TRADE-OFF VERSUS PECKING ORDER THEORY IN LISTED COMPANIES AROUND THE WORLD

SORANA VĂTAVU [*]

ABSTRACT: *This paper provides an insight into the literature on capital structure and its determinants. The capital structure refers to the specific combination of debt and equity and their use in financing the corporate operations. Considering there are various determinants of corporate financing patters, many theories have been developed over time. From Modigliani and Miller theory, which was the first to examine the impact of capital structure on firm value, the trade-off theory and the pecking order theory are probably the most influential theories of corporate finance. The paper reveals the main financial indicators that have a significant impact on the capital structure of companies operating in both developed and under-developed financial markets. According to the particular preference for a capital structure theory, researchers showed that asset tangibility, profitability and tax shield are significant in the trade-off theory while in the pecking-order theory, the most influential factors are long-term profitability and investment opportunities. Regardless the presumed theory, most studies found firm size as essential to financing decisions.*

KEY WORDS: *trade-off theory; pecking order theory; financing patterns.*

JEL CLASSIFICATION: *G32; O16.*

1. INTRODUCTION

In literature, all financing decisions theories try to demonstrate the purpose of capital structure, and that is maximizing company value. Since the Modigliani and Miller (MM) irrelevance theory, theories developed over time, but the research is dominated by the trade-off theory and the pecking order theory. Although financial leverage is correlated to both firm and country specific factors, this study will refer to five firm specific factors, those that show most significance in the capital structure literature: asset tangibility, size, investment opportunities, profitability and tax shield.

[*] *Ph.D. Candidate, West University of Timişoara, Romania*

2. CAPITAL STRUCTURE THEORIES

Miller and Modigliani (1958) demonstrated that capital structure is irrelevant to firm value in perfect market conditions. These conditions assume that all market investors have free access to information, there are no transaction costs and no differences between capital gains and dividend taxation.

When referring to real economies, market imperfections cannot be excluded from the role of capital structure in firm's value. The trade-off theory refers to the balance between tax gains provided by debt and bankruptcy costs, a balance obtained through a debt to equity ratio that ensures an optimal structure. The pecking order theory contradicts the existence of an optimal ratio, and considers that organizations operate on a financing hierarchy: internal funds, debt and equity as a last resort.

3. FACTORS THAT INFLUENCE THE CAPITAL STRUCTURE

3.1. Asset tangibility

Tangible assets play the role of collateral in debt issuance. This means that companies with a large amount of tangible assets can access more debt, under favorable conditions and lower costs.

Over time, the relationship between tangibility and the proportion of debt was demonstrated through various empiric studies, although opinions are very different. Rajan and Zingales (1995) discovered a positive relationship, normal in all companies following the trade-off theory. Pandey (2001) proved a negative correlation between fixed assets and leverage: if companies face a high level of debt they are limited to use their internal funds because lenders are closely monitoring them. However, this represents a benefit for small companies that would not afford controlling managers in spending the internal resources, and thus they access a large amount of debt to ensure monitoring. There are also studies which could not find any support for the importance of collateral in the proportion of debt (Eldomiaty, 2007).

Considering the actual financial crisis, the role of fixed assets in mortgage loans is confirmed. Nowadays, the standard loan conditions are more severe, debt became more expensive and consequently, fixed assets are necessary for accessing loans.

3.2. Size

Based on the trade-off theory there is a positive relationship between size and debt, because large firms are usually more diversified, face less bankruptcy risk and support a great proportion of debt. While larger firms have an easier access to financial markets due to their reputation, they can also obtain better credit conditions (Rajan & Zingales, 1995; Booth et. al., 2001; Chen, 2004). However, Rajan and Zingales (1995) did not find significant relationship between size and debt in all stable economies studied, and concluded that small companies also use debt because they face a low systematic risk.

But liabilities are divided in short-term and long-term debt. Titman and Wessels (1988) were the first to demonstrate a negative correlation between size and short-term debt, because in small firms the conflict between shareholders and managers is severe and the access to long-term liabilities is very limited. Moreover, when companies perform under the risk of bankruptcy, managers tend to accumulate funds internally and avoid increasing risk through external financing. If the profits are insufficient, firms will access short-term debt to protect against enduring risk. This assumption was proved by Lim (2012) who demonstrated that size is positively related to leverage but negatively associated to long-term debt. The pecking order theory assumes a negative relationship between size and leverage because big companies register high profits and thus undertake investments based on their internal funds.

3.3. Investment opportunities

When firms are in the growth stage they avoid debt because they do not want to offer lenders the possibility of interfering in their institutional decisions. Therefore, companies with significant future perspectives choose to retain more profit in order to reduce the cost of capital (Barclay & Smith Jr., 1996; Pandey, 2001). Since 1977, Myers assumed a positive relationship between investment opportunities and firm value, but he added that highly leveraged companies are not able to undertake investments due to the agency conflict caused.

Shih and Fan (2009) gave another explanation for the direct correlation between growth opportunities and company value considering that investors are willing to pay higher prices for shares when companies have profitable investment opportunities. Moreover, the more capital a company owns the more investments it can undertake. This assumption confirms the previous described by Titman and Wessels (1988) who confirmed an indirect correlation between investment opportunities and long-term debt. However, the short-term debt is widely used in financing new investments.

The trade-off theory suggests that capital structure in companies with important growth prospects includes a small proportion of liabilities because managers are rewarded when the cost of financial leverage is at minimum and no agency conflict exists to affect future growth (Drobetz & Fix, 2003). However, the pecking order theory assumes high leverage for companies with investment opportunities: when firms have high growth potential, they demand more capital and thus debt is preferred as external finance (Chen, 2004).

3.4. Profitability

In the literature, there are contradicting opinions referring to companies' effectiveness in generating profits and the influence it has on the proportion of debt. The pecking order hypothesis predicts a negative relationship between leverage and profitability because firms with large profits afford to undertake investments based on internal funds and thus debt is unnecessary (Titman & Wessels, 1988; Rajan & Zingales, 1995). However, Jensen (1986) argued that future prospects influence the

corporate behavior and assumed that the more profitable the companies are, the more debt they owe. Hovakimian et al. (2001) demonstrated that firms with high profitability over a long period of time choose equity in favor of debt and use share buybacks to disburse their earnings. Aditionally, firms with significant internal rate of return tend to use less borrowed funds and reinvest their operating cash flows. As Frank & Goyal (2003) assumed, profitable businesses attain a great level of cash flows, and so they face reduced financial risk. Opposite to the correlation assumed by the pecking order theory, the trade-off theory describes that profitable companies may access funds externally, mostly if they own fixed assets that can be used as collateral.

When other indicators such as investors' behavior, economic conditions or financial markets are taken into consideration, the correlation between profitability and capital structure becomes indirect. This is the main reason for obtaining different results. Shenoy & Koch (1996) emphasised that opposite assumptions in the profitability-financial leverage relationship appear because the pecking order theory considers a correlation between the two indicators while the trade-off hypothesis describes the dynamic aspect of the variables.

3.5. Tax shield

Rajan & Zingales (1995) tried to demonstrate the great impact taxes have on corporate debt. It is widely known that the interest of debt is a deductible expense, offering the major benefit in issuing debt, as it raises the amount of after-tax income. Although this tax-based hypothesis was long debated and some studies included tax benefits among the factors with significant impact on financing option (Lim, 2012) whilst other did not find any evidence to support it (Titman & Wessels, 1988; Chen, 2004).

According to trade-off theory, companies prefer debt mainly because this provides a non-debt tax shield. With this tax advantage, the more higher the tax rate is, the more funds will borrow businesses. In conclusion, taxation has a direct impact on debt maturity and financial leverage, but it is more significant in large companies that small ones.

Debt is not the only one tax-free, non-cash expenses being also tax-deductible. Hence, when firms have to deal with agency problems, additional debt as supplementary financing is never a good choice. But tax allows deductions from the before-tax income, such as depreciation on tangible and intangible assets (Teker et al., 2009).

4. DETERMINANTS OF CAPITAL STRUCTURE IN LISTED COMPANIES

This section investigates the correlations between determinants of capital structure and leverage ratios in listed companies from both, developed capital markets and emerging ones. Table 1 summarises the main findings of six researches, offering a perspective on the similarities and differences across economies.

The first two studies are based on a comparison between countries: Rajan & Zingales (1995) focuse on the developed G-7 countries (Canada, France, Germany,

Italy, Japan, USA, UK) and Booth et al. (2001) observe ten developing states (Brazil, India, Jordan, Korea, Malaysia, Mexico, Pakistan, Thailand, Turkey, Zimbabwe).

Table 1. Correlations between determinants of capital structure and debt ratios in listed companies

Studies	Dependent variable used in study	Determinants of capital structure and their correlation to dependent variable				
		Tangibility	**Size**	**Investment opportunities**	**Profitability**	**Taxation**
Rajan & Zingales (1995) - 7 developed states - period: 1987 – 1990	Book leverage	(+) Book leverage in all countries	(-) Book leverage in Germany (+) Book leverage in the rest of the states	(-) Book leverage in all states	(-) Book leverage in Japan, Italy, Canada (+) Book leverage in UK No significant impact in Germany & France	(-) Book leverage, not statistically significant
Booth et al. (2001) - 10 developing states - period: 1980 – 1990	Long-term debt Total debt	(+) Long-term debt; (-) Total debt	(-) Long-term debt; (+) Total debt	(-) Long-term debt	(-) Long-term debt (-) Total debt	(-) Long-term debt (-) Total debt
Frank and Goyal (2003) - United States - period: 1971 - 1998	Net debt	(+) Net debt	(+) Net debt	(-) Net debt	(-) Net debt	Variable not included
Chen (2004) - China - period: 1994 - 2000	Total debt Long-term debt	(+) Total debt (+) Long-term debt	(+) Total debt, not statistically significant (-) Long-term debt	(+) Total debt (+) Long-term debt	(-) Total debt (-) Long-term debt	(-) Total debt, not statistically significant (-) Long-term debt
Pandey (2001) - Malaysia - period: 1988 - 1999	Short-term debt Long-term debt Total debt	(-) Short-term debt (-) Long-term debt (-) Total debt	(+) Short-term debt (+) Long-term debt (+) Total debt	(+) Short-term debt (+) Long-term debt (+) Total debt	(-) Short-term debt (-) Long-term debt (-) Total debt	No variable included (-) Debt hypothesized
Eldomiaty (2007) - Egypt - period: 1998 - 2004	Short-term debt Long-term debt	No significant impact	(+) Short-term debt (+) Long-term debt	No significant impact	(+) Short-term debt (-) Long-term debt	(+) Short-term debt (+) Long-term debt
Correlations between leverage and determinants of capital structure presumed by trade-off and pecking order theory		(+) Trade-off theory	(+) Trade-off theory (-) Pecking order theory	(-) Trade-off theory (+) Pecking order theory	(+) Trade-off theory (-) Pecking order theory	(+) Trade-off theory

The second part of the table includes two studies of developed economies from the United States and China – Frank & Goyal (2003), Chen (2004) – and another two researches on emerging financial markets, Malaysia and Egypt – Pandey (2001), Eldomiaty (2007).

The cross-country analysis in developed financial markets reveals significant positive relationships between debt on one side and tangibility and size on the other. All countries show that investment opportunities have a negative effect on leverage. Moreover, the same effect is produced by profitability in Japan, Italy and Canada. These correlations are expected in stable economies, where companies can raise funds through stock issue, especially when their profitability is high and their shares are overpriced. Referring to tax advantages that support debt, the trade-off theory is rejected in this case, as companies from G-7 Countries avoid lenders' constraints. Considering Chen's and Pandey's studies, the table shows similar results to Rajan and Zingale's, which means that firms from developed economies follow similar financing decisions. Both U.S.A. and China indicate a significant positive relationship between debt and tangibility and debt and size, with the specification that in China, companies use a greater proportion of short-term debt. The main difference is observed in China, where it is shown that the more growth opportunities exist, the higher the debt ratios will be. This means that banks are willing to offer long-term debt for companies with development prospects. However, the negative relationship between profitability and debt and between taxation and debt indicates support for pecking order model, but with the following hierarchy: retained profit, equity finance and finally debt. These correlations indicate that Chinese companies avoid the state interference in corporate activities, preferring equity to debt because in this case, besides being the tax beneficiary, the state is also the owner of banks.

For the cross-sectional analysis of listed companies in emerging markets, Booth et al. demonstrated similar results with the ones in developed markets. Companies owning an important amount of tangible assets use more long-term debt showing that companies match fixed assets with long-term liabilities.. But the total debt ratio decreases and this indicates that the majority of debt consists in short-term funding. This indicates that companies keep a low financial risk because in emerging markets they face high economic risk. In terms of distress costs, this supports the static trade-off theory. Large firms owe little long-term debt, as the debt-size correlation indicates a preference for short-term funding. The other determinants - investment opportunities, profitability and taxation - show the same importance proved for companies in stable financial markets. However, looking at the single-country studies, results are not very consistent. In Malaysia, tangibility is negatively correlated to debt ratios, contradicting the trade-off theory, while in Egypt this determinant is not even significant to leverage. The size variable is directly correlated to debt ratios, indicating that companies grow based on liabilities. The same assumption is proved by the relationship between investment opportunities and debt-ratios, but in Egypt it was not found statistically significant. As shown in the cross-sectional study, the more profitable companies are, the less debt they use, sustaining the Pecking order theory. Finally, from all six studies, the case of Egypt is the only one to benefit from tax savings through debt increases.

5. CONCLUSIONS

Comparing studies from emerging countries and developed ones, some inconsistency between results was observed. This shows that the economic environment has a great impact on financing decisions and capital mix and thus the influence of macroeconomic indicators such as inflation or interest rates should also be considered.

Regardless of how developed financial markets are, listed companies show higher debt proportions when they own an important amount of tangible assets. This represents a proof that the trade-off theory is relevant, indicating that fixed assets are used for accessing loans, especially on the long-term.

Most studies indicate that size has a positive influence on debt, so listed companies can access more debt when they have a good reputation on the financial market. There is also some evidence that larger listed firms access less long-term debt, preferring short-term funding. While the positive correlation between size and debt is an assumption of the trade-off theory, the negative one refers to pecking order model. In cross-country analysis, it was proved that the larger the companies are, the less liability they owe, following the former theory. However, these results were not consistent in all the single country studies.

Most countries indicate a negative relationship between investment opportunities and leverage ratios, except for China and Malaysia which show support for the pecking order theory. In these countries, companies with high leverage and significant investment opportunities demand more capital and they obtain it through debt. This means that the Asian banking system sustains the economic growth through business development.

As all the observed studies show, profitable companies use less debt because they operate based on internal funding. This is one of the pecking order theory assumptions.

In terms of taxation, most results either indicate that companies do not take advantage of the tax shield or that this indicator is found irrelevant for the model. However, the inconsistency is understandable, as taxation is specific to every country. The only evidence for trade-off theory is suggested in Egipt where it is shown that the tax advantage persuade businesses into accessing more borrowed funds.

REFERENCES:

[1]. Barclay, M.J; Smith Jr., C.W. (1996) *On Financial Architecture: Leverage, Maturity, and Priority*, Journal of Applied Corporate Finance, Vol. 8 (4), pp. 4–17

[2]. Booth, L.; Aivazian, V.; Demirgűc-Kunt, A.; Maksimovic, V. (2001) *Capital structure in developing countries*, Journal of Finance, Vol. 56, pp. 87–130

[3]. Chen, J.J. (2004) *Determinants of capital structure of Chinese-listed companies*, Journal of Business Research, Vol. 57, pp. 1341–51

[4]. Drobetz, W.; Fix, R. (2003) *What are Determinants of Capital Structure? Some Evidence for Switzerland*, WWZ Working Paper, No. 4/03

[5]. Eldomiaty, T.I. (2007) *Determinants of corporate capital structure: evidence from an emerging economy*, International Journal of Commerce and Management, Vol. 17 (1/2), pp. 25-43

[6]. Frank, M.Z.; Goyal, V.K. (2003) *Testing The Pecking Order Theory of Capital Structure*, Journal. of Financial Economics, Vol. 67, pp. 217-48

[7]. Hovakimian, A.; Opler, T.; Titman, S. (2001) *The Debt-Equity Choice*, Journal of Financial and Quantitative Analysis, Vol. 36 (1), pp. 1-24

[8]. Jensen, M. (1986) *Agency costs of the free cash flow, corporate finance and takeovers*, American Economic Review, Vol. 76, pp. 323-29

[9]. Lim, T.C. (2012) *Determinants of capital structure empirical evidence from financial services listed firms in China*, International Journal of Economics and Finance, Vol. 4 (3), pp. 192-203

[10]. Modigliani, F.; Miller, M.H. (1958) *The Cost of Capital, Corporation Finance and the Theory of Investment,* American Economic Review, Vol. 48 (3), pp. 261–97

[11]. Myers, S.C. (1977) *Determinants of Corporate Borrowings*, Journal of Financial Economics, Vol. 5, pp. 147-75

[12]. Pandey, I.M. (2001) *Capital Structure and the Firm Characteristics: Evidence from an Emerging Market*, Working Paper, Indian Institute of Management, Ahmedabad, India

[13]. Rajan, R.G.; Zingales, L. (1995) *What Do We Know about Capital Structure? Some Evidence from International Data*, Journal of Finance, Vol. 50 (5), pp. 1421-1460

[14]. Shenoy, C.; Koch, P.D. (1996) *A Dynamic Model of the Firm's Leverage-Cash Flow Relationship*, *Journal of Empirical Finance*, May, pp. 307-331

[15]. Teker, D.; Tasseven, O.; Tukel, A. (2009) *Determinants of Capital Structure for Turkish Firms: A Panel Data Analysis*, International Research Journal of Finance and Economics, No. 29, pp. 179-187

[16]. Titman, S.; Wessels, R. (1988) *The Determinants of Capital Structure Choice*, Journal of Finance, Vol. 43 (1), pp. 1–19