

Article: Financial Management and Shareholder Value By Dr. Valerio Potì, Examiner:- P2 Strategic Corporate Finance

1. Introduction: financial management and firm value in a neo-classical setting

There is a big question in corporate finance, which arguably dominates all others: can the capital structure of the firm affect its value? In a world with perfect capital markets, this clearly is not the case. For example, suppose two firms have exactly the same operating income but one is levered whereas the other one is not. Suppose also that, for the levered firm, debt is \$10 mln and equity is worth \$90 mln, and the unlevered firm is valued at 95 mln. Then we could:

- Set up a shell company
- Borrow \$10 mln and supplement with \$85 mln of cash (equity)
- Buy the unlevered firm for \$95 mln
- Issue the shares of the new (levered) company for \$100 mln
- The arbitrage profit would be \$5 mln.

This means that the levered and unlevered firm must be worth the same if arbitrage opportunities are to be ruled out (why does it make sense to rule them out?). This is the key idea behind Modigliani Miller (MM) Proposition I, which can be stated as follows:

The value of a company is unaffected by its capital structure

And yet managers spend a lot of time and money on capital structure optimisation efforts. Also, financing policies display patterns of variation across firms that suggest that the optimal capital structure depends on characteristics such as the industry/sector, the firm size and growth prospects, and the stage of its life-cycle. Also, perhaps more strikingly, announced modifications to capital structure appear to change the value of the firm as reflected by the stock price. So, what's going on? Is there an optimal capital structure for a given firm? This question has been and still is the driver of much empirical and theoretical research in corporate finance.

By the same type of argument that underlies MM Proposition I, managers should not be able to increase the firm's value by hedging risks. Individual investors in the company's stock can always perform the same trades so as to satisfy their own risk preferences, as well as eliminate all idiosyncratic risk through portfolio diversification. Hedging and risk management practices then should be seen at best as a waste of time. Yet banks and corporations take risk management seriously. Again, why is that? There is a crucial set of assumptions that underlies MM Proposition I. The assumptions, which amount to postulating a perfect and frictionless capital market, are the following:

- No personal tax
- No bankruptcy costs
- No agency costs
- No asymmetries of information

In the remainder of the article, we will address the question of why capital structure and risk management policies may not be irrelevant by removing one or more of such assumptions at a time. We will do this first in relation to capital structure and then, more cursorily, with a focus on risk management policies.

2. Capital Structure Theory

MM themselves are quick at dispensing with the first assumption in the above list. In fact, shortly after the article putting forth Proposition I, they noted that the cost of debt (interests) is tax-deductible, and this immediately provides an argument for an optimal capital structure, i.e. 100% debt. This is, in a nutshell, MM Proposition II. In practise, it is easy to argue that, if interest payments are deductible, Proposition II overestimates debt levels. But there are even deeper arguments for rejecting both Proposition I and Proposition II.

So called **Trade-off theory** acknowledges that, to the extent that the firm represents a nexus of tightly interconnected and specialized resources that cannot be easily redeployed, bankruptcy can be costly. In these circumstances, the theory predicts that companies weigh up tax savings from debt against its distress costs (i.e., the present value of the higher chance of incurring bankruptcy costs resulting from higher leverage), e.g. Scott (1976).

Jensen and Meckling (1976) pursued a different avenue and argued that there are **agency costs** associated with both external equity (i.e., equity brought by outsiders) and debt, and therefore optimal leverage is chosen to minimize total agency costs, i.e. the sum of (the present value of) agency costs arising from both equity and debt. On the one hand, management and equity holders may elect to use the financial resources provided by the debt-holders to fund projects that are riskier than anticipated. This is called the bond-holder expropriation hypothesis. Since, ex post, debt-holders cannot control the use that is made of their funds makes, debt capital then becomes ex-ante more costly. This is because debt-holders will ask that the debt be issued at a yield that compensates for the perceived likelihood of being expropriated. This problem can be, at least in part, alleviated with appropriate debt covenants, such as convertibility into stocks at a predefined ratio and/or early redemption if the creditworthiness of the issuers deteriorates (according to prespecified parameters), and helps explains the popularity of such clauses in debt contracts. On the other hand, debt has advantages over equity in minimizing other types of agency costs. For example, as argued by Jensen (1986), debt may play the role of a costly bonding device which gives investors ex-post the possibility of sanctioning mismanagement by forcing the film into bankruptcy, thereby reducing exante the likelihood that management will misbehave. This may explain the popularity of leveraged buy-outs (LBOs).

MM also assumed that managers and insiders have no information about the firm that other stakeholders, including debt holders and outsider shareholders, do not have. That is, they assume absence of information asymmetry. The possible violation of this assumption represents an ex-ante problem that implies both an optimal capital structure and an optimal risk management policy even without agency costs (an *ex-post problem*). To understand the type of problem that arises, it is convenient to consider an example loosely related to current affairs (i.e., the recent banking crisis). Suppose there are two similar banking firms, say Bank A and Bank B. Suppose also that, based on macroeconomic data and property values, you know that the average bank in the region will have to write-off 50% of the loan book. Of course, not all banks are as bad as each other, and you know that, but you don't know which bank has the problematic loan book. Both banks want to raise finance but Bank A announces a share issue whereas Bank B announces a bond issue. What would you think about the relative quality of the loan book of the two banks? Probably you would read this as a signal that Bank B managers know something you don't and are looking for your money to fill a hole in their balance sheet! The point is that 'insiders', i.e. managers and/or controlling shareholders, presumably know whether they have a problem, i.e. they know whether they have a bad loan book, whereas this information may not be shared by outsiders, including perspective providers of capital. This is, in a nutshell, the key idea in the classic paper by Leland and Pyle (1977). They show that, when the owners of a firm or project have private information about the project, the amount of own funds invested in the project will be interpreted as a signal of its quality. In equilibrium, the higher the quality of the project, the greater the amount of equity that will be retained by the owner and the higher the cost of debt for good projects. In economics, the mechanisms leading to such suboptimal outcomes are known as 'lemons problem', as they resemble the under-pricing of all lemons, good and bad ones, that would occur in a market where customer knew that some merchants were delivered a bitter lot of lemons, but they don't know which merchants did and did not, and cannot taste the lemons before making their purchase!

An alternative perspective, put forth by Myers and Majluf (1984), is that, since external financing is costly because of information asymmetry problems, a financial pecking order arises. According to this view, firms prefer internal finance because its cost is less affected by information asymmetries and, if internal funds are insufficient for new projects, the firm draws upon liquid and marketable securities in its portfolio before considering issuing equity. They issue debt first, then hybrid securities such as convertible bonds, and equity is issued only as a last resort. That is, firms issue the safest securities first as these represent claims that, ex ante, are less information-sensitive. As a firm requires more and more capital to undertake positive NPV projects, it will successively exhaust internal funds, liquid portfolio holdings, debt capacity. At each stage, the cost of asymmetric information increases. As a consequence, the cost of capital increases in the volume of finance raised. Observed debt-equity ratios then reflect cumulative requirements for external finance. In the case of small and privately owned businesses, the preference for internal finance may be heightened by an aversion to relinquish control over the firm, which might be the price that the entrepreneur would have to pay for raising equity capital. The empirical evidence, however, offers contradictory indications as to whether the pecking order theory works better or worse for small companies. For example, Frank and Goyal. (2009) find that the theory performs better for large firms than small businesses whereas Mac an Bhaird and Lucey (2010) find that it is an excellent descriptor of SME capital structure. It should be noted, however, that, when the theory fails, it may be simply because firms do not have debt capacity to start with. This may happen if they do not have eligible collateral, as it is often the case of firms

with substantial high-growth opportunities but few assets in place. In this situation, the company insiders may wish to issue debt rather than equity but they simply cannot do so due to lack of collateral, and end up financing positive NPV projects with equity. In any case, Pecking Order Theory predicts, somewhat worryingly for shareholders wealth, that positive NPV projects will be passed up.

Appropriately designed covenants and stipulations may alleviate these problems. For example, callable debt may be less costly than debt raised through a 'plain-vanilla' loan or bond. This is because callable debt may be redeemed early and, as such, can be seen as including a call option held by the company on its own debt. As a consequence, and simplifying somewhat, insiders consider including a callable feature only if they expect the debt being issued to perform well in the future. It can therefore reduce dead-weights costs of debt associated with <u>both</u> *ex-post* agency problems, i.e. imperfect ability to monitor the use that will be made of the funds once these have been made available to the firm, <u>and</u> *ex-ante* information asymmetry problems, i.e. imperfect ability to discriminate between firms with good and bad projects.

As another example of how covenants can help reduce the cost of capital, consider firms facing sequential financing needs. This may be the case of firms with large growth opportunities. For example, suppose that a bio-tech firm is developing a new fertilizer that may boost the productivity of farmland. The development and, all going well, industrialization costs will have to be undertaken in stages. Since issue costs can be substantial (up to 15% of the funds raised for small issuers), the company may be tempted to raise all finance needed upfront. But, if they do so, they risk upsetting investors, who may fear that their funds, once made available to the firm and if the project does not work out, will be spent regardless of the profitability of available investment opportunities (e.g., an agency problem arising from the inability to control ex-post the use of the funds). The point is that future financing needs, in the example given, depend on the outcome of current investments. In these circumstances, i.e. when there is a need to finance a sequence of investments of uncertain timing and value, convertible securities may represent a cost-effective way to raise capital up-front. As put by Mayers (2000), since the sequential financing of growth opportunities can be seen as involving certain types of real options, i.e. options to expand but also in part options to delay, convertibles can be seen as mechanisms to match real and financial options.

More generally, **covenants and provisions** mitigate principal-agent conflicts and information asymmetry problems and provide an early warning of deterioration of the borrower's financial condition (i.e., they can be structured as an automatic monitoring device). They do so by restricting the borrower's investment activities (to limit *risk shifting* away from equity holders and onto debt holders, e.g. as per the bond holder expropriation hypothesis), future debt financing (to limit existing debt-holders' *claim dilution*) or dividend policy (to limit *siphoning* of resources out of the firm).

3. Risk Management Theory

In a nutshell, the risk management problem can be summarized in terms of the everlasting dilemma faced by all financial managers: 'To hedge or not to hedge'? Extant theories of risk management offer different answers to this question and may be categorized, somewhat schematically, as focussing on:

- Managerial motives
- Taxes
- Costs of financial distress/debt capacity
- Pecking order effects

We shall now consider each broad group of theories in turn.

Managerial Motives

Stulz (1984) argues that, while risk management is irrelevant for shareholders because they can diversify their portfolios by themselves, it is not so from a managerial perspective. Managers may hold a large portion of their wealth in the company's stock and, therefore, risk hedging can increase managerial welfare without destroying shareholder wealth. While intuitively appealing, there is a problem with this perspective: it assumes high costs of managerial hedging and low cost of corporate hedging. That is, it must be costlier for managers to hedge their risks by themselves than it is for the company, and it implies the extreme prediction of total corporate risk management.

Other authors point out that managers may prefer to engage in risk management to minimize the impact of 'luck' on their performance and therefore to better communicate their skills to the labour market, e.g. DeMarzo and Duffie (1995). A related argument is that managers may not know the quality of the projects which their staff run and therefore, in the short run, may not be able to distinguish poor returns from bad luck. From this perspective, risk management can help senior management determine the quality of agents (such as lower ranking managers, line executives, employees). This is particularly true in environments such as dealing rooms and investment houses.

Taxes

A number of authors, e.g. Smith and Stulz (1985), emphasize that taxes are a convex function of earnings and, therefore, reducing the volatility of earnings can result in tax savings. It may be helpful to consider an example. Suppose that un-hedged earnings can be -€100 (a loss) or €200 with equal probability. The expected earning is then -€100×0.5+€200×0.5 = €50 and, with a 10% tax rate, the expected tax is €0×0.5+€20×0.5 = €10. Suppose now that, if the firm hedges, earnings will be €50 with certainty. In this case, the taxation level is €5! This example shows that, even though expected earnings are the same, expected taxation is not. More generally, convexity of taxation occurs when firms face a significant probability of negative earnings but are unable to carry forward 100 per cent of their taxes losses to subsequent periods, or when there is progressivity in taxation.

Costs of Financial Distress/Debt Capacity

Smith and Stulz (1985) put forth a perhaps more substantial argument in favour of risk management. They argue that hedging reduces the volatility of cash-flows and may therefore reduce the likelihood of distress, thereby increasing debt capacity. This means that hedging may have the added benefit of mitigating what is known as the '**debt overhang**' problem, that is the passing up of positive NPV projects by distressed firms because the benefit accrues to the debt-holders. A related problem in distressed firms is that equity holders and 'insiders' have an incentive to undertake high-risk projects regardless of whether, in terms of NPV, they rank below other less risky projects. This is because equity is a residual claim and therefore, like a call option, benefits from the volatility of the value of the underlying asset (which, in this case, is the firm asset). From this perspective, risk management can be seen as reducing the likelihood that circumstances like these may occur, thereby reducing distress costs.

Pecking Order Effects

An example may help understand why pecking order effects may make risk management a value enhancing activity. Suppose we have an investment opportunity that can be undertaken now and another one that can be undertaken in 3 months. Assume that both investment opportunities have positive NPV but the first has very uncertain and volatile returns. In case of a negative outcome from the first investment, e.g. a lot of money is lost, the company will have to refinance before the second investment can be undertaken. In a classical frictionless capital market setting, the greater volatility of the first investment is irrelevant since the company can always refinance and invest in the second one, but this may not be the case in an imperfect capital market. For example, suppose that there is a capital market imperfection that generates a pecking order effect. As a consequence, the company faces an increasing and convex cost of external capital. It may then find it difficult to refinance and to undertake the second project. But failing to do so would prevent the company from earning the positive NPV of the second investment, which would be passed up due to lack of financing. The possibility that ex post this might occur will ex ante reduce shareholder value. Risk management reduces the volatility of returns and thus reduces the possibility that the firm will have to call upon external sources of funds, thereby reducing the pecking order effect on the cost of capital. Along similar lines, and simplifying somewhat, lack of risk management could be seen as a signal that insiders have little to lose, bringing up the cost of capital even for firms in good health that opt not to manage risks.

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