

# Critical Review of Capital Structure: Debt and Equity issuance in Investment Decision

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## Introduction

Myers & Majluf (1984) shows that when the manager informed about the value of the firm and the investment opportunity, defends the interests of existing shareholders; in the case of external funding, the firm will always prefer debt to equity.

### **Comment**

The Pecking Order Theory arises from the introduction in the firm's financing decision of asymmetric information between insiders and outsiders, and potential agency problem between manager and shareholders (existing / new).

## Debt or Equity Issuance

For the equity issue policy (figure 1)

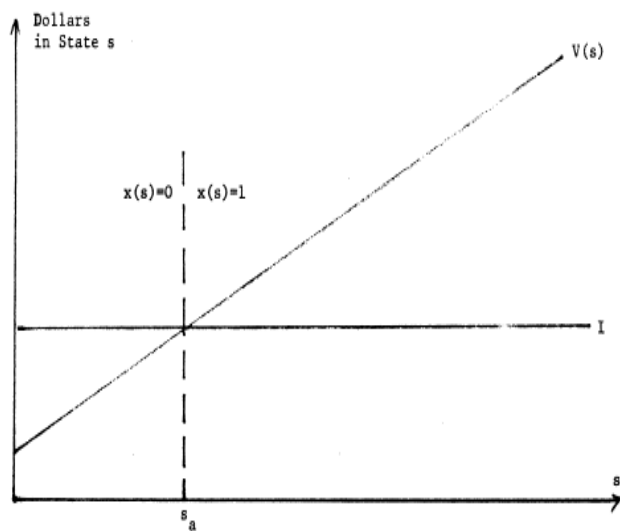


FIGURE 1

The Firm's Investment Decision under All-Equity Financing

The firm will issue new shares when it is possible to do so at a fair price and invest depending on the comparative value of the opportunity and existing operating asset. Because of awareness of the true value of the investment, the manager will always invest when its net present value is significantly higher than the existing operating asset. The decision serves the interest of shareholders who can benefit from capital gains when information about the value of the investment reach the market leading to an

increase in share price. Concurrently, the decision also serves the interest of the firm because the new opportunity will yield higher operating profits but the jump in share price might not result in higher than previous market value of the firm.

Source: Myers, S.C., 1977. Determinants of corporate borrowing. *Journal of financial economics*, 5(2), pp.152-153.

For the debt issue policy (figure 2)

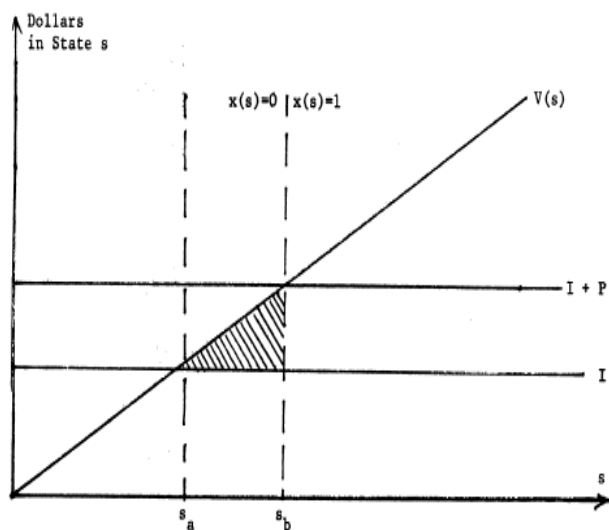


FIGURE 2

The Firm's Investment Decision with Prior Debt Financing

The firm can issue bonds whether the interest rate is equal or higher than the risk free rate and invest depending only on value of the opportunity. When the debt is risk free, the manager will always invest if the net present value of the project is zero and above. When it is risky debt, the manager will invest conditional on information about the true value of the investment whether it will lead to the bond price being higher ex ante. The decision serves the interest of bondholders who can benefit from capital gains as the

increasing price reflects value and certainty about the realization of the investment. Concurrently, the decision also serves the interest of the firm because the new opportunity will yield higher operating profits and the jump in bond price will result in higher market value of the firm.

Source: Myers, S.C., 1977. Determinants of corporate borrowing. *Journal of financial economics*, 5(2), pp.152-153.

## Explaining the choice of Debt over Equity

This choice stems from the fact that (as observable above) the market value reacts positively to greater extent to any change in debt than equity. In addition, the consequences for stakeholders are more favourable for debt issue than equity:

- ❖ To justify the issue of stock, the firm needs an investment that would have a significant positive effect on future profits, but any non-negative opportunity is sufficient to justify debt issue.
- ❖ Issuing stock is bad news resulting in a fall of the share price leading to decrease the value of the firm, but issuing debt only increase the firm's liabilities as well as the assets side by the cash amount without having a direct negative impact on the market value.
- ❖ Once issued, stock will have a negative effect on the portfolio of existing stockholders whether they purchase the new issue or not, but issued debt is of no consequence for their portfolio.
- ❖ With the funds collected, from the stock sold the firm has to invest with the objective that market value will reach a higher level than before issue. However, the firm can invest the funds from debt in any investment if its net present value is not negative, without requirement to meet for market value.
- ❖ When the growth opportunity of the investment becomes common knowledge, the stockholders might benefit from capital gains only if the value added of the investment outweighs the loss in value at issue. On the other hand, bondholders will benefit from gains as long as the investment has positive realization.

### **Comment**

The pecking order theory provides a method for the firm to form a flexible funding strategy that does not require a target capital structure. The manager opts for debt financing as determinant of capital structure when internal finance is lacking, issuing equity only as last resort. The argument is that by choosing debt over equity, the manager can maximise profit, increasing value of the firm.

The firm may prefer to use gearing (Myers, 1977) because of its ability to decrease taxes, increase profits and reduce agency costs.

- ❖ Corporate tax might lead to the use of only debt instead of equity (Modigliani & Miller, 1963). The firm issuing debt will benefit of a tax shield because the interest expenses are tax deductible. It is not the case for dividends, issuing equity is usually more of a burden for the firm, but Miller (1977) suggests personal tax might mitigate that. Anyhow, the higher tax is for the firm, the more likely the manager is to choose debt over equity.
- ❖ The market often reacts positively to news about debt increasing. The firm issuing debt is signalling to the market their ability to support gearing and that the investment financed will increase operating performance (Ross, 1977 and Smith, 1986). However, equity signals bad news to the market about credit capacity and the value of the investment the firm seeks to undertake.
- ❖ Ownership and control of the firm is subject to less agency costs with debt financing (Jensen & Meckling, 1976 and Jensen, 1986). By issuing debt, the firm increases their list of creditors without giving away voting rights, avoiding dispersion of ownership. Debt financed investments, constraints the manager performance to direct resources accordingly to meet payments due to bondholders. He is subject to a higher level of monitoring and has less cash available to pursue divergent objectives such as empire building.

#### **Comment**

It is important to note, the downsides that can accompany debt financing. Increasing gearing to benefit from higher tax shield and market signalling, leads also to an increase in probability of default. This is the case when the firm raises capital in quantity, with more frequency and at a higher interest rate than the growth of expected cash flows. The borrowed capital by the firm will lead to the asset substitution problem; the shareholders will try to have the manager undertake, riskier investments than desirable for the bondholders. The purpose is to generate higher cash flows to be able to repay the debt and make considerable profits. Should this fail and the firm is unable to meet the requirements at maturity of their bondholders; it can ultimately lead to bankruptcy (or a hostile takeover).

## The Optimality of Capital Structure

Modigliani & Miller (1958) made two propositions with the aim of proving the irrelevance of capital structure determinants on the value of the firm.

The first proposition suggests that under complete and perfect capital markets conditions, the value of the firm is independent from any debt equity ratio. The arbitrage proof shows the investor's purchase of equity, debt securities to capture gains from mispricing; leads to the firm value unaffected in equilibrium, *ceteris paribus*. Since this proposition implies that debt and equity can be perfect substitutes, with the assumption of debt being risk free, the firm's increase in gearing will inevitably suggest that equity is more risky.

The second proposition derived from the first is that the cost of equity would vary positively with the debt equity ratio. The proposition goes further; the cost of equity will rise as the level of debt increases on a proportional basis, meaning that the weighted average cost of capital for the firm will remain unchanged.

### Comment

We can conclude that M&M first view was that no 'optimal' mix of capital could lead to a decrease in cost of financing and therefore increase in market value for the firm. They even insist that undertaking higher net present value investments was the only way to increase earnings, to maximise value of firm.

We can dispute their point of view on the basis that:

- ❖ Their propositions are the result of an analogy with the consolidated national balance sheet (Miller, 1988 p.101). Where there is no debt or equity just net worth (value of firm) on the liabilities side and the assets side is just productive capital (investment). The standard accounting equation however stipulate the presence of owner's equity apart from liabilities; conveying the notion that debt and equity are different 'animals'.
- ❖ They differ since the firm has an obligation towards a debtholder, and he a right to legal remedy, however the firm has no obligation towards an equity holder, and he a voting right. Based on the separation principle, investors might differ on their preference

towards debt (interest rate) or equity (capital gains). Based on the Pecking Order, the firm will likely prefer debt (tax shield) to equity.

- ❖ The assumptions set out would not hold, as the firms would deviate in issuing policy, because of investors' deviation in portfolio holding. Differentiation by investors means a shift in the stated beliefs that debt is risk free regardless of gearing and cost of equity is ever increasing.

**Comment**

The first proposition is questionable once the arbitrage investor does not perceive debt and equity as interchangeable despite the ability to profit from mispricing. In addition, a certain mix of capital might be advantageous administratively (avoiding legal fees, agency costs or tax burden), resulting to economic savings increasing value for the firm. The second proposition becomes doubtful since the firm will not perceive the debt-equity ratio as a 'zero sum game'. The offsetting might not occur because market beliefs will derail from the assumptions that debt will always be risk free (it cannot be) and equity always riskier (not all the time).

Modigliani & Miller (1963) reiterates their propositions taking into account the critics about the absences of dividend policy effect, the inherent risk in debt and the necessity to consider taxes. First, they came to consider that the dividend decision would not have any effect on market value because of information symmetry between insiders and outsiders. Meaning rational market hypothesis would apply, the value of stock would always reflect all information about the performance of the firm. Second, the uncertainty that arises from raising debt would not affect the propositions outcomes if the risk associated with debt translates into a part of the rising cost of equity. Meaning the equity level of the firm will account for cumulative risk, stock will contain alone the overall risk of the capital structure. Third, the introduction of taxes will cause a lower cost of debt, create a tax shield for the firm resulting in higher earnings and therefore an increase in value of the firm. The fact that the cost of debt will tend to be lower means an increase in gearing will lead to a less than proportional rise in the cost of equity, meaning the weighted average cost of capital would fall.

**Comment**

We can conclude that M&M second view was that the optimal capital structure of the firm would be all debt, no equity because with 100% debt the weighted average cost of capital will reach its lowest value.

We can dispute their point of view on the basis that:

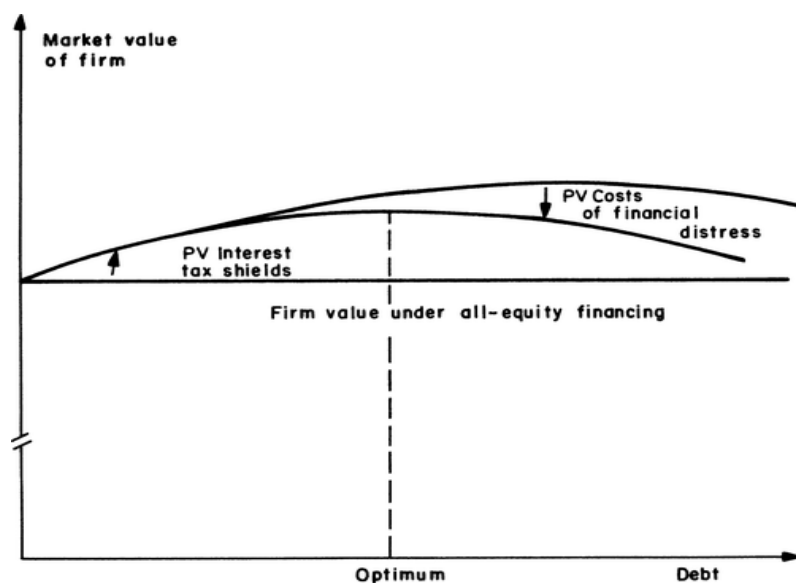
- ❖ Despite 'Corrections' (Modigliani & Miller, 1959, 1961, 1963) , key attributes of debt are not all accounted for; they have omitted the associated costs of financial distress, which could raise the cost of debt on the long run (Robichek & Myers, 1966b). An enterprise funded only by debt is prone to a risk of default if there is any uncertainty about expected cash flows being able to cover the demands of debtholders. That kind of risk means higher level of transaction costs in day-to-day operations.
- ❖ We can expect the cost of debt to increase incrementally every time cash flows from the investment does not at least cover the interest of debt. The firm will incur accrued penalties on interest payments, which would immediately increase accounts payables, therefore liabilities. As this continues, it will give rise to moral hazard and agency cost, because the manager will gamble on riskier investments in order to cover the deficit. These additional costs contingent on debt will only increase weighted average cost of capital, decreasing value for the firm.
- ❖ Unless operating performance of the firm outperform the required periodic interests, and at maturity sufficient cash available to repay the principal of debt, it will end with liquidation or buyout. This means bankruptcy costs: there will be legal fees, employees claiming damages, pensions and the assets sold to satisfy the creditors' claims. There are also costs to a buyout, the sale will be at a discount meaning loss of value for equity holders and restructuring is likely to happen meaning loss in productivity.



### Last words

Instead of an all debt capital structure, the firm could achieve an optimal capital structure by balancing the economic advantages of the gearing ratio. The objective of the manager would be to adjust the capital structure of the firm towards a target-gearing ratio at which the marginal cost of debt is equivalent to its marginal benefit. Finding the target ratio is an optimization problem where the manager has to find the level of debt at which the present value of tax shield is equal to the present value of financial distress costs.

This is consistent with the static trade-off theory put forth by Myers (1984b), where at the starting point a firm all equity funded can increase its value by benefitting from tax shield and financial distress can decrease it. Because tax codes are clear, the manager can safely estimate tax shield however, it is much more challenging to evaluate financial distress. Undervaluing financial distress can lead to disaster, but an overvaluation will restrict value maximization. This thin line poses the most sensible obstacle for real world optimal capital structure.



Source: MYERS, S.C., 1984. The Capital Structure Puzzle. *The Journal of Finance*, 39(3), pp.577.

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