlights the possible role played by age and financial constraints in determining the observed skewness in the aggregate firm size distribution. The other one focuses on estimating the standard Gibrat's regressions of growth on size, age and various financial variables to test the LPE "null hypothesis" and it's further implications upon industrial organization.

4.2.1 Weakness in the firm size distribution

Studies working with a particular class of firms in the economy which are generally large enough to overcome the minimum efficiency scale of a given industry, mostly support the Gibrat's law.

But the law is generally found to be violated when firms of all sizes, sectors and industries are taken into account. Researchers moving away from the growth size independence towards a negative dependence of growth rates on size, suggest that the distribution of firm size may evolve over time and differ from a lognormal distribution. The majority of the studies observe firm age to have a negative influence on its growth as well. Such a negative age growth relationship is explained theoretically by Jovanovic (1982) who highlight the role of learning in explaining the firm size dynamics.

Their model assumes that output is an increasing concave function of managerial efficiency and firms can discover their true efficiencies only when they decide to enter and operate in an industry. It is more likely that an old, large operating firm has already made a series of positive discoveries about it's true efficiency, leaving less scope for further efficiency gains from learning. Whereas, a young firm is more probable to make positive discoveries about it's true efficiency which encourages it to invest more rapidly in order to close the gap between its start-up size and the minimum efficient scale (MES) and thus experiences higher growth rates immediately after start-up. Such negative age-growth relationship has been found empirically for different countries.
Further investigations of the effect of age on growth include financial constraints as a potential and significant factor affecting firm size distribution.

According to the theoretical explanation given by Cooley and Quadrini (2001), firms' technological differences in the presence of financial market frictions can be one reason behind the negative age growth relationship. They show that capital constraints can potentially explain why small firms pay lower dividends, are more highly levered, have higher Tobin's Q, invest more, and have investments that are more sensitive to cash flows. Using a large sample of Portuguese manufacturing firms, Cabral and Mata (2003) find that the firm size distribution can be well approximated by a log-normal distribution as firm age increases, but remains highly skewed to the right at birth when they are more likely to be capital rationed.

Using a theoretical model, they further show that financial constraints can explain such FSD evolution which is supported by empirical evidence as well. They argue that financial constraints tend to weaken over time so that firms are allowed to raise the resources to invest and reach their

optimal size which gives rise to a more symmetric size distribution in turn. Other than these, some of the newly entrant firms can remain small because they are reluctant to grow because of efficiency grounds, even if they are not severely capital constrained. Considering the roles of the institutional environment and capital constraints on entrepreneurial activity across Europe, Desai et al. (2003) also observe the skewness in the size distribution of European firms which is also found to be decreasing with firm age.

Comparing the overall distribution of firm size between Western Europe and Central and Eastern Europe, they conclude that the firm size distribution is more highly skewed for Central and Eastern Europe than Western Europe. When they perform a similar analysis for Great Britain only, the overall distribution is found to be much less skewed which they suggest is due to Britain's highly developed capital market.

Using data on Italian manufacturing firms, Fagiolo and Luzzi (2006) find that the negative impact of firm size on growth worsens with the severity of liquidity constraints and the magnitude of the size-growth correlation decreases substantially over time for any level of internal liquidity. Their findings concur with Cooley and Quadrini (2001) in that presence of financial constraints can explain the negative association between firm age and growth. However, their FSD remains positively skewed over time contradicting with Cabral and Mata (2003).

Using non parametric estimates for Italian firms, Angelini and Generale (2008) also find skewness in firm size distribution, but diminishing with age supporting Cabral and Mata (2003). They test whether the firm size distributions for constrained firms are different from those for the unconstrained ones, where firms are classified using a survey-based proxy of financial constraints. Their results suggest that financial constraints cannot be the main determinant of the FSD evolution for financially developed economies, even though financial constraints problems are likely to be more severe among younger firms.

Lotti and Santarelli (2004), Cirillo (2010) also support the positive skewness in the firm size distribution of Italian firms. Size distribution is found to vary appreciably with the firms' age but remain fairly stable over time for every age class and different industries are found to display

different paths and speeds of convergence toward the limit distribution. While size of capital employed by the companies in Nigeria determines how debt financing is engaged in their operations. The employed capital size ranges as follows from the survey conducted.

4.2.2 Gibrat's regression

Simple empirical investigations of Gibrat's law rely on estimation of equations where current firm size is defined as a function of initial firm size. Sometimes, the equation is altered slightly to present firm growth as a function of initial firm size and can be augmented by other factors related to firm growth and the researchers focus on the estimated coefficient of the initial firm size. If firm growth is independent of size, then it takes the value of zero. If it is greater than zero, then larger firms grow more rapidly leading to concentration and monopoly. If it is smaller than zero, then smaller firms grow faster than their larger counterparts.

The last result is frequently labeled as reversion to the mean size and is evident in the majority of the studies. Through the inclusion of additional variables like cash flow as a proxy for liquidity constraints to the LPE regression, researchers interpret high growth-cash flow sensitivities as an indicator of firms' excessive dependence on internal funds to finance new investment projects. Therefore, growth of these firms will be restricted by the profit generating capacity of their existing production facilities.

One of the influential studies to investigate the effect of finance constraints on overall firm growth, Carpenter and Petersen (2002) necessitate the inclusion of cash flow in a growth regression to show higher growth-cash flow sensitivities as a sign of bigger financing problems. They give similar reasoning as Fazzari et al. (1988), but prefer to examine the effect on firm growth rather than on investment in fixed assets. This is because investment in fixed assets covers only one part of the use of a firm's internal finance, failing to take into account of their alternative usage in production, cash holdings, late payments etc. Therefore, they propose to measure the growth rate by the relative change in firms' total assets which will capture not only firms' growth in physical capital, but also gross working capital. They apply standard first differenced regression along with an instrumental variable procedure using an unbalanced panel data set of 1,600 small quoted firms in the United States.

Their estimates are on three subgroups of the data defined by their use of external equity finance. The results reveal that the relationship between growth and cash flow is higher than one because of the leverage effect for firms that make no use of external equity which indicates a binding financing constraint for these firms. On the contrary, firms that have easy access to external equity face a more relaxed financial constraint which makes their growth-cash flow sensitivity much weaker. Even though Carpenter and Petersen (2002) do not incorporate the Gibrat's framework in their regressions, they use their internal finance theory to explain some stylized facts regarding the law.

Wagenvoort (2003) estimate a similar model for different size classes of firms of the EU countries adding the impact of leverage and firm size to their empirical analysis and supports the same conclusion that growth-cash flow sensitivities decrease as firms become less financially constrained. He further split the sample into quoted and unquoted companies and finds that unquoted firms face higher growth cash flow sensitivities than quoted firms and the difference is especially pronounced for small firms.

He argues that outside investors do not have proper information regarding these firms which makes them capital rationed and their growth determined by the availability of internal funding to a great extent. Hutchinson and Xavier (2006) also prefer to make quantitative comparison of the level of internal finance constraints on the growth of SMEs in the manufacturing sector between Slovenia and Belgium using the GMM-difference estimator developed by Arellano and Bond (1991) and according to their findings, the growth of Slovenian firms are more sensitive to internal finance than their Belgian counterparts.

They also find that young firms and firms with long-term debt are most constrained and micro and SME firms face great difficulties in accessing external sources of finance. Using European data as well, Coluzzi et al. (2012) choose to test an augmented version of the LPE by including size, past growth and a direct measure of financial obstacles obtained from survey data to the Carpenter and Petersen (2002) model. They estimate the determinants of financial obstacles first and then use the estimated coefficients to compute the predicted probability of facing financial obstacles for a firm.

They apply the GMM-system estimator developed by Arellano and Bover (1995), and Blundell and Bond (1998) to estimate their dynamic LPE equation and find that their proxy for financial obstacles negatively affects firm growth and the impact appears to be comparatively larger in those countries having larger shares of SMEs in the sample. They also find firms' growth responding positively to cash flow, which means that firms' growth are hampered by liquidity constraints and this is likely to be linked with the existence of financial obstacles.

Motivated by the same idea of using liquidity constraints to explain the firm size growth dynamics, Fagiolo and Luzzi (2006) show on 14,277 (surviving) Italian manufacturing firms from 1995 to 2000 that younger and smaller firms grow more, but their growth significantly suffer from the liquidity constraints. Moreover, they find that the negative impact of size on growth increases in magnitude as liquidity constraints become more severe.

They perform a standard Gibrat's type regression as well, but rely on employment growth rather than total assets growth. Oliveira and Fortunato (2006) also analyze employment growth using a large unbalanced panel data set of 7653 Portuguese manufacturing firms surviving over the period from 1990 to 2001 in their effort to explain the relationship between firm size and growth by financial constraints. Their standard Gibrat type model specification also incorporated lagged growth as an additional regressor for addressing persistence of chance or serial correlation on firm growth. Following the conventional method, they split their sample by firm size and age as it is expected that different size and age categories of firms may face different degree of financial constraints and estimate separate regression for the full, small, medium, large, young and old firms using the GMM-system estimator.

Their overall results reject Gibrat's law of proportionate effect and suggest that the growth of small and young Portuguese firms are more finance constrained compared to their large and old counterparts. In another of their papers published later, they investigate similar issues with 419 surviving services firms in Portugal during the period from 1995 to 2001. Using the same estimator, they conclude that negative size-growth and age-growth relationship exists for services too and size, age along with past growth mostly explains the growth of firms (Oliveira and Fortunato, 2008).

Angelini and Generale (2008) also apply the system GMM estimator to assess the relationship between financial constraints and employment growth using two datasets of Italian firms. They use both a direct measure of financial constraints from the survey data and interest coverage and asset tangibility as alternative balanced sheet-based proxies for financial constraints. Using all these different measures separately, they create dummy variables taking zero-one to differentiate financially constrained and unconstrained firms.

Their results suggest that financial constraints in a given year negatively and significantly affects firm growth in that year and this effect is valid for small constrained firms, but not for young constrained ones. Furthermore, more profitable firms are found to grow faster and older firms to grow slower. Rahman (2011) provides evidence that effects of various sources of financing (i.e., internal funds, bank credit facility) on firm employment growth are statistically significant and quantitatively important using 5214 private and publicly incorporated and surviving firms in the UK and Ireland during the period of 1991-2001.

He stratifies the sample into small, medium and large firms using the year 1991 employment as the initial size of the firm and estimates separate regression for these subgroups and also for the quoted and unquoted samples within each of these groups. He focuses on a firm's access to a bank credit facility as a measure of external financing constraints following Sufi (2009). His results using the GMM-difference estimator show that the incremental effect of internal financing on firm growth decreases with alleviation of the external financing constraints and as a result firms switch to external financing sources as their primary source of financing for growth and such a pattern of transition is particularly pronounced in small unquoted firms.

His results further show that higher leverage and a better governance structure has a favorable effect and firms' size and age has a negative effect on firm growth.

From a slightly different approach by using revenue growth, Huynh and Petrunia (2010) investigate the relationship between different financial factors (i.e., leverage, initial financial size) and firm growth particularly focusing on the hypothesis that age effect occurs because of financial factors using 19233 Canadian manufacturing firms during 1985 to 1997. Further, they

use an interaction of leverage with leverage quintile dummy variables to account for any non-linearity in the growth leverage relationship.

Their overall result using the GMM-system estimator reveals a positive and nonlinear relationship between leverage and firm growth where the sensitivity of growth to leverage is highest for firms in the lowest to intermediate leverage quintiles. A non-monotonic U-shaped relationship between firm growth and age and a positive relationship between current growth and firm's initial financial size is also observed.

All the above papers mention some common problems with estimating growth equations due to endogenous explanatory variables and time invariant firm specific effects and propose different ways to tackle these problems. In this chapter, we will mainly follow the spirit of Carpenter and Petersen (2002) and Oliveira and Fortunato (2006) and will potentially try to make some contribution and improvement through our model specification to give some different insights in the firm size-growth relationship.

4.3 Methodology

Starting with a simple AR (1) specification of firm size with unobserved firmspecific effects ηi and year specific effects τt respectively,

$$sizei,t = \alpha sizei,t-1 + \eta i + \tau t + \nu i,t \qquad (4.1)$$

Where, size is in natural logarithm form, $E[\eta i] = 0, E[\nu i,t] = 0, E[\eta i \nu i,t] = 0$ for i = 1,....., N firms and t = 2,.....T years.

Also, it is assumed that errors $\nu i,t$ are serially uncorrelated and that the initial conditions sizei1 are predetermined. That is, $E[\nu it \nu is] = 0$ for i=1,.....,N and s 6= t and $E[sizei1 \nu it] = 0$ for i = 1,....., N firms, t = 2,.....T years.

Subtracting sizei,t−1 from both sides,

$$sizei,t - sizei,t-1 = \alpha sizei,t-1 - sizei,t-1 + \eta i + \tau t + \nu i,t \qquad (4.2)$$

$$growthi,t = (\alpha - 1)sizei,t-1 + \eta i + \tau t + \nu i,t \qquad (4.3)$$

Equation (4.3) is equivalent to (4.1) and can be considered either as a model for level or growth. Equation (4.3) can be augmented by a set exogenous or

endogenous variables controlling for different firm characteristics, Xi,t.(4.4)

In estimating the firm growth equation, some researchers include lagged growth to check for growth persistency. However, the results are quite mixed and conflicting as positive, negative and insignificant persistency has often been reported (Caves, 1998, Coad, 2007). We do not include lagged growth due to the presence of inactive firms in our panel because it is not possible to analyze the persistence of growth for firms that leave the industry during the observation period (Santarelli et al., 2006).

Estimating such a dynamic regression model of firm growth controlling for different possible determinants on a panel of heterogeneous firms may raise several econometric problems (Roodman, 2009a, Bond et al., 2001):

- Omitted variable or time-invariant firm characteristics (fixed effects) η_i may be correlated with the explanatory variables and cause biased estimation.
- The idiosyncratic disturbances $\nu_{i,t}$ may have individual-specific patterns of heteroskedasticity.
- Due to the shorter time and larger firm dimension of the panel data, a shock to the firm's fixed effect may not dissipate with time and hence cause significant correlation of the $size_{i,t-1}$ with the error term.
- Apart from $size_{i,t-1}$, some other regressors may be endogenous and thus may be correlated with the error term in the regression.

All these problems make OLS and the within estimator biased and inconsistent. As $size_{i,t-1}$ is endogenous to the fixed effects, OLS gives rise to "dynamic panel bias" (Nickell, 1981). The within group estimator removes the fixed effect, but may still suffer from dynamic panel bias (Roodman, 2009a). Baltagi (2005) emphasizes that only if $T \rightarrow \infty$, the within estimator can be consistent.

But the bias can be as much as 20% of the true coefficient of interest even for T=30.

Another way to tackle these problems is to use first differenced GMM estimator (Arellano and Bond, 1991), which is basically taking the first differences of the equation to remove the time invariant effects and instrument the endogenous explanatory variables using levels of the series lagged two periods or more, under the assumption that the time-varying disturbances in the original level's equation are serially uncorrelated.

But that is also suspected to suffer from serious finite sample biases when the time series from short panels are even moderately persistent making the available instruments weak (Blundell and Bond, 1998, 2000, Bond et al., 2001, Bond, 2002). The presence of serious finite sample biases can be detected by comparing the first-differenced GMM results to alternative estimates of the autoregressive parameter α in equation 4.1 or equivalently (α −1) in equation 4.3. It is well established in the literature that in the AR(1) specification like equation 4.3, OLS gives an estimated co-efficient of (α−1) which is biased upwards in the presence of individual specific effects.

FE gives the estimated co-efficient of (α −1) which can be seriously biased downward. This suggests that a consistent estimate of (α −1) should lie in between the OLS levels and within groups estimates. If the estimated coefficient of (α −1) by difference GMM is close to FE estimates or lower than that, then that is also suspected to be biased downwards due to weak instruments. This is expected to happen when there is persistency in the series, or $\alpha \rightarrow 1$, and when the variance of the individual effects ηi increases relative to that of the νi,t.

In such a case, more reasonable and preferred results are shown to be achieved by using a system GMM estimator which exploits an assumption about the initial conditions to obtain additional moment conditions that remain informative even for highly persistent series. In system GMM, a system of equations in both first differences and levels are estimated, where the instruments used in the levels equation are lagged first differences and instruments used in the first differenced equation are lagged levels of the series.

Although the levels of the dependent variable are correlated with the individual specific effect, the first differenced dependent variable is not which permits lagged first-differences to be used as instruments in the level equations. Blundell and Bond (1998) gives evidence from Monte Carlo simulations which shows that there can be dramatic reductions in finite sample bias and gains in precision from exploiting these additional moment conditions in system GMM estimators as compared with the first-differenced estimators.

A common conclusion about GMM estimators should be noted here that GMM estimators using the full set of moments available can be severely biased, especially when the instruments are

weak and the number of moment conditions is large compared with N and that should be dealt with caution in estimating different model specifications. To avoid instrument proliferation, a mixture of restricting the lag structure and collapsing of the instruments can be applied as suggested by Roodman (2009b).

The usual and reasonable test for two-step system GMM is the Hansen (1982) J-test because the older Sargan (1958) is not valid under heteroskedasticity. The Hansen J-statistics basically tests for the joint validity of the instruments used and the structural specification of the model. This statistic is asymptotically distributed as $\chi 2$ with degrees of freedom equal to the number of overidentifying restrictions (i.e., the number of instruments less the number of estimated parameters).

Under the null hypothesis, the instruments are orthogonal to the errors. In addition, no second order serial correlation (AR(2)) in the first difference of the disturbance term should be observed (Arellano and Bond, 1991) which checks the key identifying assumption that the level of the disturbances term are serially uncorrelated needed for some lagged instruments (i.e., sizei,t−2 and further lags) to be valid and GMM estimates to be consistent. Under the null hypothesis of no second-order serial correlation in the differenced residuals, the test asymptotically follows a standard normal distribution. The two-step robust system GMM estimator uses corrected standard errors

(Windmeijer, 2005) and makes the estimations more efficient and robust to any patterns of heteroskedasticity and autocorrelation within individuals (Roodman, 2009a). Another concern may be the maximum T of 29 in our unbalanced panel data because the GMM estimators are mainly developed for panel data with small T and large N where the asymptotic statistical theory works by letting $N \rightarrow \infty$ and T fixed. The panel where T is also allowed to increase to infinity raises two sets of caveats according to the recent literature.

One of them rejects the homogeneity of the regression parameters implicit in the use of a pooled regression model in favor of heterogeneous regressions and this relies on T being large enough to estimate separate regression for each group. However, such heterogeneity in the parameters is particularly crucial in country, region or industry level analysis where T may not be too small as

compared with N and there are fairly long time-series available for a large number of groups. Even though the maximum T is 29 in our panel, the number of firms survived for that long period is only few making the average T of our unbalanced panel to 9.6 only.

And it has been shown that, the fixed T results for GMM remain valid when $T/N \rightarrow 0$ (Alvarez and Arellano, 2003). Another concern of having large T is non-stationarity, spurious regression and co-integration. The null hypothesis of unit root in all panels are tested by the Fisher unit root test for unbalanced panels for all the series we use in the model (results are reported in section 4.5).

4.4 Model specification

In the first stage, we estimate the following baseline dynamic regression model of firm growth.

$$Growth_{it} = \beta_1 Size_{i,t-1} + \beta_2 Size2_{i,t-1} + \beta_3 Age_{i,t} + \beta_4 Age2_{i,t} + \beta_5 Cashflow_{i,t} + \beta_6 Tobin0s\ Q_{i,t} + \eta_i + \tau_t + \nu_{i,t} \quad (4.5)$$

The above model is then extended further as below to check the differential effects of cash flow on growth across firm years facing different degrees of financial constraints:

where, dkit stands for two, three or five category financial constraints dummy variables as explained below.

4.4.1 Variables in the growth equation

Firm size and growth: In this chapter we use total assets as a proxy for firm size and growth in total assets as a proxy for overall firm growth in line with our model specification and also to make the quantitative predictions about the relationship between growth and internal finance as suggested by Carpenter and Petersen (2002).

Firm size is calculated as natural logarithm of total assets and growth of firms is calculated as the difference in natural logarithm of total assets between two consecutive periods. Square terms of firm size are also included to check for the possible nonlinearity in the size-growth relationship following Audretsch and Elston (2006). However, as we have used sales as a proxy for firm size in chapter two and three, we will check the robustness of our results using sales as a proxy for firm size and growth in sales as a proxy for firm growth in the model.

Rahman (2011) also use the logarithm of total assets and sales revenues interchangeably to control for size in his regression analysis, but only reports the regression results for the logarithm of total assets. Also, it could be mentioned here that there is no single best way to measure firm size and growth and the choice of the appropriate way of measuring firm growth depends on the research questions (Coad and Ho¨lzl, 2010, Davidsson and Wiklund, 2006).

Age: A negative age growth relation is revealed in a number of empirical studies which conclude that young firms grow more rapidly. Similar to previous two chapters, natural logarithm of the number of years a firm appears in the chosen database is used as a proxy for firm age following Almeida and Campello (2007).

It is a known fact that equity-controlled organizations tend to invest sub-optimally to expropriate wealth from the organization's bondholders; therefore, the cost associated with the type of agency relationship is likely to be higher for organizations in growing industries in which there is more flexibility in the choice of future investments. Therefore, future growth could thus be negatively related to long-term debt levels. However, Myers (1984) noted that agency problem is mitigated when organization issues short-term as against long-term debt. Short-term debt ratios may be positively related to growth rates when an organization in growing industry substitutes short-term funding for a long-term one.

Smith and Warner (1979), Jensen and Meckling (1976), and Green (1984) believed that the agency costs would be reduced if organizations issue convertible debt that could translate to a positive relationship with growth opportunities. It should also be noted that growth opportunities are capital assets that add value to an organization but cannot be collateralized and do not generate current taxable income as cited in Titman and Wessels (1988).

As noted by Titman and Wessels (1988), the “indicators of growth include capital expenditures over total assets (CE/TA). Also, the growth of total assets measured by the percentage change in total assets (GTA). Since organizations generally engage in research and development to generate future investments, research and development over sales (RD/S) also serve as an indicator of the growth attribute.”

Cash flow: Cash flow is used as a standard proxy for firms' internal liquidity and its inclusion will serve a twofold purpose. On one hand, this will potentially capture the impact of liquidity constraints on a firm's growth. It is expected that the estimated coefficient on cash flow will be positive, which means firms with less liquidity problems will grow faster. On the other hand, this will also allow the actual relationship between firm size and growth to be determined keeping liquidity constraints constant. Keeping similarity with chapter three, we define cash flow as ratio of funds from operation to total assets following D'Espallier et al. (2008) and Carpenter and Petersen (2002).

Tobin's Q: Following the standard practice in the literature, Tobin's Q is included to control for a firm's investment opportunities. This controls for the fact that firms with good investment opportunities are likely to grow more rapidly than firms with comparatively limited investment opportunities. Controlling for investment opportunities also make sure that the growth-cash flow sensitivity can indicate the presence of financial market frictions only. Similar to that in previous chapters, it is calculated as the ratio of market value of assets to the book value of assets. Market value is estimated as book value of total assets minus book value of equity plus market capitalization and book value of total asset is simply value of total assets.

As mentioned earlier during this research, liquidity is another factor that affects the capital structure choice of companies. Anderson et al (2002) found a positive relationship between capital structure and liquidity in their study of organizations in the developed nations. Krenusz (2004) in the survey of US companies found a negative correlation. Likewise, the survey that was done by Ozkan (2000) and Antoniou et al (2002) for the developed nations of France, UK, and Germany, showed the insignificant relationship between liquidity and leverage. Bhole and Mahakud (2004) in their research of Indian organizations found a negative correlation between liquidity and capital structure choice.

Financial constraint dummy: We will allow firms to transit between different financial constraint categories as it is discussed in chapter three that financially constrained firms can become financially unconstrained and vice versa. For this reason, we will conduct the empirical analysis based on firm-years rather than firms. Bond and Meghir (1994), Guariglia and Schiantarelli

(1998), Carpenter and Guariglia (2008) and Guariglia (2008) adopt a similar approach in their studies. Therefore, the two-category time varying dummy variables dkit using the predicted likelihood of facing financially unconstrained status are constructed in the following way:

1. Cd21*it* is equal to 1 if firm i has a likelihood of facing financially unconstrained status in year t, which falls below the 50th percentile of the distribution of the corresponding likelihood of facing financially unconstrained status of all firm years, and equal to 0 otherwise.
2. Cd22*it* is equal to 1 if firm i has a likelihood of facing financially unconstrained status in year t, which falls above the 50th percentile of the distribution of the corresponding likelihood of facing financially unconstrained status of all firm years, and equal to 0 otherwise.

Here, it should be made clear that interacting cash flow with these two dummies in a single regression will not create any multicollinearity problem because Cd21it + Cd22it will always be equal to 1. Cd21it will pick the cash flows of the likely financially constrained firm years and Cd22it will pick the cash flows of the likely financially unconstrained firm years and therefore, cash flow for a particular firm year will appear only once in the regression.

The three category variables Cd31it, Cd32it and Cd33it are constructed in similar way by putting firm i with likelihood of facing financially unconstrained status in year t falling below the 25th percentile in first category, between 25th and 75th percentile in second category and above 75th percentile in the third category. And, finally the five category variables Cd51it, Cd52it, Cd53it, Cd54it,Cd55it are constructed by putting firm i with likelihood of facing financially unconstrained status in year t falling below the 20th percentile in first category, between 20th and 40th percentile in second category, between 40th and 60th percentile in third category, between 60th and 80th percentile in fourth category and above 80th percentile in the fifth category. Similarly, two, three or five category dummy variables Edit are created using the predicted corporate efficiency index from chapter two.

4.5 Data and descriptive statistics

We use the same data as in earlier chapters, collected from the World scope Global Database. We have an unbalanced panel of 1122 firms from thirty-three different sectors from 1981 to 2009 with a minimum of three to a maximum of twenty-nine consecutive years of observations and a total of 13183 firm-years. These thirty-three sectors are differentiated according to FTSE/Dow Jones Industrial Classification Benchmark (ICB) codes. All financial variables are deflated with GDP deflator and all regression variables are insured at the 1% and 99% level to get rid of the extreme outliers. Table 4.1 reports means and distributional information for all the regression variables used in this chapter.

Table 4.1: Descriptive Analysis

This table gives mean and distributional information for all the regression variables for which data is collected from the World scope Global Database for 1122 UK firms listed on the London Stock Exchange over the period 1981 to 2009. All financial variables are deflated with GDP deflator and all regression variables are winsored at the 1% and 99% level to get rid of the extreme outliers. Natural logarithm of total assets and natural logarithm of the number of years a firm appears in the database are used as proxies for firm size and firm age respectively. Growth of firms is calculated as the difference in natural logarithm of total assets between two consecutive periods. Cash flow is calculated as ratio of funds from operation to total assets. Tobin's Q is calculated as the ratio of market value of assets to the book value of assets. Market value is estimated as book value of total

assets minus book value of equity plus market capitalization and book value of total asset is simply value of total assets.

	Mean	SD	Min	Q1	Median	Q3	Max
Size	11.35	2.280	6.722	9.681	11.14	12.82	17.07
Growth	.0761	.3759	-3.901	-.0648	.0388	.1707	3.967
Age	2.114	0.862	0	1.609	2.303	2.833	3.367
Cash flow	.0388	.2001	-1.015	.0198	.0836	.1345	.3385

Tobin Q	2.033	1.864	.5193	1.072	1.464	2.178	12.69

Here firm size is in natural logarithm of total assets, mean of which is 11.35. Figure 4.1 shows the pooled distribution of the logarithm of total assets of the sample firms with the superimposing normal distribution and as expected, the log transformation minimizes the positive skewness in the distribution of the level series (skewness of the level series is 13.48). Even after that, the firm size district Figure

4.1: Firm size distributions

(a) (b)

Figure (a) shows the pooled distributions of the logarithm of total assets of the sample firms. The

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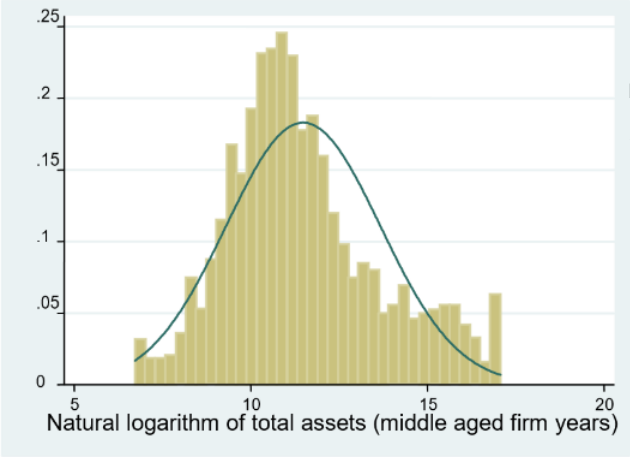
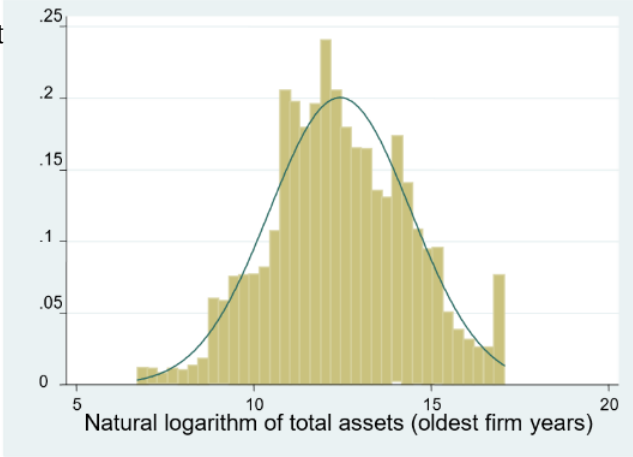
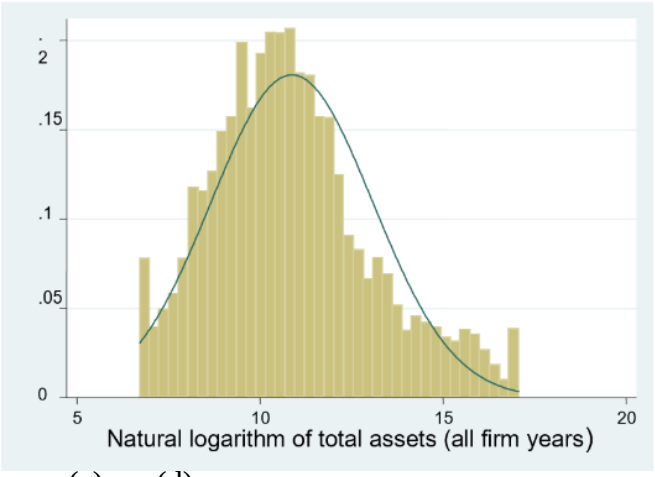
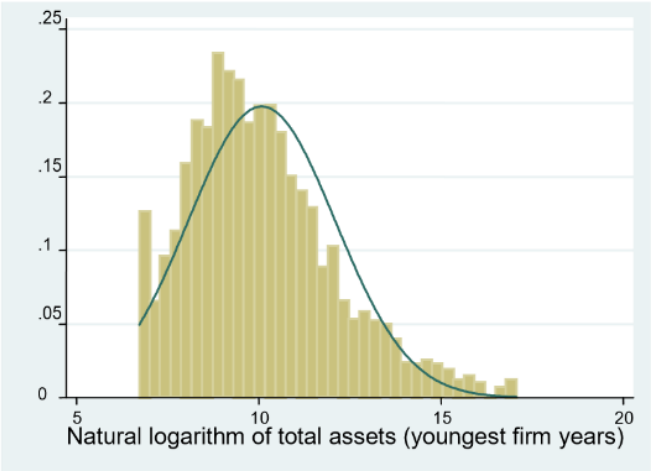








(c) (d)

Kolmogorov-Smirnov tests for equality of distributions:

(b) = (c): p-value 0.000

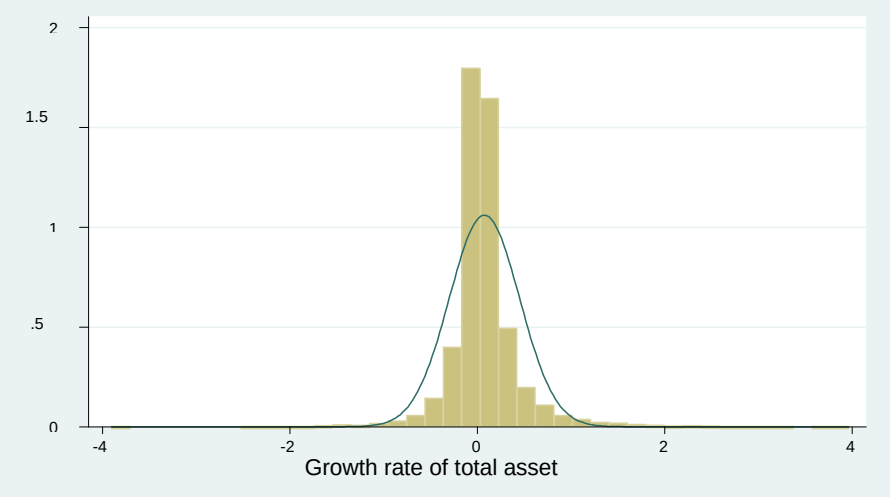
(c) = (d): p-value 0.000

bution remains positively skewed and the skewness is highest for younger firms and decreasing thereafter with firm age and this confirms the stylized fact that firm size tends to increase with age. The null hypothesis of equality of the FSDs is strongly rejected for any two contiguous age classes using the KolmogorovSmirnov tests following Angelini and Generale (2008). The test results are reported in the figure.

Figure 4.2 shows distribution of pooled growth rate which is tent-shaped with tails fatter than those of a normal one. Most firms in the sample have a growth rate close to zero, while a small number of firms experience accelerated growth and decline. Coad and Ho¨lzl (2010) confirm that such distribution of growth rates is a robust feature of firm growth process as it has been found in datasets from a number of countries, industries and years.

Figure 4.2: Firm growth distribution

This figure shows distribution of pooled growth rate which is tent-shaped with tails fatter than those of a normal one.



Null hypothesis of all panels contains unit roots against an alternative hypothesis that at least one panel is stationary for any series is tested using the Fisher-type test which does not require strongly balanced data and allows gaps within the individual series. The Fisher-type panel-data

unit-root tests are based on the Augmented Dickey-Fuller (ADF) regressions which fits a model of the following form.

$$\Delta y_t = \alpha + \beta y_{t-1} + \zeta_1 \Delta y_{t-1} + \zeta_2 \Delta y_{t-2} + - - - + \zeta_k \Delta y_{t-k} + \epsilon_t \quad (4.7)$$

Testing $\beta = 0$ is equivalent to testing that yt series follows a unit root process. The Fisher test first conducts unit-root tests individually for each panel included in the dataset, and then combines the p-values from these tests to produce an overall test. Z and L* statistics combine p-values using inverse normal and inverse logit transformations respectively. The p-values for these statistics strongly reject the null hypothesis for all the series we are using in this chapter (table 4.2). For the results reported in the table, we have allowed for drift and used k=1. However, the null hypothesis is rejected as well when we use lags 2 and 3.

Table 4.2: Fisher-type panel-data unit-root test

This table reports Fisher-type panel-data unit-root tests for the variables to be used. Z and L* statistics combine p-values using inverse normal and inverse logit transformations, respectively. The p-values for these statistics test the null hypothesis that all panels contain unit roots against an alternative hypothesis that at least one panel is stationary for the underlying series.

	Z	**p-value**	**L***	**p-value**
Size	-29.96	0.000	-31.01	0.000
Growth	-53.04	0.000	-59.54	0.000
Age	-146.75	0.000	-286.63	0.000
Cash flow	-44.95	0.000	-48.19	0.000
Tobin Q	-47.85	0.000	-52.20	0.000

4.6 Empirical results

4.6.1 Presence of finite sample bias

The results of the simple AR(1) specification for the growth equation (equation 4.3) is presented in table 4.3. The four columns of the table report the results using OLS, within groups, difference-GMM and system-GMM estimators respectively. The results indicate that finite sample biases are present in this case. In particular, the estimated coefficient ($\alpha - 1 = -0.368$) of initial firm size in the first-differenced GMM results is lower than that in the within group estimates (-0.195) and hence is expected to be seriously biased downwards. The two-step robust system GMM performs better in estimating the dynamic equation by keeping the estimated coefficient (-0.034) in between the OLS and within group estimates. Equation 4.1 and 4.3 are equivalent and so are their estimated results. The results for the level equation (equation 4.1) are presented in table C.1 of appendix C (p. 168).

Table 4.3.a reports p-values for the AR (2) and Hansen J statistics, number of instruments used, number of firms and firm years involved in the estimations. In both the difference and system-GMM estimations, only limited numbers of instruments are used. Out of the 31 and 32 instruments, there are two to four years lagged firm size for the differenced equation in both the estimators and one year lagged first differenced firm size for the level equation in the system GMM estimator and the rests are year dummies used as standard instruments. In both the cases, instruments are collapsed which creates one instrument for each variable and lag distance, rather than one for each period as well. These instruments are found to be jointly valid by the p-value of the estimated Hansen-J statistics.

The Arellano-Bond AR (2) tests also do not provide any evidence for the presence of second-order serial correlation in first difference of the residuals which indicate that the instruments that we use in our estimations are appropriate. In estimating this particular model specification and all the others to follow, similar types instruments for similar model specifications are always used, so that the results are not driven by the choice of instruments.

Table 4.3: AR (1) specification with growth as dependent variable.

This table shows the estimated results of equation 4.3 using OLS, FE, Difference and System GMM. OLS estimates include a full set of sector and year dummies as regressors, FE estimates

include a full set of year dummies as regressors, GMM estimates include a full set of year dummies both as regressors and instruments. In addition to these, difference GMM estimates include L(2/4). size collapsed and system GMM estimates include L (2/4). size collapsed and DL (1/1). size collapsed as instruments for the difference and level equations respectively. Standard errors in parentheses; ***, ** and * indicate significance at the 1%, 5% and 10%, level respectively.

	OLS	**FE**	**Diff-GMM**	**Sys-GMM**
L.size	-0.019***	-0.195***	-0.368***	-0.034***
	(0.002)	(0.011)	(0.059)	(0.008)
Constant	0.393***	2.227***		0.337***
	(0.041)	(0.115)		(0.087)

Table 4.3.a: Diagnostics

The figures reported for the AR(2) and Hansen J tests are the p-values for their respective null hypotheses. AR(2) accepts the null hypothesis of no second-order serial correlation in the differenced residuals and Hansen J test accepts the null hypothesis that all instruments are jointly valid which implies that the instruments satisfy the required orthogonality conditions, i.e., their moments with the error term are zero.

	OLS	**FE**	**Diff-GMM**	**Sys-GMM**
AR(2) p-value	0.185	0.102		
Hansen p-value			0.209	0.294
No of instruments			31	32
No of firms		1122	1122	1122
No of observations	11995	11995	10807	11995

Table 4.4 shows the results of the full augmented baseline model (4.5) using different estimators, OLS, FE, difference and system GMM in its four columns which indicate the presence of finite sample biases in this case as well. The estimated coefficient of lagged firm size is biased in opposite direction in OLS and FE and the coefficient lies in between the two in the system-GMM. Table 4.4.a shows the relevant diagnostic tests. The strength of the p-value of the Hansen J statistics also hints that the additional first differenced instruments used in system-GMM estimation make the results more appropriate and consistent. Therefore, only two-step robust system GMM is used for estimating all model specifications later.

Table 4.4: Baseline equation using different estimators.

This table shows the estimated results of equation 4.5 using OLS, FE, Difference and System GMM. OLS estimates include a full set of sector and year dummies as regressors, FE estimates include a full set of year dummies as regressors, GMM estimates include a full set of year dummies both as regressors and instruments. In addition to these, difference GMM estimates include lagged levels of size, age, cash flow and Tobin's Q as instruments for the first differenced equation and system GMM estimates include lagged levels and lagged first differences of size, age, cash flow and Tobin's Q as instruments for the differenced and the level equations respectively. Standard errors in parentheses; ***, ** and * indicate significance at the 1%, 5% and 10%, level respectively.

	OLS	**FE**	**Diff-GMM**	**Sys-GMM**
L.size	-0.236***	-0.681***	-0.528***	-0.341***
	(0.020)	(0.055)	(0.189)	(0.081)
L.size*2*	0.009***	0.021***	0.010	0.013***
	(0.001)	(0.002)	(0.012)	(0.003)
Age	-0.157***	-0.255***	-0.226	-0.218***
	(0.027)	(0.071)	(0.194)	(0.060)
Age*2*	0.024***	0.094***	0.147	0.039***

	(0.005)	(0.026)	(0.097)	(0.011)
Cash flow	0.796***	0.964***	0.736***	1.193***
	(0.029)	(0.044)	(0.269)	(0.116)
Tobin Q	0.006*	-0.024***	0.070**	0.118***
	(0.003)	(0.005)	(0.033)	(0.023)
Constant	1.913***	5.178***		2.130***
	(0.133)	(0.347)		(0.491)

Table 4.4.a: Diagnostics

The figures reported for the AR(2) and Hansen J tests are the p-values for their respective null hypotheses. AR(2) accepts the null hypothesis of no second-order serial correlation in the differenced residuals and Hansen J test accepts the null hypothesis that all instruments are jointly valid which implies that the instruments satisfy the required orthogonality conditions, i.e., their moments with the error term are zero.

	OLS	**FE**	**Diff-GMM**	**Sys-GMM**
AR(2) p-value			0.637	0.793
Hansen p-value			0.385	0.514
No of instruments			77	83
No of firms		1122	1122	1122
No of observations	11995	11995	10807	11995

4.6.2 Dynamics of size-growth relationship

Table 4.5 presents the twostep system GMM results of the baseline model (equation 4.5), where the explanatory variables are added sequentially in the four models according to the key propositions. In these estimations, firm size, cash flow and Tobin's Q are considered as endogenous and firm age is considered as pre-determined as described by the contemporary

studies. All these variables are included as instruments, but distinctly for the level and difference equation (Oliveira and Fortunato, 2006, Angelini and Generale, 2008, Roodman, 2009a).

- M1. Law of proportionate effect which examines whether the growth rate of any firm is independent of its size.
- M2. Adding cash flow to differentiate between the financial-related and sheer size effect on firm growth.
- M3. Adding firm age to see whether younger firms are growing faster than their older counterpart.
- M4. Adding Tobin's Q to control for investment opportunity so that the growth cash flow sensitivity can be seen as an indicator of the presence of financial constraints only.

Model 1 of table 4.5 shows that there are negative and significant side effects on growth present in the data. Therefore, small firms are inclined to grow faster than large firms. However, a positive and significant non-linear size effect is also found. Overall, the resulting size effect implies rejection of the Gibrat's law of proportionate effect, but the departure from the law subsides as the firm's size increases. This growth size relationship remains consistent in rest of the models. Besides testing the proportionate growth of a firm is independent of its size, there are studies which investigate the LPE by testing whether the variability of growth is independent of size according to the second testable proposition of Tschoegl (1983).

To examine the independence of growth variability of size for Table 4.5: Twostep robust system GMM results for the baseline equation. This table shows the estimated results of equation 4.5 using twostep robust system GMM, where the explanatory variables are added sequentially according to the key propositions. In addition to the full set of year dummies both as regressors and standard instruments, the estimates include lagged levels and lagged first differences of size, age, cash flow and Tobin's Q as instruments for the difference and level equations respectively. Standard errors in parentheses; ***, ** and * indicate significance at the 1%, 5% and 10%, level respectively.

	M1	M2	M3	M4
L.size	-0.534***	-0.467***	-0.371***	-0.341***
	(0.137)	(0.094)	(0.063)	(0.081)
L.size*2*	0.022***	0.018***	0.014***	0.013***
	(0.006)	(0.004)	(0.002)	(0.003)
Cash flow		1.045***	1.178***	1.193***
		(0.098)	(0.106)	(0.116)
Age			-0.269***	-0.218***
			(0.048)	(0.060)
Age*2*			0.046***	0.039***
			(0.009)	(0.011)
Tobin Q				0.118***
				(0.023)
Constant	3.075***	2.898***	2.591***	2.130***
	(0.760)	(0.550)	(0.367)	(0.491)

Table 4.5.a: Diagnostics

The figures reported for the AR(2) and Hansen J tests are the p-values for their respective null hypotheses. AR(2) accepts the null hypothesis of no second-order serial correlation in the differenced residuals and Hansen J test accepts the null hypothesis that all instruments are jointly valid which implies that the instruments satisfy the required orthogonality conditions, i.e., their moments with the error term are zero.

	M1	M2	M3	M4
AR(2) p-value	0.106	0.203	0.188	0.793
Hansen p-value	0.331	0.319	0.324	.514
No of instruments	36	72	80	83
No of firms	1122	1122	1122	1122
No of observations	11995	11995	11995	11995

the firms in the panel, we estimate the following regression.

$$\sigma_{Growth_i} = \alpha_k + \alpha_2 \overline{Size_i} + \epsilon_i \quad (4.8)$$

where, σGrowthi represents the standard deviation of growth for firm i over t,

Sizei represents the average size for firm i over t, αk represents sector-level dummy variables and i is a random disturbance term. For the full sample, the estimated size coefficient (α2) is -0.0321, with a heteroskedasticity-consistent standard error of 0.0009. This rejects the independence of the variance of growth of firm size.

The comparison of model 1 and model 2 reveals that impact of only firm size on growth in model 1 may in fact give a composite effect of "financial related" and "other" size effects as warned by Audretsch and Elston (2006). Model 2 exhibits similar size effects on growth even when liquidity constraints is controlled for, but as expected the magnitude of the size effect is reduced. Overall, liquidity constraints generate a negative, statistically significant effect on growth or in other words, firms with liquidity problems suffer from lower growth rates after separating out the size effect.

Model 3 of table 4.5 further suggests that younger firms experience higher growth rates after controlling for firm size and liquidity constraint.

So, the negative age growth relation as predicted by Jovanovic (1982) is also present in our data. Overall, the relationship between firm growth and age is found nonmonotonic U-shaped as described by number of earlier studies (Evans, 1987a, b, Huynh and Petrunia, 2010). Finally, we

added Tobin's Q in model 4 to control for investment opportunity so that the observed growth cash flow sensitivity does not reflect that and can only indicate the presence of capital market imperfection following the similar practice we followed in chapter three. Even after including Tobin's Q, the growth cash flow sensitivity remains positive and significant advocating for the perceived effect of liquidity constraints on firm growth.

All the above findings are in line with those obtained by Carpenter and Petersen (2002), Audretsch and Elston (2006), Oliveira and Fortunato (2006) or Fagiolo and Luzzi (2006), which show that smaller and younger firms experience higher growth rates, but their growth are hampered by liquidity constraints. The non-monotonic firm growth relationships with size and age are also prominent in studies which prefer to test such non-linearity.

4.6.3 Differential effects of internal finance on firm growth

The main proposition to be tested in this chapter is that the stronger the financial constraints, the larger the value of the observed growth-cash flow sensitivity. The same rational is applied here as in the empirical investment models that liquidity problems are exacerbated in the presence of capital market imperfections. As already discussed in chapter three, asymmetric information between borrowers and lenders of funds raises the cost of external finance and creates credit rationing and constrained access to credit. This influences real firm decisions such as investment in capital and as a consequence, firm growth as well.

Firms with limited access to external capital markets will be highly reliant on the internal funds to finance their growth and their growth is thus likely to be severely affected by liquidity constraint problems. These firms can overcome such constraints by developing their credit status and with an increase in the firm's access to external financing, the effect of internal financing on firm growth should decrease.

In light of the Carpenter and Petersen (2002) model and the leverage effect, the range of values that the growth-cashflow sensitivity can exhibit from equation 4.6 can be explained by

$$0 < \frac{dGrowth}{dCash\ flow} \leq 1 + \lambda \qquad (4.9)$$

where, λ is the raised collateral value of the firm by each additional unit of internally financed investment enabling constrained firms to take on more debt to finance growth and results in a more than one-to-one growth cash flow relationship. The value of λ or the magnified effect will be highest for firms facing the most binding financial constraints. On the other end, there are firms with most easy access to external finance. Even though such firms can in principle finance new investment projects or new assets completely by issuing new debt or equity, they still favor utilizing retained earnings over external funding for doing so. Therefore, their growth-cashflow sensitivity is expected to be small, but still greater than zero.

Table 4.6 shows the results of equation 4.6, where the predicted likelihood of facing unconstrained status is used to separate firm year observations into different categories and 4.6.a gives results of the corresponding diagnostics and other hypothesis tests. The estimates include only restricted lag levels and lag differences of size, age, cash flow interaction with different dummies and Tobin's Q as instruments for the difference and level equations respectively which are found to be jointly valid. In model 1, 2 and 3 cash flow are interacted with two category, three category and five category dummies respectively and in all the models, financial constraints are likely to be most binding for firm year observations in the lowest category according to the construction of the dummy categories' variables.

The general results of the baseline equation 4.5 are found to be effectual in all the three models in table 4.6, i.e, the non-monotonic U-shaped relationship of firm growth with both firm size and age along with the negative impact of liquidity constraint on growth. Moreover, these three models bring out the heterogeneous responses of growth to cash flow among firm year observations in different parts of the predicted likelihood of facing unconstrained financial status distribution.

In Model 1, the estimated coefficient of cash flow for the most constrained group of firm year observations (those falling below the 50th percentile of the distribution of the predicted likelihood of facing unconstrained financial status) is positive and significant. The estimated growth-cashflow sensitivity implies that one unit increase of cash flow generates 1.53-unit growth in total assets. Therefore, according to equation 4.9, $\lambda = 0.53$, which is the raised collateral value for firm year observations in this group enabling them to get more leverage and

have a multiplier effect on their growth by each additional unit cash flow (Carpenter and Petersen, 2002). The multiplier effect is more than 150% of the additional Table 4.6: Differential effects using likelihood of facing financially unconstrained status.

This table shows the differential effect of cash flow on growth across financially constrained and unconstrained firm years (separated with likelihood of facing financially unconstrained status with the lowest category as likely to be most financially constrained). Model 1 is estimated with two category dummies (50-50), Model 2 is estimated with three category dummies (0-25, 25-75, 75-100), Model 3 is estimated with five category dummies (0-20, 20-40, 40-60, 60-80, 80-100).

Here, Cd stands for the dummies created by likelihood of facing unconstrained status. In addition to the full set of year dummies both as regressors and standard instruments, the estimates include lagged levels and lagged first differences of size, age, cash flow interaction with different dummies and Tobin's Q as instruments for the difference and level equations respectively. Standard errors in parentheses; ***, ** and * indicate significance at the 1%, 5% and 10%, level respectively.

	M1	**M2**	**M3**
L.size	-0.323***	-0.304**	-0.321**
	(0.112)	(0.127)	(0.127)
L.size2	0.013***	0.012**	0.013**
	(0.005)	(0.005)	(0.005)
Age	-0.296***	-0.220***	-0.279***
	(0.061)	(0.058)	(0.061)
Age2	0.054***	0.043***	0.051***
	(0.011)	(0.010)	(0.011)
Chf*Cd21 (<50thp)			1.530***

			(0.135)
Chf*Cd22 (>50thp)			0.525***
			(0.158)
Chf*Cd31 (<25thp)			1.764***
			(0.180)
Chf*Cd32 (25thp −75thp)			0.810***
			(0.152)
Chf*Cd33 (>75thp)			0.442**
			(0.209)
Chf*Cd51 (<20thp)			1.810***
			(0.202)
Chf*Cd52 (20thp −40thp)			1.334***
			(0.165)
Chf*Cd53 (40thp −60thp)			0.879***
			(0.311)
Chf*Cd54 (60thp −80thp)			0.408*
			(0.230)
Chf*Cd55 (>80thp)			0.256
			(0.395)
Tobin Q	0.105***	0.117***	0.107***
	(0.023)	(0.023)	(0.024)

Constant	2.142***	1.955***	2.127***
	(0.668)	(0.744)	(0.755)

Table 4.6.a: Diagnostics

The figures reported for the AR(2) and Hansen J tests are the p-values for their respective null hypotheses. AR(2) accepts the null hypothesis of no second-order serial correlation in the differenced residuals and Hansen J test accepts the null hypothesis that all instruments are jointly valid which implies that the instruments satisfy the required orthogonality conditions, i.e., their moments with the error term are zero.

	M1	**M2**	**M3**
AR(2) p-value	0.811	0.969	0.970
Hansen p-value	0.366	0.410	0.685
No of instruments	86	89	95
No of firms	1122	1122	1122
No of observations	11995	11995	11995

Wald tests to check hypotheses that the impact of cash flow on firm growth is same across firm years with two different financial constraint statuses.

	M1	**M2**	**M3**
Hypothesis	p-valuep-	value	p-value
Chf*Cd21=Chf*Cd22	0.0000		
Chf*Cd31=Chf*Cd32		0.0000	
Chf*Cd32=Chf*Cd33		0.0427	
Chf*Cd51=Chf*Cd52			0.0500

Chf*Cd52=Chf*Cd53	0.0741
Chf*Cd53=Chf*Cd54	0.0668
Chf*Cd54=Chf*Cd55	0.6049

Calculation of the effect of one standard deviation change in cash flow on firm growth under different financial constraint status.

	M1	**M2**	**M3**
Cd21	0.385		
Cd22	0.051		
Cd31		0.520	
Cd32		0.113	
Cd33		0.039	
Cd51			0.549
Cd52			0.264
Cd53			0.102
Cd54			0.041
Cd55			0.022

unit of cash flow generated for this group. In a different note, this estimate means that an increase in cash flow by one standard deviation from the group mean raises the growth rate by 0.385 for this group (table 4.6.a). As expected, the second group in model 1 shows lower than one but positive (0.525) growth cash flow sensitivity and one standard deviation increase in cash flow for this category have a much lower impact (0.051) on growth rate.

This lower cash flow effect is consistent with the fact that the firm year observations in this group have easy access to external financing which is reducing their dependence on cash flow for financing their growth. The p-value of the Wald test also reported in table 4.6.a rejects the null hypothesis that the impact of cash flow on firm growth is same across firm years between

these two different financial constraint statuses as the estimated coefficients 1.530 and 0.525 are found statistically different.

In model 2, the estimated growth cash flow sensitivity of firm year observations under the 25th percentile of the distribution of the predicted index is 1.764 and gradually decreasing thereafter to 0.810 and 0.442 for firm year observations in the middle 50 percent and above the 75th percentile respectively. The effect of one standard deviation increase in cash flow on growth rate also monotonically decreases and the null hypotheses of equivalent cash flow effect on growth between any of the two categories are rejected.

In the most disaggregated model 3 where firm year observations are divided into five financial constraint categories, more heterogeneity in the growth cash flow sensitivity is revealed. However, the resulting pattern of the relationship are consistent with the first two models. As firm year observations moving from most to least financially constrained categories, the effect of internal financing on firm growth decreases monotonically with the estimated cash flow coefficient ranging from highest 1.810 to the lowest 0.256.

In all these models, the results consistently indicate a substantially greater sensitivity of growth to cash flow for firm years belonging to the most constrained categories which are most likely to face severe asymmetric information related problems leading to binding financial constraints on their growth. Furthermore, these firms can actually expand their size more than the extent of increase in cash flow they may have supported the leverage effect hypothesis. The estimated impact decreases monotonically thereafter as their financial constraints become less binding. The estimated differentials between different classes are mostly statistically significant. These results are consistent with the cost differential between internal and external finance described earlier.

Table 4.7 represents the estimated results of equation 4.6, where the only difference is the index used to separate firm year observations into different financial constraint categories. Instead of the likelihood of facing unconstrained financial status, the predicted corporate efficiency index from chapter two is used here to construct the dummy category variables, but in similar fashion. That means firm year observations in the lowest category have least corporate efficiency and hence, are likely to face most binding financing constraints.

As it has been found in chapter three that corporate efficiency positively affects a firm's probability of facing unconstrained financial status, classification using this index can also successfully expose the heterogeneous impact of liquidity constraints on firm growth. Similarity between the three model specifications in table 4.7 with the corresponding ones in table 4.6 are strictly maintained in all other aspects including the sets of instruments and their lag structure.

The estimated growth cash flow sensitivity of the most financially constrained group of firm year observations in model 1, 2 and 3 are all greater than one which demonstrates the leverage effect, i.e., each additional unit of internally generated funds enable firms to achieve a magnified effect on their growth. And within each of these models, the estimated coefficients monotonically decrease with firm year observations moving from left to right of the distribution of the corporate efficiency index.

This is consistent not only within each model, but also across the three models. Growth of firm year observations on top 20% of the distribution in model 3 are less sensitive to cash flow in comparison with those on top 25% in model 2 or top 50% in model 1. The same is true at the other ends of the Table 4.7: Differential effects using corporate efficiency index

This table shows the differential effect of cash flow on growth across financially constraint and unconstrained firm years (separated with corporate efficiency index with the lowest category as likely to be most financially constrained). Model 1 is estimated with two category dummies (50-50), Model 2 is estimated with three category dummies (0-25, 25-75, 75-100), Model 3 is estimated with five category dummies (0-20, 20-40, 40-60, 60-80, 80-100).

Here, Ed stands for the dummies created by corporate efficiency index. In addition to the full set of year dummies both as regressors and standard instruments, the estimates include lagged levels and lagged first differences of size, age, cash flow interaction with different dummies and Tobin's Q as instruments for the difference and level equations respectively. Standard errors in parentheses; ***, ** and * indicate significance at the 1%, 5% and 10%, level respectively.

	M1	**M2**	**M3**

L.size	-0.378***	-0.394***	-0.397***
	(0.122)	(0.125)	(0.096)
L.size2	0.015***	0.016***	0.016***
	(0.005)	(0.005)	(0.004)
Age	-0.235***	-0.224***	-0.277***
	(0.063)	(0.056)	(0.064)
Age2	0.041***	0.039***	0.045***
	(0.011)	(0.010)	(0.012)
Chf*Ed21 (<50thp)	1.348***		
	(0.130)		
Chf*Ed22 (>50thp)	0.880***		
	(0.168)		
Chf*Ed31 (<25thp)		1.485***	
		(0.177)	
Chf*Ed32 (25thp −75thp)		1.100***	
		(0.118)	
Chf*Ed33 (>75thp)		0.589**	
		(0.242)	
Chf*Ed51 (<20thp)			1.670***
			(0.193)
Chf*Ed52 (20thp −40thp)			1.363***
			(0.142)

Chf*Ed53 (40thp −60thp)			1.056***
			(0.131)
Chf*Ed54 (60thp −80thp)			0.885***
			(0.154)
Chf*Ed55 (>80thp)			0.373
			(0.242)
Tobin Q	0.102***	0.099***	0.083***
	(0.025)	(0.025)	(0.021)
Constant	2.401***	2.497***	2.605***
	(0.721)	(0.739)	(0.550)

Table 4.7.a: Diagnostics

The figures reported for the AR(2) and Hansen J tests are the p-values for their respective null hypotheses. AR(2) accepts the null hypothesis of no second-order serial correlation in the differenced residuals and Hansen J test accepts the null hypothesis that all instruments are jointly valid which implies that the instruments satisfy the required orthogonality conditions, i.e., their moments with the error term are zero.

	M1	**M2**	**M3**
AR(2) p-value	0.761	0.755	0.735
Hansen p-value	0.444	0.334	0.323
No of instruments	86	89	95
No of firms	1122	1122	1122
No of observations	11995	11995	11995

Wald tests to check hypotheses that the impact of cash flow on firm growth is same across firm years with two different financial constraint statuses.

	M1	**M2**	**M3**
Hypothesis	p-valuep-	value	p-value
Chf*Ed21=Chf*Ed22	0.009		
Chf*Ed31=Chf*Ed32		0.021	
Chf*Ed32=Chf*Ed33		0.021	
Chf*Ed51=Chf*Ed52			0.097
Chf*Ed52=Chf*Ed53			0.030
Chf*Ed53=Chf*Ed54			0.226
Chf*Ed54=Chf*Ed55			0.010

Calculation of the effect of one standard deviation change in cash flow on firm growth under different financial constraint status.

	M1	**M2**	**M3**
Ed21	0.318		
Ed22	0.112		
Ed31		0.392	
Ed32		0.180	
Ed33		0.069	
Ed51			0.452
Ed52			0.275
Ed53			0.164
Ed54			0.106
Ed55			0.046

distribution. Therefore, in line with the findings in chapter three, these results indicate that firms can recover from their credit constraints through the improvement of corporate efficiency. They can finance successively bigger portion of their growth through external financing source without being severely constrained by internally generated funds which is making their growth successively less sensitive to cash flow. Results of AR(2) and Hansen test in 4.7.a suffices the validity of the estimates. Wald test results also support the differential effect of liquidity constraints on growth rate between any of the two different categories with only one exception in model 3.

Estimation Results for Tobin's Q using TDTA for the 101 sample firms for the period 2007 – 2011

Dependent Variable: TOB

Independent Variables	**Fixed Effects**	**Random Effects**	**Pooled OLS**
Constant	0.2632	0.3563	0.570

(3-

Note: *** Significant at 1% level; ** Significant at 5% level and * Significant at 10% level. Numbers in parentheses are the asymptotic t-values of the co-efficient. TOB (Tobin's Q) = Market value of equity + book value of debt/book value of assets; LTDTA = long-term debt divided by total assets; Size = log of turnover, Tax
= total tax to earnings before interest and tax (EBIT)

Source: Results obtained from data analysis using the E-Views statistical software package.

From the result in Table 4.5, the short-term leverage measure STDTA has a positive and highly significant relationship with the market performance measure. The results of the three different estimators also give consistent results that are all significant at 1% level. Size also has a positive and significant relationship with the market performance measure Tobin's The table shows that

the three estimation models also offer similar results and same levels of significance for the size coefficients.

The size coefficient is significant at 1% level under the random effects, fixed effects and pooled OLS estimation models. Tax still shows a negative on-significance relationship with the market performance measure Tobin Q using STDTA as shown by the fixed effects and random effects models but it is significant at 10% level under the Panel Least Square regression model. The adjusted R2 is satisfactory and ranges from0.7183 and 0.8768 which indicates that more than 71% of the variations in the performance measure have been explained by the variation in the short-term leverage, size and tax of the Nigerian firms.

The F-statistics and D-W statistics also showed significant values. The value of the DW statistics which ranges from 1.81 to 2.32 further indicates that the regression equation is free from the problem of auto correlation. Hence, the results can be relied upon to make meaningful inferences.

1. There is a highly significant positive relationship between leverage of Nigerian firms and their market performance as measured by Tobin's Q.
2. A high positive relationship exists between size and the market performance measure (Tobin's Q) for Nigerian firms.

   There is no significant relationship between tax of Nigerian firms and their market performance.

3. Dependent Variable: ROE

Independent Variables	**Fixed Effects**	**Random Effects**	**Pooled OLS**
Constant	20.1597 (0.4432)	3.3977 (0.1880)	3.8580 (0.2192)
STDTA	-12.3249 (-1.6029)	-4.5095 (-0.8913)	-4.6279 (-0.91341)
SIZE	-1.6249	0.52464	0.4591

	(-0.2245)	(0.1936)	(0.1697)
TAX	0.5180	0.1131	0.1069
	(0.1019)	(0.0265)	(0.0251)
No of Observations	505	505	505
Adjusted R2	0.1384	-0.0041	-0.0041
F-Statistics	0.4053	0.31054	0.31844
Prob. (F-Statistics)	(1.0000)	(0.8178)	(0.8121)
D-Watson Statistics	3.1254	2.8496	2.8507

Estimation Results for ROE using STDTA for the 101 sample firms for the period 2007– 2011

Note: *** Significant at 1% level; ** Significant at 5% level and * Significant at 10% level. Numbers in parentheses are the asymptotic t-values of the co-efficient. ROE = the return on equity (EBIT/ equity); STDTA = short term debt divided by total assets; Size = log of turnover, Tax = total tax to earnings before interest and tax (EBIT)

Source: Results obtained from data analysis using the E-Views statistical software package

From the regression results in Table 4.12, it is interesting to note that the coefficient of the leverage measures and size still remain significant for both the ROA estimation and the Tobin's Q estimation. However, the result shows that none of the industrial sector dummy variables are significantly related to the accounting measure of performance ROA using TDTA,

4.6.4 Robustness check

In place of the two novel proxies used to classify firm years into different financial constraint status, we use other traditional measures to construct the financial constraint dummy variables in similar ways to categorize firm year observations into financially constrained or unconstrained status.

The propositions and the results obtained so far in this chapter are all based on the fact that the cashflow sensitivity is a practicable mode of detecting the relative importance of financing problems across firms of different credit status following Fazzari et al. (1988). They classify low dividend paying firms as financially constrained as such firms prefer to retain all of their low-cost internal funds they can generate before going to high-cost external funds to finance their investment and we use the same classification criteria as the first robustness check of our results.

Sufi (2009) and Rahman (2011) use line of credit as the classification criteria arguing that the degree of access to a bank credit facility is a good measure of a firm's external financing constraints. According to the theoretical literature, lines of credit are committed liquidity insurance that ensures availability of funds for valuable projects and thus protects firms against future capital market frictions.

However, lines of credit can only provide sufficient liquidity insurance to those firms in the economy which find it convenient to obtain and maintain. These firms can be labeled as financially unconstrained. Therefore, with greater access to a bank credit facility, the firms will become more financially unconstrained and the effect of internal financing on firm growth should decrease. We calculate line of credit as the ratio of short-term debt to total liability following Rahman (2011).

Firm size and age are two of the most widely used classification criteria in the investment and financial constraint literature and have been used by Wagenvoort (2003) and Oliveira and Fortunato (2006) in their examination of differential effect of liquidity constraints on growth. They expect that the liquidity problems to be particularly severe for smaller and younger firms who have limited access to capital both in terms of availability and accessibility because such firms are characterized by idiosyncratic risk, may not have sufficient industry experience to be distinguished as credit worthy by outside investors and may not have enough collateral and all these make them face costly and limited access to external credits.

Table 4.8 shows the estimated results where firm year observations are separated with dividend in model 1, line of credit in model 2, firm size in model 3 and firm age in model 4. All models

here are estimated with two category dummies with firm year observations lying below the 50th percentile of the respective distributions as financially constrained and unconstrained otherwise.

In all these models, the previously obtained results are found robust. The estimated investment cash flow sensitivity for all different financial constraint classes remains positive and significant with the estimated coefficient always greater than one for the most financially constrained firm year observations supporting the leverage effect hypothesis. The estimated cash flow coefficient for the unconstrained classes are significantly lower and the difference in cash flow effects among the two classes are always statistically significant (4.8.a).

Finally, as sales is used as a proxy for firm size in the first two chapters, natural logarithm of sales is used to capture firm size and growth in sales is used to Table 4.8: Robustness checks using other traditional measures of financial constraints

This table shows the differential effect of cash flow on growth across financially constrained and unconstrained firm years (separated with dividend in model 1, line of credit in model 2, firm size in model 3 and firm age in model 4 with the lowest category as likely to be most financially constrained). All models here are estimated with two category dummies. Here, Dd, Ld., Sd and Ad stands for the dummies created by dividend, line of credit, size and age respectively. In addition to the full set of year dummies both as regressors and standard instruments, the estimates include lagged levels and lagged first differences of size, age, cash flow interaction with different dummies and Tobin's Q as instruments for the difference and level equations respectively. Standard errors in parentheses; ***, ** and * indicate significance at the 1%, 5% and 10%, level respectively.

	M1	**M2**	**M3**	**M4**
L.size	-0.358***	-0.352***	-0.309***	-0.339***
	(0.101)	(0.105)	(0.114)	(0.096)
$L.size^2$	0.014***	0.014***	0.012***	0.013***
	(0.004)	(0.004)	(0.004)	(0.004)

Age	-0.229***	-0.225***	-0.285***	-0.279***
	(0.062)	(0.064)	(0.066)	(0.065)
Age^2	0.038***	0.040***	0.048***	0.057***
	(0.012)	(0.012)	(0.012)	(0.012)
Chf*Dd21 (<50thp)	1.747***			
	(0.139)			
Chf*Dd22 (>50thp)	0.541*			
	(0.302)			
Chf*Ld21 (<50thp)		1.234***		
		(0.162)		
Chf*Ld22 (>50thp)		0.897***		
		(0.227)		
Chf*Sd21 (<50thp)			1.561***	
			(0.144)	
Chf*Sd22 (>50thp)			0.726**	
			(0.323)	
Chf*Ad21 (<50thp)				1.397***
				(0.141)
Chf*Ad22 (>50thp)				0.516***
				(0.198)
Tobin Q	0.115***	0.083***	0.103***	0.103***
	(0.025)	(0.021)	(0.027)	(0.025)

Constant	2.322***	2.262***	2.057***	2.191***
	(0.592)	(0.630)	(0.691)	(0.572)

Table 4.8.a: Diagnostics

The figures reported for the AR(2) and Hansen J tests are the p-values for their respective null hypotheses. AR(2) accepts the null hypothesis of no second-order serial correlation in the differenced residuals and Hansen J test accepts the null hypothesis that all instruments are jointly valid which implies that the instruments satisfy the required orthogonality conditions, i.e., their moments with the error term are zero.

	M1	**M2**	**M3**	**M4**
AR(2) p-value	0.661	0.592	0.644	0.852
Hansen p-value	0.514	0.583	0.341	0.308
No of instruments	86	86	86	86
No of firms	1122	1122	1122	1122
No of observations	11995	11995	11995	11995

Wald tests to check hypotheses that the impact of cash flow on firm growth is same across firm years with two different financial constraint statuses.

	M1	**M2**	**M3**	**M4**
Hypothesis	p-value	p-value	p-value	p-value
Chf*Dd21=Chf*Dd22	0.001			
Chf*Ld21=Chf*Ld22		0.032		
Chf*Sd21=Chf*Sd22			0.023	
Chf*Ad21=Chf*Ad22				0.000

Calculation of the effect of one standard deviation change in cash flow on firm growth under different financial constraint status.

	M1	M2	M3	M4
Dd21	0.427			
Dd22	0.042			
Ld21		0.268		
Ld22		0.162		
Sd21			0.398	
Sd22			0.053	
Ad21				0.349
Ad22				0.058

measure firm growth to carry on the final robustness check of our results. However, this output-based measure of growth may not necessarily allow to make the quantitative prediction about the growth-cash flow relationship as all potential usage of internal funds may not be properly reflected by growth in sales and thus may not be suitable for capturing the real effects of financial constraints on firm growth. The results using this alternative measure of firm size and growth are presented in appendix C.

The re-specified baseline equation 4.5 is estimated again using OLS, FE, difference and system-GMM to check for the presence of finite sample biases and table C.2 (pp. 169) reiterate the

similar conclusion came out earlier that the system-GMM produces better results in estimating such dynamic equations. Growth rate in sales is also found to have the U-shaped relationship with size and age and liquidity constraints similarly generate a negative impact on sales growth.

Table C.3 (p. 170) shows the estimated results of the extended models where the two novel proxies (likelihood of facing financially unconstrained status in model 1 and corporate efficiency index in model 2) along with two traditional ones (dividend in model 3 and line of credit in model 4) are used to bring out differential effects of internal finance on firm growth and here as well, all models are estimated with two category dummies only. The results are robust in the sense that the estimated coefficients of cash flow for the unconstrained firm year observations fall significantly short of those for the constrained ones in any of these models. The estimations pass the usual diagnostics tests as shown in C.3.a. However, the constrained firm years are now showing less than a one-to-one relationship between cashflow and growth of their sales which is a contradiction with the leverage effect hypothesis tested earlier.

4.7 Conclusion

Combining two aspects of economic literature, this chapter attempts to relate dynamics of optimal capital structure to the dynamics of firm size, growth and firm continuity to explain whether the heterogeneity in firms' growth can be explained by the degree of capital structure status they face by developing the Carpenter and Petersen (2002) model. On the way to do that, our empirical strategy strives to tackle the common problems in estimating dynamic growth equation and makes quantitative predictions about the relationship between growth and internal finance across firm years in different credit status using our two novel proxies for financial constraints.

The results in general reject Gibrat's law of proportionate effect and we find that smaller and younger firms grow faster. Overall, the relationship of firm size and age with growth is found non-monotonic U-shaped which is consistent with previous literatures. The availability of internal funds is also found to be important for overall firm growth. Not only that, the estimated results from all our model specifications consistently indicate a substantially greater sensitivity of growth to cash flow for firm years belonging to the most financially constrained categories

which are most likely to face more severe asymmetric information related problems leading to binding financial constraints on their growth.

Furthermore, these firms can actually expand their size more than the extent of positive income shock they may face supporting the leverage effect hypothesis. The estimated impact decreases monotonically thereafter as their financial constraints become less binding which allow them to finance successively bigger portion of their growth through external financing source without being severely constrained by internally generated funds. These empirically important differences across firm years are consistent with financial constraints arising from capital market imperfections.

Rapid growth poses special problems for financial managers. They must raise large amounts of cash to fund this growth, often for risky and relatively young firms. Nonetheless, it is misleading to speak of "financial management for growing companies" as if it were a special subject unrelated to financial management in general. The ultimate goal of financial policy, whether a company is growing or not, is to maximize the value of shareholders' equity. In addition, the set of financial instruments and policies available to a financial manager does not change just because a company is growing rapidly.

It makes sense, therefore, to examine the financial tools available to all firms to boost market value before talking about the appropriate financial strategies for growing firms.
Broadly speaking, there are two basic approaches for using finance to increase the value of the firm. Both these approaches can be illustrated by thinking of the firm as producing a cash flow "pie" — that is, total operating cash flow distributable to all investors (debtholders, stockholders, and others).

The first approach takes the size of the cash flow pie to be independent of financial policy, so that the principal role of finance is to divide the pie into slices by issuing varying types of securities. The object of this division is to match the securities' characteristics with the desires of investors so as to maximize the total proceeds from the sale of the securities.

The second approach focuses on ways in which financial policy can increase the size of the value pie by affecting operating and investment decisions. Underlying this approach is the view that a company is a complex web of "contracts" tying together disparate corporate stakeholders such as investors, management, employees, customers, suppliers, and distributors. This approach assumes that the firm's future operating cash flow may depend significantly upon the perceptions and incentives of the firm's non-investor stakeholders. Financial policy can be used to increase the size of the cash flow pie by strengthening stakeholder relationships — for example, by improving management incentives or increasing the confidence of suppliers and customers.

The next two sections of the paper examine each of these approaches in greater detail. Once the basic tools of financial management have been laid out, we turn in Section 3 to the issue of what constitutes a growth company. Sections 4 and 5 address the main questions of the paper: How are growth companies unique, and given these special characteristics, what financial management techniques are best suited for such companies?

Even if corporate operating cash flow is unaffected by financial policy, it may be possible to sell claims to a given cash flow pie at a higher aggregate price by cleverly packaging claims. In this sense, corporate finance is analogous to marketing. The firm needs money to finance future investment projects. Instead of selling some of its existing assets to raise the required funds, it will sell the rights to the future cash flows generated by its current and prospective projects. It can sell these rights directly and become an all-equity financed firm. But the firm may get a better price for the rights to its future cash flows by repackaging these rights before selling them to the investing public.

There are two basic situations in which such repackaging may add to firm value. First, since different securities are taxed in different ways, repackaging can potentially reduce the government's share of the pie and thereby increase the cash flow available for eventual distribution to investors. Second, total revenue from the sale of rights to the pie may be increased if securities can be devised for which specific investors are willing to pay a higher price.

There are four circumstances in which investors may pay more in the aggregate for claims to the cash flow pie: (1) the securities are better designed to meet the special needs and desires of a

particular class of investors; (2) the securities are more liquid; (3) the securities reduce transaction costs; or (4) the security structure reduces the "credibility gap" between management and potential investors that exits whenever companies raise capital from outside sources.

To the extent that the firm can design a security that appeals to a special niche in the capital market, it can attract funds at a cost that is less than the required return on securities of comparable risk. But as we noted in the case of zeros, such a rewarding situation is likely to be temporary because the demand for a security that fits a particular niche in the market is not unlimited, and because the supply of securities designed to tap such niches is likely to increase dramatically once a niche is recognized.

As one further example of this process, major investment banks are currently trying to create value by exploiting what they perceive as profitable niches in the mortgage market. Investment banks such as First Boston, Salomon Brothers, and Goldman Sachs have been purchasing mortgages and repackaging them into complex derivative securities which offer unique risk return combinations. To the extent that such unique securities are desirable to investors, the investment banks can sell them for more than the cost of the mortgages. Once a particular security structure proves to be profitable, however, other firms aggressively enter the business and drive profits down.

In general, the high elasticity of supply means that repackaging a security's payment stream so that it reallocates risk from one class of investors to another is unlikely to be a sustainable way of creating value. The only niche that is likely to persist as a profitable opportunity in the face of competitive pressure is a niche that involves the government. For instance, by substituting its credit for the credit of a ship buyer, the U.S. government, under the Merchant Marine Act of 1936, subsidizes the financing of U.S.-built vessels.

Other subsidized loan programs include those administered by the Synfuels Corporation, Economic Development Administration, the Farmers Home Administration, the Export-Import Bank, and the ubiquitous Small Business Administration.

However, even these governmental niches are not free from competition. For instance, when the government makes subsidized loans available to "small business," it produces an incentive for firms to restructure to satisfy the criteria for being "small." Furthermore, the government severely restricts the supply of securities that can take advantage of these loan subsidy programs.
Liquidity or marketability is an important attribute of a financial security. One measure of a security's marketability is the spread between the bid and ask prices at which dealers are willing to satisfy buyers' or sellers' demands for immediate execution of their trades. There is substantial empirical evidence that investors are willing to accept lower returns on more liquid assets. Other things being equal, therefore, a firm can increase its market value by increasing the liquidity of the claims it issues.

There are a number of ways in which firms can increase the liquidity of their claims. The most important include going public, standardizing their claims (which includes the securitization of bank loans), underwriting new public issues, buying insurance for a bond issue, and listing on organized exchanges.
Because most liquidity-enhancing measures entail significant costs (for example, legal and underwriting fees and reporting costs), however, the firm must trade off the benefits of increased liquidity against the costs. This cost-benefit calculation can best be formulated by expressing the value of increased liquidity as the market value of the firm's equity multiplied by the percentage reduction in its required return.

This expression implies that the advantages of liquidity enhancement tend to be greatest for large firms (which have higher market values) and for firms whose securities are already highly liquid. The latter implication also follows from the observation that low-liquidity assets tend to be held by investors who are willing to hold assets for longer periods of time. Thus, liquidity is less valuable to them than to investors in more liquid assets.

By reducing transaction costs associated with raising money, the firm can increase its net proceeds. The use of investment bankers to underwrite new security issues, shelf registration under Rule 415, and extendible notes are ways in which the costs of raising money can be reduced. Similarly, the use of secured debt and leasing can reduce enforcement costs by giving a lender or lessor clear title to the pledged or leased assets. Because the costs associated with

repossessing assets are more likely to be incurred the higher the probability of bankruptcy, companies in shakier financial positions will find this particular benefit of leasing or secured borrowing more valuable than those in better financial shape.

One of the key costs associated with issuing new securities arises from the financing problem caused by so-called informational "asymmetries." In plainer terms, corporate management may have inside information about the company's prospects that it can use to exploit potential investors by issuing overpriced securities. Recognizing management's ability and incentives to exploit them by issuing overvalued securities, rational investors will revise downward their estimates of a company's value as soon as management announces its intent to issue new securities.

For example, on February 28, 1983, AT&T announced its plan to issue about $1 billion of new common stock. Investors took the equity issue as a bad sign and responded by reducing AT&T's market value by $2 billion.

For companies trying not to misrepresent the value of their assets, the credibility problem imposes a potentially large cost on the use of securities to raise funds. This cost should not be confused with the cost of capital — the return required by investors to hold the company's securities. Rather the cost of issuing securities referred to here is an added discount at which these securities must be sold because of the potential for important inside information.

The riskier the security being issued, the more important this credibility gap becomes, and the larger the discount applied by investors fearful of buying lemons. Conversely, if the firm can issue essentially riskless debt the discount will be zero because the return to the new debt does not depend on management's information advantage.

These observations imply that companies can overcome the credibility problem by raising funds in accordance with what Stewart Myers calls the financing "pecking order." The most common corporate practice, as Myers observes, is to use the least risky source first — that is, retained earnings — and then use progressively riskier sources such as debt and convertibles; common stock offerings are typically used only as a last resort. Myers's explanation for this pattern of

financing preferences is that it reduces the security price discount imposed by investors when companies raise new capital.

By using internal funds, companies avoid the credibility problem altogether. If companies must go to the capital markets, they face smaller discounts by issuing securities in ascending order of risk: first debt, then hybrids such as convertible bonds, and finally equity.

This set of financing practices has two results: (1) it minimizes the amount of new equity that must be raised and (2) it forces companies to issue equity only when necessary. By limiting management's discretion over when to issue new equity, adherence to the financing pecking order reduces investors' suspicion that management is simply trying to "time" the market and "unload" overpriced stock.

By reducing this credibility gap, then, companies get better prices for their securities. And when they are forced to issue new equity, where the credibility problem is most acute, all but the largest companies tend to use firm commitment offerings (rather than, say, shelf registration or best efforts). Besides providing distribution channels for new issues, underwriters also perform an implicit role of "certifying" to outside investors that the securities are fairly valued. They do this by putting their reputation on the line with investors when pricing new issues.

The modern corporation, as we said before, is an interrelated set of contracts among a variety of stakeholders: shareholders, lenders, employees, managers, suppliers, distributors, and customers. Although these stakeholders have a common interest in the firm's success, there are potentially costly conflicts of interests. To the extent that financial policy can reduce these conflicts, it can enlarge the cash flow pie and thereby increase the value of the firm.

In this respect, recent research has identified three sources of conflict related to financial policy. The first problem stems from the separation of ownership and control. Professional managers who do not own a significant fraction of equity in the firm are likely to be more directly interested in maximizing their own "utility" than the value of the firm. This creates a conflict between managers and outside shareholders.

A second area of conflict involves stockholders and bondholders. Because the value of common stock equals the market value of the firm (that is, total assets) minus the value of its liabilities, managers can increase shareholder wealth by reducing the value of the bonds. This possibility is at the root of stockholder-bondholder conflicts.

Third, under certain circumstances, firms may have incentives to act in ways that conflict with the best interests of the individuals that do business with them. For example, an airline in financial distress may choose to reduce maintenance expense in order to improve short-run cash flow.

Managers, like all other economic agents, are ultimately concerned with maximizing their own utility, subject to the constraints they face. Although management is legally mandated to act as the agent of shareholders, the laws are sufficiently vague that management has a good deal of latitude to act in its own behalf.

This problem, together with the separation of ownership and control in the modern corporation, results in potential conflicts between the two parties. The agency conflict between managers and outside shareholders derives from three principal sources.

The first conflict arises from management's tendency to consume some of the firm's resources in the form of various perquisites. But the problem of overconsumption of "perks" is not limited to corporate jets, fancy offices, and chauffeur-driven limousines. It also extends, with far greater consequences for shareholders, into corporate strategic decision-making. As Michael Jensen points out, managers have an incentive to expand the size of their firms beyond the point at which shareholder wealth is maximized.

Growth increases managers' power and perquisites by increasing the resources at their command. Because changes in compensation are positively related to sales growth, growth also tends to increase managerial compensation.

As Jensen has argued persuasively, the problem of overexpansion is particularly severe in companies that generate substantial amounts of "free cash flow" — that is, cash flow in excess of that required to undertake all economically sound investments (those with positive net present values). Maximizing shareholder wealth dictates that free cash flow be paid out to shareholders.

The problem is how to get managers to return excess cash to the shareholders instead of investing it in projects with negative net present values or wasting it through organizational inefficiencies.

A second conflict arises from the fact that managers have a greater incentive to shirk their responsibilities as their equity interest falls. They will trade off the costs of putting in additional effort against the marginal benefits. With a fixed salary and a small equity claim, professional managers are unlikely to devote energy to the company equivalent to that put forth by an entrepreneur.

Finally, their own risk aversion can cause managers to forgo profitable investment opportunities. Although the risk of potential loss from an investment may be diversified in the capital markets, it is more difficult for managers to diversity the risks associated with losing one's salary and reputation. Forgoing profitable, but risky, projects amount to the purchase by management of career insurance at shareholder expense.

An important feature of corporate debt is that bondholders have prior but fixed claims on a firm's assets, while stockholders have limited liability for the firm's debt and unlimited claims on its remaining assets. In other words, stockholders have the option to "put" the firm to the bondholders if things go bad, but to keep the profits if the firm is successful.

This option becomes more valuable as company cash flows increase in variability because the value of equity rises, and the value of debt declines, with increases in the volatility of corporate cash flows. If there is a significant amount of risky debt outstanding, the option-like character of equity gives shareholders an incentive to engage in risk-increasing activities — e.g., highly risky projects — that have the potential for big returns. (Witness the behavior of many of the troubled Texas S & Ls.) Similarly, management can also reduce the value of pre-existing bonds and transfer wealth from current bondholders to stockholders by issuing a substantial amount of new debt, thereby raising the firm's financial risk.

Alternatively, if the firm is in financial distress, shareholders may pass up projects with positive net present values that involve added equity investment because most of the payoffs go to

bondholders. The failure to invest in such projects reduces the value of bondholder claims on the firm as well as the total value of the firm.

The potential conflict between a company and its non-investor stakeholders can best be understood by viewing stakeholders as buying a set of implicit claims from the company. For example, the manufacturer of a car, a pump, or a refrigerator is implicitly committed to supplying parts and service as long as the article lasts. Similarly, although managers typically have no formal employment contract, they often perceive an implicit contract that guarantees lifetime jobs in exchange for competence, loyalty, and hard work. Before deciding to carry a new product line, a retailer frequently receives promises from the manufacturer about delivery schedules, advertising, and future products and enhancements. Implicit claims are also sold to other stakeholders, such as suppliers and independent firms that provide repair services and manufacture supporting products.
In general terms, the firm is processing its stakeholders that it will make a “best efforts” attempt to satisfy them whatever happens in the future.

This implicit claim clearly cannot be reduced to a legal agreement, but stakeholders’ assessments of what such claims are worth are likely to be a key determinant of, for example, how much customers will pay for the company’s products and the effort that employees, suppliers, and other stakeholders will make on behalf of the company.

The price stakeholders will pay for implicit claims depends on their expectations of future payoffs. In forming these expectations, stakeholders understand that it may turn out to be in the company’s interest to renege on such claims after the fact; that is, absent other information about a firm, they will expect the firm to promise the maximum payout ex ante, but only to deliver the amount that maximizes the value of the firm ex post. Firms can engage in this type of behavior because implicit claims have little legal standing. Typically, the firm can default on its implicit claims without going bankrupt. This means that corporate stakeholders such as customers, suppliers, and employees must look to the firm, not the courts, for assurance that their implicit claims will be honored.

Under these circumstances, stakeholders are frequently willing to pay a substantial premium for the claims of firms they trust. For example, IBM computers are purchased not because they offer the latest technology, longest warranties, or lowest prices, but because customers value the wide variety of implicit claims that IBM sells with its machines more highly than the implicit claims of smaller, competing manufacturers.

Because the payoffs on implicit claims are uncertain, even when the possibility of bankruptcy is remote, stakeholders who purchase implicit claims from the firm will seek to determine whether the firm has the organizational structure, management skills, and financial strength to make good on its implicit claims. Thus, the value of these claims will be sensitive to information about the firm's financial condition.

Financially healthy firms typically have a strong incentive to honor their implicit claims. Myopic behavior on the part of the firm — for example, improving cash flow today by defaulting on implicit claims sold in the past — will damage the firm's reputation for quality products and reliable service, and thereby lower the price at which it can sell future implicit claims. Nevertheless, a firm having difficulty scraping up enough cash to pay its creditors may be tempted to cut corners in service and products. For such a firm, the long-run value of a strong reputation may be less important than generating enough cash to make it through the next day.

Recognizing these possibilities, stakeholders will pay less for the implicit claims of financially troubled firms. In practical terms, this means that a company in financial distress, or even one that may wind up in financial distress, will have to discount its product prices, pay more to its employees, and receive worse terms from its suppliers and distributors. The net result is that companies that have difficulty convincing stakeholders of their ability or willingness to honor their implicit claims may be placed at a competitive disadvantage relative to their more financially secure rivals.

Thus, firms have clear-cut incentives to find ways of assuring the market that they will not engage in opportunistic behavior. Such mechanisms include things like the following: providing managers with incentives, such as stock options, act in accordance with shareholder interests

CHAPTER FIVE

5.0 Summary

This final chapter summarizes the major findings from the three empirical chapters of the thesis and acknowledges their possible limitations. It also portrays the implications for policy pertaining to real and financial activities of the firms and suggests potential extensions that can be conducted in the future.

The robust analysis carried out in the course of this study revealed many findings. Some of the findings are literature based, some are methodological while some are analytical based. The results from our analysis revealed that there is correlation between use of debt and raising equity (Optimal Capital Structure and Business Continuity). This was clearly illustrated by the results generated from our survey.

Capital structure remains the most controversial issues in finance literature because of the dynamic nature of the mix of corporate financing, which mirrors the many events and exogenous shocks to firms‟ activities.

This study examines the impact of capital structure on performance of Nigerian firms. The study combines two strands of business research: one from the international business field on corporate performance, and the other from corporate finance field on capital structure. The study employed descriptive econometric analytical tools in studying 101 Nigerian quoted companies with 505 observations for the period 2007 to 2011. The analyses were performed using panel data.

This study tries to fill the gap left by other studies in this field by investigating the effect of capital structure on corporate performance of Nigerian quoted firms by extending the performance measures and leverage measures that has been hitherto employed by other studies.

The study employed different measures of capital structure such as short-term leverage, long term leverage and total debt leverage in other to investigate the varying effects of these debt structures on corporate performance. Also, three performance measures were employed namely the return-on-asset (ROA) and the return-on-equity (ROE) as accounting performance and Tobin's Q to see the varying relationship of these measures with the leverage of the firm. Moreover, investigating the effect of capital structure on corporate performance using market and accounting measures was valuable as it provides evidence about whether the stock market is efficient or not.

A balanced panel of 101 quoted Nigerian firms was studied in this research work. Only nonfinancial firms were studied. The study excluded companies from the financial and securities sector as their financial characteristics and use of leverage are substantially different from other companies. First, their leverage is strongly influenced by explicit investor insurance scheme such as deposit insurance and regulations such as the minimum capital requirements may directly affect their capital structure. Secondly, their debt-like liabilities are not strictly comparable to the debt issued by non-financial firms.

Moreover, the balance sheets of the firms in the financial sectors (banks, insurance companies, mortgage companies, unit trust and funds, real estate investment trust and other financial institutions) have a strikingly different structure from those of non-financial companies. Other companies whose financial reports were not up to date and that are no longer in existence as at 2007 (e.g., companies in the Aviation Sector) were also excluded. Also, firms with any missing reports during the period under investigation from 2007 to 2011 were also dropped.

A firm's capital structure was found to have a significant and negative impact on the firm's accounting performance measure (ROA). An interesting finding is that all the leverage measures have a positive and highly significant relationship with the market performance measure (Tobin's Q), which could to some extent support Myers's (1977) argument that firms with high short-term debt to total assets have a high growth rate and high performance. The results also interestingly showed size to have positively and highly significant relationship with both the accounting performance measure and the market performance measure.

The significance of firm's size on performance indicates that large firms earn higher returns. Tax has no significant influence on firms‟ performance while some industry sector presence was observed bearing monitoring costs in the form of audits, specific reporting procedures and other surveillance methods; and including various restrictive covenants in bond and bank loan agreements.

The firm can also use its capital structure as a conflict management tool. Unfortunately, a financial policy designed to reduce one source of conflict often opens the door to other conflicts. For instance, one way to lessen the opportunity of management to waste the firm's free cash flow is to reduce the scope of management discretion by issuing additional debt. Issuing more debt, however, increases potential stockholder-bondholder conflicts and also raises the probability of financial distress. On the other hand, adding equity to the capital structure will reduce conflicts between stockholders and bondholders but increase the likelihood of conflicts between management and stockholders over the disposition of free cash flow. It may also increase the government's share of the pie.

In short, any change in capital structure is likely to mitigate some problems and aggravate others. Managers must attempt to balance these effects in light of the firm's special characteristics. It is in this sense that it is meaningful to speak of financial policy for a growth company. The special characteristics of rapidly growing companies mean that some costs and conflicts are greater and others smaller than in the case of mature companies. Therefore, it makes sense first to discuss the distinctive features of a growth company and then to suggest how those features affect the choice of financial policy.

Despite all the complexities involved in financing a growth company, our suggestions for policy are relatively simple and straightforward. First, complicated strategies designed to divide the cash flow pie in unusual ways are unlikely to be profitable exercises for growth companies. Younger and rapidly growing firms whose credibility is not yet established are at a comparative disadvantage in this arena relative to mature firms such as General Electric or General Motors. Second, for a rapidly expanding company, the primary role of finance should be to preserve the growth options that are its principal source of value.

Growth options, which are opportunities to undertake future investments, are different from on-going projects in that their cash requirements and their future payoffs are generally more uncertain. This uncertainty compounds the credibility problem that any company faces whenever it issues new securities (Is management selling securities now, investors will ask, because it knows they are overvalued?). In addition, the potential conflicts between managers and investors, between managers and non-investor stakeholders (such as customers and suppliers), and different groups of investors (such as stockholders and bondholders) are aggravated when the company's future is hazy. These credibility problems and potential conflicts have the effect of increasing the discount at which the company can sell its securities or, alternatively, reducing the flexibility of the terms on which securities can be sold. The task confronting the financing manager is to minimize the discount while still providing the financial flexibility to allow the company to exercise its growth options at the opportune time.

One way to improve the terms of this trade-off is to develop a close working relationship with the providers of funds who have major stake. This means that a banking relationship, or some other source of "private" debt, may be particularly important for those growth companies with enough tangible assets to support moderate amounts of debt. In the case of start-ups, venture capital – probably structured in the form of convertible preferred – most likely will be the principal source. In both of these cases, the credibility problem is partly resolved by the close relationship between management and the provider of funds that allows for the exchange of information on a confidential basis.

Moreover, these funding sources can negotiate financing terms which offer management considerable financial and operating flexibility while at the same applying strong pressure for performance. `

The results of this study further confirm some prior findings by other scholars and earlier researchers and the research work has been able to find answers to the research questions earlier raised in the introductory chapter in the following ways:

i. There is a significant relationship between the capital structure of firms in Nigeria and their

accounting and market performance.

ii. Capital structure has positive influence on the market performance of Nigerian firms but negative influence on their accounting performance.
iii. The maturity structure of debts does affect the performance of firms in Nigeria significantly.
iv. The size of the firm has a significant positive effect on the performance of firms in Nigeria.
v. Corporate tax rate has no significant impact on performance of Nigeria firms.
vi. The industrial sectors influence the performance of Nigerian firms to a little extent.

5.1 Discussion of findings

The study was to examine "Dynamics of capital structure and Business continuity". A study of Nigeria and International Markets, to throw light on the subject matter, two hypotheses were formulated and tested.

In the first hypothesis, we sought to know if "Will optimal capital structure guarantees business continuity. The responses received showed that strict internal control system is the best measure to have an efficient capital structure.

Most manufacturers interviewed agreed that good internal control policies best corporate governance is the best strategy to have a vibrant capital structure.

The second hypothesis reflects "Value of the business is truly independent of its capital structure" was accepted based on the respondent's answers to 11 and 12 on the questionnaire.

Most financial services players interviewed agreed that value of the business is independent of its capital structure on the basis sound corporate governance.

From hypothesis 1, a firm's capital structure is predicted not to have any significant influence on its accounting performance. However, from the regression results in Table 4.6, Table 4.7 and Table 4.8, the coefficients of the leverage measures TDTA and LTDTA as expected are highly significantly and negatively related to the accounting measure ROA. These results show that higher level of leverage lead to lower return on assets (ROA).

Furthermore, it may provide support for the proposition that due to agency conflicts, companies over-leverage themselves, thus affecting their performance negatively. These findings are consistent with the finding of previous studies such as Tian and Zeitun (2007), Salawu (2007), Chen (2004), Telesis and Skuras (2004), Gleason et al (2000), Krishnan and Moyer (1997) and Rajan and Zingales (1995) among others. The negative and significant coefficient of LTDTA does not support Brick and Ravid‟s (1985) argument that long-term debt increases a firm's value, which could however be due to the lower ratio of long-term debt in the capital structure of Nigerian companies. These findings support the pecking order theory of capital structure which suggests that profitable firms initially rely on less costly internally generated funds before looking out for external finances. It is therefore, expected that highly profitable Nigerian firms will require less debt finance.

The negative relationship between leverage and ROA also suggests that there might be agency issues which may lead Nigerian firms to use higher than appropriate levels of debt in their capital structure thereby producing lower performance. The significant negative relationship further reflects that the bond market in the Nigerian economy is underdeveloped and is consistent with signs of underdeveloped bond market in all markets.

Intuitively, upon taking a closer look at the results, there may be other reasons for this negative relationship rather than the propositions of the pecking order hypothesis. It could be due to decisions by the firms to avoid underinvestment problems and mispricing of new projects. More so, listed firms in Nigeria are most times attracted by equity finance due to the substantial capital gains in the secondary market. Hence, there could be a little deviation from the reasons proposed by the pecking order theory.

Hypothesis 2 predicts no significant relationship between Nigerian firms‟ capital structure and their market performance. It is however interesting to note that there is empirical evidence of a highly positive relationship between the firms‟ leverage and their Market performance measure Tobin's Q indicating that higher levels of debt in the capital structure of Nigerian firms are associated with a higher level of market performance as measured by Tobin's Q. This empirical

evidence shows that the impact of leverage varies among different performance measurements for Nigerian firms.

The positive relationship further suggests that debt improves the market performance of Nigerian firms which may not reflect on their profitability. It could also be that this positive impact is not reflected because of the underdeveloped nature of the market or due to market imperfections. This empirical evidence of a significant relationship between firms‟ leverage and Tobin's Q as a market performance supports the static tradeoff theory of capital structure. These findings indicate that leverage negatively affects the accounting performance measure but positively affect the market performance measure. Based on this discussion therefore, we come to two conclusions:

i. We accept the alternative hypothesis that a firm's capital structure has a significant negative influence on its accounting performance ROA.
ii. We accept the alternative hypothesis that a firm's capital structure has a significant negative influence on its market performance Tobin's Q.

Hypothesis 3 predicts that firms with high short-term debt in their capital structure tend to have lower performance i.e., short-term debt has no significant influence on a firm's performance. From the regression results in Table 4.58 and Table 4.8, the coefficients of the short-term leverage STDTA are consistent with the prediction under the different regression models. Though the STDTA shows a negative relationship as expected, the relationship is not significant with the accounting measure ROA. The insignificant relationship with the performance measure ROA indicates that short term debt has no significant impact on returns of Nigerian companies. However, while STDTA is found to have an insignificant negative effect on ROA, it has a highly significant positive relationship with Tobin's Q using the different estimation models.

These findings show that the STDTA ratio has no significant effects on the accounting performance of Nigerian companies which suggests that short term debt may not necessarily expose these firms to the risk of refinancing as it does for firms in developed economy. This supports the arguments of Myers (1977) that firms with high short-term debt to total assets have a high growth rate and high performance.

This finding is contrary to the findings of Pandey (2001), and Stohs and Mauer (1996). Interestingly, the highly significant positive relationship between STDTA and Tobin's Q indicates that higher level of short-term debt in the capital structure of Nigerian firms is associated with a higher market performance. This result also supports the findings of Tian and Zeitun (2007). Therefore, the hypothesis that short-term debt has no significant effect firm performance is rejected and we conclude that short term debt increases the market performance of Nigerian firms.

Hypothesis predicts that a firm's size has no significance influence on a firm's performance. Interestingly, as expected the coefficient of firm's size is found to be positive and highly significant for both the accounting performance measure and the market performance measure. The significance of firm's size on performance indicates that large firms can earn higher returns compared to smaller firms, presumably as a result of diversification of investment and economies of scale.

The result also suggests that firm size is positively related to the borrowing capacity because potential bankruptcy costs make up a smaller portion for large firms. This result is consistent with previous findings such as Tian and Zeitun (2007), Gleason et al. (2000) and Krishnan and Moyer (1997). The significant positive relationship does not support the findings of Tzelepsis and Skuras (2004), Durand and Coeuderoy (2001), Lauterbach and Vaninsky (1999) and Mudambi and Nicosis (1998). It can also be observed from Table 4.5 and Table 4.811 that the best significant results for size under Tobin's Q and ROA models are recorded where the short-term leverage (STDTA) is used.

This may suggest the fact that larger firms are more able to access short term debts from banks and also extract trade credits from suppliers and/or suppliers are more willingly to extend trade credit to larger firms. This could also indicate that larger firms are being perceived to have lower default risk. Going by this discussion, the null hypothesis of no significance influence of size on firm's performance is According to researchers, the asset structure of the organization plays a significant role in determining its capital structure.

The extent to which the organization's assets are tangible should result in the organization to have a higher value at liquidation. Naveed et al (2010), Dong (2011), Najjar and Petrov (2011) stated that organizations that invested heavily in the tangible assets might have higher financial leverage. Also, when the organizations borrowed at lower interest rates and their loans are secured with such assets. Ahmed et al (2011) believed that the loan might be secured when durable assets are used as collateral security.

Empirical research suggested a positive relationship between asset structure and leverage for the organizations and a negative correlation between depreciation expenses as a percentage of total assets and financial leverage, according to the view of Nivorozhkin (2005), Miao (2005), and Dong (2011). Cassaret al (2003), Hall et al (2004), Jordan et al (1998) suggested a positive relationship asset structure and long-term debt, and a negative relationship between asset structure and short-term debt. Esperanca et al (2003) found a positive relationship between asset structure and both short-term and long-term debt. The tangibility of the fixed asset may assist organizations to obtain more long-term debt.

Nivorozhkin (2005) based the research on dynamic unrestricted capital structure model on examining the determinants of an organization's financial leverage in the Czech Republic and Bulgaria between 1993 and 1997. The tangibility of asset structure was considered as one of the variables for the study. The result indicated a negative relationship between asset tangibility and leverage. Bhaduri (2002) used three proxies: the ratio of land and building to total assets, the ratio of plant and equipment to total assets, and the ratio of inventory to total assets for asset tangibility in order to see the effect of asset class used on leverage. From the result of the study, Bhaduri believed that the organizations that finance long-term assets do not always use short-term loans.

The trade-off theory proposes a positive relationship between organization size and debt. Titman and Wessels (1988) stated that small organizations tend to rely on low leverage as they face high costs when issuing long-term debt or equity, and also because of the risk factors underlying the small organization effect. From the lenders point of view, small organizations are risky, and they maintain low business with the financial institutions, which makes them less preferable clients.

Also, in some cases when they are preferred, they are charged higher interest rates. Large organizations are essential corporate clients and thus offered competitive rates.

Deesomsaket al (2004) argued that large organizations have lower agency costs of debt, smaller monitoring costs, more stable cash flows, and easier access to a credit market that increase their dependence on debt. Also, they stated higher bankruptcy risk, bankruptcy costs, and agency costs associated with the asset substitution might result in underinvestment problem and restriction on the length of maturity of debt for small organizations.

Ferri and Jones (1979) suggested that large organizations have easier access to the capital market than the small organizations as they are more credible in their financial decision making based on vast cash reserves or assets that could be sold off to raise capital. Small organizations are more prone to the economic downturn and a higher chance of liquidation when faced with financial distress as postulated by Ozkan (2000). Small organizations also have fewer resources available to them to get out of financial distress. Thus, they are expected to have less long-term debt but possibly more short-term debt than the larger organizations.

The reason for taking size as the organization-specific determinant is essential in some ways by using organization size as a natural log of sales and the explanatory variable is related to risk and bankruptcy costs, Bennett and Donnelly (1993). The sizewas used as one of the operational characteristics of an organization that has the potential to determine equity and debt choice. It is supported by many research studies such as Rajan and Zingales (1995), Titman and Wessels (1988), and Whited (1992).

Capital employed

. The financial capital structure of selected organizations is equity financing, debt and hybrid security financing, bank loan, and retained earnings. Therefore, the respondents from the surveyed companies have the following to say:

i. Equity takes 45.5% of their funding with five responses
ii. Debit and hybrid security represent 8.3% of their financial structure
iii. Bank loans take 9.1% of the asset structure
iv. Retained earnings formed 18.2% of the property structure

v. 27.3% of surveyed companies have both equity, debt and hybrid security, bank loans, and retain earnings constituting their financial structure

Debt and loan usage

Following the question on the size of capital as well as the type of finance employed, the researcher wants to know about the respondents' opinion whether their organization's debt or loan usage has increased over-time.

The current ratio of debt to total assets

According to Investopedia.com, current asset ratio is defined as "a financial ratio that measures the extent of a company's or consumer's leverage. The debt ratio is defined as the ratio of total – long-term and short-term – debt total assets, expressed as a decimal or percentage. It can be interpreted as the proportion of a company's assets that are financed by debt". Current asset ratio to total asset ratio is calculated by diving the total current assets by the total assets expressed in percentage.

Limit on borrowings or debts

From the questionnaire, the researcher wants to know from the respondents whether there is a limit on the capacity of the organizations in their borrowings financing.

Status of debt capital

The researcher wants to know whether the organization is at or very near the limit of its debt capital. From the table below, 25% representing three persons answered 'Yes' that their organizations are close to the limit of their debt capital structure. Seventy-five percent representing nine individuals answered 'No' that their organizations are not very close to the limit of their debt financing.

Capital structure policy

From the questionnaire, the researcher wants to know if the organization has a written policy for its capital structure. Eight individuals responded with 'yes' with a response rate of 66.7% that their companies have written or formal policy on capital structure. However, four respondents

responded ‘no’ with a33.3% response rate that their organizations do not have any written policy about the capital structure

Preferred financing alternatives

The nature and source of financing alternatives preferred by 12 respondents of the circulated questionnaire of the listed companies

Effect of organization-specific attributes on leverage

Organization characteristics are said to have a significant role in explaining the level of substantial earnings. Organization characteristics are referred to as those incentive variables that are relatively sticky at organizations’ level across time. They are variables that affect the organization’s decisions both internally and externally (Shehu, 2012). The incentive variable ranges from ownership structures, organization size, leverage, profitability, liquidity, growth among others.

Effect of tax on financing decision-making

The tax effect on the organization’s financial decision could be enormous as some of the listed companies are engaging in multinational enterprises where double taxation could occur. In order to avoid such dual taxation, there must be a tax treaty between the State of Nigeria and the foreign nation in which selected companies operate. The effect of the different compliance costs emanating from the multinational corporation tax system could put more pressure on the financial decision-making and the capital structure of organizations in the State of Nigeria.

From the research carried out it is evident that four respondents with 33.3% response rate from the questionnaire circularized stated ‘yes’ that there is the effect of taxation on the financial decision-making of the organizations in the State of Nigeria. Seven respondents with 58.4% response rate stated that there is no effect of taxation on the business decision of their organizations. However, one person with 8.3% of response rate was not sure whether the tax has any impact on the financial structure decision-making of his/her organization.

The uneven tax treatment of various components of financial cost introduces the possibility of reducing after-tax financing costs by reducing the government’s share of the cash flow pie. Most

notably, many firms consider debt financing to be less expensive than equity financing because interest payments are tax deductible whereas dividends are paid out of after-tax income.

As Merton Miller has noted, however, this comparison is misleading for two reasons. First, it ignores personal taxes. Second, it ignores the supply response of corporations to potential tax arbitrage. In the absence of any restrictions, the supply of corporate debt can be expected to rise as long as corporate debt is less expensive than equity. As the supply of debt rises, the yield on this debt must increase in order to attract investors in progressively higher tax brackets.

This process continues until the tax rate for the marginal debtholder equals the marginal corporate tax rate. At that point, there is no longer a corporate tax incentive for issuing more debt.

This process illustrates a key insight that underlies Miller's argument: The supply of securities in the capital markets is almost infinitely elastic. As soon as there is a small advantage to issuing one type of security rather than another, alert financial managers and investment bankers quickly alter their behavior to profit from this discrepancy. They will continue to issue the cheaper security until the discrepancy disappears. For this reason, opportunities to create value through the issuance of new securities are small and unlikely to persist.

Only in rare instances will a tax advantage persist "at the margin." The example of zero-coupon bonds illustrates one such case. In 1982, PepsiCo issued the first long-term, zero-coupon bond. Although they have since become a staple of corporate finance, zero-coupon bonds initially were a startling innovation. Zeros don't pay interest, but are sold at a deep discount from par. For example, the price on PepsiCo's 30-year bonds was around $60 for each $1,000 face amount of the bonds. Investors' gains come from the difference between the discounted price and the face value they receive at maturity.

These securities appeal to those investors who like to be certain of their long-term return. The locked-in return means that investors know the maturity value of their investment, an important consideration for pension funds and other buyers who have fixed future commitments to meet.

Normal bonds don't provide that certainty, because the rate at which coupons can be reinvested is unknown at the time of issue. But despite the potential market for such bonds, they did not exist until PepsiCo's 1982 issue.

The pent-up demand for its $850 million face value offering gave PepsiCo an extraordinarily low cost of funds. The net borrowing cost to the company was under 10 percent, almost four percentage points lower than the yield at that time on U.S. Treasury securities of the same maturity. But zero-coupon bonds did not remain such a low-cost source of funds for long. Once firms saw these low yields, the supply of zero-coupon debt expanded rapidly.

In addition, clever Wall Street firms discovered how to manufacture zeros from existing bonds. They bought Treasury bonds, stripped the coupons from the bonds, repackaged the coupons, and sold the coupons and the principal separately as a series of annuities and zero-coupon bonds.

The increase in the supply relative to the demand for zeros resulted in a jump in their required yields, negating their previous cost advantage. The tax advantage — one which is associated with any original issue discount debt (OID) — remained. The tax advantage to a firm from issuing zeros rather than current coupon debt stems from the tax provision that allows companies to amortize as interest the amount of the original discount from par over the life of the bond. The firm benefits by receiving a current tax write-off for a future expense.

By contrast, if it issues current coupon debt, the firm's tax write-off and expense occur simultaneously. The tax advantage from OIDs, which is maximized by issuing zero-coupon bonds, translates into a reduction in the company's cost of debt capital.

But these tax savings don't tell the whole story. Investors must pay tax on the amortized portion of the discount each year even though they receive no cash until the bond matures. Thus, the tax advantage to the firm from issuing zeros has been offset by the higher pre-tax yields required by investors to provide them with the same after-tax yields they could earn on comparable-risk current coupon debt. As a result, corporations issuing zeros will only realize a tax benefit to the extent that the marginal corporate tax rate exceeds the marginal investor tax rate. At the extreme,

if these marginal tax rates are equal, the tax advantage to an issuing corporation will be completely eliminated by the tax disadvantage to the investor.

The initial purchasers of zero-coupon bonds were primarily of two groups: (1) tax-exempt institutional investors such as pension plans and individual investors (for their tax-exempt IRAs) who sought to lock in higher yields; and (2) Japanese investors, for whom the discount was treated as a non-taxable capital gain if the bonds were sold prior to maturity. Selling to the tax-exempt segment of the market yielded maximum benefits to the issuers of zeros since the disparity in marginal tax rates was at its greatest.

The supply of tax-exempt institutional money, however, is limited. Furthermore, the Japanese government has ended the tax exemption for zero-coupon bond gains; Japanese investors have accordingly demanded higher yields to compensate for their tax liability. The reaction by the Japanese government illustrates another important point concerning financial strategy: If one devises a legal way to engage in unlimited tax arbitrage through the financial markets, the government will eventually change the law.

More limited tax arbitrage, however, may persist for some time. For example, companies with tax losses or excess tax credits can sell preferred stock to other corporations and thereby reduce investor taxes without a corresponding increase in their taxes. The reason is that corporate investors can exclude from taxable income 70 percent of the preferred (or common) dividends they receive.

This means that a corporate investor in the 34 percent tax bracket faces an effective tax rate of only 10.2 percent (.3 x 34%) on preferred dividends. As a result, corporate investors are willing to accept a lower yield on preferred stock than on comparable debt securities. Hence, companies in low tax brackets (who are unable to make full use of the interest tax write-off) should be able to raise funds at a lower after-tax cost with preferred stock instead of debt. Similarly, leasing (rather than buying) assets enables low tax bracket companies to raise funds at a lower cost by passing along the depreciation tax deduction to investors in higher tax brackets in return for a lower effective interest rate.

Further analysis of the effect of organization-specific attributes on leverage ratio is viewed from the following perspective from the respondents' viewpoints:

- Non-debt tax shield
- The tangibility of asset structure
- Profitability
- Organization size
- Growth
- Liquidity
- Business risk

Non-debt tax shield

From the hypothesis, it is evident that three respondents with a response rate of 25% believe that non-tax shield has a positive influence on the capital structure choice of their organizations. Only one respondent with 8.3% response rate affirms that non-debt tax shield has a negative impact on the capital structure of his/her organization. However, 66.7% response rate representing eight individuals were undecided to say whether non-debt tax shield neither has a positive nor negative influence on the capital structure of their organizations.

From the below table, it is evident that three respondents with a response rate of 25% believe that non-tax shield has a positive influence on the capital structure choice of their organizations. Only one respondent with 8.3% response rate affirms that non-debt tax shield has a negative impact on the capital structure of his/her organization. However, 66.7% response rate representing eight individuals were undecided to say whether non-debt tax shield neither has a positive nor negative influence on the capital structure of their organizations.

The tangibility of asset structure

According to Investopedia.com (http://www.investopedia.com/terms/t/tangibleasset.asp), tangible assets include both fixed assets, such as machinery, buildings, and land, and current assets, such as inventory. The opposite of a tangible asset is an intangible asset. Nonphysical assets, such as patents, trademarks, copyrights, goodwill and brand recognition, are all examples of intangible assets.

Profitability

As cited by Myers (1984) as evidenced from Donaldson (1961), Brealey and Myers (1992) suggest that organizations would prefer raising capital from retained earnings in the first instance, followed by debt and finally from issuing new equity. He indicated that this behavior might be due to the costs of issuing new equity that was discussed in Myers and Majluf (1984), which may arise because of asymmetric information or transaction costs. In either case, the past profitability of an organization, and the amount available as retained earnings should be an essential determinant of its current capital structure.

The organization sizes

Many capital structure researchers opined that leverage ratios might be related to the size of the organization. However, other researchers opined that direct bankruptcy costs might constitute a more substantial proportion of a organization's value as that value decreases, such as Warner (1977), Anget al (1982), as well as large organizations, tend to be more diversified and less prone to bankruptcy. In fact, these arguments suggest that large organizations should be more highly leveraged than smaller ones.

The cost of issuing debt and equity securities is equally related to the size of the organization as smaller organizations pay much more than larger organizations to issue new equity, Smith (1977) and somewhat more to issue long-term debt. This argument thus suggests that smaller organizations may be more leveraged than larger organizations that may prefer to borrow short-term bank loans rather than issue long-term debt as there is a lower fixed cost associated with this type of capital.

Growth

The most obvious sign of a rapidly growing company is its large appetite for cash. Even though income rises along with sales, cash flow is generally negative because the investment required to finance the growth in sales typically exceeds the current net operating cash flow. A company, or its division, usually begins to generate substantial free cash flow only after the business matures and sales growth slows. Therefore, the ability to locate potential sources of external funds and to

arrange them in an attractive financial package are major factors affecting corporate growth. The absence of free cash flow also reduces the likelihood that this will be a source of conflict between management and shareholders.

The second prominent feature of growing companies is less obvious, but critical nonetheless in devising a financial plan. For a company to grow in value, not just in size, it must have access to investment opportunities with positive net present values. These opportunities may be thought of as growth options. Such options include the possibility of increasing the profitability of existing product lines as well as expanding into profitable new products or markets.

Growth options are typically the primary source of value in rapidly expanding firms. Such firms often have few tangible assets in place; their assets instead consist primarily of specialized knowledge and management skill. For example, Genentech, a gene-splicing company, had a stock market value of over $3 billion in late 1986 even though earnings for the year were only $11 million, giving it a P/E ratio of over 270 to 1. Clearly, the market was valuing Genentech's future ability to capitalize on its research in areas such as anti-cancer therapy and blood clot dissolvers for heart attack victims.

A third key aspect of growth companies is that the market is likely to have a particularly difficult time in establishing their values. Unlike companies whose value depends primarily on familiar, straightforward projects, the value of a growth company depends on the value of growth options, for which there are no obvious comparable. Instead, such valuations must be based on expectations about future profits from yet-to-be-developed products (as in the case of Genentech) or novel markets niches (as in the case of Federal Express). This difficulty in valuing growth options both exacerbates the credibility problem and increases the potential for conflicts among managers, investors, and non-investor stakeholders.

The credibility gap between management and investors is likely to be most pronounced in the case of growth companies because management in such cases will often have far better information about the future profitability of undeveloped products and untapped market niches. This greater possibility for important inside information increases the amount by which investors will discount the price of new corporate securities to compensate for their informational

disadvantage. The natural management response to this problem, which is to provide investors with additional information, is often not credible because such statements are likely to be self-serving. Nor is the provision of such information to outsiders a possible alternative in many cases, because going public with the information necessary to evaluate its investments could jeopardize the company's competitive position.

Investors must also cope with the problem of uncertainty about management's abilities and commitment. The problems of managerial shirking and misrepresentation, which are liable to exist in all firms, are especially critical in growth companies because the value of growth options is especially dependent on the performance of management. The higher the percentage of value accounted for by growth options, the worse these problems are likely to be (unless management has a sizeable equity stake in the company).

Bondholders' fears of being exploited are also magnified in the case of growth companies. Growth options often involve the possibility of future projects whose actual undertaking depends on how events unfold over time. Also, other things being equal, the riskier an investment the more valuable is an option on it. Taken together, these factors increase the risk to bondholders of opportunistic behavior on the part of shareholders of companies with substantial amounts of growth options.

Another problem for bondholders is that growth options typically have little value apart from the firm. The absence of a secondary market for such options limits their use as security for debt claims.

Stockholders and bondholders are not the only parties for whom the wider information gap besetting growth companies is an important problem. Non-investor stakeholders such as customers and suppliers must make "firm-specific investments" whose returns depend on management's ability to exploit growth options effectively. If the firm fails to expand and develop new products, those parties that chose to do business with the firm will suffer. To reassure these stakeholders, management must do more than simply promise to honor their implicit claims; it must find some means to "bond" those promises. These bonding mechanisms are particularly important for growth companies because, in most instances, management has not had the time to develop its reputation or the reputation for the firm's products.

Taxes, for example, are primarily of concern to companies in the highest effective tax bracket. Companies with fairly stable or predictable incomes, and with little other means of shielding their income from taxes, know that they will be in the highest corporate tax bracket each year. Examples include consumer goods firms, utilities, some computer manufacturers, and packaged foods companies. Growth companies, by contrast, are typically unsure of their tax bracket because it is unclear whether they will have net taxable income in any given year.

On average, therefore, the effective tax rate for these companies is significantly below the maximum corporate rate. Moreover, since the variability of profit is likely to be higher for a growth company, there is a lower probability that they will be able to make full use of the interest tax shield, particularly at high levels of debt. This means that the tax advantages of debt are less valuable for growth companies than for mature companies.

Although growth companies are unlikely to be able to benefit from the tax advantages of debt, taxes may still play a role in their financing strategy. Specifically, low tax bracket growth companies may be able to use financing to transfer certain tax benefits to other companies that can more fully utilize them in return for a lower effective cost of funds. For example, we saw earlier that low-tax-bracket companies may be able to raise funds at a lower after-tax cost with preferred stock than with debt. Similarly, leasing (rather than buying) assets allows a growth company that isn't sufficiently profitable to make current use of all its depreciation deductions to transfer these deductions to investors in higher tax brackets; in return it gets financing with a lower effective interest rate.

As discussed earlier, there are two reasons for designing innovative securities: (1) to satisfy unmet market demand for a particular security with a unique risk/return trade-off; and (2) to solve specific incentive problems and resolve potential conflicts. Only the second reason is likely to be a reliable source of value for growth companies. As also noted earlier, unmet demands for new securities are unlikely to persist for long in a competitive financial marketplace.
Furthermore, a growth company may be at a disadvantage in introducing innovative securities. Because of the relatively large credibility gap that faces growth companies, investors are likely to be especially wary of new securities from such companies that promise unique risk/return

trade-offs. Fearing that these securities may be designed to exploit their ignorance, investors are likely to discount them more heavily, thereby negating the benefits of innovation.

Increasing liquidity and reducing transaction costs are potentially useful ways to increase the value of a firm. However, the benefits of these actions are apt to be smaller for growth companies. Growth companies are likely to attract investors who are more interested in long-run capital appreciation. Such investors typically follow a buy-and-hold strategy, so that the benefits of increasing liquidity or reducing transaction costs are likely to be minimal. When weighed against the costs of increasing liquidity or lowering transaction costs, therefore, such measures appear to be less beneficial for growth companies than for more mature companies.

Growth companies, then, are not likely to have a comparative advantage in creating value by dividing up the cash flow pie. By contrast, measures designed to bridge the credibility gap are likely to be particularly valuable for growth companies. Both investor and non-investor stakeholders will be more uncertain about the future prospects of a growth company than about the prospects of a more mature firm. Measures the firm can take to resolve this uncertainty will both raise the price that investors are willing to pay for its securities and reduce potential conflicts among the various corporate stakeholders.

The problem of credibility for growth companies is so pervasive that it affects all aspects of their financing. Perhaps the best way to introduce the problem is to consider a growing firm that needs new funds to exercise a growth option. Assume the firm is making a straightforward choice of debt or equity. To make the example concrete, suppose the option is the chance to invest in the development of a new software package for word processing.

If the firm goes to the equity market today to finance development of the product, credibility will be a serious issue. How are investors to know exactly what the product will look like, and whether management will be capable of producing the product on schedule, effectively marketing it, and enhancing and supporting it? Because of this uncertainty, the firm has an incentive to delay exercising its growth option until investors become better informed.

Competitive conditions, however, provide an incentive for early exercise. Because these options are often shared with other competitors and cannot generally be traded, a company that waits to exercise a shared growth option — such as the chance to enter a new market or to invest in a new technology — may find that competitors have already seized the opportunity. For instance, a software firm that delays developing its new word processing program may find that, by the time the program ships, customers are committed to a competing product. (The problem is analogous to deciding whether to exercise an option on a dividend-paying stock before maturity; you preserve the option by waiting but forgo the dividend.)

The message here is that companies must structure their financing to remain flexible enough to exercise growth options at the opportune moment. In this regard, future flexibility may be as important as current flexibility. Many strategically important investments — such as investments in R&D, factory automation, a brand name, or a distribution network — are often but the first link in a chain of subsequent investment decisions. The company must be prepared to exercise each of these related growth options in order to fully exploit the value of the initial investment. Moreover, stakeholders will condition the price they are willing to pay for the company's implicit claims today on the company's financial capacity to exercise these growth options in the future and provide them with the services and products they expect.

For example, if our software firm decides it must have the funds today to retain its flexibility, then it must issue equity at a big discount or go to the debt market. As noted earlier, the discount on debt will be much smaller because the cash flows received by creditors are less sensitive to the performance of the firm. However, there is a cost to issuing debt which is likely to be particularly great for growing firms.

First, the cost of financial distress is apt to be particularly large for growing firms. As we have seen, much of the value of a growing company comes from growth options which, as also noted, are highly intangible assets. Such intangible assets will rapidly depreciate in value if the firm experiences — or even seems likely to experience — financial trouble. Because the probability of financial distress increases with financial leverage, the expected cost of financial distress increases with the amount of debt issued.

Recognizing the costs of financial distress, creditors of growing firms require detailed covenants to protect themselves against potential managerial opportunism and incompetence. These covenants are likely to be especially restrictive for highly-leveraged growth companies because these companies, by their nature, are engaged in high-risk activities. Although restrictive loan covenants avoid many of the potential conflicts associated with debt financing — by limiting management actions that are potentially harmful to bondholders — they also may turn out to be costly to shareholders because the constrain management's choice of operating, financial, and investment policies and reduce its capacity to respond to changes in the business environment. For example, lenders may veto certain high-risk projects with positive net present values because of the added risk they would have to bear without a corresponding increase in their own expected returns.

The opportunity cost associated with the loss of operating and investment flexibility will be especially high for firms with substantial growth options because such firms must be able to respond quickly to continually changing product and factor markets. All else being equal, therefore, the high costs of financial distress, together with the costs associated with resolving the conflicts of interest between shareholders and bondholders, reduce the optimal amount of debt in a growth firm's capital structure. For example, in explaining why his company shunned debt, the chief financial officer of Tandem Computer commented, "We were a young company competing with the likes of IBM. Not taking on debt was a marketing decision because we might not get customers if we seemed financially shaky." By contrast, established firms operating in stable markets can afford more debt since their competitive stance will be less compromised by the restrictions and delays associated with high financial leverage.

Faced with this unsatisfactory trade-off between the steep discount on new equity and the restrictive covenants associated with issuing straight public debt, growth companies are well advised to look elsewhere for funds. One place to start is with a commercial bank.

The Role of Bank Loans in Financing Growth Companies

A banking relationship may solve many of the problems associated with public debt. The potential advantages of a bank credit are twofold: First, the firm can more readily custom-tailor a set of terms and conditions in face-to-face negotiations with its bankers than by trying to deal

with a large number of smaller investors. Second, renegotiating certain covenants in response to changing circumstances is less cumbersome with a bank loan. The flexibility, discretion, and durability of these arrangements is what is termed a "banking relationship".

Richard K. Goeltz, Vice President-Finance of Seagram & Sons, Inc., makes this point as follows: There is an important advantage in dealing with individual bankers rather than an amorphous capital market. One can explain a problem or need to account officers at a few institutions. Direct communications with the purchasers of [bonds] are almost impossible. These investors, as is the case for most public issues, have little feeling of commitment to the borrower or sense of continuity … If the borrower can modify the terms and conditions of the former more easily and inexpensively than the latter, then the bank loan will be less costly, even if the effective interest rates are identical.

The advantages of a banking relationship to a growing company stem from the personal nature of the relationship between borrower and lender. Presumably, bankers, who deal directly with the borrower, have lower costs of monitoring client activities than do bondholders, who are anonymous (in the case of bearer bonds) or are not interested, as are banks, in a long-term relationship with the borrower.

Some recent research supports this assumption. The basic argument of this work is that banks play the part of delegated monitors who check on the behavior of the firm's managers. Specifically, it is claimed that banks have a comparative cost advantage in information gathering and monitoring relative not only to investors in public capital markets, but relative to other financial institutions as well. This comparative advantage arises in large part from banks' ongoing deposit history with the borrower and from the short-term repeat lending activity in which banks specialize.

When a firm is unable to make interest payments on time or when its financial statements indicate problems, the banker's first response is to examine the firm's condition more closely. Such examination is particularly valuable for growth companies because much of their value arises from options that will be lost if the firm cannot get financing on sufficiently flexible terms.

If the banker finds that the firm's prospects are promising, he can reschedule the firm's payments, waive a covenant, or even increase the amount of the bank's loan.

The relationship with a bank can also reduce a growth company's information problem with other investors. The view that bankers, as insiders, have better information about the firm's prospects than outsiders and are better able to supervise its behavior implies that the loan approval process should convey two pieces of positive information about the borrowing firm to outside investors: (1) the bank believes the firm is sound, and (2) the bank will supervise corporate management to ensure that it behaves properly. In support of this argument, a recently published study by Christopher James (presented in a later article in this issue) documents a consistently positive stock market response to companies announcing the arrangement of loan commitments from commercial banks.

Another important aspect of a banking relationship is the provision of continuous access to funds. In the typical commercial banking relationship, the bank can be viewed as writing options for its loan customer. Through such devices as credit lines or lending commitments, the borrower can choose the timing and the amount of the loan; the borrower can often prepay or refinance the loan at a nominal fee. Most important, the bank makes an implicit, and sometimes explicit, commitment to provide funds in times when the borrower finds them difficult to obtain from other sources. This flexibility is critical for growth companies because the timing of their investment program is so difficult to forecast.

Despite the advantages of bank debt, banks cannot supply all the financing required by growth companies. The difficulties are three: First, bank debt is still debt, which retains many restrictive features. Second, like any form of debt, bank loans increase the probability of financial distress, with all its adverse consequences for firms trying to sell implicit claims. Third, from the standpoint of the creditor, financing high-risk investments such as growth options is not attractive. The creditor bears all the downside risk without sharing in the upside benefits. Growth options also make poor collateral; their value in liquidation is usually nil.

The Role of Venture Capital in Financing Growth Companies

In the case of start-ups, whose assets are comprised primarily if not exclusively of growth options, bank loans are virtually unobtainable. Venture capital has evolved as a solution to these problems. In effect, venture capitalists provide private equity. But, in return, they demand a much closer relationship, more control, and a significantly higher expected rate of return.

Venture capitalists also typically demand a financial structure that shifts a great deal of risk onto company management. In order to ensure that the founders remain committed to the business, venture capital firms try to structure the deal so that management benefits only if the firm succeeds. This usually involves modest salaries for managers, with most compensation tied to profits and the appreciation in the value of their stock.

Moreover, the venture capitalist usually buys preferred stock convertible into common shares when and if the company goes public. Besides giving the venture capitalist a prior claim on the assets of the firm in liquidation, one obvious effect of using preferred stock instead of straight equity is to transfer risk from the venture capitalist to the entrepreneur. But this is probably not the primary reason for using convertible preferred because there are no clear net gains to the venture capitalist from simply transferring risk; if the founders have to bear more risk, they will raise the price to the venture capitalist of acquiring a given stake in the firm.
As William Sahlan argues (in the article following this one), two more likely reasons for using a financial structure that shifts a major share of the risk to the founders are as follows: (1) to force the founders to signal how strongly they believe in the forecasts contained in their business plan; and (2) to strengthen the founders' incentive to make the company succeed by ensuring that they benefit greatly only if they meet their projections.

By their willingness to accept these terms, the founders increase investors' confidence in the numbers contained in the business plan. The venture capitalist, therefore, is willing to pay a higher price for his equity stake. The financial structure also motivates management to work harder and thereby increases the probability that a favorable outcome will occur.

To further limit their downside risk, venture capitalists also rarely give a start-up company all the money it needs at once. Typically, there are several stages of financing. At each stage, the venture capitalists will give the firm enough money to get it to the next product or market

development milestone. By staging the commitment of capital, the venture capitalist gains the option of abandoning the project or renegotiating a lower price for future purchases of equity in line with new information.

In return for this option, the venture capitalist is willing to accept a smaller ownership share for a given investment. The founders benefit from this financing structure because it means giving up a smaller share of ownership for the needed funding. If the venture progresses according to plan, the founders will be able to bring in future capital with less dilution of their ownership share. Staged financing thus provides the founders with the option to raise capital in the future at a higher valuation.

Both of these venture capital practices, the use of convertible preferred stock and staged capital commitment, can be seen as means of overcoming the "credibility gap" that confronts all growth companies in raising capital.

The Role of Private Placements in Financing Growth Companies

Although bank loans and venture capital offer the benefit of flexibility that comes with a close relationship, they are both expensive. The interest rates on bank loans are generally higher than the rates on straight debt, and venture capitalists demand a high rate of return for the risks they bear and the time they invest. For this reason, growth companies have an incentive to issue securities despite the problems discussed earlier. The key is to design such securities so as to minimize the credibility gap that leads to a large discount on equity and to restrictive covenants on debt.

A growing firm that needs flexible debt financing may be able to secure such funds by way of a private placement. As in the case of bank debt, dealing directly with the ultimate investor opens the possibility for negotiation and renegotiation of the lending terms. In addition, the firm may be able to provide a few creditors with sensitive strategic information that it would not want to make publicly available.

Unfortunately, there is one major complication that arises when growing firms attempt private placements. Because privately placed securities are difficult to sell prior to maturity, investors

will want to be assured at the outset that payments will be made over the life of the security. It is just such assurances that are difficult for growth companies to provide. This produces an incentive for the creditors to protect themselves with restrictive covenants and thereby leads to the same problem that exists with publicly issued debt.

The Role of Convertible Securities in Financing Growth Companies

Another alternative to straight debt is to issue bonds or preferred stock that are convertible into common stock at the bondholder's option. If the conversion features are set properly, convertible securities can overcome some of the problems that cause investors to demand strict covenants on straight debt. Convertibles offer investors participation in the high payoffs to equity when the firm does better than expected while simultaneously offering them the downside protection of a fixed-income security when the firm's value falls. If a firm with convertibles is expected to undertake high-risk projects, the value of the conversion option will increase (because stock price volatility increases an option's value), offsetting to some extent a decline in the value of the fixed income portion.

As Michael Brennan and Eduardo Schwartz have argued, this offset means that the value of an appropriately designed convertible should be relatively insensitive to the risk of the issuing company. This feature of convertibles is particularly valuable when investors and management disagree about the risk of a company, as is likely to be the case with rapidly growing firms. Consider the case of company which investors believe to be very risky, but which management, with privileged information, believes is only moderately risky.

Assume further that management is confronted with the choice of paying a coupon rate of 12 percent on straight debt when companies that management deems of comparable risk are paying only 10 percent. In such a case, as Brennan and Schwartz illustrate, management is likely to be able to sell a convertible bond issue with the same conversion premium but only a slightly higher coupon rate (say, 8 percent relative to 7.75 percent) than the moderately risky company.

The reason, again, that the effect of the divergence in risk assessment is much less for the convertible than for straight debt is that the value of convertibles is much less sensitive to changes in risk; or, to put it a little differently, the implicit warrant in a convertible protects

bondholders from large changes in risk. Thus, if the market overestimates the risk of a small growth company (and thereby undervalues the company's straight debt), it will overvalue the convertible's call option feature. In this sense, convertible securities are well suited for coping with differing assessments of a company's risk.

The problem with convertibles for growth firms, however, is that the very flexibility they afford investors may actually reduce management's financing flexibility. Once issued, a convertible bond is a hybrid security which effectively becomes an equity claim when times are good (and the value of the firm appreciates) but a straight debt claim when the value of the firm falls. It is, of course, precisely when times are bad that debt can cause problems for growth companies short of tangible assets. At the same time, however, the coupon reduction on convertibles relative to straight debt may significantly reduce the debt service burden and, with it, the likelihood of financial distress. Also, the less restrictive covenants associated with convertibles provide management with more flexibility in responding to unforeseen events than does straight debt.

Corporate Stakeholders and the Financial Policy of Growth Companies

Capitalizing on growth options involves more than developing a new product or exploiting a new market niche. The company must develop relationships with customers, suppliers and distributors, all of whom make "firm-specific investments" when they do business with the company. In making these commitments, as we argued before, customers and other stakeholders are in effect purchasing implicit claims for timely delivery, product support, future enhancements, and the like. The prices they pay for these claims depends on how confident they are that the company will be able to honor them.

Established firms can use reputation to "bond" their implicit claims. Customers realize that if IBM were to fail to stand behind one of its machines, the resulting damage to IBM's reputation would be very costly. They understand, therefore, that it is not in IBM's best interest to default on its implicit claims.

Unfortunately, this bonding mechanism is not available to growth companies, which by definition have not had time to develop a reputation. Therefore, growing firms must turn to alternative mechanisms for bonding implicit claims. One possibility is to use financial policy.

In a capital market with information freely available to all and without material transaction costs, financial policy would not play an important role in the firm's effort to convince stakeholders that it will honor its implicit claims. Because a company can always go to the capital markets whenever it needs to finance its growth options, all the company has to do is to convince stakeholders that it has a profitable sequence of growth options. Stakeholders will then take it for granted that the firm will go to the capital market whenever it comes time to exercise a growth option.

However, this "perfect markets" view overlooks the credibility gap problem that we have stressed throughout this paper. A growth company always faces a significant problem whenever it goes to the capital market. This problem is exacerbated if the company even appears likely to face financial distress. Under these circumstances, financial policy can play an important role in bonding implicit claims.

The problem from a stakeholder standpoint is as follows: If a growing firm develops a cash shortage or faces financial distress, it may be in the company's interest to default on implicit claims rather than go to the capital market. Even if the company intends to honor its implicit claims, the disruption to its operations caused by financial difficulty may not allow the company to provide stakeholders with their expected payoffs. For this reason, the firm must convince stakeholders up-front that it has the financial resources to see projects through to completion; otherwise, they will not make commitments to the firm.

To reassure stakeholders, growth companies generally should maintain substantial financial resources in the form of unused debt capacity, large quantities of liquid assets, excess lines of credit, and access to a broad range of fund sources. This financial flexibility helps preserve operating flexibility. A firm that has left itself with financial reserves for contingencies can respond to an adverse turn of events by allowing long-term considerations to prevail. By contrast, a firm with a high debt-to-equity ratio, minimal liquidity, and few other financial resources might have to sacrifice its long-term competitive position to generate cash for creditors.

The Critical Importance of Financial Flexibility for Growth Companies

The ability to Marshall substantial financial resources also signals competitors, actual and potential, that the firm will not be an easy target. Consider the alternative, a firm that is highly leveraged, with no excess lines of credit or cash reserves. In such a case, a competitor can move into the firm's market and gain market share with less fear of retaliation. In order to retaliate – by cutting price, say, or by increasing advertising expenditures – the firm will need more money. Because it has no spare cash and can't issue additional debt at a reasonable price, it will have to go to the equity market. But we have already seen that firms issuing new equity face a credibility gap. The credibility problem will be particularly acute when the firm is trying to fend off a competitive attack. Thus, a firm that lacks financial reserves faces a Hobson's choice: Acquiesce in the competitive attack or raise funds on unattractive terms.

Similarly, when opportunity knocks, a firm with substantial financial resources will be better positioned to take advantage of it than a firm with few financial resources and bound by tightly drawn debt covenants. Thus, firms with valuable growth options should place a high priority on financial flexibility.

In the attempt to preserve financing flexibility, however, management must perform what amounts to a balancing act. Recall that corporate managers historically have demonstrated a strong preference to fund new investment with the least risky sources available: first, retained earnings, next, straight debt, and, last (and only if necessary), common stock. This financial "pecking order," as Stewart Myers argues, reflects the attempt to avoid the greater information costs (in the form of larger price discounts) of riskier offerings. By adhering to the pecking order and overcoming one problem, however, management may well be creating another. The reason: a firm that issues debt today thereby increases the probability that it "must" raise equity tomorrow – perhaps on very unfavorable terms.

In short, a firm that needs to raise funds today faces a trade-off. If sources low on the pecking order (internal funds and debt) are used in the current period, then current financing costs appear to be low. But, as a result, the firm faces the hidden opportunity cost of being pushed up the pecking order in the uncertain future and thus being forced to issue more costly equity. Conversely, if the firm reverses the pecking order and instead issues equity in the current period (and the funds are held as cash), then current costs may be higher, but the option to move

"down" the pecking order in the future may actually provide the firm with a cheaper source of funds overall.

For growth companies, then, beginning with a substantial equity endowment and thus preserving the option to move "down" the pecking order is likely to be the favored strategy. A balance sheet heavily weighted toward equity, and perhaps including large cash balances at various times, should provide growth firms with the kind of financing flexibility necessary to exercise their "growth options".

As we saw earlier, however, too much financial flexibility may also create its own problems. For one thing, there is a tax penalty associated with investing corporate funds in marketable securities because the interest on these securities is taxed twice, once at the corporate level and again at the investor level. But potentially more important, companies with excess financial resources are more insulated from the discipline exerted by the financial marketplace.

On the other hand, the weakening of management incentives that tends to come with financial "slack" is most likely to be a problem for mature companies where managers have much smaller equity stakes than those typically held by managers of growth companies. Thus, although new equity for growth companies may be expensive to raise, providing the management of such firms with an "equity cushion" is much less likely to introduce some of the incentive problems that come with corporate age and prosperity. With growth options to finance and free cash flow generally negative, the managements of growth companies have a clear incentive to husband their funds wisely. Moreover, the knowledge that such managements typically have major equity stakes in their firms provides comfort to outside equity investors that they often do not have with large established companies.

Liquidity

Pecking order theory predicted that companies with high liquidity borrow less for the fact that a company with more current assets is expected to generate more private inflows, which may be used to finance its operating and investments activities. Given the aforementioned, Pandey (2006) noted that it is essential for a business to meet its obligations as and when needed and that liquidity ratios measure the ability of an organization to meet current requirements.

When an organization has more liquid assets that sold faster enables an organization to place better collateral to seek financing, which thus allows more leverage and a positive relationship could that exist between asset liquidity and leverage as in Williamson and Oliver (1988). Also, trade-off theory suggests a positive correlation between leverage and liquidity because of higher liquidity ratio reflects the more exceptional ability of an organization to meet its immediate obligation on time.

Myers and Rajan (1998) found a negative relationship between asset liquidity and leverage with the belief that when an organization has more cash, it becomes difficult to predict the asset values and the managers find it challenging to commit to a specific course of action. The external creditors limit the amount of debt financing when organizations have more liquid assets, which may produce a negative relationship between asset liquidity and leverage.

Morellec and Erwan (2001) argued that the relationship between asset liquidity and leverage be insignificant. This proposition supported by Ozkan (2001) suggests that liquidity has an ambiguous effect on the capital structure decisions as current assets to current liabilities proposition chosen as a proxy for liquidity.

It should be noted however in Lipson and Mortal (2007), which examined the relationship between capital structure decisions and equity market liquidity, where it found that organizations with more liquid equity tend to have lower leverage and more likely to choose equity over debt when raising capital. Organizations with more liquid capital employ more stake in their capital structure as they issue more equity shares than debt when borrowing money. More so, in Hsia (1981), Huang and Song (2004), there is a positive relationship between financial distress and leverage. Hsia (1981) explained that the positive correlation centered on the option pricing model, capital asset pricing model and the M&M theory whereby the variance of the organization's assets increases, the systematic risk of equity decreases in which business risk becomes positively related to leverage.

Also, Pandey (2005) explained that the most common ratios that indicate the extent of liquidity or the lack of it to include the following, current ratio and the quick ratio or acid test ratio. These

two explained as follows retrieved from (http://www.myaccountingcourse.com/financial-ratios/current-ratio):

- Current Ratio: The current ratio is a liquidity and efficiency ratio that measures an organization's ability to pay off its short-term liabilities with its current assets. The ratio is an essential measure of liquidity because short-term obligations are due within the next season.

That means that a company has a limited amount of time to raise capital to pay for the liabilities. Current assets like cash and cash equivalents as well as marketable securities are readily converted into money in the short term. That means that companies with substantial current assets will be able to pay off their current liabilities as at when they are due with the requirement of not selling their long-term revenue-generating assets.

The "current ratio is calculated by dividing current assets with the current liabilities" (https: //www.coursehero.com/file/p6nq5k/II-Liquidity-Ratios-A-Liquidity-refers-to.). Here is the calculation:

Current ratio = current assets / current liabilities

"The GAAP (Generally Accepted Accounting Principles) required that companies separate existing and long-term assets and liabilities on the balance sheet" (https: //www.sec.gov/Archives/Edgar/data/1300938/000118518516005294/abcoenergy10q.). The separation allows investors and creditors to calculate important ratios like the current ratio. In financial statements, current accounts always reported before long-term accounts.

The current ratio helps investors and creditors understand the liquidity of a company, as well as how quickly that company will be able to pay off its current liabilities. This ratio expresses an organization's existing debt regarding current assets. A higher current ratio is always more favorable than a lower current ratio "because it shows that the company can more easily make current debt payments" (https://www.coursehero.com/file/24068182/BUS-FP3061-McAndrewVanessa-Assessment5-). It should be noted that when a company sells its fixed assets to pay for current liabilities, it means that the company is not making enough profit from its operations. In other words, the company is losing money. Hence, the accounts receivable collection becomes difficult.

The current ratio sheds light on the overall debt burden of a company. When a company is weighed down by existing debt, its cash flow suffers (http://www.myaccountingcourse.com/financial-ratios/current-ratio).As a general rule, Pandey (2005) noted that a current ratio of 2:1 or more is considered satisfactory and that a proportion higher than one means that the business has more current assets than current claims against them (https://www.coursehero.com/file/p6628m1/The-current-ratio-is-a-measure-of-the-fi.).

- Quick ratio or Acid-test ratio: This is a "liquidity ratio that measures the ability of a company to pay its current liabilities when they come due with only quick assets. Quick assets are current assets that could be converted to cash within 90 days or in the short-term" (http://www.myaccountingcourse.com/financial-ratios/current-ratio). "Cash, cash equivalents, short-term investments or marketable securities, and contemporary accounts receivable are considered quick assets" (http://www.usingquickbooks.com/liquidity-ratios/).

Short-term investments or marketable securities include trading securities and available for sale securities quickly converted into cash within the next 90 days and are marketable securities traded on an open market with a known price and readily available to buyers (http://www.myaccountingcourse.com/financial-ratios/quick-ratio). Any stock on the Stock Exchange would consider industrial safety because they can be sold quickly to investors in an open market (http://www.myaccountingcourse.com/financial-ratios/quick-ratio).

The quick ratio is always called the acid test ratio because of the historical use of acid to test metals for gold by the early miners. If the metal passed the litmus test, it was pure gold. If metal failed the litmus test by corroding from the acid, it was a base metal and of no value(http://www.myaccountingcourse.com/other/financial-ratio-cheatsheet.pdf). The litmus test of finance shows how well a company can quickly convert its assets into cash to pay off its current liabilities (http://www.flashcardmachine.com/intermediate-chapter1314.html).It also illustrates the level of quick assets to existing obligations.

The quick ratio calculated by adding cash, cash equivalents, short-term investments, and current receivables together than dividing them by current liabilities. For example, from http://www.jaiibcaiibmocktest.com/ratio-lquick.php (accessed 16-Jul-2016):
Acid test ratio or Quick ratio or = Cash + cash equivalents + short-term investments + current receivable / current liabilities

Sometimes company financial statements do not give a breakdown of quick assets on the balance sheet. In such a case, one can still calculate the quick ratio even if some of the quick asset totals are unknown. Subtract inventory and any current prepaid assets from the current asset total for the numerator, for example from

HTTP://www.managementparadise.com/balajiv.ganesh/documents/7329/bharti-airtel-en. (accessed 15-Jul-2016):
Quick ratio or Acid test ratio = Total current assets – inventory – prepaid expenses / current liabilities
Pandey (2005) noted that the quick ratio or litmus test ratio established a relationship between quick or liquid assets and current liabilities, any ratio of 1:1 is considered satisfactory financial performance.

Business risk

As earlier stated, risk levels are one of the determinants of the company's capital structure according to Kale et al (1991). It follows when a substantial operating risk is more volatile than the business's earnings stream in which the chance of the company to default and expose to bankruptcy and agency costs is very high. Johnson (1997) found that companies with more volatile earnings growth might experience more situations in which cash flows are too low for debt service.

Two types of risks are usually considered when planning the capital structure of an organization. They are the business risk and financial risk. Business risk refers to relative variability in the organization's expected earnings before interest and taxes (EBIT). The nature of the organization's operations causes its business risk. This type of risk may be affected by the organization's cost structure, product demand characteristics, and intra-industry competitive

competition. The business risk may be due to internal or external factors. Internal risks arise from factors such as endogenous variables that can be controlled such as

- Human factors such as talent management, strikes
- Technological factors such as emerging technologies
- Physical factors such as failure of machines, fire or theft
- The operational factors such as access to credit, cost-cutting, and advertisement

External risks arise from factors such as exogenous variables that cannot be controlled such as

- Economic factors such as market risks, pricing pressure
- Natural elements such as floods and earthquakes
- Political factors such as compliance and regulations of the government

The inherent danger is due to improper products mix because of the unavailability of raw materials and the absence of strategic management ability cum the incompetence to face competition. The apparent business risk arises due to change in operating conditions caused by the circumstances beyond the control of the organization, for example, the business cycle planning.

Financial risk is that type of risk that is associated with financing, which includes financial transactions such as company loans at risk of default. Often it is understood to include only downside risk, meaning the potential for financial loss and uncertainty about its extent (https://en.wikipedia.org/wiki/Financial_risk).

5.2 Conclusion

According to researchers, the asset structure of the organization plays a significant role in determining its capital structure. The extent to which the organization's assets are tangible should result in the organization to have a higher value at liquidation. Naveed et al (2010), Dong (2011), Najjar and Petrov (2011) stated that organizations that invested heavily in the tangible assets might have higher financial leverage. Also, when the organizations borrowed at lower interest rates and their loans are secured with such assets. Ahmed et al (2011) believed that the loanmight be secured when durable assets are used as collateral security.

Empirical research suggested a positive relationship between asset structure and leverage for the organizations and a negative correlation between depreciation expenses as a percentage of total assets and financial leverage, according to the view of Nivorozhkin (2005), Miao (2005), and Dong (2011). Cassaret al (2003), Hall et al (2004), Jordan et al (1998) suggested a positive relationship asset structure and long-term debt, and a negative relationship between asset structure and short-term debt. Esperanca et al (2003) found a positive relationship between asset structure and both short-term and long-term debt. The tangibility of the fixed asset may assist organizations to obtain more long-term debt.

Nivorozhkin (2005) based the research on dynamic unrestricted capital structure model on examining the determinants of an organization's financial leverage in the Czech Republic and Bulgaria between 1993 and 1997. The tangibility of asset structure was considered as one of the variables for the study. The result indicated a negative relationship between asset tangibility and leverage. Bhaduri (2002) used three proxies: the ratio of land and building to total assets, the ratio of plant and equipment to total assets, and the ratio of inventory to total assets for asset tangibility in order to see the effect of asset class used on leverage. From the result of the study, Bhaduri believed that the organizations that finance long-term assets do not always use short-term loans.

The trade-off theory proposes a positive relationship between organization size and debt. Titman and Wessels (1988) stated that small organizations tend to rely on low leverage as they face high costs when issuing long-term debt or equity, and also because of the risk factors underlying the small organization effect. From the lenders point of view, small organizations are risky, and they maintain low business with the financial institutions, which makes them less preferable clients. Also, in some cases when they are preferred, they are charged higher interest rates. Large organizations are essential corporate clients and thus offered competitive rates.

Deesomsaket al (2004) argued that large organizations have lower agency costs of debt, smaller monitoring costs, more stable cash flows, and easier access to a credit market that increase their dependence on debt. Also, they stated higher bankruptcy risk, bankruptcy costs, and agency costs associated with the asset substitution might result in underinvestment problem and restriction on the length of maturity of debt for small organizations.

Ferri and Jones (1979) suggested that large organizations have easier access to the capital market than the small organizations as they are more credible in their financial decision making based on vast cash reserves or assets that could be sold off to raise capital. Small organizations are more prone to the economic downturn and a higher chance of liquidation when faced with financial distress as postulated by Ozkan (2000). Small organizations also have fewer resources available to them to get out of financial distress. Thus, they are expected to have less long-term debt but possibly more short-term debt than the larger organizations.

The reason for taking size as the organization-specific determinant is essential in some ways by using organization size as a natural log of sales and the explanatory variable is related to risk and bankruptcy costs, Bennett and Donnelly (1993). The sizewas used as one of the operational characteristics of an organization that has the potential to determine equity and debt choice. It is supported by many research studies such as Rajan and Zingales (1995), Titman and Wessels (1988), and Whited (1992).

As an organization continues in business, it establishes itself as a going concern. Thereby increases its appetite to take more loans in its financing. Naveed et al (2011) believed that the age of an organization brings goodwill as an intangible asset in its capital structure model. As the organization continues to be in business for a more extended period, it increases its capacity to take on more debt. Thereby making age positively related to debt.

Peterson and Rajan (1994) found that older organizations should have higher debt ratios since they should be higher quality organizations that possess the four components of quality planning, assurance, control, and improvement. Hall et al (2004) agreed that age is positively related to long-term debt but negatively related to short-term debt. However, Esperanca et al (2003) found that age is negatively related to both long-term and short-term debt. Green et al (2002) found that age has a negative influence on the probability of incurring debt in their earlier capital equation, and no impact in the additional debt in their following capital equation as cited in Gatsi (2016).

Organizational risk level is one of the specific determinants of the capital structure according to Kale et al (1991). When an organization’s operating risk becomes more volatile than its earnings

stream, the chance of such organization defaulting and being exposed to bankruptcy and agency cost is very high. Johnson (1997) stated that organizations with volatile earnings growth might experience more situations in which cash flows are too low to service its debt.

Titman et al (1988) and Bradley et al (1984) showed an inverse relationship between risk and debt ratio. The results from Michaelas et al (1999) and Jordan et al (1998) showed a positive relationship. Equally, Esperanca et al (2003) found a positive relationship between organization risk and both long-term and short-term debt.

Ozkan (2001) stated that liquidity ratios might have a mixed impact on the capital structure decision of an organization. As organizations with higher liquidity ratios might use relatively higher debt ratio due to greater "ability to meet short-term obligations when they are due" (https://renzoreffo20.wordpress.com/category/financial-analysis-of-exxonmobil/). Organizations with liquid assets may use them to finance their investments that might hurt their leverage ratios.

The current asset over current liabilities ratio is used as a proxy for the liquidity of the organization's assets that judges the organization's ability to meet its short-term obligations. Therefore, the higher the ratio, the better the organization will be. Ozkan (2011) results showed a negative relationship between liquidity and gearing. For a better result, the quick ratio, i.e., the ratio of current assets less inventory to current liabilities was included. The ratio is different from liquidity ratio as it excludes inventory as in some industries, inventory might be turned into cash slowly as it is considered as least liquid. Inventory may be considered as the least liquid asset that may suffer losses when liquidated on short notice according to Walton and Aerts (2006).

Other ratios used with liquidity ratio are the days of credit given and days of credit obtained by organizations. They are calculated as debtors/creditors divided by sales/purchases multiplied by 365, Walton and Aerts (2006). It showed the liquidity position of an organization by showing the available cash position. Thus, an organization with high credit given days means that its bank account would be credited after a long time that may impact the operational needs of the day-to-day running of the business.

Jaunch and Glueck (1998) stated that designing strategy involves analysis and diagnosis of all the business entity. This analysis assists in determining the environmental factors, opportunities, internal strength and weakness that affect the company.

In carrying out this study on the assessment of firm performance, the researcher examined the links between firm performance and business strategy using both the primary and secondary data from selected companies in Kaduna. However, the analysis of the secondary data has been done earlier. From the primary data generated and examined, out of 60 questionnaires distributed 42 staff responded, representing (70%) response rate. In the course of the research, the respondents were according to their educational qualifications and job titles. This enabled the researcher to know the percentage responses of the each of the key variables from each group.

Importance of Optimal Capital Structure

Cost Minimization: The primary objective of a company is to maximize the shareholders' wealth through minimization of cost. A well-advised capital structure enables a company to raise the requisite funds from various sources at the lowest possible cost in terms of market rate of interest. Earning rate expected by prospective investors, expense of issue etc.

Return Maximization: The primary objective of every corporation is to promote the shareholder's interest. A balanced capital structure enables company to provide maximum return to the equity shareholders of the company by raising the requesting capital funds at the minimum cost.

Risks Minimization: A sound capital structure serves as an insurance against various business risks, such as interest in costs, interest rates, taxes and reduction prices. These risks are minimized by making suitable adjustments in the components of capital structure. A balanced capital structure enables the company to meet the business risks by employing its retained earnings for the smooth business operations.

Controlled: Though, the management of a company is apparently in the hands of the directors, indirectly, a company is controlled by equity shareholders carry limited voting rights and debentures holders do not have any right, a well devised capital structure ensures the retention of control over the affairs of the company with in the hands of the existing equity shareholders by maintaining a proper balance between voting right and non-moving right capital.

Liquid: An object of a balanced capital structure is to maintain proper liquidity which is necessary for the over capitalization and under capitalization which are harmful to financial interests of the company

Simple: A balanced capital structure is aimed at limiting the number of issues and types of securities, thus, making the capital structure as simple as possible.

Flexible: Flexibility or capital structure enables the company to raise additional capital at the time of need, or redeem the surplus capital. It not only helps is fuller utilization of the available capital but also eliminates the two undesirable states of over capitalization and under capitalization.

The basic and the foremost thing required to start a business is the “money” i.e., Capital. For any working in business, the basic requirement is money. Let’s say, an organization needs Rs. 1 crore to start a business.

Does this mean that the promoters have to infuse the entire Rs 1 crores? Well, it depends on the capital structure of the organization. Now, what does this capital structure mean? Capital structure is the source of funds through which the capital is introduced. It includes Debt Capital, Public Equity, Preferred Stock, Bank loans, etc. In the other words, so according to chartered accountant services providing companies or experts having an optimal Capital Structure is very important for the organization.

Technically, Capital Structure means a composition of the funds of a corporate entity, which includes capital contributed by the owner, capital that has been procured through a loan, or any other form of capital infusion which helps the entity to smoothly run the operations over the period of time. In other words, the Capital structure can be termed as a method by which the finances for a company are managed.

Types of Capital Structure:

Primarily, Capital Structure consists of broadly two types:

- Equity Capital
- Debt Capital

EQUITY CAPITAL:

This is the basic form of capital that reflects the amount contributed by the owners or promoters of the Company. They are the ones who run the business of the Company. The equity holders or the owners of the Company have significant control over its management.

Shares are issued to them in return for the capital invested by them and further, they enjoy the rewards and bear the risk of ownership. However, their liability is limited to the number of their capital contributions.

As a return on equity, that gets the profit of the Company left out after meeting all expenses including interests on debt, taxes. Etc.

The part of the profit that is being paid to them is called the "Cost of Equity" of the Organization. This type of Capital is quite risky from an investor point of view, as shareholder gets a return on shares only if any left or even nothing, in case of losses incurred by the Company.

On the other hand, from the organization's point of view, it will be more relaxing as there is no liability to pay any amount to equity shareholders in case of loss or no profit, but in return, the organization has to give its control to Equity shareholders.

Further Equity Capital consists of two types:

- Retained Earnings
- Capital Contributed

Retained Earnings: Retained Earnings are that part of the profit earned by the Company and that remained undistributed to shareholders and retained in the business for the future.

Capital Contributed: Capital contributed is the original or initial amount of money invested by the owners in the business in exchange for the shares or stocks of the Company.

DEBT CAPITAL:

Debt represents the amount borrowed by the Company from outsiders. These people are concerned only with the returns on the amount invested. Debt providers will not participate in any decision-making process of the Company. As they are not the owners of the Company.

They are just providers of finance. The debt providers will get a return in the form of interest. The interest that is being paid to them is called the “Cost of Debt” of the Organization. Interest payable to debt holders is the committed cost for a business.

So, the cost of debt is the minimum return that the business should earn so as to serve the interest cost. The Company can get debt capital through different modes. Some of them are Debentures, Bank loans, Bonds, etc.

This type of Capital is less risky from an investor’s point of view, as the debt provider gets to return in the form of Interest, irrespective of the amount of profit earned by the Company. On the other hand, from an organization’s point of view, it will be more obligatory as Organization has to pay interest even if there is loss or no profit, but in return organization not required to give its control to Debt providers.

- Long term debt
- Short term debt

Long-term Debt: These types of debts are considered the safest form of debt as they have an extended repayment period, and only interest needs to be repaid while the principal needs to be paid at maturity.

Short-term Debt: These types of debts are used by companies to raise capital for a short period of time.

Role of Capital Structure:

Having an Optimal Capital Structure in the Organization is considered the key to success. However, it is very difficult to choose the optimal capital structure. Optimal Capital Structure is basically the perfect mix of debt and equity in the capital of the organization. Having a perfect balance of debt and equity is something known as “Optimal Capital Structure”. The perfect mix is the balance between both that helps in maximizing the value of a company in the market while at the same time minimizes its cost of capital.

There is no exact proposition of debt and equity that can be termed as a perfect mix or optimal capital structure. The proposition of debt and equity that an organization must have depends on various factors. Will discuss it in a later part of this article. Traditionally, people believe in having debt-free businesses but now both are important and need to be mixed.

Debts are burdensome on Company and require consistent liquidity to pay interest which seems to be difficult in the initial stages of business. It doesn't mean we prefer equity capital only as Equity holders have control over the Organization, which after some extent becomes a problem. Even investing the whole amount on its own initially becomes difficult in some cases where a large capital base is required. But rather we can say that raising money as debt capital is preferable as organizations can get debt only if they have a strong equity base.

Too much of anything can be harmful in many ways. Similarly, a Company should raise debt capital, sufficient enough to run the operations of the Company or for a short-term purpose. Excess infusion of capital with a commitment to pay fixed interest does not make sense.

WHY CONSIDER DEBT CAPITAL?

Debt allows companies to leverage existing funds, thereby enabling more rapid expansion than would otherwise be possible. The effective use of debt financing results in an increase in revenue that exceeds the expense of interest payments. In addition, interest payments are tax-deductible, reducing a company's overall tax burden.

WHY CONSIDER EQUITY CAPITAL?

Equity Capital stimulates growth without requiring repayment, shareholders are granted limited ownership rights. They also expect a return on their investment in the form of dividends, which are only paid if the company turns a profit. A business founded by shareholder equity is beholden to its investors and must remain consistently profitable in order to fulfill this obligation.

Factors Affecting Capital Structure:

The capital Structure of the Organization depends on various factors. Some of them are:

Liquidity: Companies that have a stable stream of cash flows can afford to take debt. This is because debt capital is often redeemable and needs to be repaid on the date of maturity. Also, the interest cost of debt capital needs to be served regularly. This is not possible for a company with irregular cash flows.

Stability: Regular stream of cash flows is connected with the stability of sales. A stable range of sales increases the ability of the Company to serve the interest. Thus, in case of a company facing from decreasing trend of sales, it is advised not to infuse an additional amount of debt.

Degree of Control: Increase in debt capital leads to dilution of equity shareholders. This increases the risk for the promoters of the Company. The promoters need to ensure that at all points of time, the control is retained by the equity shareholders.

Flexibility: The capital structure of a company should be flexible enough such that the debt amount can be expanded at the time of need. This saves the company from the demerits of overcapitalization. Thus, a tradeoff between the need for funds and the availability of debt needs to be maintained.

Cost of Issue: Issue of new capital leads to an increase in floatation cost. Companies with lower credit ratings need to incur higher levels of floating costs.

Term of Capital: Capital structure is linked with the period through which the funds are required by the Company. For a company with long-term goals, it has to ensure that the debt capitals are redeemable after a long gestation period.

Government Policies: Sometimes the change in Government policies results in a change in the capital structure of the Company as that change can negatively affect our debt capital and favor equity capital or vice versa.

How to Re-Capitalize a Business?

Recapitalization comes to the rescue when a company is facing a business slowdown as compared to the peers.

The company is very much concerned about the cost of capital. In the case of recapitalization, the focus of the company is to drill down the cost of capital below the return on capital employed. The easiest way of doing so is to issue more and more debt capital.

Obviously, the debt holders will charge a higher-than-normal rate of interest due to the risk involved in such an organization. Also, such recapitalization can be done only by such lenders who have faith over the business model and their infusion of capital will help the business to survive in near future.

The business is actually managed by the debt holders for time being. Over the period of time, the normal working capital starts through the company.

At a later point in time, the debt holders will issue equity shares at a higher premium to redeem the debt capital and replace the same with equity shares.

Methods of Recapitalization include:

1. Issue debt and repurchase equity
2. Issue debt and pay a large dividend to equity investors
3. Issue equity and repay debt

Each of these three methods can be an effective way of recapitalizing the business.

In the first approach, the firm borrows money by issuing debt and then uses all of the capital to repurchase shares from its equity investors. This has the effect of increasing the amount of debt and decreasing the amount of equity on the balance sheet.

In the second approach, the firm will borrow money (i.e., issue debt) and use that money to pay a one-time special dividend, which has the effect of reducing the value of equity by the value of the divided. This is another method of increasing debt and reducing equity.

In the third approach, the firm moves in the opposite direction and issues equity by selling new shares, then takes the money and uses it to repay debt. Since equity is costlier than debt, this approach is not desirable and often only done when a firm is overleveraged and desperately needs to reduce its debt.

Tradeoffs between debt and equity

There are many tradeoffs that owners and managers of firms have to consider when determining their capital structure. Below are some of the tradeoffs that should be considered.

Pros and cons of equity:

- No interest payments
- No mandatory fixed payments (dividends are discretionary)
- No maturity dates (no capital repayment)
- Has ownership and control over the business
- Has voting rights (typically)
- Has a high implied cost of capital
- Expects a high rate of return (dividends and capital appreciation)
- Has last claim on the firm's assets in the event of liquidation

- Provides maximum operational flexibility

Pros and cons of debt:

- Has interest payments (typically)
- Has a fixed repayment schedule
- Has first claim on the firm's assets in the event of liquidation
- Requires covenants and financial performance metrics that must be met
- Contains restrictions on operational flexibility
- Has a lower cost than equity
- Expects a lower rate of return than equity

Capital structure in mergers and acquisitions (M&A)

When firms execute mergers and acquisitions, the capital structure of the combined entities can often undergo a major change. Their resulting structure will depend on many factors, including the form of the consideration provided to the target (cash vs shares) and whether existing debt for both companies is left in place or not. For example, if Elephant Inc. decides to acquire Squirrel Co. using its own shares as the form of consideration, it will increase the value of equity capital on its balance sheet. If, however, Elephant Inc. uses cash (which is financed with debt) to acquire Squirrel Co., it will have increased the amount of debt on its balance sheet.

Wrapping Up

The capital structure of a company is very crucial for the consistent working of the Organization. The decision between debt and equity financing depends on the type of business you have and the environment of your organization.

Do some research on the norms in your industry and what your competitors are doing. Investigate several financial products to see what suits your needs or you can contact the business support services that will help you with all
your accounting & financial administration to improve your business's financial growth.
You must ensure to have a proper balance between both for smooth functionary. A wrong decision can have ruined your business.

Weighted Average Cost of Capital (WACC)

The purpose of WACC is to determine the cost of each part of the company's capital structure based on the proportion of equity, debt, and preferred stock it has. Each component has a cost to the company. The company pays a fixed rate of interest on its debt and a fixed yield on its preferred stock. Even though a firm does not pay a fixed rate of return on common equity, it does often pay dividends in the form of cash to equity holders.

The weighted average cost of capital is an integral part of a DCF valuation model and, thus, it is an important concept to understand for finance professionals, especially for investment banking and corporate development roles. This article will go through each component of the WACC calculation.

WACC Part 1 – Cost of Equity

The cost of equity is calculated using the Capital Asset Pricing Model (CAPM) which equates rates of return to volatility (risk vs reward). Below is the formula for the cost of equity:

$Re = Rf + \beta \times (Rm - Rf)$

Where:

Rf = the risk-free rate (typically the 10-year U.S. Treasury bond yield)

β = equity beta (levered)

Rm = annual return of the market

The cost of equity is an implied cost or an opportunity cost of capital. It is the rate of return shareholders require, in theory, in order to compensate them for the risk of investing in the stock. The Beta is a measure of a stock's volatility of returns relative to the overall market (such as the S&P 500). It can be calculated by downloading historical return data from Bloomberg or using the WACC and BETA functions.

Risk-free Rate

The risk-free rate is the return that can be earned by investing in a risk-free security, e.g., U.S. Treasury bonds. Typically, the yield of the 10-year U.S. Treasury is used for the risk-free rate.

Equity Risk Premium (ERP)

Equity Risk Premium (ERP) is defined as the extra yield that can be earned over the risk-free rate by investing in the stock market. One simple way to estimate ERP is to subtract the risk-free

return from the market return. This information will normally be enough for most basic financial analysis. However, in reality, estimating ERP can be a much more detailed task. Generally, banks take ERP from a publication called Ibbotson's.

Levered Beta

Beta refers to the volatility or riskiness of a stock relative to all other stocks in the market. There are a couple of ways to estimate the beta of a stock. The first and simplest way is to calculate the company's historical beta (using regression analysis) or just pick up the company's regression beta from Bloomberg.

The second and more thorough approach is to make a new estimate for beta using public company comparable. To use this approach, the beta of comparable companies is taken from Bloomberg and the unlevered beta for each company is calculated.

Unlevered Beta = Levered Beta / ((1 + (1 – Tax Rate) * (Debt / Equity))

Levered beta includes both business risk and the risk that comes from taking on debt. However, since different firms have different capital structures, unlevered beta (asset beta) is calculated to remove additional risk from debt in order to view pure business risk. The average of the unlevered betas is then calculated and re-levered based on the capital structure of the company that is being valued.

Levered Beta = Unlevered Beta * ((1 + (1 – Tax Rate) * (Debt / Equity))

In most cases, the firm's current capital structure is used when beta is re-levered. However, if there is information that the firm's capital structure might change in the future, then beta would be re-levered using the firm's target capital structure.

After calculating the risk-free rate, equity risk premium, and levered beta, the cost of equity = risk-free rate + equity risk premium * levered beta.

WACC Part 2 – Cost of Debt and Preferred Stock

Determining the cost of debt and preferred stock is probably the easiest part of the WACC calculation. The cost of debt is the yield to maturity on the firm's debt and similarly, the cost of preferred stock is the yield on the company's preferred stock. Simply multiply the cost of debt and the yield on preferred stock with the proportion of debt and preferred stock in a company's capital structure, respectively.

Since interest payments are tax-deductible, the cost of debt needs to be multiplied by (1 – tax rate), which is referred to as the value of the tax shield. This is not done for preferred stock because preferred dividends are paid with after-tax profits.

Nominal vs Real Weighted Average Cost of Capital

Nominal free cash flows (which include inflation) should be discounted by a nominal WACC and real free cash flows (excluding inflation) should be discounted by a real weighted average cost of capital. Nominal is most common in practice, but it's important to be aware of the difference.

Understanding a company's funding sources is crucial since different loan or equity sources will affect the cost of capital, which in turn will affect enterprise value in different ways. The many types of debt a company has and the interest rates that go along with them will have an impact on the price a potential acquirer may pay or signal potential hazards when investing in or acquiring that firm.

As a result, it's critical to examine capital structure data personally or through an interested researcher, for instance, to determine if a company is more heavily weighted toward debt or equity and to pinpoint those that precisely meet the optimal capital structure of various investment strategies or financial services.

- It has been an interesting study examining "Dynamics of optimal capital structure and business continuity. (A case study of Nigeria and International Markets)
- This study is no way laying claim of being exhaustive and does not claim having offered a conclusive solution to the topic studied. However, it is a means of eliciting reactions and further study on various strategies for managing firm's capital structure optimally in Nigeria and rest of the World.
- The study can conclude from the hypotheses formulated in chapter One and tested in chapter four that there is a positive and significant relationship between 1), Is Optimal

capital structure guarantees business continuity and 2), is value of the business truly independent of its capital structure.

- There should be effective use of the debt finance (financial leverage) On the other hand, it is necessary to develop pecking order theory instruments through strengthening the firm's internal control system and good corporate governance.
- Firms must fully utilize the macro-economic adjustment and regulatory function of fiscal and monetary policies of the financial regulatory agencies to strengthening internal financing modes.
- Targeted – development finance can play an important role in correcting prior financial decisions failures and institutional defects. This has proven itself on a global basis, even in developed countries.
- Government should establish and enhance the credit environment to facilitate the robust operation of the economy and the business players. This entails the building a framework for credit culture and risk management by providing clear rules of the game for all investment and financing activities of any organization.
- If a firm wants to have target capital structure with long-term sustained business growth, the three indices of business sustainability mentioned in the last chapter of this work i.e. effective internal control system, sound corporate governance and strong risk management models must be strongly adhere to
- A remarkable difference between the capital structure of Nigerian firms and firms in developed economies is that Nigerian firms presumably prefer short term finance and have substantially lower amounts of long-term debt. This reveals that Nigerian firms rely heavily on short term financing rather than long term finance. This difference in long- versus short-term debt, to an extent, might limit the explanatory power of the capital structure theories in Nigeria. It suggests that the theoretical underpinnings of the observed correlations are still largely unresolved.
- The results of this empirical study suggest that some of the insights from modern capital structure theories are portable to Nigeria in that certain firm-specific factors that are relevant for explaining capital structure and corporate performance in the Western countries are also relevant in Nigeria. This is true despite profound institutional differences that exist between Nigeria and the Western countries. Overall, the empirical

results from this study offer some support for the Pecking Order Theory and Static Tradeoff Theory of capital structure.

- The result is therefore analyzed based on the short-term fund, long-term fund and quantum of the short-term fund and long-term fund trend analysis. Also, the ratio analysis of non-tax shield, asset structure, profitability, and liquidity ratio were analyzed. Finally, the proxy of a decomposition analysis of total debt ratio into long-term debt and the short-term debt ratio are used.
- There is a relationship between the selected determinants and capital structure decisions as the leverage ratio is favorable.
- It concludes according to Chuang (2004) that a sound corporate governance mechanism helps an organization avoid and lower agency cost while improving organizational performance and building a mechanism that ensures it is managed and monitored in its best interest.

- From the literature review and the research findings, it should be noted that choice of capital structure follows the same way as the earlier proven determinants of the capital structure of an organization with a positive variable measure f trade-off theory as well as pecking order theory.
- The study fulfilled the research study of the factors or determinants of the capital structure of the researched organizations' choice of a determinant for their capital structure.

5.3 Recommendations for further research

We are also aware of some possible limitations of the empirical results we have presented in this thesis. First of all, in the stochastic frontier model, relating the shortfall from the frontier to monitoring and incentive variables could explain the reasons for the failure to maximize value or profit. Even though, our explanatory variables for the inefficiency equation give reasonable explanations for the shortfall, a different set of variables like ownership and corporate governance structure could provide further insight about our measured corporate efficiency.

We could not manage to collect any proxy for such variables for our sample firms from the chosen database. Cash flow, financial slack and Tobin's Q in an investment equation can be

endogenous and we have checked the robustness of our results by including these variables as one period lagged form. Even though our results suggest that the sensitivity of investment to the availability of internal funds is not solely driven by measurement error in investment opportunity, we are not claiming that Tobin's Q, as our proxy for such is free from measurement error.

Usually, an instrumental variable technique or error correction models are suggested for tackling these problems, but none of those could be incorporated within the switching regression framework. For the same reason, we have not estimated our investment equation in a dynamic form. However, we believe that the advantages of the switching regression model outweigh these disadvantages.

In the course of our research, we examined the performance of the firm by assessing some key variables that influence firm's capital structure. Our findings and conclusions therefore informed these recommendations.

1. Financial Manager should play a prominent role to advise a firm on what source finance, how to source it and at what cost.

2. There is need for further studies to apply macro-economic indices other than firm's financial information or performance in choosing or making capital structure decision

3. There is need for more robust studies that will involve more sample size, and the time series/secondary data should be extended to more than four years biasness of results

4. The researcher also recommends effective use of ratio analysis of companies to interpret business performance in the use of appropriate capital structure instruments.

5. Firms should be pragmatic in managing capital structure to avoid financial distress that may eventually lead to bankruptcy.

6. There should be periodic review of liquidity management measures as to forestall business failure engendered by illiquidity crisis.

In line with the findings of this study, the following recommendations are made:

1. Nigerian firms should try to match their high market performance with real activities that can help make the market performance reflect on their internal growth and accounting performance.

2. The firms should rely less on short term debt, which formed the major part of their leverage and focus more on developing internal strategies that can help improve more on their accounting performance as their accounting performance for the period studied was very low.

3. The firms should develop a good strategy targeted at using more of equity to maximize their market performance in such a way that it yields growth opportunities.

4. The findings show that quoted companies in Nigeria do not use much of long-term debt in their respective capital structure choices. This may be due to the general poor participation of both public and private sectors in the bond market. The Nigerian Stock Exchange should therefore strive to remove any rigid policies which could hinder the effective participation of the companies. Economic policies that could help further develop the capital market in such a way that it can absorb increase in demand for funds should be formulated.

5. Though there is high positive impact of leverage on market performance of the firms, it does not translate to better internal/accounting performance. Hence, the firms

6. The study is within the agency, static tradeoff and pecking order framework given the increased support for these theories in the literature. Hence, no other perspectives of interpreting the interrelationships among corporate variables are considered. However, all the frameworks (theories) are reviewed.

7. The effects of the geographical location of the firms and ongoing global economic downturn on the capital structure decisions and corporate performance of Nigerian firms are not studied as this on its own deserves a separate study.

From the perspective of this study, it recommends that a further research study should be carried out by other researchers that may include both listed companies on Nigerian Stock Exchange (NSE) and non-listed or private companies for a fuller understanding of the determinants of capital structure as applicable to them in Nigeria. That could positively affect the financial decision-making processes in those companies.

5.4 Suggestion for further research

No piece of work is complete without shortfalls in academics; therefore, this study cannot lay claim to being conclusive as regards the topic researched.

It will be a worthy venture to conduct similar investigations after including the unquoted firms in our sample as well because the unquoted firms are prone to a comparatively wider range of adverse financial attributes and thus may face more restricted access to external finance than the quoted ones. This will not only benefit us from having wider range of variation across observations in the sample, but also allow us to deal with more extensive research questions.

However, this may require us to change the methodology we have followed in this thesis and also the interpretations we have made. Inclusion of unquoted firms will restrict us from estimating market value efficiency or using Q theory of investment in our switching regression model as Tobin's Q cannot be calculated for unquoted firms. However, we can still measure the short run efficiency using the profit frontier.

For estimating the investment equations in the switching regression model, we can use the accelerator model of investment following Hobdari et al. (2009) which will similarly allow us to capture the differential effects of cash flow on investment.

In this thesis we have focused on investment cash flow sensitivity and growth cash flow sensitivity to determine the impact of financial constraints arising from capital market imperfections. Almeida et al. (2004) suggest a third approach named as cash flow sensitivity of cash, which relies on the fact that financial constraints should be related to a firm's propensity to save cash out of cash inflows as well.

According to their proposition, financially unconstrained firms should not display a systematic propensity to save cash, while firms that are constrained should have a positive cash flow sensitivity of cash. They estimate this sensitivity for a priori classified unconstrained and constrained subsamples using payout policy, asset size, bond ratings, commercial paper ratings, and the "KZ" index derived from the results in Kaplan and Zingales (1997).
Therefore, similar static and dynamic misclassification problems may affect their results. We can attempt to predict differential cash flow sensitivity of cash by using the switching regression framework. Tobin's Q as proxy for investment opportunity is included by Almeida et al. (2004) in their model specification, however excluded by D'Espallier et al. (2008) in making similar predictions.

Any three of these sensitivities to measure the effect of financial constraints on constrained and unconstrained firms' financial policies can be altered to capture the similar impact on that of quoted and unquoted firms. Guariglia (2008) investigates the investment cash flow sensitivity for the unquoted firms and Rahman (2011) compares the growth cash flow sensitivity between quoted and unquoted firms.

A stark difference with the unobserved constrained and unconstrained status is that a firm's private and public status is readily observable. Further, taking into consideration that firms can switch between these two statuses, we can use the endogenous switching regression model with one regime observed following Lokshin and Sajaia (2004) or a dummy variable interaction technique.
These plausibly can give us an indication about the wideness of the domain of our selected research area.

Despite having some limitations, the research questions taken up for this thesis, the methodologies used to find out their answers and finally the results and implications that come forth can possibly fill up some gaps in the existing literature and help us to better understand the channels through which market imperfections led financial constraint problems may affect firm performance.

The following areas suggested for further research.

1. A comparative study of dynamics of capital structure and business continuity in the Western World, and all over the Europe should be conducted
2. Articulated study to be research on various policy measures formulated by the monetary and capital market authorities to explore more areas of proper management of business capital structure to foster its going concern.

The study has laid some groundwork to explore the impact of capital structure on performance of Nigerian firms upon which a more detailed evaluation could be based. Further work is required to develop new hypotheses and design new variables to reflect the institutional influence. In addition, a more detailed work that studies the effects of the geographical location of the firms and the ongoing global economic downturn on the capital structure decisions and corporate performance of Nigerian firms could help in resolving some theoretical underpinnings of the results as obtained in this study.

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7.0 Appendix A:

Figure A.1: Market imperfections and investment cash flow sensitivity

This figure taken from Hubbard (1998) shows the links among net worth, the cost of external financing, and investment. Holding information costs constant, when net worth increases from W0 to W1, the supply-of-funds curve shifts right. For firms facing high information costs, this increases in net worth, holding both information costs and investment opportunities constant, increases the capital stock from K0 to K1. But, for a firm facing no information costs or with sufficient net worth (or internal funds) to finance its desired capital stock, an increase in net worth independent of changes in investment opportunities has no effect on investment and equilibrium capital stock remains at $K*$.

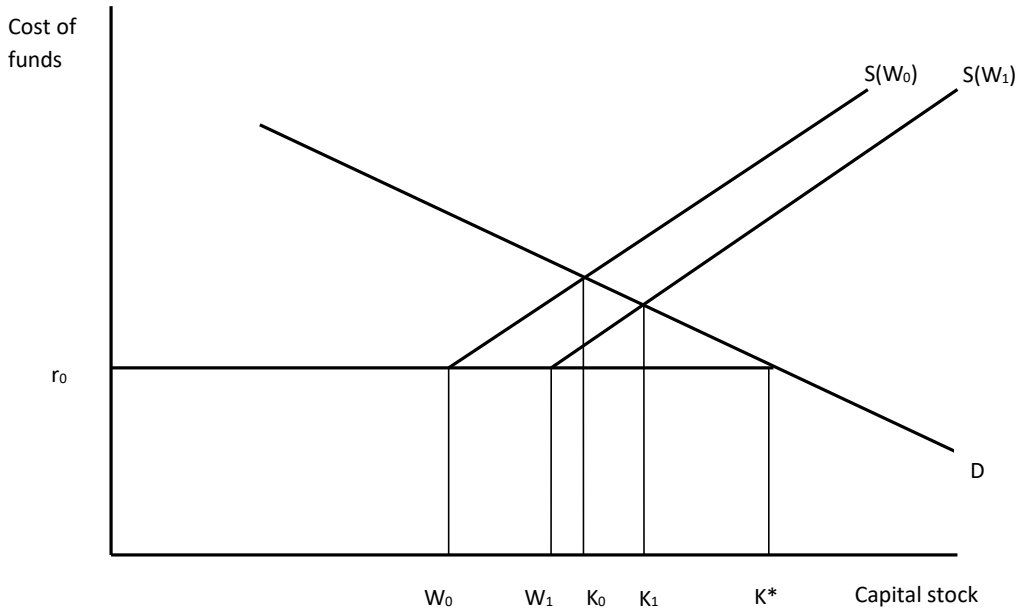


Table A.1: FTSE/Dow Jones Industrial Classification Benchmark (ICB) codes

The FTSE/Dow Jones Industrial Classification Benchmark (ICB) is adopted by Thomson Financial as it's standard classification tool across a number of its global databases and these ICB codes are available within World scope. Financial industry (8000) along with its super sectors and sectors has been dropped from this table.

Industry	Super-sector	Sector
0001 Oil & Gas	0500 Oil & Gas	0530 Oil & Gas Producers
		0570 Oil Equipment, Services & Distribution
		0580 Alternative Energy
1000 Basic Materials	1300 Chemicals	1350 Chemicals
	1700 Basic Resources	1730 Forestry & Paper

		1750 Industrial Metals & Mining
		1770 Mining
2000 Industrials	2300 Construction & Materials	2350 Construction & Materials
	2700 Industrial Goods & Services	2710 Aerospace & Defense
		2720 General Industrials
		2730 Electronic & Electrical Equipment
		2750 Industrial Engineering
		2770 Industrial Transportation
		2790 Support Services
3000 Consumer Goods	3300 Automobiles & Parts	3350 Automobiles & Parts
	3500 Food & Beverage	3530 Beverages
		3570 Food Producers
	3700 Personal &	3720 Household Goods

	Household Goods	& Home Construction
		3740 Leisure Goods
		3760 Personal Goods
		3780 Tobacco
4000 Health Care	4500 Health Care	4530 Health Care
		Equipment & Services
		4570 Pharmaceuticals &
		Biotechnology
5000 Consumer	5300 Retail	5330 Food & Drug Retailers
Services		5370 General Retailers
	5500 Media	5550 Media
	5700 Travel & Leisure	5750 Travel & Leisure
6000 Telecom 6500	Telecom	6530 Fixed Line Telecom
		6570 Mobile Telecom
7000 Utilities	7500 Utilities	7530 Electricity
		7570 Gas, Water &

		Multi-utilities
9000 Technology	9500 Technology	9530 Software & Computer Services
		9570 Technology Hardware & Equipment

A.2 World scope data definition along with their field number/ identifier

Total assets (02999): Total asset represent the sum of total current assets, long term receivables, investment in unconsolidated subsidiaries, other investments, net property plant and equipment and other assets.

Common equity (03501): Common equity represents common shareholders' investment in a company. It includes but is not restricted to: common stock value, retained earnings, capital surplus, capital stock premium etc.

Market capitalization (08001): Market Price-Year End * Common Shares Outstanding. Common shares outstanding represent the number of shares outstanding at the company's year-end. It is the difference between issued shares and treasury shares.

Net sales or revenue (01001): Net sales or revenues represent gross sales and other operating revenue less discounts, returns and allowances. Long term debt (03251): Long term debt represents all interest-bearing financial obligations, excluding amounts due within one year. It is shown net of premium or discount.

Short term debt and current portion of long-term debt (03051): Short term debt and current portion of long-term debt represents that portion of debt payable within one year including current portion of long-term debt and sinking fund requirements of preferred stock or debentures. It includes but is not restricted to: current portion of long-term debt (the amount of long-term debt due within the next twelve months), notes payable arising from short-term borrowings,

current portion of advances and production payments, bank overdrafts, advances from subsidiaries/associated companies, current portion of preferred stock of a subsidiary etc.

Capital expenditures (04601): Capital expenditures represents the funds used to acquire fixed assets other than those associated with acquisition. It includes but is not restricted to: additions to property, plant and equipment, investments in machinery and equipment.

Total intangible other assets-net (02649): Total intangible other assets (net) represent other assets not having a physical existence. The value of these assets lies in their expected future return.

Property, plant and equipment-net (02501): Property, plant and equipment (net) represents gross property, plant and equipment less accumulated reserves for depreciation, depletion and amortization. Cash dividend paid-total (04551): Total cash dividends paid represent the total common and preferred dividends paid to shareholders of the company. It excludes dividends paid to minority shareholders.

Earnings before interest, taxes and depreciation (18198): Earnings before interest, taxes and depreciation represent the earnings of a company before interest expense, income taxes and depreciation. It is calculated by taking the pre-tax income and adding back interest expense on debt and depreciation, depletion and amortization and subtracting interest capitalized.

Funds from operation (04201): Funds from operations represents the sum of net income and all non-cash charges or credits. It is the cash flow of the company. If a statement of changes in financial position has not been provided, but the company discloses an aggregate cash flow, this amount has been used. Where cash flow has not been disclosed in any manner, it is estimated based on net profit before preferred dividends plus depreciation, reserves charges, provision for loan losses for banks, and provision for future benefits for insurance companies.

Cash and short-term investment (02001): Cash and short-term investment represents the sum of cash and short-term investments. It includes but is not restricted to: cash on hand, undeposited checks, cash in banks, checks in transit, credit card sales, drafts, money orders, letters of credit,

demand deposits (non-interest bearing), stocks, bonds, or other marketable securities listed as short-term investments, time deposits, corporate securities - stocks, bonds, commercial paper, money market mutual fund shares, central bank deposits, temporary investments etc.

Interest expense on debt (01251): Interest expense on debt represents the service charge for the use of capital before the reduction for interest capitalized. If interest expense is reported net of interest income, and interest income cannot be found the net figure is shown.

Appendix B:

Table B.1: Correlation of the probability of facing unconstrained financial status with the selection variables

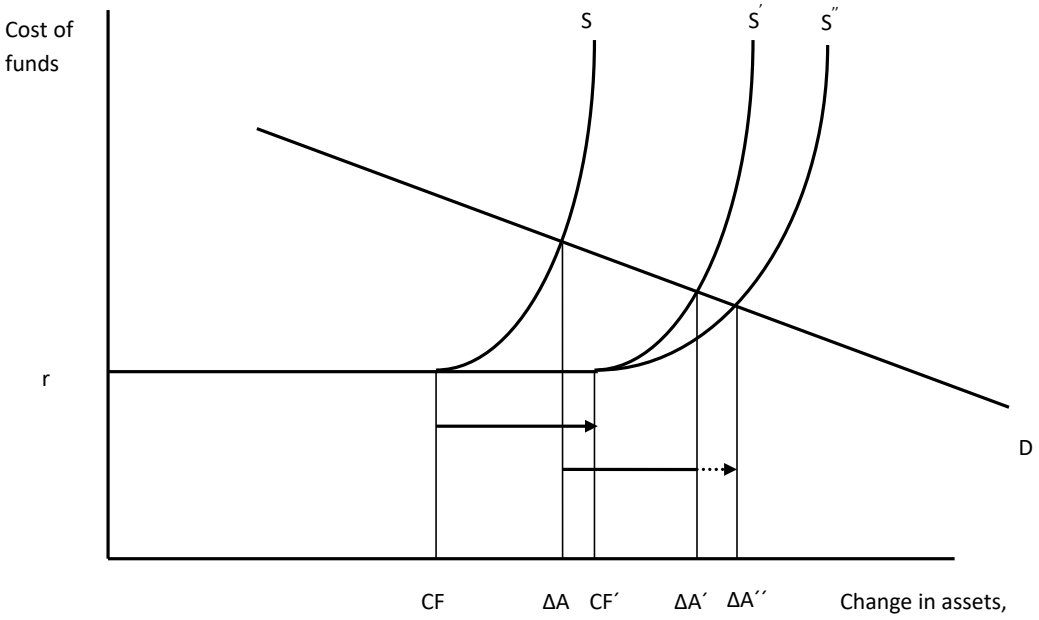
This table gives the correlation coefficients along with the significance level (5%) of the predicted likelihood of facing unconstrained financial statuses from the two models in table 3.2 with the selection variables in equation 3.10.

	PFU_{Model1}	PFU_{Model2}
Size	0.711*	0.779*
	0.000	0.000
Age	0.725*	0.737*
	0.000	0.000
Dividend	0.362*	0.373*
	0.000	0.000
St.leverage	0.170*	0.158*
	0.000	0.000
Lt.leverage	0.284*	0.274*
	0.000	0.000
Tobin's Q	-0.342*	-0.396*
	0.000	0.000
Int.cov.ratio	0.197*	0.203*
Fin.slack	-0.532*	-0.584*
Mv.efficiency	0.650*	0.710*
Tangibility	0.613*	
	0.517*	

Appendix C:

Figure C.1: Growth cash flow sensitivity and "leverage" effect

This figure taken from Carpenter and Petersen (2002) shows the leverage effect which occurs when firms' access to debt depends on collateral. Due to increase in cash flow, the external finance curve (S) shifts rightward to (S00). This allows a change in internal finance (CF 0 −CF) to have a multiplier effect on asset growth (4A00 − 4A) through leverage.



Quantity of funds

Table C.1: AR(1) specification with size as dependent variable

This table shows the estimated results of equation 4.1 using OLS, FE, Difference and System GMM. OLS estimates include a full set of sector and year dummies as regressors, FE estimates include a full set of year dummies as regressors, GMM estimates include a full set of year dummies both as regressors and instruments. In addition to these, difference GMM estimates include L(2/4). size collapsed and system GMM estimates include L(2/4). size collapsed and DL(1/1). size collapsed as instruments for the difference and level equations respectively. Standard errors in parentheses; ***, ** and * indicate significance at the 1%, 5% and 10%, level respectively.

	OLS	**FE**	**Diff-GMM**	**Sys-GMM**
L.size	0.981***	0.805***	0.632***	0.966***
	(0.002)	(0.011)	(0.059)	(0.008)
Constant	0.393***	2.227***		0.337***
	(0.041)	(0.115)		(0.087)

Table C.1.a: Diagnostics

The figures reported for the AR(2) and Hansen J tests are the p-values for their respective null hypotheses. AR(2) accepts the null hypothesis of no second-order serial correlation in the differenced residuals and Hansen J test accepts the null hypothesis that all instruments are jointly valid which implies that the instruments satisfy the required orthogonality conditions, i.e., their moments with the error term are zero.

	OLS	FE	Diff-GMM	Sys-GMM
AR(2) p-value			0.185	0.102
Hansen p-value			0.209	0.294
No of instruments			31	32
No of firms		1122	1122	1122
No of observations	11995	11995	10807	11995

Table C.2: Robustness check using sales as proxy for firm size

This table shows the estimated results of equation 4.5 using sales as a proxy for firm size and growth in sales as a measure of firm growth instead and OLS, FE, Difference and System GMM results are presented in it's four columns. OLS estimates include a full set of sector and year dummies as regressors, FE estimates include a full set of year dummies as regressors, GMM estimates include a full set of year dummies both as regressors and instruments. In addition to these, difference GMM estimates include lagged levels of size, age, cash flow and Tobin's Q as instruments for the first differenced equation and system GMM estimates include the lagged levels and lagged first differences of size, age, cash flow and Tobin Q as instruments for the differenced and the level equations respectively. Standard errors in parentheses; ***, ** and * indicate significance at the 1%, 5% and 10%, level respectively.

	OLS	FE	Diff-GMM	Sys-GMM
L.size	-0.231***	-0.754***	-0.505**	-0.235***
	(0.026)	(0.070)	(0.211)	(0.057)
L.size2	0.009***	0.024***	0.006	0.009***
	(0.001)	(0.003)	(0.014)	(0.002)
Age	-0.355***	-0.275*	-0.231	-0.178*
	(0.055)	(0.141)	(0.188)	(0.101)
Age2	0.060***	0.110**	0.127*	0.042**
	(0.011)	(0.048)	(0.066)	(0.018)
Cash flow	0.708***	1.092***	0.887*	0.713***
	(0.072)	(0.115)	(0.455)	(0.206)
Tobin Q	-0.004	-0.028**	0.041	0.081**
	(0.006)	(0.013)	(0.039)	(0.033)
Constant	2.079***	5.490***		1.458***
	(0.163)	(0.354)		(0.295)

Table C.2.a: Diagnostics

The figures reported for the AR(2) and Hansen J tests are the p-values for their respective null hypotheses. AR(2) accepts the null hypothesis of no second-order serial correlation in the differenced residuals and Hansen J test accepts the null hypothesis that all instruments are jointly

valid which implies that the instruments satisfy the required orthogonality conditions, i.e., their moments with the error term are zero.

	OLS	FE	Diff-GMM	Sys-GMM
AR(2) p-value			0.185	0.181
Hansen p-value			0.019	0.230
No of instruments			77	83
No of firms		1122	1122	1122
No of observations	11995	11995	10807	11995

Table C.3: Differential effects on sales growth using different proxies for financial constraints

This table shows the differential effect of cash flow on growth across financially constrained and unconstrained firm years (separated with likelihood of facing unconstrained financial status in model 1, predicted corporate efficiency in model 2, dividend payout in model 3 and line of credit in model 4 with the lowest category as likely to be most financially constrained). All models here are estimated with two category dummies.

Here, Cd, Ed, Dd and Ld stands for the dummies created by constraint status, efficiency index, dividend and line of credit respectively. In addition to the full set of year dummies both as regressors and standard instruments, the estimates include lagged levels and lagged first differences of size, age, cash flow interaction with different dummies and Tobin's Q as instruments for the difference and level equations respectively. Standard errors in parentheses; ***, ** and * indicate significance at the 1%, 5% and 10%, level respectively.

	M1	M2	M3	M4

L.size	-0.233***	-0.224***	-0.220***	-0.239***
	(0.056)	(0.056)	(0.055)	(0.054)
L.size2	0.009***	0.009***	0.009***	0.009***
	(0.002)	(0.002)	(0.002)	(0.002)
Age	-0.185**	-0.185**	-0.191**	-0.173**
	(0.087)	(0.093)	(0.084)	(0.086)
Age^2	0.038**	0.039**	0.039**	0.035**
	(0.016)	(0.017)	(0.015)	(0.016)
Chf*Cd21 (<50thp)	0.837***			
	(0.276)			
Chf*Cd22 (>50thp)	0.450*			
	(0.249)			
Chf*Ed21 (<50thp)		0.751***		
		(0.291)		
Chf*Ed22 (>50thp)		0.501***		
		(0.183)		
Chf*Dd21 (<50thp)			0.860***	
			(0.274)	
Chf*Dd22 (>50thp)			0.367*	
			(0.190)	
Chf*Ld21 (<50thp)				0.924***
				(0.255)

Chf*Ld22 (>50thp)				0.540**
				(0.235)
Tobin Q	0.087***	0.087***	0.095***	0.085***
	(0.030)	(0.031)	(0.030)	(0.027)
Constant	1.428***	1.373***	1.369***	1.452***
	(0.316)	(0.326)	(0.319)	(0.)

Table C.3.a: Diagnostics

The figures reported for the AR(2) and Hansen J tests are the p-values for their respective null hypotheses. AR(2) accepts the null hypothesis of no second-order serial correlation in the differenced residuals and Hansen J test accepts the null hypothesis that all instruments are jointly valid which implies that the instruments satisfy the required orthogonality conditions, i.e., their moments with the error term are zero.

	M1	**M2**	**M3**	**M4**
AR(2) p-value	0.181	0.186	0.179	0.177
Hansen p-value	0.415	0.366	0.342	0.400
No of instruments	86	86	86	86
No of firms	1122	1122	1122	1122
No of observations	11995	11995	11995	11995

Wald tests to check hypotheses that the impact of cash flow on firm growth is same across firm years with two different financial constraint statuses.

	M1	**M2**	**M3**	**M4**

Hypothesis	p-value	p-value	p-value	p-value
Chf*Cd21=Chf*Cd22	0.086			
Chf*Ed21=Chf*Ed22		0.124		
Chf*Dd21=Chf*Dd22			0.031	
Chf*Ld21=Chf*Ld22				0.087

Calculation of the effect of one standard deviation change in cash flow on firm growth under different financial constraint status.

	M1	**M2**	**M3**	**M4**
Cd21	0.182			
Cd22	0.081			
Ed21		0.191		
Ed22		0.037		
Dd21			0.215	
Dd22			0.041	
Ld21				0.231
Ld22				0.061

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