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SOME ASPECTS REGARDING THE FINANCIAL STRUCTURE THEORIES

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In this paper the authors survey financial structure theories, from the start-up point, which is considered Modigliani and Miller's capital structure irrelevance theorem, to recent theories, such as the pecking order and the market timing theory. For each type of model, a brief overview of the papers surveyed and their relation to each other is provided.

Keywords: financial structure, market timing, trade-off theory, leverage, debt, equity, agency costs

1. Introduction

Since the publication of the Modigliani and Miller's (1958) "irrelevance theory of capital structure", the theory of corporate capital structure has been a study of interest to finance economists.

Over the years three major theories of capital structure emerged which diverge from the assumption of perfect capital markets under which the "irrelevance model" is working. The first is the trade-off theory which assumes that firms trade off the benefits and costs of debt and equity financing and find an "optimal" capital structure after accounting for market imperfections such as taxes, bankruptcy costs and agency costs. The second is the pecking order theory (Myers, 1984, Myers and Majluf, 1984) that argues that firms follow a financing hierarchy to minimize the problem of information asymmetry between the firm's managers-insiders and the outsiders-shareholders.

Recently, Baker and Wurgler (2002) have suggested a new theory of capital structure: the "market timing theory of capital structure". This theory states that the current capital structure is the cumulative outcome of past attempts to time the equity market. Baker and Wurgler show that the influence of market timing on capital structure is highly persistent.

2. The Modigliani-Miller Theorem

The theory of business finance in a modern sense starts with the Modigliani and Miller (1958) capital structure irrelevance proposition. Before them, there was no

generally accepted theory of capital structure. Modigliani and Miller start by assuming that the firm has a particular set of expected cash flows. When the firm chooses a certain proportion of debt and equity to finance its assets, all that it does is to divide up the cash flows among investors. Investors and firms are assumed to have equal access to financial markets, which allows for homemade leverage. The investor can create any leverage that was wanted but not offered, or the investor can get rid of any leverage that the firm took on but was not wanted. As a result, the leverage of the firm has no effect on the market value of the firm.

There are two fundamentally different types of capital structure irrelevance propositions. The classic arbitrage-based irrelevance propositions provide settings in which arbitrage by investors keeps the value of the firm independent of its leverage. In addition to the original Modigliani and Miller paper, important contributions include papers by Hirshleifer (1966) and Stiglitz (1969). The second irrelevance proposition concludes that "given a firm's investment policy, the dividend payout it chooses to follow will affect neither the current price of its shares nor the total return to its shareholders" (Miller and Modigliani, 1961). In other words, in perfect markets, neither capital structure choices nor dividend policy decisions matter.

3. The Trade-Off Theory

The term trade-off theory is used by different authors to describe a family of related theories. In all of these, a decision maker running a firm evaluates the various costs and benefits of alternative leverage plans. Often it is assumed that an interior solution is obtained so that marginal costs and marginal benefits are balanced.

The original version of the trade-off theory grew out of the debate over the Modigliani-Miller theorem. When corporate income tax was added to the original irrelevance, this created a benefit for debt in that it served to shield earnings from taxes. Since the firm's objective function is linear, and there is no offsetting cost of debt, this implied 100% debt financing.

Static trade-off theory

The *static trade-off theory* affirms that firms have optimal capital structures, which they determine by trading off the costs against the benefits of the use of debt and equity. One of the benefits of the use of debt is the advantage of a debt tax shield. One of the disadvantages of debt is the cost of potential financial distress, especially when the firm relies on too much debt. Already, this leads to a trade-off between the tax benefit and the disadvantage of higher risk of financial distress. But there are more cost and benefits involved with the use of debt and equity. One other major

cost factor consists of agency costs. Agency costs stem from conflicts of interest between the different stakeholders of the firm and because of ex post asymmetric information (Jensen and Meckling (1976) and Jensen (1986)). Hence, incorporating agency costs into the static trade-off theory means that a firm determines its capital structure by trading off the tax advantage of debt against the costs of financial distress of too much debt and the agency costs of debt against the agency cost of equity.

The Dynamic Trade-off Theory

Constructing models that recognize the role of time requires specifying a number of aspects that are typically ignored in a single-period model. Of particular importance are the roles of expectations and adjustment costs. In a dynamic model, the correct financing decision typically depends on the financing margin that the firm anticipates in the next period. Some firms expect to pay out funds in the next period, while others expect to raise funds. If funds are to be raised, they may take the form of debt or equity. More generally, a firm undertakes a combination of these actions.
The first dynamic models to consider the tax savings versus bankruptcy cost trade-off are Kane et al. (1984) and Brennan and Schwartz (1984). Both analyzed continuous time models with uncertainty, taxes, and bankruptcy costs, but no transaction costs. Since firms react to adverse shocks immediately by rebalancing costlessly, firms maintain high levels of debt to take advantage of the tax savings.
Dynamic trade-off models can also be used to consider the option values embedded in deferring leverage decisions to the next period
Much of the work on dynamic trade-off models is fairly recent and so any judgements on their results must be somewhat tentative. This work has already fundamentally altered our understanding of mean reversion, the role of profits, the role of retained earnings, and path dependence. As a result, the trade-off class of models now appears to be much more promising than it did even just a few years ago.

4. The Pecking Order Theory

The *pecking order theory* does not take an optimal capital structure as a starting point, but instead asserts the empirical fact[1] that firms show a distinct preference for using internal finance (as retained earnings or excess liquid assets) over external

[1] The pecking order theory was first introduced by Donaldson (1961), in a survey study among american firms.

finance. If internal funds are not enough to finance investment opportunities, firms may or may not acquire external financing, and if they do, they will choose among the different external finance sources in such a way as to minimise additional costs of asymmetric information.
The pecking order theory regards the market-to-book ratio as a measure of investment opportunities. With this interpretation in mind, both Myers (1984) and Fama and French (2000) note that a contemporaneous relationship between the market-to-book ratio and capital structure is difficult to reconcile with the static pecking order model. Iteration of the static version also suggests that periods of high investment opportunities will tend to push leverage higher toward a debt capacity. To the extent that high past market-to-book actually coincides with high past investment, however, results suggest that such periods tend to push leverage lower[2].
Empirical evidence supports both the pecking order and the trade-off theory. Empirical tests to see whether the pecking order or the trade-off theory is a better predictor of observed capital structures find support for both theories of capital structure (Shyam -Sunder and Myers, 1999; Fama and French, 2002).

5. The Market timing theory

The *market timing theory* of capital structure argues that firms time their equity issues in the sense that they issue new stock when the stock price is perceived to be overvalued, and buy back own shares when there is undervaluation. Consequently, fluctuations in stock prices affect firms capital structures. There are two versions of equity market timing that lead to similar capital structure dynamics.
The first assumes economic agents to be rational. Companies are assumed to issue equity directly after a positive information release which reduces the asymmetry problem between the firm's management and stockholders. The decrease in information asymmetry coincides with an increase in the stock price. In response, firms create their own timing opportunities.
The second theory assumes the economic agents to be irrational (Baker and Wurgler, 2002). Due to irrational behaviour there is a time-varying mispricing of the stock of the company. Managers issue equity when they believe its cost is irrationally low and repurchase equity when they believe its cost is irrationally high. It is important to know that the second version of market timing does not require

[2] Helwege and Liang (1996) find that the probability of raising external finance is unrelated to the internal funds deficit, and that firms that could have obtained bank loans often choose to issue equity instead. This also contrasts with the static pecking order model.

that the market actually be inefficient. It does not ask managers to successfully predict stock returns. The assumption is simply that managers believe that they can time the market. In a study by Graham and Harvey (2001), managers admited trying to time the equity market, and most of those that have considered issuing common stock report that "the amount by which our stock is undervalued or over- valued" was an important consideration.
This study supports the assumption in the market timing theory mentioned above which is that managers believe they can time the market, but does not immediately distinguish between the mispricing and the dynamic asymmetric information version of market timing.

6. Conclusions

When regarding to a firm's capital structure, the Modigliani-Miller theorem opened a literature on the fundamental nature of debt versus equity. The capital structure of a firm is the result of the transactions with various suppliers of finance**.** In the perfect capital markets world of Modigliani and Miller, the costs of different forms of financing do not vary independently and therefore there is no extra gain from opportunistically choosing among them. Nevertheless, financing clearly matters, and that as a consequence of taxes, differences in information and agency costs. The various theories of capital structure differ in their interpretation of these factors. Each emphasizes some cost and benefits of alternative financing strategies, so they are not designed to be general. According to the standard trade-off theory, taxes and bankruptcy account for the corporate use of debt. According to the standard pecking order theory, adverse selection accounts for the corporate use of debt. Both theories having weak parts, it is not surprising that there is active research on this matter. In the market timing theory, there is no optimal capital structure, so market timing decisions accumulate over time into the capital structure outcome. From this point of view, the market timing theory appears to have the most explanatory interest.

References:

1. Alti, A, (2003), "How persistent is the impact of market timing on capital structure?" working paper.
2. Atkeson, A., and H. Cole, 2005, "A dynamic theory of optimal capital structure and executive compensation", working paper, NBER 11083.

3. Baker, M., and J. Wurgler, 2002, “Market timing and capital structure”, Journal of Finance 57.
4. Fama, E., and K.R. French, 2002, “Testing trade-off and pecking order predictions about dividends and debt”, Review of Financial Studies 15, 1-33.
5. Goldstein, R., N. Ju, and H. Leland, 2001, “An ebit-based model of dynamic capital structure”, Journal of Business 74, 483-512.
6. Graham, J.R., and C. Harvey, 2001, “The theory and practice of corporate finance: evidence from the field”, Journal of Financial Economics 60, 187-243.
7. Harris, M., and A. Raviv, 1991, “The theory of capital structure”, Journal of Finance 46, 297-356
8. Leary, M.T., and M.R. Roberts, 2005, “Do firms rebalance their capital structures?”, Journal of Finance 60.
9. Modigliani, F., and M.H. Miller, 1958,” The cost of capital, corporate finance and the theory of investment”, American Economic Review 48, 261-297.
10. Modigliani, F., and M.H. Miller, 1963, “Corporate income taxes and the cost of capital: A correction, American Economic Review” 53, 433-443.
11. Murray Z.F., and Vidhan K.G, 2007, “Trade-off and Pecking Order Theories of Debt”, working paper, NBER 16180.
12. Stiglitz, J.E., 1969, “A re-examination of the modigliani-miller theorem”, American Economic Review 59, 784-793.

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