



School of Management  
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# **A STUDY OF CAPITAL STRUCTURE IN EXTREMELY DIFFERENT ENVIRONMENTS**

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## **ABSTRACT**

Capital structure is a term in financial economics that delineates the proportion that the various claimants have to the assets of the company. It often describes the debt and stock ratio in the right hand side of a company's balance sheet.

Franco Modigliani and Merton Miller first propounded a theory in which they explained that, a firm's capital structure does not influence its value, only its underlying assets do. In 1963, after adjusting their initial assumptions to include corporate taxes, they propounded another theory which explained that in a world with corporate taxes, and where interest is tax deductible, an issue of debt adds value to the firm.

In later years, other theories were developed which supported the view that capital structure influences the value of the firm. I have tried to support this view, while making a contribution that a flexibility in a firm's financial structure can be very meaningful. Since cash helps in a firm's flexibility, having significant cash reserve can potentially make a difference to the firm.

While studying firms in the developed world - case study Sweden, and firms in the developing world, case study - Cameroon, I found that though firms understand that the choices they make in financing their assets can create or destroy value, they all are united by one basic instinct - the instinct to survive. During crisis, firms in these countries, tend to choose debt over the other financing options apparently because the other sources of finance might be difficult to attain at such operose times.

While I understand that the need to survive is the most basic need for all firms to consider, I suggest that, the flexibility argument should be a very important factor for all firms to consider in the dynamic and competitive environments of today. A firm should manage its capital structure such that, it can choose to take an action from different alternatives rather than have

circumstances compel it to take action. Reaction to events should come from within the firm based on its evaluation of its structure and its resources rather than from outside parameters restricting it to conform to circumstances in a manner that is unrealistic to a realistic aggrandisement of the firm. It is with this spirit that I demonstrated the value of the cash option.

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## Chapter 1

### **CAPITAL STRUCTURE: AN INTRODUCTION**

Alfred Marshall defined capital as that part of wealth which is devoted to obtain further wealth. Meanwhile, capital structure is a business finance term that describes the proportion of a Company's operating money, which is obtained through debt and equity. The equity part of the debt-equity relationship is the most comfortable to define. In a company's capital structure, equity consists of a company's common stock and preferred stock plus retained earnings which are summed up in the shareholders equity account on a balance sheet. This invested capital and debt generally of a long term variety, comprises a company's capitalization, which is a permanent type of funding to support a company's growth and related assets.

Meanwhile, the debt component of a company's capitalization consists of the following; short term borrowings (notes and payables), the current portion of a company's long term debt, and two thirds (rule of thumb) of the principal amount of operating leases and redeemable preferred stock.

In contrast to debt financing, equity financing does not require a direct obligation from the firm to repay funds. Instead, equity investors become part owners in the business, and thus are able to exercise some degree of control of the firm.

A company acquires financial capital and converts this capital into assets. It engages these assets to earn economic return by fulfilling customer needs. The liability and equity side of the balance sheet records the company's capital. The question that poses is if any value can be derived from the way a firm finances its operations. Franco Modigliani and Merton Miller initially tried to

prove that it doesn't really matter, but later adjusted their initial believe with a more practical but dangerous introduction of taxes into the picturesque. However, this set the stage for other scholars to demonstrate consistently but variably that the manner of a firm's financing can be valuable or otherwise to its owners.

While most theories that support this perspective focus on the debt equity mix, I suggest that the cash component in a company's capitalization can potentially influence the value of a firm's stock.

## Chapter 2:

### **DOES CAPITAL STRUCTURE MATTER?**

Franco Modigliani and Merton Miller wrote a theory that showed that the value of a company should not change if its capital structure does change. This is called the capital structure irrelevance theorem or the Modigliani and Miller (MM) theorem. According to them, the total value of the firm is the value of all its sources of funding. They argued that the total cash flows a company makes for all investors (debt holders and equity holders) are the same irrespective of its capital structure. Altering the capital structure does not alter the total cash flows. Therefore, the total value of the assets that result in ownership of these cash flows should remain the same. The cash flows will be shared out differently so that the total value of each class of security (e.g. stocks and bonds) will change but not the total value of both summated together.

In other words, if you wanted to buy a firm free of its debts, you would have to buy the equity and pay off the debt. Regardless of the capital structure, you would earn up owning the same streams of cash flows. Consequently, the cost of acquiring the company free of debt should be the same irrespective of its capital structure.

Moreover, it is possible for investors to mime the effect of the company having a different capital structure. For example, if an investor prefers a more highly geared company, he can simulate this by buying shares and borrowing against them.

MM theory depends on some simplifying and rather unrealistic assumptions such as ignoring the effects of taxes.

However, it does provide a starting point that helps us understand what is and what is not relevant to why capital structure does seem to matter to an extent. Part of the answer to why capital structure could matter lie in the different tax treatments of debt and equity and also agency problems.

In giving an outreach of how capital structure matters to a firm, we should start by acknowledging some of the advantages of debt and equity. Debt and equity offer a business a number of advantages and disadvantages. The key to a business's management is to evaluate their company's particular situations and determine its optimal capital structure. As Eugene Fama, Bringham and Joel F. Houston explained in *Fundamentals of Financial Management* (2003);

The optimal capital structure is one that strikes a balance between risk and return and thereby maximizes the price of the stock and simultaneously minimizes the Cost of capital.

The main advantage of leveraging is that it allows the founders of the company to retain ownership and control. Contary to equity financing, the owners maintain the decision making powers of the firm. They can still make key strategic decisions including deciding to payout dividends or keep and reinvest more company profits. Furthermore, leveraging provides debt owners with more financial freedom than stock financing. Debt obligations are limited to interest and principal payments, further which the lender has no other claim to the firm, whereas the shareholder's claim does not end until the stock is liquidated.

From an administrative standpoint, debt financing is also easier since it generally lacks the complex reporting requirements that are necessary in some forms of equity financing. Finally,

debt financing is cheaper for small businesses over the long term, though more expensive over the short term, than stock financing.

On the flip side, debt financing requires a business to make regular monthly interest payments plus principal. This can be cumbersome to some companies, especially very young ones that are more likely to experience shortages in cash flows. This situation can be aggravated by the fact that sometimes there are severe penalties for late or missed payments.

Availability of debt financing is often limited to established businesses. Lenders primarily demand collateral security for their loans which can be hard to come by to an unproven business, thus making it difficult for them to obtain loans.

The primary advantage of financing through equity issues is that, the firm has no obligation to pay stock holders.

Concept and early stage businesses are more likely to lay their hands on equity financing than debt financing. This is because, stock investors always seek growth opportunities, so they are often willing to take a chance on a sound idea. Meanwhile, debt investors always seek a security so they often require the business to have a history of successful activities before they can consider investing in the firm's bonds. Shareholders are sometimes a valuable source of advice and of contacts to a small business, and this can be immensely invaluable.

However, with stock financing, the founders must give up a portion of control of the firm. This can be frustrating to the founders if new stock holders come up with different ideas about the strategic direction the firm should take or have different ideas in relation to how the firm should be managed.

Further more administering some sales of stock like IPO can be very expensive and complex. There are often a great deal of regulations surrounding stock issues that sometimes necessitate

knotty legal filing and a lot of paper work. Financing through equity might also require the help of costly attorneys and accountants, and this can be especially undesirable for a struggling company.

This discussion of both the advantages and disadvantages of equity and debt, ultimately leads us to the upshot that capital structure affects both risk and value. The optimal capital structure of a firm is not static but evolves constantly and successfully. Leaders of a corporation must always take the factors below into perspective:

- The company and its management,
- Industry dynamics,
- The state of capital markets,
- Economy,
- Government regulation,
- Social trends.

Even a dollar of debt will be too much for some firms when these factors indicate a rising business risk.

During the past few decades, many companies have had the wrong capital structures. They have often failed to accumulate enough liquidity during period of credit expansion, so they can endure the inevitable contractions that often follow. Particularly vulnerable are firms that have unpredictable cash flow. Bankruptcy concerns will be more for them during business slowdowns. Most industries particularly the technology, aerospace and airlines, started overleveraging in the late 1960s. This increased the perceived risk of investing in such business a decade later. The result was a fall in the price at which their securities traded. They reversed this situation by deleveraging through paying off their debt securities at discounted prices, via tax free exchanges

of debt for debt, stock for debt, assets for debt, and cash for debt. This helped them to avoid bankruptcy and rescued jobs.

When firms issue new stock, they face the danger of an imminent decline in their stock price. Two factors are the culprits. The first is that, when firms issue stock, this leads to an increase in supply which ultimately brings down its price. The second is that, when a firm issues stock, investors see it as a signal from the firm that its stock is overvalued. They therefore refrain from buying the stock until its price declines. The opposite is true when the firm repurchases its stock. While the above theory remain academically correct, the situation of lowering and raising stock price after stock issue or repurchase can be different when companies that were considered as credit risk deleverage. Alcoa and Johnson Controls, both saw their stock price increase dramatically after a new stock issue in March 2009. This situation which has often reoccurred over the past decade happens because, when a firm uses payoffs from stock issue to deleverage, the perception of credit risk ebbs and the firm's stock price generally increases.

The decision to leverage or deleverage is contingent on market conditions, current debt capacity of the firm, the potential for tax subsidy, and the readiness of the firms investors to increase its debt. The period between the late 1970s to the mid1980s favored debt financing. After this period, equity market values rose above the replacement costs of such balance sheet assets such as plants and equipment for the first time in almost two decades. It was clearly a time to deleverage.

Minimal debt in a company's capital structure enhances their flexibility and this can be very helpful during periods of dire credit constraints. Unfortunately, companies with high leverage just amplified their financial troubles during the recent financial crisis. One can say that they immensely contributed to their financial woes. They would have been better off entering the

recession with a decent liquidity and less debt with long maturities. On the contrary, they had the wrong capital structure for the time.

Just as in 1974, the present recession started in real estate firms. In the 1974 recession, many real-estates investment trusts lost as much as 90 % of their value in less than a year because they exceeded their leverage capacity and were too dependent on commercial paper at the time when interest rates were replicating. However, this one is caused by a combination of excessive leverage in real-estate related financial instruments, a serious lowering of underwriting standards, and ratings that bore little relationship to reality. The common denominator of both periods spotlights two fallacies that seem to recur after every two decades: that any debt to real estate is safe, and that property values are always on the rise. The truth is that over the past century and a third, home prices have declined about 40% of the time.

History is not a sine-wave of pattern that goes on endlessly. It's more like a helix that converges similar outcomes around in a different orbit. Nevertheless, what is observed today does echo the mid 1970s as companies use the capital markets to push out debt maturities and deleverage. This gives them breathing room, in the hope that history will repeat itself in a strong economic recovery.

It doesn't matter whether a company is big or small. Capital structure matters. It always has and always will.

## Chapter 3:

### **THE MODIGLIANI – MILLER THEOREMS**

The Modigliani – Miller theorem is the cornerstone for modern thought about capital structure. Nobel Prize winners, Franco Modigliani and Merton Miller theorized that, the market value of a firm is determined by its earning power and the risk of its underlying assets, and it is independent of the way it chooses to finance its investments or distribute dividends. Fundamentally, their idea was that, under certain assumptions, it does not make any difference to the firm whether it chooses to finance its projects through issuing shares, debts or retained earnings.

Merton Miller explained this position to a reporter in 1991 using the following analogy;

Think of the firm as a gigantic tub of whole milk. The farmer can sell the whole milk as it is; or he can separate out the cream and sell it at a considerably higher price than the whole milk would bring. (That's the analogy of a firm selling low-yield and hence higher- priced debt securities). But of course what the farmer would have left would be skim milk with low butter fat content and that would sell for much less than whole milk. That corresponds to the levered equity. The Modigliani and Miller position says that if there were no costs of separation (and of course no government dairy –support programs), the cream plus the skim would bring the same price as the whole milk.

They originally assumed a taxless society. The theorem has two propositions which extend to a situation with taxes.

### 3.1 MODIGLIANI – MILLER PROPOSITION I (WITHOUT CORPORATE TAXES)

The MM proposition I provides that, the value of a firm does not depend on its capital structure. For example, think of two firms that have the same business operations and same kind of assets. Thus the left hand side of their balance sheets look exactly the same. The difference between the two firms is the right side of their balance sheets.

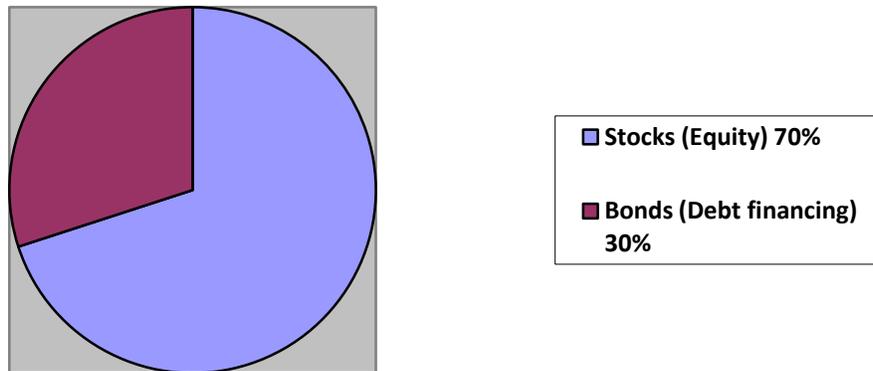
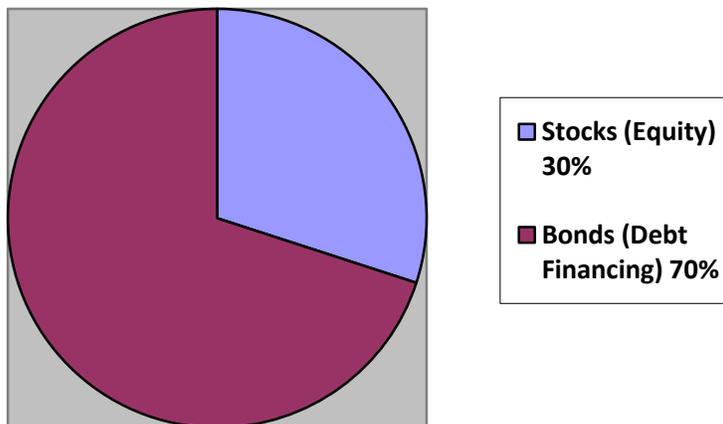


Fig3.1



In the first diagram, stocks make up 30% of the capital structure while bonds make up for 70%. In the second diagram, it is the exact opposite. However, the total size of the firm remains the same. MM proposition I explains that, the choice of debt or equity in a corporation's financing is irrelevant. The firm's value is determined by the value of its real assets and not its capital structure.

Therefore,  $V_u = V_L$

Where  $V_u$  is the value of an unlevered firm which is equal to the price of buying the firm composed only of equity and  $V_L$  is the value of a levered firm which is equal to the price of buying a firm that is composed of some mix of debt and equity.

To exemplify this, think of an investor who is considering to buy either a levered firm or an unlevered firm. Rather than buying the stocks of the levered firm, he chooses to buy the shares of the unlevered firm and borrows the amount of money that is borrowed in the levered firm. The understanding is that, the eventual return to either of these investments would be equal, thus the price of the levered firm must be the same as the price of the unlevered firm minus the amount of money borrowed by the levered firm.

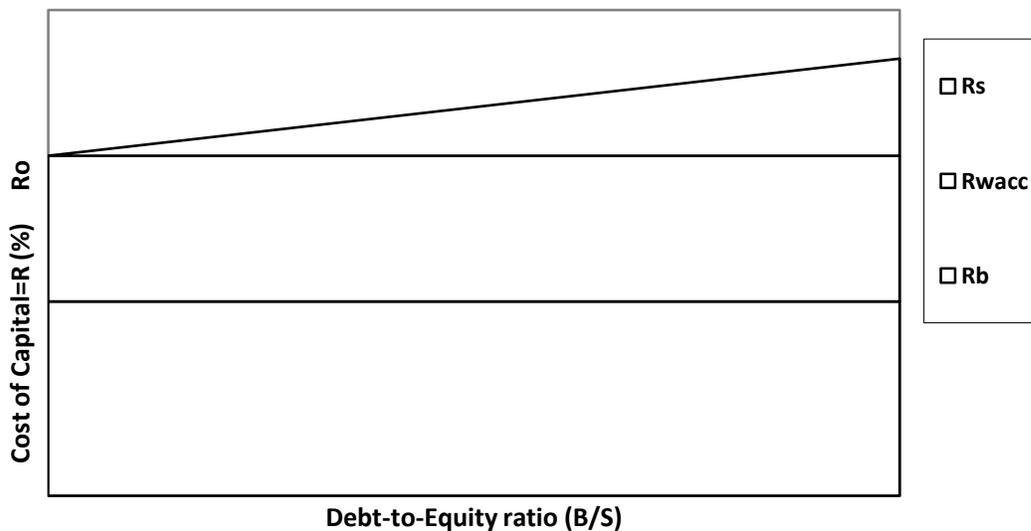
Modiglianni and Miller assumed here that the cost of borrowing to investors is the same as that of firm. However this is not necessary true in the light of asymmetric information and in the absence of efficient capital markets.

### 3.2: MODIGLIANI - MILLER PROPOSITION II (WITHOUT CORPORATE TAXES)

MM 2 (no taxes) states that, a higher debt/equity ratio leads to a higher required return on equity because of higher risk involved for equity holders in a company with debt.

Equation 3.2.1: 
$$R_s = R_o + \frac{B}{S} (R_o - R_b)$$

Fig.3.2:



$R_s$  = cost of equity

$R_b$  = cost of debt

$R_o$  = cost of capital for an all equity firm

$R_{wacc}$  is the firms weighted average cost of capital. In the world with no corporate taxes,

$R_{wacc}$  for a levered firm is equal to  $R_o$ .

$R_o$  is a single point while  $R_s$ ,  $R_b$  and  $R_{wacc}$  are all entire lines.

Examining equation (3.2.1), we can see that if  $R_o$  exceeds the debt rate  $R_b$ , then the cost of equity rises with increase in the debt-equity ratio  $B/S$ . Normally,  $R_o$  should exceed  $R_b$ , because even unlevered equity is risky, it should have an expected return greater than that of riskless debt. As a firm raises the debt-equity ratio, each dollar of equity is levered with additional debt. This raises the risk of equity and therefore the required return  $R_s$  on the equity. The implication here is that,  $R_{wacc}$  is unaffected by leverage because the reduction of cost of debt is compromised by the increase of the cost of equity.

$$R_{wacc} = \frac{S}{S+B} \times R_s + \frac{B}{B+S} \times R_b$$

### 3.3: MODIGLIANI - MILLER PROPOSITION I (WITH CORPORATE TAXES)

In the real world, Corporations are required to pay corporate taxes on the incomes they earn. The annual after tax cash flow of an unlevered firm is:

$$EBIT (1 - T_c)$$

Where, **EBIT** is earnings before interest and taxes.

The value of an unlevered firm is the present value of **EBIT x (1 - T<sub>c</sub>)**:

$$V_u = \frac{EBIT (1 - T_c)}{R_o}$$

Where;

**V<sub>u</sub>** = Present value of an unlevered firm.

**EBIT(1 - T<sub>c</sub>)** = Cash flow of the firm after corporate taxes.

**T<sub>c</sub>** = Corporate tax rate.

**R<sub>o</sub>** = The cost of capital to an all equity firm.

In most countries, interest is tax deductible.

Algebraically, the reduction in corporate taxes is:

$$T_c \times R_b \times B = T_c R_b B$$

$T_c$  = Corporate tax rate.

$R_b \times B$  = Dollar amount of interest.

Therefore, whatever the taxes that a firm pays each year without debt, the firm will pay  $T_c R_b B$  less with the debt of  $B$ . This is often called the tax shield from debt. Assuming the cash flow above has the same risk as the interest on  $B$ , its value can be discounted at the rate,  $R_b$ . Assuming that the cash flows are perpetual, the present value of the tax shield is;

$$\frac{T_c R_b B}{R_b} = T_c B$$

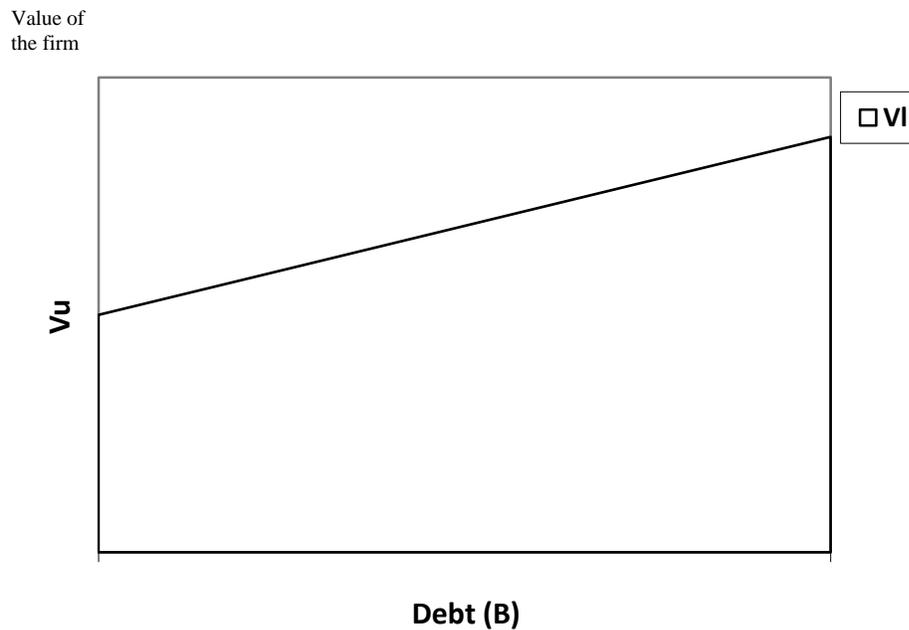
MM I (with corporate taxes) provides that, leverage increases the value of the firm by the present value of the tax shield, which is  $T_c B$  for perpetual debt. Thus we merely add this tax shield to the value of the unlevered firm to get the value of the levered firm.

$$V_L = \frac{EBIT (1 - T_c)}{R_o} + \frac{T_c R_b B}{R_b}$$

$$V_L = V_u + T_c B$$

Since the tax shield increases with the amount of debt, its more valuable for the firm to substitute equity with debt.

Fig.3.3:



Debt reduces the tax burden, and as a result, the value of the Firm is positively related to debt.

### 3.4: MODIGLIANI - MILLER PROPOSTION II (*WITH CORPORATE TAXES*)

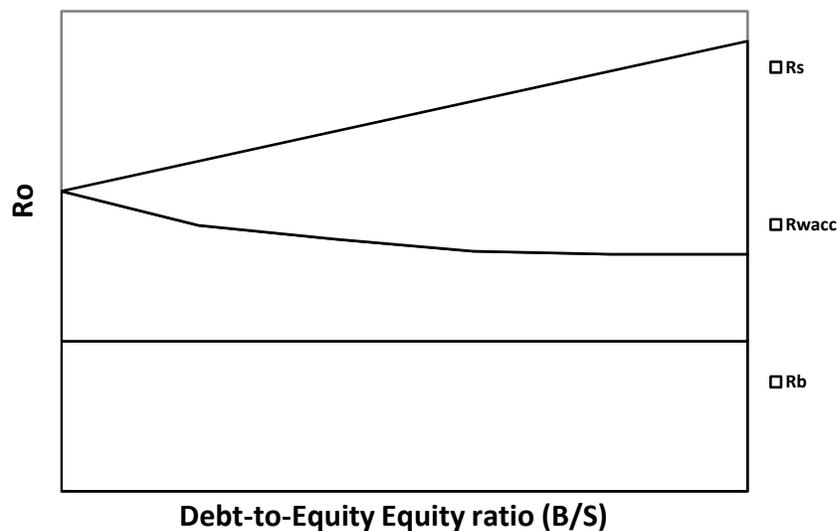
The weighted average cost of capital (with corporate taxes) is defined as;

$$R_{wacc} = \frac{B}{B+S} R_b (1-T_c) + \frac{S}{S+B} R_s$$

Note that, the cost of debt capital,  $R_b$ , is multiplied by  $(1 - T_c)$  because interest is tax deductible at the corporate level. However, the cost of equity  $R_s$  is not multiplied by this factor because dividends are not deductible. In the no-tax case,  $R_{wacc}$  is not affected by leverage. However, since  $B$  is tax-advantaged relative to equity,  $R_{wacc}$  declines with leverage in a world with corporate taxes. This result is intuitively pleasing because it suggests that when a firm lowers its  $R_{wacc}$ , the firm's value will increase.

Fig.3.4

Cost of  
Capital: R



### 3.5: ASSUMPTIONS OF THE MODIGLIANI - MILLER THEOREMS

Modigliani and Miller explicitly or implicitly assumed the follows;

1. Existence of riskless classes. In their original paper, Modigliani and Miller (1958) assumed that, every firm could be assigned to a risk class. A risk class is defined as a set of firms each of which has an identical pattern of earnings payoffs across states of the world.
2. Zero or neutral taxes. The initial MM theorems of 1958 assumed zero taxes but assumed neutral taxes in their later theory. In this case, they assumed that, the tax rate is the same across tax payers, and for all income sources, i.e., the tax system is non discriminatory.
3. Frictionless capital markets: (1) Zero Transaction costs; (2) no institutional restrictions on asset trades. This is the standard assumption required to give the arbitrage principle its predictive force.
4. Investors can borrow or lend at the same terms as firms. This assumption can be subsumed within that of frictionless markets. It is listed separately here in order to highlight the probability that the assumption might not hold, i.e., investors may not in fact be able to borrow or lend on the same terms as firms.
5. Each firms financial policy conveys no new information about the pattern of its earnings across states of the world. Expressed more loosely, this assumption states that, the firm's choice of leverage cannot be manipulated to send signals to investors about

anything that would influence the attractiveness of the firm's equity or bonds and hence their market values.

6. Absence of bankruptcy. They initially assumed that the earnings of the firm exceeds its debt obligations in every possible outcome.
7. Contracts are complete and can always be enforced.
8. There are no agency problems between shareholders and managers.
9. All cash flow streams are perpetuities (No growth).
10. Firms only issue two types of claims; risk free debt and risky equity.
11. Firms can lend at the risk free rate (riskless debt).

What happened between June 1958 and today is that these assumptions have been relaxed in order to study the effect of every single imperfection on the MM results. The driving force behind this 'theory development' is the gap between theory and practice. All real world debt-equity ratios vary within a certain range of approximately 60% to 20% debt. In fact as we can see below, Modiglianni and Miller themselves encouraged others to study the relaxation of those assumptions in their 1958 article;

These and other drastic simplifications have been necessary in order to come to grips with the problems at all.

...having served their purpose well, they can now be relaxed in the direction of greater realism and relevance, a task on which we hope others interested in this area will wish share.

(MM 1958, p. 296)

Essentially, ever since June 1958, theoretical papers on capital structure have been concerned with relaxing one or more assumptions. MM I &II (*with corporate taxes*) was even more unrealistic than MM I &II (*without corporate taxes*). There does not exist a single firm which is voluntarily financed by 100% debt. Research was later focused on the disadvantages of debt financing in order to come up with an internal optimal capital structure. An example of such a disadvantage is bankruptcy costs and if they are taken into account, a firm needs to achieve an optimal capital structure by trading off the tax shield with these costs.

chapter 4:

## **THE TRADE OFF THEORY**

From the academic questioning of Franco Modigliani and Merton Miller, theories such as the Trade off theory evolved. Baxter (1967) was one of the first to suggest the existence of an internal optimal capital structure based on the bankruptcy costs. He wrote that;

If bankruptcy involves substantial administrative expenses, and other costs, and causes a significant decline in the sales and earnings of the firm in receivership, the total value of the levered firm can be expected to be less than that of the all-equity company.

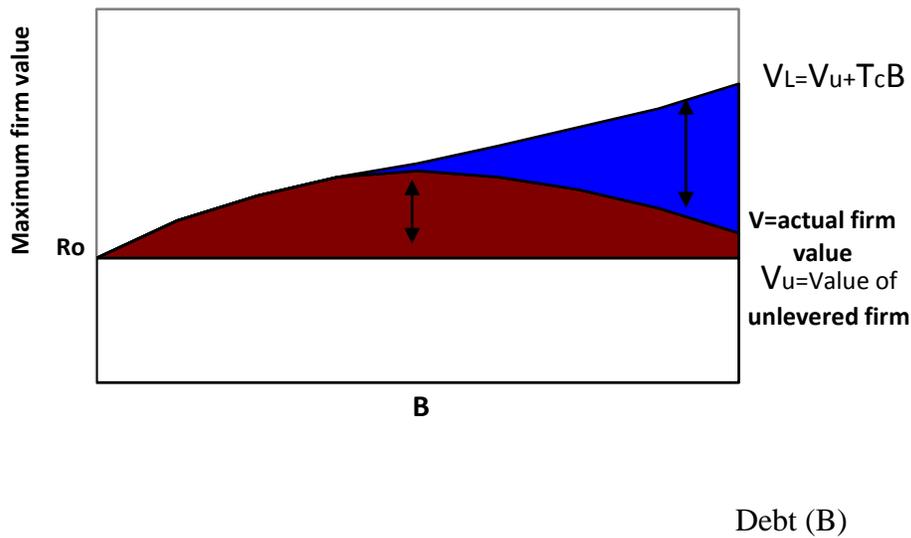
Since then, more sophisticated treatments have been offered by Krause and Litzenberger (1973), Scott (1976), and Kim (1978).

In the unfortunate event of bankruptcy, the value of the said firm reduces because interest payments must now be made to parties other than the original claimants of the firm who are its bond and shareholders. Trustee fees, legal fees, and other costs of reorganization or bankruptcy are deducted from the net asset value of the bankrupt firm, and from the proceeds that should go to bond holders. Consequently, these 'dead weight' losses associated with bankruptcy may cause the value of the firm in bankruptcy to be less than the discounted value of the expected cash flows from operations. This fact can be used to explain the existence of an interior optimal capital structure that balances the costs of bankruptcy with the tax advantages of debt. At this

optimal capital structure, there is a tradeoff between the advantages of debt financing with the cost of debt financing.

Fig. 4.1:

Value of firm (V)

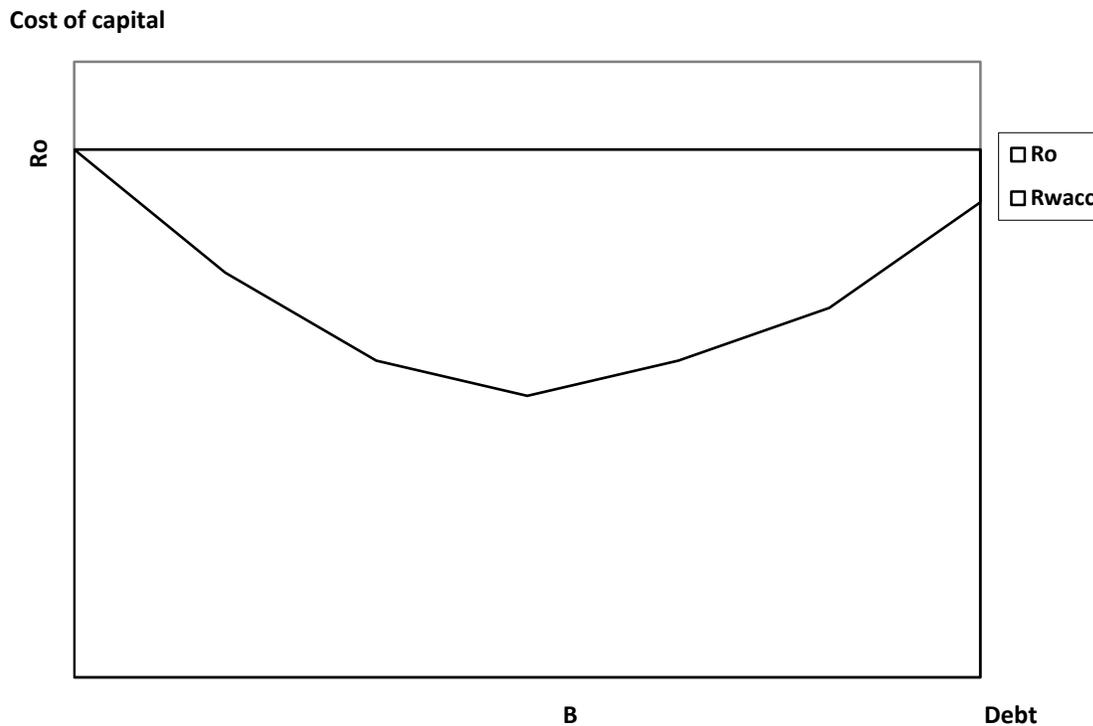


 +  = Present value of tax shield on debt

 = Present value of financial distress costs

While the tax shield increases the value of the levered firm, financial distress costs simultaneously has an opposite effect. The two offsetting factors produce an optimal amount of debt at B.

Fig. 4.2:



According to the static trade off theory, the  $R_{wacc}$  falls initially because of the tax advantage of debt. Beyond point B, it begins to rise because of the financial distress costs.

Tax effects are intergrated in fig 4.1. The diagonal straight line in the figure represents the value of the firm in a world without bankruptcy costs. The  $\cap$  Shaped curve represents the value of the firm with these costs. This curve rises as the firm moves from all-equity to a small amount of debt. Here, the present value of the distress cost is so small. However, as more and more debt is added, the present value of these costs rises at an increasing rate. At some point, the increase in

the present value of these costs from an additional dollar of debt equals the increase in the present value of the tax shield. This is the debt level that maximizes the value of the firm and is represented by B in figure 4.1. In other words, B is the optimal amount of debt for the firm.

Bankruptcy costs increase faster than the tax shield beyond this point, implying a reduction in firm value from further leverage.

In Figure 4.2, the weighted average cost of capital ( $R_{wacc}$ ) goes down as debt is added to the capital structure. After reaching B, the  $R_{wacc}$  goes up. The optimal amount of debt also produces the lowest  $R_{wacc}$ .

This discussion implies that, the firm's capital structure decisions involves a trade-off between the tax benefits of debt and the cost of financial distress. This approach is frequently called the trade off theory or the static trade off theory of capital structure. The implication is that, there is an optimal amount of debt for any individual firm. This amount of debt becomes the firm's target debt level, also called the firm's debt capacity in the real world.

Hovakimian et al (2001) find evidence of firms tending to move towards their target ratio over the long run. Gaud et al (2005) points out that, firms do have target capital structures, concluding that, the typical firm manages to adjust for more than half of the discrepancy between the actual debt ratio and the target debt ratio within two years . The majority of observed changes in the capital structures are explained by targeting behavior.

However, the empirical relevance of the trade of theory has often been questioned. Merton Miller for example seriously contemplated the practicability of the trade off theory. He thinks that while taxes are large and certain, bankruptcy on the other hand is rare and uncertain and also has low dead weight costs. From this perspective, if the trade off theory was correct, one could have

found much higher levels of debt in firms than it is the case in reality. Meanwhile, Stewart C. Myers was a particularly fierce critic in his presidential address to the American Finance Association meeting of 1983 in which he proposed what he called 'The Pecking Order Theory'.

## Chapter 5:

### **THE PECKING ORDER THEORY**

The trade off theory evaluated the choices of the firm in terms of tax benefits, distress costs and agency costs. However, there is one consideration that it neglected; Timing.

Managers acting on behalf of their shareholders seem more willing to issue equity after the price of their stock has risen than after their stock has fallen in price. Thus timing might be an important motive in equity issuance, perhaps even more important than those motives in the trade off model. For managers to profitably time the issuance of their firm's securities there should be information asymmetry. If the manager's estimate of the true worth of their company is no better than the estimate of a typical investor, any attempts by the manager to time will fail.

This assumption of asymmetry is quite plausible. Managers should know more about their company than do outsiders, because managers work in the company everyday. Meanwhile, Modigliani and Miller assumed that, investors and managers have the same information.

This position of information asymmetry does not go unnoticed to the investment public. Investors recognize that, if firms issue stock, the firm was likely overvalued before hand. If it issues debt, it was likely undervalued. When we look at both issuers and the investors, we see a kind of game, with each player trying to outwit the other.

There are two incentives to the issuer in this game. The first one which is fairly straightforward is to issue debt instead of equity when the stock is undervalued. The second which is more subtle is to issue debt also when the stock is overvalued. After all, if a firm issues equity, investors will infer that the stock is overvalued. They will not buy it until the stock has fallen enough to eliminate any advantage from equity issuance. In fact, only the most overvalued firms have any

incentive to issue equity. Should even a moderately overpriced firm issue equity, investors will infer that this firm is among the most overpriced and thus causing the stock price to fall more than is deserved. The end result is that, virtually no one will issue equity.

The pecking order theory tries to capture the cost of asymmetric information. It recognizes that, the internal resources and the external ones are not perfect substitutes in a world of asymmetric information between investors and managers. The former ask for a premium in order to be compensated for the risk that the information given to them by the latter is not quite candid. The required premium is higher with respect to the stock investors as compared to the debt investors. We need to understand here that managers also have a tendency to issue debt when they think it is overvalued. If the public thinks that the firm's prospects are rosy, while managers see trouble ahead, these managers will view their debt as well as their equity as being overvalued. That is, the public might see the debt as nearly risk free, whereas the managers see a strong possibility of default. Thus investors are likely to price a debt issue with the same healthy skepticism that they have when pricing an equity issue. This information asymmetry creates costs that the pecking order theory tries to capture. Since these are borne by the firm, the manager needs to find a way to avoid it.

The pecking order theory shows the manager a skittle alley out of this seeming quagmire. It states that, companies need to prioritize their sources of financing (from internal financing, to equity) according to the law of least effort, or of least resistance, preferring to raise equity as a financing means of last resort. Hence internal funds are used first. You don't have to worry about investor skepticism if you can avoid going to investors in the first place. After internal financing, the firm should issue safe securities. Although investors fear mispricing of both debt and equity, the fear is much greater for equity. Corporate debt has relatively little risk as compared to equity

because if financial distress is avoided, investors receive a fixed return. Thus the pecking order theory implies that, if outside financing is required, debt should be issued before equity. The firm should consider issuing stocks only when its debt capacity is reached. Since there are many types of debt such as convertibles and straight debt, and since the former is more risky than the later, the pecking order theory implies that, one should issue straight debt before issuing convertibles.

The pecking order theory underscores the need for the capital structure of a firm to follow a particular pattern based on difficulties in obtaining financing at reasonable cost. Contrary to the MM propositions without taxes, the value of the firm could decrease if the firm does not prioritize financing of its projects from internal financing to debt and lastly to equity.

The pecking order theory also contradicts the trade off theory. While the trade off theory assumes a target level of debt for every firm, the pecking order theory does not imply a target amount of leverage. Rather, each firm chooses its ratio based on financing needs. Firms first fund projects out of retained earnings. This should lower the percentage of debt in the capital structure because profitable, internally funded project raise both the book value and the market value of equity. Additional cash needs are met with debt, clearly raising the debt level. However, at some point, the debt capacity of the firm may be exhausted, giving way to equity issuance. Thus the amount of leverage is not predefined as determined by the trade off theory, but is determined by the happenstance of available projects. Firms do not pursue a target ratio of debt to equity.

Furthermore, the trade off theory implies that, profitable firms should use more debt financing because of the low risk of default and hence low financial distress costs, so their value can be increased by the present value of the interest tax shield and also enjoy other advantages of leverage. However, empirical evidence does not suggest this to be the case. The most profitable firms in most industries tend to be the least leveraged. This mythos is explained by the pecking

order theory. Profitable firms generate enough cash internally, implying less need for outside financing

Korajczyk, et al (1990) argues that, the information asymmetry problem is least severe after information releases such as annual reports and earnings announcements. Therefore, equity will tend to cluster after such releases and the stock price drop will be negatively related to the time between the release and the issue announcement.

A number of authors have extended the basic idea behind the pecking order theory. Krasker (1986) endorses the results of Stewart C. Myers and Nicolas Majluf (1984), and also demonstrates that, the signal will be more for larger stocks and thus a more dramatic fall in stock price.

However, Brennan and Kraus (1987), Noe (1988) and Constantinides and Grundy (1989), cast doubts on the pecking order theory. Their papers enrich the set of financing choices that firms may make when faced with the situation modeled by Myers and Majluf (1984). They conclude that, firms do not necessarily have the preference for issuing straight debt over equity.

Firms finance new investments either externally through issuing securities, or internally from retained earnings. Contrary to the pecking order theory, internal sources which add to total firm stock have historically constituted a large but fairly steadily declining function of these funds in the United States. For example, undistributed profits accounted for about 22 % of total sources of funds for non-farm, non-financial corporate businesses in 1986. By comparison, the same figure averaged about 49 % over the period 1946-1966. Furthermore, Taggart (1985) found that, though leverage has increased steadily in the US since world war II, the current debt levels may not be high relative to those of the prewar period.

## Chapter 6:

### **AGENCY THEORY**

One of the defining characteristics of business in the 1990's was the adoption of prescriptions from the agency theory to address the managerial excesses of the 1970's and 1980's. The classic agency theory was developed by Adolf A. Berle and Gardiner C. Means in 1932. They noted that the dilution of equity in most large corporations has separated ownership from control. This makes management to conduct business with little supervision and this gives them an incentive to act in their best interest.

Managers have an incentive to pursue opportunistic behaviour with a firm's cash. Examples of such behaviours include lofty salaries and expensive perks. They also have an incentive to encourage the firm to grow which might not be to the best interest of the firm, but rather to increase their own power, influence and prestige.

The contractual device that agency theorist provide to deal with these indiscretions of management is debt. This is because, promises on interest and principal payments on debt must be kept or else the firm will be rendered bankrupt and managers eventually losing their jobs. It also serves as a control for managerial extravagance by reducing the availability of cash. Jensen (1986) suggested that, effective governance might encourage more leverage for companies facing free cash flow problems. Managers then focus on activities that can enable the retirement of debt. Debt financing thus unifies the interests of both the shareholders and management by their respective need to survive.

While as we have just seen, debt finance can be used to ameliorate the agency problems between a firm's owners and its management, it can also create another kind of agency problem on its own. If a firm is debt financed, its stock owners have an incentive to pursue riskier projects because shareholders are interested in a return that is higher than that of the firm's bonds. Meanwhile, the firm's bond holders are only interested in the payments that are specified on the debt contract. Stockholders thus are sometimes interested in pursuing riskier projects than what the bond holders would like. This behaviour is described as the asset substitution effect. It describes a situation when a firm trades its low risk assets for high risk investments. The result is an increased risk of the firm's bonds without any additional compensation. Bond holders might respond to this by charging higher interest for the firm's bonds or increase their supervision and control of the firm's activities.

One can thus see that debt has two opposing effects on the agency dilemma. From this perspective therefore, debt has the potential of influencing a firm's value either positively or otherwise.

## CHAPTER 7:

### **THE CAPITAL STRUCTURE QUESTION IN THE DEVELOPED WORLD: CASE STUDY - SWEDEN**

The Trade off theory, Pecking order theory, Agency theory, Market timing hypothesis and Neutral mutations hypothesis are some of the most elegant theories that have emerged in finance to explain the capital structure decision of firms. They contradict the MM I and II (without corporate taxes) propositions in that, they postulate that the capital structure decisions of the firm is relevant to its value creation. We shall examine if historically, Swedish firms have evocatively coordinated the items on the right hand side of their balance sheets, making them disciples of the aforesaid theories, or the contrary. We shall also see which path is economically sustaining for them to pursue.

#### **7.1: HOW DO SWEDISH FIRMS FACE THE CAPITAL STRUCTURE QUESTION WHEN FACED WITH A CRISIS?**

Historically, public companies in Sweden have always financed their investments from debt and stock. Their respective industry, size, profitability, etc, have not really mattered. This has been the case because, at any point in time, either of these two sources of financing might appear cheaper, more easily accessible, or the choices might have been influenced by psychological considerations or emotional subjectivity of managers. The debt equity question in some Swedish firms has really not been the subject of rigorous scientific thought.

Despite this, we might like to know if businesses in Sweden have followed any kind of trend when faced with a crisis or if observing any such trend will be nothing more than data mining.

Mindful that Sweden has a corporate tax rate of 26.3%, aware that interest is tax deductible in this country, one would have imagined that Swedish firms should have an incentive to be relatively highly leveraged in a manner that should of course be balanced with the expected costs of bankruptcy and the expected deadweight losses. We should ofcourse remember here that while taxes are sure and large, dead weight losses are small and rare.

However, within the past 20 years, firms in Sweden have managed their capital structure on the basis of the availability of funds to finance investments and meet competitive threats.

On March 10th, 2000, the dotcom bubble burst. This resulted in a domino effect on equity and commodity trading in America and as far as Europe. Businesses in Sweden experienced a decline in their profitability and suffered losses in some cases. The borne of the new century which brought with it lots of challenges and changes did not make things easier for the average business in Sweden. To meet these challenges and become part of these changes, companies needed to make investments in a variety of sectors. With the slump in profitability and in some cases losses that many companies in Sweden suffered, it became hard for them to internally raise the necessary funds to finance investments. Facing a limited market share, companies have relied over these years on debt to finance projects. In this regards, the capital structure question in Sweden has been less a search for any optimization and thus value enhancing, but more a question of survival.

Swedish companies need to compete in the 21<sup>st</sup> century globalized markets despite the difficulties that they face. To compete means that they need to protect their share positions and grow. Both of these require capital. If this capital cannot be conjured through internal financing

or stock issue, the alternative is through debt. Safe to say comfortably that companies in this part of the world have relied on this source of financing for this reason for the most part of the last 20 years.

These findings are supported by Brealy et al who observed that, the most profitable firms in general do not raise debt. This is consistent with the pecking order theory which says simply that, profitable firms in general are not in need of external financing. This was also supported by Frank and Goyal, (2003); Gaud et al, (2005).

While Hovakimian et al (2001) find evidence of firms tending to move towards their target ratio over the long run, such evidence might not have any bearing with firms in Sweden.

Meanwhile, in a study of five developed countries, Wald (1999) found that profitability is the single most important determinant of leverage.

## 7.2: PROFITABILITY, INDUSTRY, AGE, AND SIZE EFFECTS ON CAPITAL STRUCTURE OF FIRMS IN SWEDEN

The studies of Rajan and Zingales (1995) revealed that the ratio of profitability, firm size, industry, tangible assets and age were significant in explaining corporate capital structure in developed countries.

Tangible assets maybe used as collateral and are therefore associated with higher leverage. Age reduces information asymmetry and increases involvement with lending institutions making debt financing both easier and affordable. Firm size may increase leverage if larger companies are less likely to have financial troubles. Alternatively, firm size can reduce information asymmetry

between stockholders, management and bond holders which can lower the cost of leverage and also reduce the signalling problem with stock issue. Finally, profitability is associated with the availability of internal funds and thus less leverage as suggested by the pecking order hypothesis. On the other hand, profitable firms also face more free cash flow problems and thus as Jensen (1986) suggested, effective governance might encourage more leverage. Firms in industries like construction usually are highly leveraged because of the enormity of their fixed cost which reduces bankruptcy risk. They also can provide collateral for debt.

Nevertheless, it is curious to find that banks that characteristically operate without much assets that can be used as collateral, also have very high leverage in Sweden. On average, the leverage ratio of banks in Sweden is about 90%. Consequently, the total effects of firm size and profitability should be assessed empirically.

Cross sectionally, it was consistently found that, large firms in Sweden tend to have higher leverage ratio than smaller firms. The reason for this should be because large firms could have been around for a longer time, and thus have garnered more credibility in the minds of debt investors. They are also more likely to provide collateral for debt. Further, it is sometimes contended that, large firms are more difficult to fail and liquidate. Meanwhile, small firms are mostly growing firms with limited security. They are more likely to attract stock investors who are seeking growth opportunities.

The positive relationship between firm size and leverage in Sweden is theoretically supported by Strebulaev and Yang (2005) who found that, unlevered firms are the most likely to be the smallest firms in their industries.

Meanwhile, I found that, there were some isolated cases that were at variance with the above findings. These cases showed some large firms in Sweden having low leverage. An explanation

for this trend could be in the so called 'within-cycle effect'. This says that, within any two consecutive restructuring, the market value of stock increases as the firm grows, decreasing the quasi-market leverage ratio, and thus inducing the negative correlation between firm size and leverage.

Schwartz and Aronson (1967) found evidence of strong industry effects on debt ratios. Frank and Goyal (2006, p.41) also reported that, median industry leverage is one of the "core set of seven reliable factors that are correlated with cross-sectional differences in leverage"

Among Swedish firms, there is some correlation between capital structure and firms within an industry. Retail and mobile telephone companies relatively have lower leverage. Retail companies generally have negligible collateral and thus higher bankruptcy risk and higher perceived dead weight losses, bringing consistence with the trade off theory, while mobile telephone companies are generally newer companies, meaning that they are younger companies in a bourgeoning and consequently volatile industries. They could be facing a higher perceived risk of bankruptcy. They might also be more capable of obtaining internally generated cash more than companies in other industries. This supports the pecking order theory.

Studying the capital structure of Swedish real estate firms, more evidence supporting the pecking order theory was found. There seem to be a preference for internal over external financing and a preference for debt over equity issuance. This fits the pecking order theory and is most likely due to signaling consequences. Ordinarily, greater support for the trade off theory should have been found since the characteristics of real estate fits the trade off theory better.

Several studies elucidate the relationship between profitability, industry, firm characteristics and size, to leverage ratios. These include; Bradley et al. (1984), Castanias (1983), Long and Malitz (1985), Kester (1986), Marsh (1982) and Titman and Wessels (1988). Generally, these studies

agree that leverage increases with fixed assets, growth opportunities, and firm size; and decreases with volatility, advertising expenditure, bankruptcy probability, uniqueness of product, and profitability.

While firm size, age, growth opportunities and industry have a part to play in the choice of the average firm in Sweden's capital structure, these factors become peripheral when profitability is brought into the equation. Profitability and consequently survival is the single most important factor that has been significant in explaining capital structures among Swedish firms.

Mining and automobile companies have a lower on average debt equity ratio in their capital structures in Sweden. This also contradicts the static trade off theory. Their capital structures have been designed on the basis of their profitability and their consequent need for survival rather than the dogmas of the trade off theory or any particular pre-established capital structure theory for that matter. When these firms are profitable, they don't issue debt to get tax rebates from the 26.3% corporate taxes they pay to the government. Profitability also reduces vulnerability to bankruptcy, hence lower perceived bankruptcy costs. Yet this does not encourage them to increase leverage.

Apparently, capital structure management in Sweden is only propelled by one major force - survival. Mentioning Professor Merton Miller's words on this matter is worthy here. He said;

“I had some students in my finance class actually do some empirical work on capital Structures, to see if we could find any obvious patterns in data, but we couldn't see any”.

Wald (1999) found in his study of five developed countries that, profitability is the single most important determinant of leverage. However, the contention is if profitability makes them more or less leveraged. To understand this, we should know that profitability reduces bankruptcy risk

and the perceived cost of bankruptcy and dead weight losses, thus making it more attractive for firms to employ more leverage. On the flip side however, profitability makes it easier for firms to raise funds through internal financing.

For the most part however, profitability has led to the later, making firms in Sweden to reduce their leverage the more profitable they are and only increase it when they are suffering losses. Therefore, the capital structure question in Sweden is increasingly becoming a question of firm survival in a complex and dynamic environment than a question of rules and the vox populi of scholars.

### **7.3: OPTIMAL CAPITAL STRUCTURE IN SWEDEN: MYTH OR REALITY?**

The optimal capital structure is the capital structure with a minimum weighted cost of capital and thereby maximizes the value of the firm's stock. It is the capital structure in which the share price is maximized or in the simplest form, it is the capital structure that best maximizes the value of the firm. The optimal capital structure is difficult for firms to identify precisely. However, the question that poses is if they should attempt to find an optimal range in their debt equity combination?

There is also the question of if there is an optimal capital structure for an individual firm, or whether leverage is irrelevant to the individual firm's value?

Hovakimian et al (2001) supports the idea of an optimal capital structure. They find evidence of firms tending to move towards a target ratio over the long run. Gaud et al (2005) points that firms do have target capital structures, concluding that the typical firm manages to adjust for more than half of the discrepancy between the actual debt ratio and target debt ratio within two

years. The majority of observed changes in the capital structure are explained by targeting behavior.

Byoun and Rhim (2003) also support this view. According to their study, firms tend to adjust their debt ratios to specific target debt ratios. This is consistent with the trade off theory. A firm has a target level of debt, and if deviations from that target are gradually removed over time, a firm is said to exhibit target adjustment behavior. This was supported by Frank and Goyal (2007).

The proliferation of capital structure theories within the last half of the last century, with each being remarkably distinct of the other, and individually, not being able to conclusively derive a formula to ascertain the appropriate capital structure, speaks of the fact that, for an even longer period ahead, the question of an optimal capital structure will remain an enigma.

Sweden is a country with an impressive array of companies in different industries. Some of them are large and small while others are old and young. The common denominator amongst them is their collective need to survive in times that for the most part have been uncertain.

Swedish companies join the league of a global chain of companies who compete for customers worldwide with an ever erratic demand nature. Optimization of their financing has been relevant to them but only with respect to meeting up the challenges that come in year after year. Volvo, an automobile company in Sweden, preferred to maintain a low on average leverage throughout the 1990's but had to increase its debt by more than 50% in 2001 when it started seeing its fortunes decline. So is the case with a vast variety of companies in Sweden. They will deleverage in good times and do the contrary in bad times, a brobdingnagian contradiction of the static trade off theory.

Bearing in mind that good and bad times are so characteristic of a business cycle, the idea of an optimal capital structure will remain an academic curiosity rather than an empirical reality in this country.

The pecking order theory comes closest in helping companies in making their financing choices, but survival has been the most important question that firms contend with in Sweden. For the unforeseeable future, a correlation between capital structure and firm value and their application among Swedish firms will remain an ideological disputation.

#### 7.4: WHAT SHOULD INSPIRE CAPITAL STRUCTURE DECISIONS AMONGST FIRM IN SWEDEN?

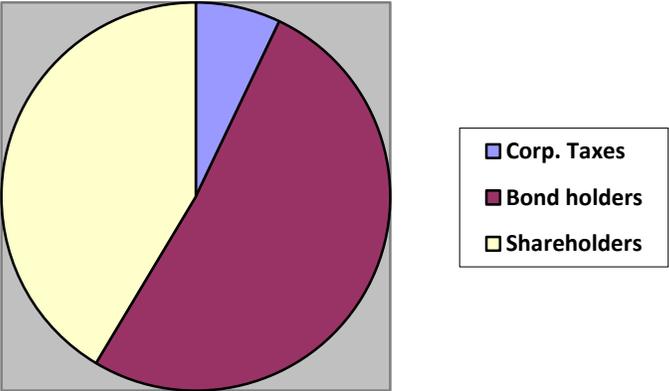
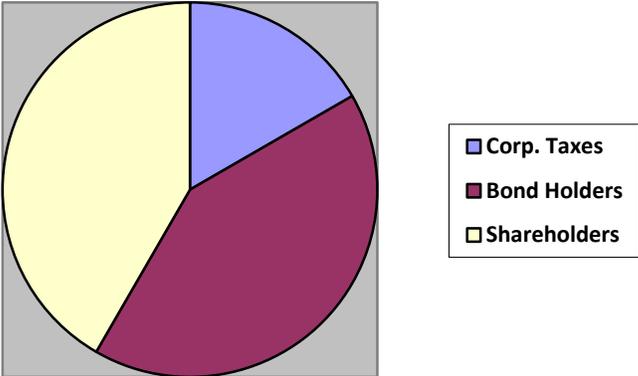
The fact that no precise result has been derived as optimal in the debt-equity equation is indicative of some blemishes of the logic of an optimal capital structure. Perhaps the original question was couched incorrectly. Rather than asking the optimal mix of debt and equity that can maximize shareholder wealth, it should have been; under what circumstances should debt be used to maximize the wealth of shareholders?

Addressing this question requires an understanding of the genesis of the concept of using debt to discipline managers, tax deductibility of the interest expense in conjunction with the risk of debt financing and to reconcile this thinking with the need to survive in the very competitive environments of today.

The corporate tax rate in Sweden is 26.3% and interests are tax deductible. This means that, an inclusion of debt in the capital structure will increase the value of the firm by the present value of

the interest tax shield. To put it figuratively, one can say that debt increases the value if the firm by reducing the portion of the firm or pie that goes to the government in the form of taxes.

Fig. 7.1



The value of the firm increases with debt financing because a lesser part of the pie goes to the governments in the form of taxes because of the tax deductibility of interest payments.

However, companies should consider this position Vis`-a-vis the probability of defaulting on their debt which will result in bankruptcy costs and dead weight loses. The negative effects of

bankruptcy costs on the value of the firm is more than the positive effects of debt derived from tax deductibility of interest tax payments at a certain point in the debt equity equation. This should be an important consideration for firms in Sweden. Management should apprehend the profit they make today and the possibility of sustaining that profit level in the future in making decisions about using debt financing with the hope of increasing firm value. If there is an irrefutable presumption about the certainty of the business environment for the foreseeable future, that market share is growing, customer satisfaction and customer recommendation is improving, they should strategically position the financing of the business in such a way that, a smaller part of the pie will go to the Swedish government, and the greater part to the claimants of the company.

Another point to contend with in the face of this balance is that, the cost of long term debt is cheaper than the cost of stock. This is because of the limited liability of public companies which makes debt less risky than stock. The higher the risk of a financing option, the higher its return. In the event of bankruptcy, debt holders have a prior claim to the assets of the company while bond holders only have a residual claim. However, the catch 22 here is that, as each dollar of equity is levered with more debt, the risk to equity holders increases and thus their return. The two offsetting effects can balance each other so that the weighted average cost of capital remains unchange.

Profitable firms should also take some debt. This is because, the more profitable a business is, the lesser are the chances that it is going to default on its interest payments, and this can reduce the risk of debt and thus its return, and consequently, reduces the weighted average cost of capital of the firm. This adds value to the firm.

$$R_{wacc} = \frac{B}{B+S} R_b (1-T_c) + \frac{S}{S+B} R_s$$

Where;

$R_{wacc}$  = weighted average cost of capital.

$R_s$  = cost of equity.

$R_b$  = cost of debt.

$T_c$  = corporate tax rate.

During times of inauspicious fortunes, the firm can rely on internal funds accumulated during periods when it was making profits to finance investment opportunities. This is particularly appealing because during such times, bond holders or prospective bond holders become apprehensive of the prospects of the firm. This results in an increase in interest rates to compensate for the added risk. Retaining profits with the view to build up internal funds in order to avoid the need to raise external financing during not so good times, can be seen as a really smart move for a firm.

Firms can also use leverage as a means to reduce agency costs. Managers have an incentive to procure opportunistic behaviour because of the diluted equity position of most public firms. Since debt obligates firms to fixed interests and principal payments, it thus constrains managerial indiscretions. Failure to respect interest and principal payments can lead to insolvency and thus a loss of jobs for even senior management.

Mindful that debt is cheaper than stock and aware that interest is tax deductible in Sweden, and that the corporate tax rate is 26.3%, plus debt's propensity of reducing agency costs, it makes sense for companies to always include some debt in their capital structure. The fear is that, they might have reached the maximum level of their debt capacity. Therefore, comments by analysts

can offer guidance. Comments like “the company can comfortably handle its debt obligations” would suggest that the capital structure of the company is at or short of the optimal ratio. On the other hand, concerns about the company’s ability to retire its debt clearly signals that the firm has exceeded the optimal ratio.

Firms should also be observant and analytical of the debt equity mixes of other firms with similar business risk. They should also be encouraged to make positive adjustments to their leverage levels if they realise that underwriters are eager to handle a new issue of incremental debt on an underwritten basis.

Nevertheless, blind reliance on leverage as a device to either discipline managers or achieve economic gain is the easy way out, and might lead to the demise of an organization. Serious consideration should also be placed on the value of financial flexibility. This argument recognizes that, the option to choose what financing alternative to use in financing investments and to quickly obtain additional financing through unused good debt capacity is of substantial value to shareholders. More of this is talked about in the chapter nine.

Meantime, suffices to know that the degree of flexibility is a function of several variables including the likely opportunity set facing the company, the cyclical and dynamic nature of the business, the characteristics of the company’s existing financing and the business risk of the company. A firm benefits from having the capacity to choose which financing is appropriate in a particular business situation and environment. It also benefits from having a potential to increase leverage, irrespective of economic and capital market conditions. Unused good debt capacity offers the possibility to obtain finance short under perhaps with just a phone call. These allow the firm to take advantage of unusual opportunities or avoid being forced to take actions it deems unsuitable. If shareholders in Sweden can share this view, keeping unused good debt capacity

can add value to a company. This discussion can be summed up by saying that it is better for managers to position the company so that it can choose to take an action rather than allow circumstances compel it to take action.

To conclude, management of companies in Sweden should understand that, the tax deductibility of interest expense in Sweden makes the use of the appropriate amount of debt beneficial to shareholders and share price. The use of the right amount of debt lowers the company's *Rwacc*. Lowering the cost of financing resources improves net economic returns and increases share value. Proper selection and management of capital structure offers the prospect of enhancing value for shareholders. The reduction of the cost of capital simultaneously has a favorable influence on the economy and the standard of living. While theory is nice, application is important. Managers have the responsibility of creating value for shareholders. Swedish firms need to scientifically orchestrate their capital structures with a consideration of the complexities of the particular industry and the dynamism of their environments. This can create value for the shareholders and society.

## CHAPTER 8:

### **THE CAPITAL STRUCTURE QUESTION IN THE DEVELOPING WORLD: CASE STUDY – CAMEROON**

In the developing world, the financing patterns of enterprises vary greatly from what we observe in the developed countries. In the poorest developing countries, firms rely on mostly internal resources and informal credit markets for financing. Commercial banks are the main financial institutions. Their loan contracts are generally short-term and formal direct credit markets for long term debt and equity is a rare occurrence. Only as development proceeds that it is hoped that the financial market will become sophisticated. In recent years, stock markets have started emerging in a number of developing countries.

Cameroon had its first stock exchange following the creation of the Douala Stock Exchange (DSX) in December 2001. It is expected that the Douala Stock Exchange will help in enhancing investments. This is due to the control imposed on the investment behavior of companies through continuous adjustments of their share prices. In addition, the growth of the stock markets is also expected to lead to lower cost of equity capital that can hence stimulate investment and growth by spreading risks of long-term investment projects. Finally, stock markets can attract foreign portfolio capital and also increase mobilization of domestic resources, and this expands the resources available for investment in developing countries and Cameroon in particular.

Booth et al (2001) and Desai, Foley and Hines (2004) find evidence of persistent differences in capital structures across countries. When analysing the capital structure alternatives in emerging and transition economies based on theories that were crafted under the inspiration of a western philosophical understanding, one has to be careful because these economies are very distinct in their basic orientation. Below are reasons for these curious differences and their potential implications:

1. A perception of greater uncertainty in taxes and the tax rates that may prevail. The recent tax laws of Cameroon which changed the tax rates for a variety of tax types bares testimony of this.
2. Potential impediments to inter-country capital flow may inhibit the availability of capital and affect its cost.
3. There is a high perceived risk of realization of actual benefits of projects. Though a project may attain expected cash flows, the idea of higher political risks influences perceptions (sometimes unrealistically) of confiscating acts of government that might diminish the net cash benefit to the company or investors. This influences the perceptions of the likelihood of future profitability and contributions to shareholders.
4. Relatively high cost of capital. The tax deductibility of interest payment can be less in less developed economies. This result from differential premiums of equity compared to debt that exist in some economies. As a consequence, the expected value to equity holders of the tax deductibility of debt contributes proportionately less to total expected returns compared to what obtains in developed economies.
5. The absence of capital markets for long term capital, particularly debt. This result in;
  - A mismatch of asset life with financing life.

- A truncation of the investment set by companies. The shortage of long term financing results in the selection of projects with short lives. This short life project phenomenon may adversely affect long term availability of cash flows.
- A desire for projects that generate cash flows earlier in time.

MM proposition I (*no corporate taxes*) provides that; “The value of the levered firm is the same as the value of the unlevered firm”

The above proposition was based on the assumption that individuals and firms can borrow at the same rate. The implication of this is that, if a levered firm is priced higher than an unlevered firm because of its perceived higher value due to leverage, individuals can borrow on their personal accounts and invest in stocks in the unlevered firms, thereby duplicating the effects of corporate leverage. This substitution is called home made leverage in finance literature. It describes a substitution of risks that investors may undergo in order to move from overpriced shares in highly levered firms to those in unlevered firms by borrowing in personal accounts. The primary assumption by MM was that, individuals and firms can borrow at the same rate.

However, this is completely unattainable in Cameroon because individuals and corporations don't borrow at the same rate. While the absence of a bond market and limited number of commercial banks makes it difficult for corporations to obtain financing through debt, the situation is worse with respect to the individual investor. The absence of credit score institutions to determine the credit worthiness of individuals, the non reliability and sometimes absence of insurance companies and the low relative per capita income of Cameroonians increases the risk of loans to individuals and thereby increasing the return on the loans.

On the other hand, though the relatively few commercial banks and no bond market do not make it very easy for companies to raise debt financing and at reasonable cost, companies find it easier

to raise capital than do individuals. This is because companies are considered comparatively more stable and certain vis-a-vis individuals. They can generally provide huge collateral, and since their life span outlast those of individuals, they have developed a relationship with the hierarchy of banks over time, and some even have private relationships with loan officers and bank managers. All these make it easier and cheaper for them to raise money through banks than individuals.

Difficulties in raising credit, absence of investment banks and other kinds of brokerage firms, insufficient and dysfunctional stock markets, high corporate tax rate of 38.5%, and bankruptcy costs, political instability and the resulting economic uncertainty have all contributed to seccernate the capital structure question in Cameroon from those already theoretized by financial economists within the past few decades.

## 8.1 HOW DO FIRMS IN CAMEROON FACE THE CAPITAL STRUCTURE QUESTION WHEN FACED WITH CRISES

The path breaking papers of Franco Modigliani and Merton Miller as well as the trade off theory of Baxter are particularly uneffective in explaining capital structure decisions in Cameroon. This could be because of the negligible amount of listed companies in Cameroon, dysfunctional stock markets, absence of investment banks and other kinds of brokerage firms, and the absence of bond markets, etc.

The economic climate in Cameroon makes the pecking order theory a most suitable scholium that can possibly explain capital structure maneouvres in Cameroon. In the absence of promising investment opportunities, firms tend to retain profits to build internal funds with the view of avoiding the need to raise external finance in the future.

Raising external finance is difficult because of the absence of bond markets, dysfunctional stock markets in Cameroon and limited amount of commercial banks. In the event of a crisis, they rely on internal finance to fund positive NPV project and also in running the firm.

National Produce Marketing Board (NPMB) was the main exporter of cocoa and coffee and other cash crops after West Cameroon had its independence in 1961. The 1960's was salubrious for agricultural firms, during which time, NPMB then Produce Marketing Board (PMO) retained profits which it used in running and financing investments in the late 1970's when agricultural prices dropped. Sadly, when agricultural prices hit rock bottom in the 1980's, Marketing Board had depleted its internal reserves and could not finance its operations. Without a viable financial market in Cameroon, Marketing Board went out of business at the close of that decade.

It is only when firms cannot finance projects from internally generated funds that during a crisis, they turn to debt. And this is not only because debt is difficult to obtain. The other reason is because most firms in Cameroon are proprietorships under unlimited liability, and theoretically, they are expected to use less leverage because they are personally liable for the debts of their firms.

Koolman Business Ventures and Pinks Fashion are both sole proprietorships that have unlimited liability. Since they face a tough competition for loans because of the limited number of available commercial banks and absence of bond markets, plus the idea that only short term loans are mostly available which dysfunctionizes and truncates the firm's investment choices, compounded by the personal liability of the owners of these firms, these firms have steadily grown their internal reserves over the last 10 years hoping to rely on it in an eventual crisis. Of course, the cost of lost opportunities because of this is immense.

Survival has really been an intrinsic concern for most firms in Cameroon and they will resort to unconventional forms of leveraging just to survive in a crisis. Cameroon Development Corporation is the country's biggest agricultural firm. It faced a major crisis in the early 1990's that saw its earnings plummet for several years. Facing a threat of collapsing, and because of the near impossibility of obtaining long term credit from banks, CDC became very creative. It loaned money from its workers through a program it called 'compulsory savings'. Under this program, the salary of every worker was reduced by about 50% and invested in the company. CDC became indebted to its workers. After some few years when CDC stabilized its operations, CDC paid its debt to all its workers.

As was observed earlier, the pecking order theory is for the most part, most applicable in Cameroon as firms compete for survival in this fast and increasingly dynamic business world.

While leveraging remains a tool for survival in Cameroon, it is a tool that is often times strategically neglected because it can sometimes be unprocurable when it is needed the most.

## **8.2: OPTIMAL CAPITAL STRUCTURE IN CAMEROON: MYTH OR REALITY?**

As said earlier, the optimal capital structure is the capital structure with a minimum weighted average cost of capital that maximizes the value of the firm's stock. The optimal capital structure usually involves some debt, but not 100% debt. One of the most important issues in corporate finance surrounds the question of how firms choose their capital structures.

Modigliani and Miller introduced corporate taxes in the equation to their previous MM I & II theories, in which it seem optimizing for a firm to be 100% debt financed. In 1979, Baxter adjusted this theory by introducing bankruptcy costs. Baxter's idea was later formalized by

others. The trade-offs between the tax advantages of debt and the associated bankruptcy costs of debt ultimately results in an optimal capital structure.

The MM II (*without corporate taxes*) is unworkable in Cameroon because of the inapplicability of their assumptions. The capital markets are highly imperfect and almost nonexistent in Cameroon and corporations and individuals do not borrow at the same rate.

Regardless of whether the corporate tax rate in Cameroon is 38.5%, the tax deductibility of interest expense, the propensity or presumed magnitude of bankruptcy, firms do not seek any optimal capital structure in Cameroon. Interest rates are higher in Cameroon and loan availability is very scarce. This is because there are very few commercial banks and most companies take loans but from credit unions which can offer only short term loans with high interest rates. Short term loans encourage the choice of only short term projects regardless of whether there are higher NPV projects with longer life spans. Firm value does not increase with leverage in these kinds of environment because; leveraging encourages the choice of projects based on their life spans rather than the discounted value of their future earnings. Leveraging in such an economic climate can potentially reduce the value of the firm.

Though the corporate tax rate in Cameroon is as high as 38.5 % and interest is tax deductible, the risk of leverage is very high to the owners of the firm because most firms in Cameroon don't enjoy the limited liability status. Incidentally, most of those firms are partnerships which leads to a contradiction to the works of Kim and Sorensen (1986), Agrawal and Mandelker (1987), and Amihud et al (1990) who strangely observed that, leverage is positively correlated with the extent of managerial equity ownership.

The above factors have made capital structure optimization to be an obscure phenomenon in Cameroon. Firms prefer to finance projects from internally generated funds and avoid including debt in their capital structure.

### 8.3: WHAT SHOULD INSPIRE CAPITAL STRUCTURE DECISIONS AMONGST FIRMS IN CAMEROON?

At 38.5%, Cameroon has by far the largest corporate tax rate in the West African region. This is a huge burden to investors and a concern to potential investors in Cameroon. However, one can look at the tax deductibility of the interest expense as effectively, a tax subsidy from the government for firms that use debt. Based on this, companies can be encouraged to use as much leverage as possible. However, let us not jump there yet. The capital markets in Cameroon are imperfect to be modest and non-existent to be extreme. Credit is often unavailable, and even when they are, they are often short term loans from commercial banks and credit unions with high interest rates and which of course encourage the choice of short term projects rather than positive NPV projects.

Moreover, since most companies have unlimited liability, the risk of default of loans is borne entirely by the owners who are mostly sole proprietors. This makes loan defaults staggeringly costly to them.

These set backs to leveraging should be leveraged in the decision to leverage but of course should not jettison this whole idea of leveraging.

Cameroon had its first and only stock exchange, the Douala Stock Exchange in 2001 and more foreign owned banks and credit institutions are beginning to spring in this triangular country.

These should encourage public ownership of companies and thus limited liability and also credit availability and durability as capital markets begin to take shape.

Jerry Yang, co-founder of yahoo once said that "we live on the edge of change". To succeed in the 20<sup>th</sup> century, companies in Cameroon need to be observant of these changes and participate in them. Those who can be appositely financed through the issue of stocks or through banks or any other credit institutions will not only be able to raise money cheaper, with minimal risk to seize fledgling and fleeting business opportunities, but will also be able to find a way to share the huge tax burden of 38.5% with the government of Cameroon in the form of tax rebates or government subsidies to debt financing, or what ever nomenclature one might prefer to use. They are those who will remain standing while others struggle with the changes in the 21<sup>st</sup> century dispensation. These ofcourse should be considered vis-a-vis the possibility that the firm could become insolvent at some point and suffer huge losses from bankruptcy and its related dead weight losses.

Firms in Cameroon can create value for themselves if they can accumulate enough reserves to deal with crises situations that eventually come. Since credit is a scarce commodity in Cameroon, and crises situations are always part of a business's life circle, accumulation of reserves indicates the long term survival of the company. This is because, the accumulation of internally generated reserves can be used to finance the company's investments in adverse periods of the company's life, without which the company, like Marketing Board, will have to liquidate.

Accumulated reserves or cash can also help the firm to be more agile as they compete to grab fleeting opportunities. They will not be limited by the rigor of debt investors nor by the disclosure requirements and bottle necks involved in stock financing. If investors in Cameroon can understand and accept this, a firm with accumulated reserves will be more valuable in terms

of higher share prices than an identical firm without such reserves in the Douala stock exchange or any other stock market that is on the road coming.

Accumulated reserves also signal the good fortunes of a firm. This can encourage credit institutions to be both willing and confident to offer credit to the company. This confidence and willingness can increase the supply of debt finance and consequently reduce the cost of debt which reduces the *Rwacc* accordingly. It can also reduce the anticipative risk of default of interest and principal payments of debt. A firm's value increases when its *Rwacc* reduces.

Firms with this potential can now suitably make choices amongst wider financial alternatives based on economic astuteness rather than desperate availability. This capacity to choose is in itself valuable to the company. The guiding rule should always be to;

“ ...position the company so that it can choose to take action rather than have circumstances compel it to take action”.

## CHAPTER 9

### **A PERSPECTIVE FOR THE FUTURE : CASH OPTIONS**

A cash option is defined as an option that managements have to choose what they reasonably believe is the appropriate investment opportunity from a variety of possible opportunities and also the suitable type of financing for it without being impaired by (un)scrupulous claimants. Cash options result from a firm having acceptable amounts of cash in its capital structure. Managers with this option are in a better position to enrich shareholder value than otherwise.

Despite the proverbial talk about efficient capital markets, and perfect capital markets, the reality is that the capital markets that firms are engaged in are not efficient and are hardly perfect. Investors do not have enough information, stocks and bonds are never as transparent as they are assumed to be, and even in the most capitalist and most western economies, it's not always very easy to raise finance quickly as one might be required to, because of institutional bottle necks and many other practicalities that one has to encounter simply because financial markets are not perfect and efficient.

Therefore, firms can be better-off if they have a flexible capital structure that can adjust to all these imperfections. Amongst the factors that really distract from the perfect capital markets hypothesis, is the presence of transaction costs.

## **9.1: TRANSACTION COSTS**

Transaction costs are borne when one makes an economic exchange. A firm incurs transaction costs when raising capital to finance projects. Such cost includes fees to investment banks such as brokerage fees. Other types of transaction costs borne include the cost of searching the appropriate investment house, underwriting firm or brokerage firm, and bargaining cost which include the cost of arriving at a bargain with the investment bank or brokerage firm.

Lack of information if interest rates are going to rise or fall may result in a transaction cost for a firm that chooses to issue bonds today rather than waiting a little longer. Bond prices rise with a fall in interest rates and fall with a rise in interest rates.

Investment banks involved in the sale of a firm's securities may disregard their reputation capital and under-price securities at substantial cost to the issuing firm.

Choosing a syndicate for the sale of shares involves two methods:

- A competitive offer
- A negotiated offer.

Negotiated offers are predominant. The issuing firm works with one underwriter. Consequently, such deals suffer from a lack of competition. The effect is a share price that is not fair to the issuing firm. Studies have also revealed that issuing costs are higher in negotiated offers than in competitive offers.

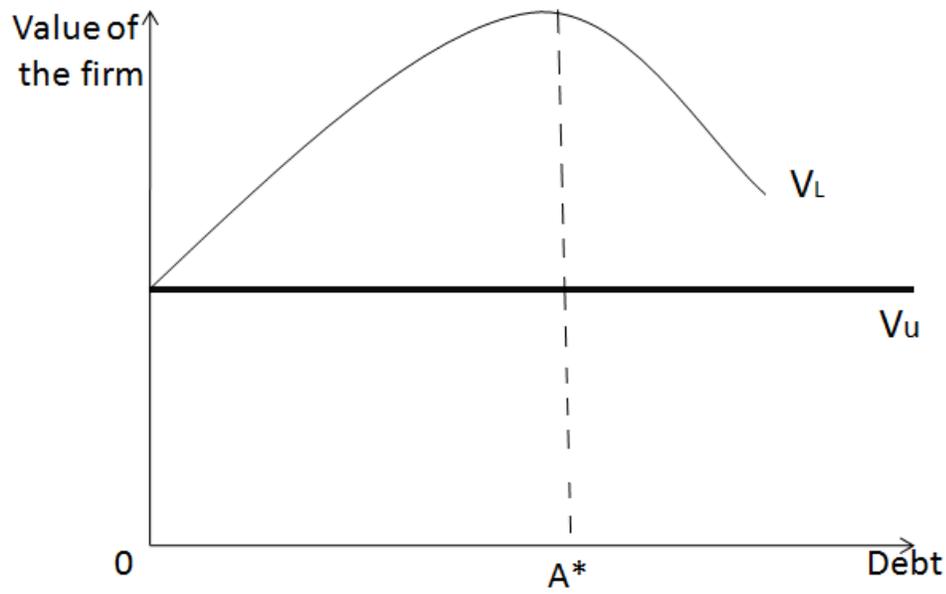
## **9.2: THE BURDENS OF DEBT**

Debt ultimately reduces the strength of an entity. At some point, debt financing places a heavy burden to a firm. Restraints to debt financing is not only limited to bankruptcy costs but also to

the fact that, at higher levels of debt, the company is rendered incapable to efficaciously sail properly in business waters without distractions from concerned debt holders. This situation is worse in companies that belong to volatile or dynamic industries than vice versa.

High levels of debt also render the firm incapable to efficiently and effectively raise the required finance when opportunities suddenly arise. This is because, higher than the necessary levels of debt can erode a firm's good debt capacity which can cast a shadow on the firm's capacity to make interest payments. This makes the firm's bonds risky, and therefore investors could demand higher interests for them. Eroded good debt capacity can also potentially compel the firm to raise required finance through other sources, e.g. issuing stocks, which might not be very desirable at the time.

Therefore, the optimal level of debt assuming bankruptcy costs are neutral should be balanced with the constraints that debt imposes on the firm's ability to navigate and generate finance suddenly. In other words, as leverage increases, flexibility reduces. Flexibility is necessary in a world of uncertainty. And depending on the level of uncertainty, as the firm's flexibility increases, its value increases while the reverse is true.



$V_u$  = Value of a levered firm

$V_L$  = Value of an unlevered firm

Fig. 9.1: The value of the firm increases with debt because of the tax subsidy until it reaches point  $A^*$ . After this point, the cost of inflexibility imposed by debt rises faster than the tax subsidy of debt, thus the overall value of the firm reduces with increase in debt.

The world today is generally very uncertain, and this impairs managerial ability to predict the outcomes of their choices and the future of their businesses. Therefore, to survive and thrive, a business needs to be flexible. Inflexibility constrains the prosperity of the firm and reduces its value because it potentially limits the independence of the firm, the opportunities it can pursue, and its competitive position *Vis-à-vis* its rivals. Therefore, the tax advantages of debt should always be traded off with the costs of inflexibility that debt imposes on the firm, assuming neutral cost of bankruptcy for all firms.

Insensitive use of debt financing can also cause problems for a country. The best way to explain this position is to mention two quotes from Lawrence H. Summers and Alan Greenspan.

The first is Summer's rhetorical reflection on this assertion in 2009 with respect to the United States;

“How long will the world's biggest borrower remain the world's biggest power?”

Lawrence H. Summers  
Director of National Economic Council (USA)

Former Federal Reserve Chairman, Alan Greenspan made a similar assertion on the effect of increasing debt on the strength of the US in a 2009 interview with MSNBC.

There is no doubt that if the United States continues down this road (of indebtedness), we are going to find that our ability to borrow is going to get restrained because throughout our history, we have always maintained a capital cushion between our borrowing capacity on the one hand and the level of debt on the other. That is beginning to shrink, and if we get to the point where we are having difficulties selling our securities; our treasury issues, then interest rates begin to move and our ability to move internationally, to essentially be the major currency, the major economic power in the world is significantly diminished. History tells us that great powers in the world, when they have gotten into very serious fiscal problems have seized to be great powers.

Alan Greenspan

Former Federal Reserve Chairman (USA)

### **9.3: THE FLEXIBILITY ARGUMENT**

Firms can be grouped under two types of industries:

- Firms in dynamic industries,
- Firms in mature industries.

Dynamic industries are those characterized by continuous change as well as the instability and unpredictability of that change. Such industries are still youthful and the probability of growth is high. In such industries, the key to success is not based on efficiency or effectiveness, but on agility and innovative capacity.

Agility is the ability of the firm to successfully sort and pursue most often fleeting positive net present value investments. Meanwhile, innovative capacity is the ability of a firm to create and define new problems and to seek solutions for them. Survival and prosperity for firms in dynamic industries, hinges on these two factors. Examples of such industries include information technology and pharmaceutical industries.

At the opposite end of the spectrum, are mature industries. These are industries that have outlived their youthful and growth stages and are in benign environments. Prosperity here depends on protecting market share through ads aimed at maintaining product awareness. Product improvements and product line extensions in these industries can be advised but must be well planned and thought through because they might have a tendency of diluting the established

brand equity or cannibalizing from existing brands. Examples of such industries include the automobile industry, retail and fast food industries.

Firms in dynamic industries require a flexible capital structure in order to survive and thrive. This is because, success depends not on stability but on change; for the eventual abandonment of everything it created no matter how successful. Firms should not endeavor to prolong the product life of successful products but on ending them even if they are still a source of positive cash flow. They should sort new opportunities and pursue different ideas. They should always try to create new products and in doing so, try to destabilize the environment. They should signal change and not just follow change. They should set the stage for the environment to follow and not just wait to accompany what the environment offers. The environment always waits on firms to lead, but if firms fail to assume leadership, then the environment, the society, becomes the leader and sets the stage and the platform for action and firms then follow behind. The effect of this is a bitter struggle to gain anything from this environment. Customers become delicate, careful and skeptical. Firms then compete based on price rather than product differentiation or quality.

As observed above, to succeed in a dynamic industry, change should be the norm. But the concept of change is about risk and unfortunately, bond holders might not be willing to share in risky projects, because though they bare most of the risk, their payoffs are always below that of the other claimants. Bond holders then have an incentive to prevent management from pursuing investments that they see as risky.

Practical examples of this can be found in the 1990's. Coca-Cola Company which can be classified as belonging to a benign industry, increased its debts through most of 1990's and the result was an increase in profits and shareholder wealth. On the contrary, Kodak, a company in a

relatively dynamic industry, struggled through most of the 1990s with excess debt compared to most firms in its industry. Consequently, investors forced the company to cut back on necessary investments in research and development. This severely damaged the company's effort to expand in emerging high tech industries. The trouble Kodak is having during this decade with profitability can be traced back to its failure to invest in research and development in the 1990s.

Motorola is an example of a company that suffered huge losses because it failed to participate in the dynamics of dynamic environments. Its Razr phone was very successful to the extent that its management became blinded by this success and tried to prolong the life of this product instead of robustly investing in research for newer brands. Its chief executive was quoted at the time as saying "Razr and more Razr".

Change is the king in dynamic industries and flexibility in a firm's capital structure is the kingdom that accommodates this king.

Flexibility is the ability of a firm to take an action within a certain time limit. Flexibility does not only depend on the independence and vibrancy of management. Financial flexibility is the most valuable item in the itinerary of flexibility. A heavily leveraged firm is incapacitated to pursue fleeting opportunities because of constraints imposed by bond holders, and also suffers from an eroded good debt capacity. This infringes on its ability to navigate for financial capital.

If the firm cannot raise finance through debt because of the ailments of an eroded good debt capacity, its alternatives are to finance its projects through cash or internal reserves or through the issue of stock. The crux here is that if the firm does not have enough cash in its capital structure, it is compelled to issue stock or abandon the opportunity. The pecking order theory cautions that issuing stock inappropriately can lead to a decline in stock prices because of the

cost of information asymmetry. Issuing stock also constrains the firm's flexibility too because of the often high transaction costs involved in its issues.

Therefore, the ideal situation for the firm is for it to have cash. If a firm has sufficient cash, it avoids the constraints and effects of the constraints from a skeptical investment public. All things being equal, a firm with more cash reserves in its capital structure is more flexible than a similar firm with less.

Furthermore, it's important for firms that have volatile earnings to maintain significant cash reserves so that they can weather temporary periods of operating losses. Holding enough cash can make them avoid financial distress and its associated losses.

However, there is also a cost of holding cash. The cost of holding cash is the opportunity cost of lost interest from cash plus taxes on capital gains and corporate tax. Therefore, despite the inherent flexibility offered by cash, firms also have an incentive not to hold cash.

To avoid bearing the opportunity cost of cash, a firm can be encouraged to have a good debt capacity. Debt capacity is the ability to borrow money. It is determined by the credit worthiness of the firm, the ability to generate sufficient cash flow and the current debt ratio of the firm. It suffices to say here that leverage is inversely proportional to good debt capacity. Therefore, a firm needs to finance projects from internal finance in order to build or maintain good debt capacity. Good debt capacity increases the firm's flexibility to raise finance short with maybe just a phone call to a bank at favorable interest rates.

#### **9.4: THE CASH AND TAXES DILEMMA**

When a firm has excess cash, it can either keep it as part of its cash reserves or pay it out to shareholders. If the firm chooses the second approach, it can choose between paying the cash as

dividends or repurchase shares from its current owners. Such decisions describe the firm's payout policy.

A firm's current or accumulated retained earnings reduce when it chooses to pay out dividends. Dividends therefore represent a cash outflow for the firm.

A firm must pay corporate taxes on the interests it earns when it retains cash. Retaining cash instead of paying it out as dividends makes the value of the firm higher at cum dividend date than at ex dividend date. Consequently, retaining cash makes investors to owe capital gains tax. As such, interest on retained cash is taxed twice.

However, if the firm chooses to pay the cash to its investors, they could invest it and thus be taxed only once on the interest they earn (and thus no capital gains tax).

Therefore, the cost of retaining cash depends on the combined dual effects of corporate taxes and capital gains taxes as against the single tax on interest income.

The dilemma now is that, despite the tax disadvantages of holding cash, why do so many firms accumulate large cash balances. The answer to this is the option that cash gives. This option is more valuable in companies that require investments in research as well as companies in dynamic industries and environments.

The existence of transaction costs makes it important for firms to hold cash to cover future potential cash needs. Direct cost of issuing debt ranges from 1% to 3% and 3.5% to 7% for equity issues. Moreover, there can also be significant indirect costs of raising capital as a consequence of adverse selection and agency.

Therefore, there is a strategic choice for a firm to reflect between the tax costs of holding cash plus the cost of forgone opportunities of keeping cash against the potential benefits of not requiring to struggle for outside financing to fund profitable projects in future.

## 9.5: THE FINANCIAL OPTION CREATED BY CASH

Cash increases the flexibility of a firm and therefore situates the company in a more dynamic position. This strengthens the company according to the law of requisite variety. This law that was postulated by William Ross Ashby provides that, components of the system which have the most flexibility and freedom are also the most powerful. The society in which the company is embedded in is itself flexible. The flexibility of the society and consequently the market place is observed by the constant changes that take place in it. Such changes include macroeconomic changes, socio-political changes and anthropological changes. Some of them are; changes in inflation and interest rates, changes in income, changes in demography and population, changes in culture, as well as changes in taste and fashion.

As companies compete for market share, those that are more flexible to accommodate the dynamism outside the firm are likely to succeed at the expense of those that are static. Because cash puts a firm in a better position to choose what type of financing to use, what type of investments to pursue as well as the relative timing to make the investments, cash therefore makes the firm more powerful and consequently adds more value to the firm.

More specifically, cash creates two types of options in the company:

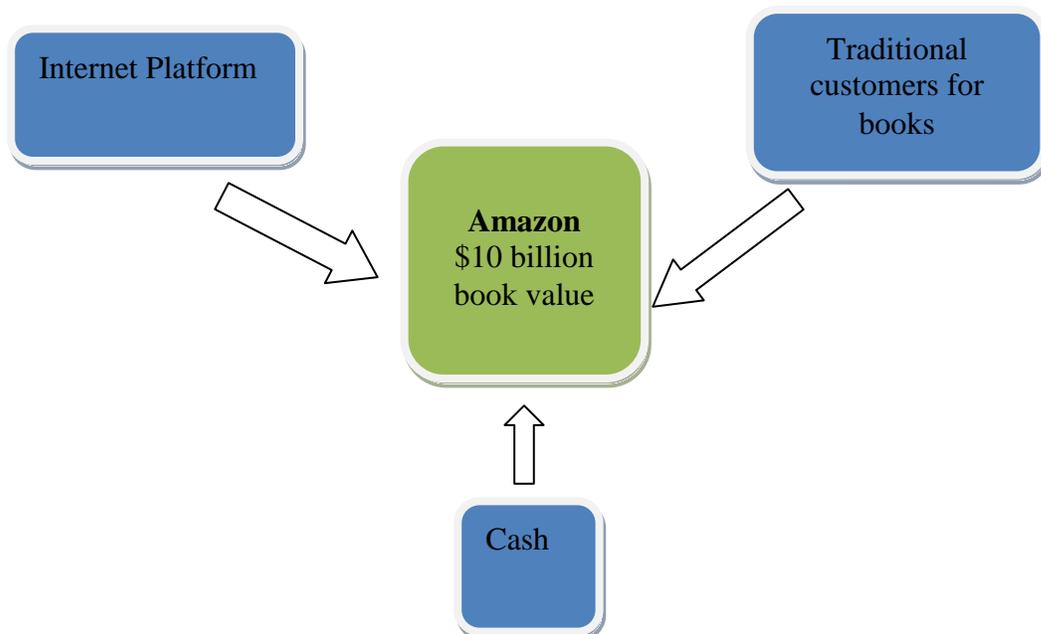
1. The first is the option to choose the appropriate kind of finance to use. Appropriateness here is based on the following:
  - A judgment on the efficiency of the class of finance. Efficiency in the class of finance is determined by its cost of capital.
  - Effectiveness of the class of finance. This is based on how sudden it can be raised to suit its required uses.
  - The relevance of bankruptcy costs and tax shield.

2. The second option is the option it gives the firm to choose which investments to pursue mindful of the financial constraints that firms face partly because of inefficiencies and imperfections of financial markets.

These can be described as cash options, and a firm that has these cash options is better than an identical firm without them. The difference between the two firms being the value of the option that results from having more cash in its capital structure.

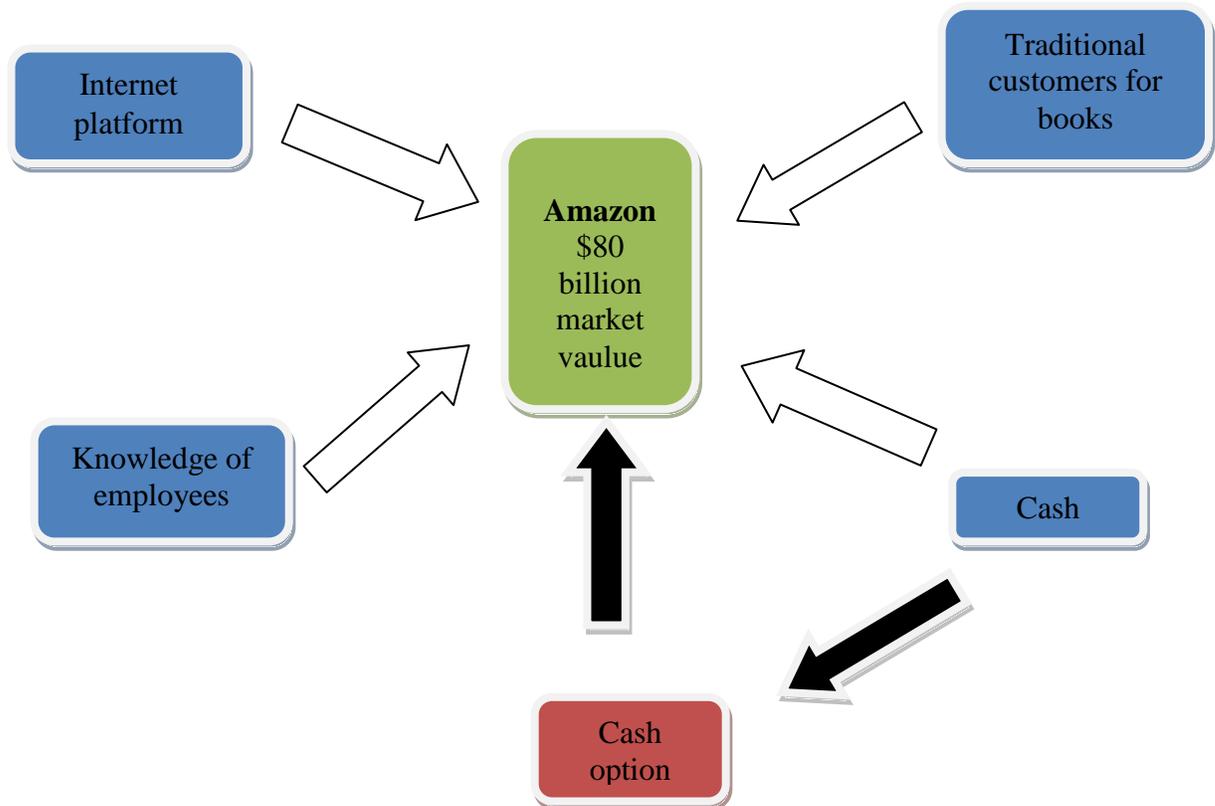
The cash option that results from financial flexibility was underscored in a recent study of Amazon. The study revealed that, this company that operates only with an internet platform had reported \$10 billion in its book value, of which the greater part of this was held in cash, whereas its market value was reported as \$80 billion. The figure below explains the sources of the \$10 billion book value of Amazon.

Fig. 9.2: Sources of \$10 billion book value of Amazon.



The difference of \$70 billion could be accounted for by the knowledge resource of its employees, growth opportunities (such as adding kitchenware to its traditional merchandise), etc. However, the larger portion of the \$70 billion can be accounted for by the option value that the large amount of cash (\$10 billion) creates. In other words, it is the value of the option to engage in research, capture fleeting opportunities or ignore them without encountering significant financial constraints nor being handicapped by the scrutiny of skeptical bond holders. Find below the sources of the \$80 billion market value of Amazon.

Fig 9.3: Sources of the \$80 billion market value of Amazon



## 9.6: DETERMINANTS OF THE VALUE OF CASH

### OPTIONS

A cash option is contingent on four major items.

- 1 The degree of uncertainty of the market. The following points are necessary to determine the degree of uncertainty of the market
  - Type of industry. Young and dynamic industries have a propensity to be more uncertain than mature industries.
  - Happenstances of business opportunities.
  - Changes in demography.
  - Population growth rate.
- 2 Macro economic factors. These include the probability of fluctuations in interest rates and inflation rates.
  - Interest rates influence the opportunity cost of holding cash as well as the value of bonds.
  - Inflation rate fluctuations influences the probability of changes in the value of cash held by a company.
3. Degree of inefficiency of financial markets
4. Degree of imperfections in capital markets

## 9.7: EMPIRICAL COMPARISON OF CASH RESERVES OF FIRMS IN DYNAMIC INDUSTRIES AGAINST THAT IN MATURE INDUSTRIES

Apparently, the need for flexibility is more vital in firms that are in dynamic industries than firms in mature industries. My study of 50 firms in Fortune 500 revealed that, firms in dynamic industries such as Microsoft and Apple had 7.04 % more cash balance in 2009 than firms in mature industries such as Nestle and Procter & Gamble. The tables below illustrate this.

**Table 9.1: CASH ASSET RATIO OF COMPANIES IN DYNAMIC INDUSTRIES  
IN FORTUNE 500 BETWEEN 2008 AND 2009 EXPRESSED IN  
PERCENTAGES**

<b>COMPANY NAME</b>	<b>2008</b>	<b>2009</b>
Cisco Systems	9	8
Amazon	33	25
Samsung	13	8
Google	27	25
Microsoft	14	8
Nokia	17	25
Apple	33	11
Verizon Communication	5	0.9
Hewlett-Packard	9	11
IBM	12	13
SAP AG	12	13
Eriksson	13	8.4
Intel	6.6	7.5
LG	0.15	2.5
Kodak	23	26
KDDI	2	6
ACCER	9	18
DEL	28	31
Levono	23	29
Toshiba	6	6
Fujitsu	15	10
Siemens	7	10
Soni	8	5
Oracle	19	28
Vodafone	1	3

**Table 9.2: CASH ASSET RATIO OF COMPANIES IN MATURE INDUSTRIES IN FORTUNE 500 BETWEEN 2008 AND 2009 EXPRESSED IN PERCENTAGES**

<b>COMPANY NAME</b>	<b>2008</b>	<b>2009</b>
Coca Cola	38	14
Walmart	3	4
Nestle	5	2
Ford	10	11
Home Depot	1	1
Pocter & Gamble	2	3
Pepsico	9	17
Tyson Foods	2	9
United Airlines	10	16
Fedex	6	9
MacDonald	7	6
Yum! Brands	3	5
Enel	4	2
Daimler	5	7
Nissan Motors	4	6
Maersk Group	1	0.8
Boeing	6	15
Repsol-YPF	6	4
Target	5	2
United Parcel Service (UPS)	2	2
Philip Morris International	4	4
Vinci Group	9	10
BG Group	4	2
Eni	1	1
Electricite de France	6	5

Financial flexibility is more crucial to firms in dynamic industries than those in mature industries. This study also revealed that, the cash balance of mature industries increased by 0.2% from 2008 to 2009. Though cash is not of vital importance to the survival and prosperity of firms in such industries compared to those in dynamic industries, it certainly makes a difference in uncertain times like we are today, where the only thing that is not changing is change.

However, my study about cash differences in mature and dynamic industries could be biased based on its neglect of some important issues that can influence the cash reserves of a firm other than the rate of dynamism in its industry. Such issues include the following;

- Variation in the perfection of financial markets.
- Relationship between managerial strength and cash.
- Relationship between cash and the tangibility of a firms assets.
- Dividend policy of firms in different environments.

### **9.7.1: THE INFLUENCE OF CAPITAL MARKETS ON A FIRM'S CASH DISPOSABILITY**

I have established above that cash is very vital for a business to survive and thrive. However, under the assumption of perfect capital markets, the relevance of cash in the pursuit of a business's growth and success is considerably diminished. This is because, under conditions of perfect markets, a firm can always raise any required amount of cash to pursue positive NPV investment opportunities.

Nevertheless, capital markets are hardly perfect in reality, and raising cash can be a tricky exercise to some companies. Market imperfection is not evenly spread universally. Some societies have more imperfect markets than others and this can have an influence on the amount of cash that companies in such societies hold to anticipate fleeting opportunities.

I did a study on 23 public pharmaceutical companies in Japan and in the United states from 2004 to 2009 and found that, the cash asset ratios of Japanese firms is more than that of US firms by 6.1%. The tables below show this result.

Table 9.3: CASH ASSET RATIO OF PHARMACEUTICAL COMPANIES IN THE USA BETWEEN 2004 – 2009 EXPRESSED IN PERCENTAGES.

NAME OF COMPANY	2004	2005	2006	2007	2008	2009
Pfizer	1	2	1	3	2	1
Johnson & Johnson	27	5.7	5.7	9	12	16
Abbott	-	10	1	6	9	17
Bristol-Myers Squibb	12	11	8	6.9		-
Eli Lilly	21	12	14	12	19	16
Amgen	5	6	-	6	5	7
Pocter & Gamble	9	10	5	4	2	3
Alcon	24	28	27	30	32	34
Forest Laboratories	28	31	15	18	18	25
Allergan	-	-	-	-	16	26
Gilead	-	19	20	16	21	13
Biogen	-	-	-	7	7	-
Watson	9	10	12	6	14	3
Cephalon	-	18	17.7	24	17	35
Mylan	-	6	8	29	-	-

Table 9.4: CASH ASSET RATIO OF PHARMACEUTICAL COMPANIES IN JAPAN BETWEEN 2004 – 2009 EXPRESSED IN PERCENTAGES.

COMPANY NAME	2004	2005	2006	2007	2008	2009
Takeda	46	49	53	53	56	27
Astellas	-	46	30	28.7	32	30
Eisai	23.7	21	24	21	10	11
Chugai	14	16	14.7	16	14.7	19.7
Mitsubishi	6	5	3	13	10	3
Dainippon	10	17	15	14	7	5
Kyowa Kirin	7	9	6.7	7	4	4
Shionogi	18	24	18	17	16	10

This result gives insight to the fact that Japanese pharmaceutical firms generally hold more cash than their US counterparts. Holding cultural issues constant, one can only look at dividend policies and the capital markets for a possible explanation for this dramatic difference.

Amazingly, though the dividend tax is higher in Japan than in the US, statistics also reveal a historical higher dividend earnings ratio in Japan than in the United States. Therefore, dividend policy does not explain the difference in cash between these two groups of firms because if for anything, the reverse should have been true. The most plausible explanation will be the degree of effectiveness or perfection of the capital markets that these two groups of firms relate to.

Japanese capital markets have suffered from two major problems over the years. The first is the modest participation of individual investors in the security market. This is because of insufficient conversance with security companies that broker investments in securities and also because of lack of cognizance of investments and markets.

The second problem is the irrational behavior of banks. They hinder the use of financial markets as a forum to procure funds by placing interest rates on loans which are not commensurable to the risks involved.

Further, Japanese capital markets have faced problems too because of their low international status and also because of a deadlocked financial structure that heavily depended on indirect financing most notably from banks.

In an attempt to solve these imperfections, the Japanese Financial Service Agency announced the Big Bang in 1996 with the aim of reforming the Japanese capital market. Its reforms included the revision of the securities and exchange law and also the taxation system of securities. Thanks to the Big Bang, Japanese financial markets can now be compared at least procedurally to more

developed capital markets like those in the UK and the US, but any practical comparison still remains and illusion.

## 9.7.2: RELATIONSHIP BETWEEN MANAGERIAL STRENGTH AND CASH RESERVE

Managers have an incentive to retain a firm's cash rather than pay it out. Retained cash increases managerial power and they can use it to fund investments that can be costly for shareholders but beneficial for managers, e.g., pet projects and exorbitant salaries. Managers can also use retained cash to reduce leverage and the risk of financial distress that could potentially be a threat to a manager's job security. These indiscretions of management can potentially reduce the value of the firm.

The Managerial entrenchment theory of payout policy suggests that, managers payout cash only when they are pressured to do so by a firm's investors. Therefore from this perspective, a firm's cash balance can also be a factor of the strength of the firm's shareholders as pitted against the strength of its management. When a firm has a plethora of shareholders like in public companies, there is a chance that no single shareholder can have an overwhelming control of the firm's fortunes. Therefore, in such situations, managers are expected to have more power.

This should be contrasted with private firms that have only a small number of shareholders. Here, the oversight of each shareholder is more effective and this can diminish managerial strength. The consequence of this is an inferior ability of management to influence the amount of cash held by the firm. The expectation therefore will be that the average public firm will have a higher cash/asset ratio than the average private firm *ceteris paribus*.

I studied 50 private and public firms in Germany from 2006 to 2009, and my results conformed to the above hypothesis. I found that the cash-asset ratio in public firms in Germany within those four years was more by 1.1% compared to the cash-asset ratio of private firms. This gives credibility to the proportional relationship between managerial strength and a firm's cash to asset ratio. The average cash to asset ratio of public firms was 9.3% while that of private firms was 8.2% within those four years. These results can be seen in table 9.5 and 9.6 below.

Table 9.5: CASH-ASSET RATIO OF PRIVATE FIRMS IN GERMANY BETWEEN 2006 – 2009 EXPRESSED IN PERCENTAGES.

<b>COMPANY NAME</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>
Bosch	5	5.7	5	6
Carl Zeiss AG	16	13	13	17
Schott AG	3	3	4	7
Denton AG	6	7	8	8
Heraeus	5	6	17.7	13
Korber AG	15	17	7	8
Otto Group	2	2	3	1
Rewe Group	0.4	6	3.7	2
Sennheiser	16	17	12	13
Wurth Group	7	3	5.7	3
Bertelsmann	4	5	8	10.7
Boehringer			6.7	20

Table 9.6: CASH-ASSET RATIO OF PUBLIC FIRMS IN GERMANY BETWEEN 2006 – 2009 EXPRESSED IN PERCENTAGES.

COMPANY NAME	2006	2007	2008	2009
Addidas	3.7	3.5	2.5	8.7
Altana	40	5.7	6	6
Bayer Group	5	5	4	5
Bechtle	8.7	11.6	15	14
BMW	1.7	2	7	7
Daimler	4	11	5	7
Douglas Holding	14	9	3	2
EnBW	5	8	9	4
EPCOS	19	17	14	9
Fresenius	1.7	2	2	2
GfK	3	2	2	2.7
Hannover	1	1	1	1
Heidelberger Cement	12	20	11	5
Henkel	1	11	2	6.7
Hochtief	16.7	13	15	14
Infineon	18	17	10.7	30
Krones	4	3	6	7
MAN	7	8	0.6	3
Magix	61	29.7	28	48
Merck	5	3	4	3
Metro Group	8	10	11	12
RWE	3	2	1	3
Salzgitter AG	33	25	7	22
SAP	25	15	9	14
Scharz Pharma	9	5	5	7
SGL Group	8	8	7	16
Siemens	11	4	7	10.7
Solar World	20	15	20	19
Südzucker AG	6	10	2.7	2
Thyssenkrupp AG	12	9	6	13
TUI	5	10	12	10.7
United Internet	4	5	5	9
Wacker Chemie	1	9	4	8

The above argument can also be looked at from the perspective of capitalistic and industrialistic views of firms. A capitalistic firm is one with a myriad of shareholdings while an industrialistic firm is one with very few owners such as firms with family ownership. Managers can be more

powerful in a capitalistic environment than in an industrialistic one. This is because, with many shareholders involved in a capitalistic firm, no single shareholder can have any significant control or oversight of the firm's activities, while the opposite is true with respect to the industrialistic view. Therefore, chances are that, a capitalistic firm will have more cash than an industrialistic firm. The following empirical evidence supports this assertion.

Table 9.7 and 9.8 below is a study of earnings, dividends and taxes in 28 countries in the 1994 fiscal year. I found that the average dividend/earnings ratio of companies in countries within the higher dividend tax bracket, (31 % – 60 %), was ironically higher by 6.6 % compared to the average dividend/earnings ratio of companies in countries in the comparatively lower dividend tax bracket (0 % - 30 %).

**Table 9.7: A TABULAR REPRESENTATION OF TAXES ON DIVIDENDS AND AVERAGE DIVIDEND EARNINGS RATIO IN 1994 IN COUNTRIES IN THE LOW DIVIDEND TAX BRACKET (0% - 30% DIVIDEND TAX)**

<b>COUNTRIES</b>	<b>DIV TAX</b>	<b>DIV / EARNINGS</b>
Argentina	0.00	27.36
Austria	0.22	24.83
Belgium	0.26	39.38
Finland	0.25	21.27
Indonesia	0.30	25.11
South Korea	0.22	18.49
Mexico	0.00	46.44
Norway	0.28	23.91
Philippines	0.00	10.42
Portugal	0.30	38.01
Sweden	0.00	18.33
Turkey	0.10	22.64
Hongkong	0.00	45.93
South Africa	0.00	35.62

**Table 9.8: A TABULAR REPRESENTATION OF TAXES ON DIVIDENDS AND AVERAGE DIVIDEND EARNINGS RATIO IN 1994 IN COUNTRIES IN THE HIGH DIVIDEND TAX BRACKET (31% - 100% DIVIDEND TAX)**

<b>COUNTRIES</b>	<b>DIV TAX</b>	<b>DIV / EARNINGS</b>
Belgium	0.40	17.27
France	0.60	23.55
Germany	0.53	42.86
Italy	0.51	21.83
Japan	0.35	52.88
Netherlands	0.60	30.02
Spain	0.56	30.45
Switzerland	0.44	25.30
Taiwan	0.40	68.87
Australia	0.47	42.82
Canada	0.36	19.78
India	0.45	49.34
Ireland	0.48	27.28
Malaysia	0.32	37.93
Newzealand	0.33	35.60
Thailand	0.37	52.56
United Kingdom	0.40	36.91
United States	0.47	22.11

This is a rather strange result because one will expect dividend taxes to have an inversely proportional relationship with dividend earnings ratio. However, the reason for this strange result is that most of the surveyed countries in the higher dividend tax bracket are also countries from the common law family. Countries in the Common law family such as US, UK, Canada, and Australia, typically have a myriad of shareholders. This results in a ‘royal-like’ and empowered management who are more likely to use the firm’s resources for their own aggrandizement rather than for the owners. Therefore, while dividend taxes is an important consideration, agency problems that accrue from an influential management seem to be a bigger concern, and thus the

higher average dividends that is obtained in these countries. It goes without saying that dividends and cash reserves are inversely proportional.

Therefore, a firm's cash reserve can be a result of the capitalistic or industrialistic view, rather than concerns about the nature of the industry and the consequent flexibility argument.

It would be worthy to remark here that, from the above perspective about capitalistic and industrialistic views, there could be more variance in the cash/asset ratio in industrialistic firms than other wise because, since they are mostly family owned or their senior managers are also the owners of the firm, it will not matter if cash is kept in the company or paid out to the owners.

### **9.7.3: THE RELATIONSHIP BETWEEN CASH AND THE CHARACTERISTICS OF A FIRM'S ASSETS**

A collateral security is usually required before some debt contracts can be completed. Therefore, without collateral, or a substantial one, it could be difficult for some firms to raise debt capital, especially if this is coming from banks.

Some industries have characteristics that necessitate them to keep massive tangible assets as part of their business activities. Tangible assets can be offered as suitable collateral security to procure debt financing. Such industries include the automobile, airlines and construction industries.

Meanwhile, some other companies belong to industries that do not require them to have huge tangible assets in order to conduct their business. Examples include knowledge based firms, like those in IT and software. Most of their assets are intangible and this predicates a difficulty in acquiring the necessary collateral for debts. Considering the procedural red tapes involved in

stock financing, it could be strategically more valuable for these firms to build enough internal reserves in anticipation for future opportunities.

Therefore, while it is understandable to associate the heavy cash balances of most knowledge based firms to the dynamism of their industry, it could be naive not to consider that their comparatively higher cash reserve is also a factor of their attempt to address their perennial incapacity to raise debt finance at reasonable cost.

## **9.8: DO COMPANIES REALLY USE CASH TO DEAL WITH CRISES?**

The current global financial crisis started protruding its ugly head sometime in 2007, and peaked in 2009. It was triggered by a liquidity crisis in the United States banking system that resulted from an overvaluation of assets. Confidence in the markets dropped and this led to a fall in the market value of most companies.

Most companies have responded to this financial crisis by increasing their cash/asset ratios. The inspiration for this comes from two areas;

Firstly, during a financial crisis, credit and consequently liquidity are usually scarce commodities, and without internal reserves, a firm might have difficulties funding profitable opportunities.

The second reason is that these companies are arming themselves in the expectation that history will repeat itself in a strong economic recovery. Raising cash shortly after a financial crisis of

this magnitude can be tricky, and a firm with enough liquidity could be more suitable to glide conveniently in an economic prosperity that is usually the aftermath of a serious recession.

I made a study of German software companies and compared the relationship between their cash/asset ratios between 2005 – 2006, during economic prosperity and between 2008 – 2009, during the heart of the current financial crisis. My study revealed that during the prosperous period from 2005 - 2006, the cash asset ratios of those companies declined by 4% while it increased by 4.2% during the heart of the financial crisis between 2008 – 2009. The difference in cash amongst those firms between these two periods being a whopping 8.2%. Table 9.9 below is a detail description of these results.

**Table 9.9: CHANGE IN CASH-ASSET RATIO BETWEEN  
2005/2006 AND 2008/2009 FINANCIAL YEAR OF  
SOFTWARE COMPANIES IN GERMANY EXPRESSED IN  
PERCENTAGES**

<b>COMPANY NAME</b>	<b>2005</b>	<b>2006</b>	<b>%Δ</b>	<b>2008</b>	<b>2009</b>	<b>%Δ</b>
ISD Sheer	23	23	0	31	34	3
USU	23	10.7	-12	11	19	8
Nemeftschek	35.7	15.7	-20	3	3	0
HÖft & Wessel	3	3	0	1	3.7	2.7
Magix	43	61	18	28	48.7	20.7
SAP	23	25	2	9	14	5
Intershop	31	15	-16	32	22	-10

Furthermore, Howard Silverblatt, an index analyst at Standard and Poor reported an increase in cash from \$606.6 billion to \$615.5 billion, as of Mar 21, 2010, amongst S&P 500-stock index companies (excluding financials, utilities and transportation).

The above results strongly endorse the position that, firms consider cash as vital during periods of crises and unpredictability than otherwise. They use cash to address the difficult liquidity issues during stormy days and also reserve it to deal with the certain liquidity problems that often precedes a recession.

On the contrary, during prosperous times when financial markets are stable, credit is easy and financing is attainable, firms are reluctant to hold cash because of the forgone opportunities and tax concerns.

Therefore, while cash adds value to a firm because of flexibility issues, its relative importance increases during crises and unstable times.

## **9.9: OTHER STRATEGIC USES OF CASH**

Cash can serve as a deterrence to new entrants from entering the market and potentially eliminate economic profits of entrenched companies. We should be mindful that financial markets are imperfect. At the very least, imperfections exist because of transaction costs and taxes. Cash is needed to compete successfully and the cost of obtaining cash instantly is very high. New entrants can be deterred from entering a market if they recognize that an entrenched company has enough cash that can outlast them in a long battle to gain market share.

On the contrary, an existing company will avoid a strong challenge against an entrant if it recognizes the fact that the entrant has enough cash to sail through all types of waters.

In the light of this, and with respect to dynamic markets, cash can be used to preserve supernormal or economic profits and thus enable a competitive advantage.

## CHAPTER 10

### **CONCLUSION**

Though it is hard to confine any of the handed-down capital structure theories to developing economies because of the absence of most of the ingredients that inspired them, the pecking order theory comes close enough.

Internal financing has been at the helm of the pecking order of the average firm in Cameroon when it makes its financing decisions. Debt is then considered next, while stock issue is the most remote, mostly because of the absence of capital markets in Cameroon.

In Sweden, a firm's choice of financing has been driven for the most part, by its need to survive. At this point, any attempt at identifying a trend towards the pursuit of an optimal capital structure amongst Swedish firms is an optical illusion.

Proper selection and management of capital structure offers the prospect of enhancing value for shareholders. At the same time, the reduction in cost of capital to the company has potentially favorable influences on the economy and the standard of living. Theory is nice, but application is important. Managers have the responsibility of creating value for shareholders. Application of the appropriate capital structure theory in some tax environments will create value for shareholders and for the society.

Managers should understand that, one of the most dramatic changes created by the global economy is the increase in the rate of change within and without industries. There is a sense that, as more industries are experiencing greater levels of change, the use of debt-centered governance will prove less effective in the near future.

From the flexibility standpoint, cash definitely increases a firm's value. The literature on options that included financial options and real options can possibly be extended to include cash options, and how it should influence traditional capital structure approaches.

At this point, the mathematical value of the cash option cannot be precisely derived. Future research on this area is clearly wanting.

The first duty of managers is to ensure the long term survival of the organization within its competitive environment. In a world denoted by quick fixes and short term thinking edited by sound bites, it is difficult to take time to think through serious challenges. As environments become competitive, those who make the time to reach appropriate decisions will be the ones left standing.

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