



Munich Personal RePEc Archive

# **The Capital Structure Theory and its Practical Implications for Firm Financial Management in Central and Eastern Europe**

Rizov, Marian

2001

Online at <https://mpra.ub.uni-muenchen.de/70584/>  
MPRA Paper No. 70584, posted 09 Apr 2016 13:50 UTC

**THE CAPITAL STRUCTURE THEORY AND ITS PRACTICAL IMPLICATIONS FOR  
FIRM FINANCIAL MANAGEMENT IN CENTRAL AND EASTERN EUROPE**

Marian RIZOV\*

*LICOS Center for Transition Economics, Katholieke Universiteit Leuven*

**Abstract:**

The paper reviews and interprets capital structure theory in a stylized way and explains the conceptual issues, consequences, and implications for financial management. Firms face an uncertain world that does not co-operate with many of the assumptions of the theory. Specific attention is paid to the important issues concerning the capital structure of firms in transition economies. By reconciling empirical evidence with theory practical strategies for managing capital structure in transition are suggested. Thus the higher the risk and volatility in the economy, the lower the proportion of debt in the capital structure should be. Reserving some unused good debt capacity is useful to provide flexibility and lead to increase in firm value.

**Key words:** capital structure, economies in transition, financial management

**JEL classification:** G3, P2

**Short title:** CAPITAL STRUCTURE AND FINANCIAL MANAGEMENT IN CENTRAL AND EASTERN EUROPE

**Correspondence address:**

Marian Rizov

LICOS, Centre for Transition Economics

Katholieke Universiteit Leuven

Deberiotstraat 34

B-3000 Leuven

E-mail: [marian.rizov@econ.kuleuven.ac.be](mailto:marian.rizov@econ.kuleuven.ac.be)

---

\* The author thanks Joep Konings and Hylke Vandenbussche for encouragement and useful comments. The financial support of the Belgian Fund for Scientific Research is gratefully acknowledged. The author is solely responsible for the views expressed in the paper and any remaining errors.

# **AN INSIGHT INTO THE FIRM CAPITAL STRUCTURE AND PRACTICAL IMPLICATIONS FOR ECONOMIES IN TRANSITION**

## **1. INTRODUCTION**

In their seminal work Modigliani and Miller (1958) initiated the theory of capital structure. Their original insights and continued efforts (Modigliani and Miller, 1963 and 1965) laid the foundations of modern corporate finance. The consequent years have been rich of further theoretical and empirical developments in the understanding of the firm capital structure. DeAngelo and Masulis (1980) analyze the effects of taxes on capital structure. Myers (1977) investigates the optimal levels of debt while Warner (1977) explores the relationship between bankruptcy costs and capital structure. Jensen and Meckling (1976) analyze how managers behave under varying levels of debt and equity.

However, as Harris and Raviv (1991) review article demonstrates, the motives and circumstances that could determine the choice of capital structure seem nearly uncountable. Despite the numerous answers offered the “capital structure puzzle” still remains and there are new questions arising all the time with the changes in economic reality. One such issue calling for investigation is the capital structure of firms in transition economies. A fundamental transformation of firm borrowing strategies is a central component of the transition from communism to market. Therefore, how the theory can be translated into practical financial management strategies enhancing value creation is in the focus of this analysis. Because the aim is to address the audience of managers and practitioners in the field, a simplified approach based on stylized theoretical and empirical facts is applied.

The paper defines capital structure, in section 2, and examines, in a simplified practical way, in section 3, its influence on the cost of capital and the value of a company. Further, in section 4, the paper sketches practical implications concerning the choices and management of capital structure. In section 5, particular attention is paid to relevant issues and relationships in economies in transition. A conceptual and practical understanding of these relationships will support the professional manager in his/her efforts to garner added value for shareholders and society in the dynamic and risky transition environment. Section 6 provides summary and conclusion.

## **2. FIRM CAPITAL STRUCTURE: A STYLIZED VIEW**

How effectively a company purchases and uses raw materials and employs labor affects economic profits. Improvements in the production process that lower the costs of goods increase profits and value. These and other actions on the “operating side of the firm” add increments of value to the firm. Capital is a raw material for the firm as well. A company takes financial capital and converts it into assets. It operates those assets to earn economic returns by fulfilling customer needs. The liability and equity side of a company balance sheet records the origins of a company’s capital.

Capital structure theory focuses on how firms finance assets. The capital structure decision centers on the allocation between debt and equity in financing the company. An efficient mixture of capital reduces the price of capital. Lowering the cost of capital increases net economic returns, which, ultimately, increases firm value.

An “unlevered firm” uses only equity capital. A “levered firm” uses a mix of equity and various forms of liabilities. Aside from deciding on a target capital structure, a firm must manage it in a dynamic perspective. Imperfections in capital markets, taxes, and other practical factors influence the managing decisions. Imperfections may suggest a capital structure less than the theoretical optimum. Operation of assets and the firm’s financing of those assets jointly dictate firm value.

Debt or liabilities represent the value of the creditors’ stake in the firm. The value of debt represents the discounting and summing of all current and future payments the company has promised to creditors. These liabilities take various forms and have different claim positions with regard to the cash flows and assets of the company. At this stage it is important to recognize that creditors have claims against the company and these claims always are ahead of the stockholders interests.

Equity represents the value of the shareholder interests. Stockholders always have last claim on the results of economic activities. Stockholders are residual claimants. Equity value represents the discounted summation of all current and future residual cash flows of the company.

Total capital equals the amount of financing from all sources. Total capital on an economic balance sheet is the sum of equity capital and debt capital of all forms. This total equals the sum of all assets on the balance sheet as well.

Capital structure represents the proportions of capital from different sources. In a simplified context, it is the proportion of financing from debt and from equity capital. Common ratios such as debt-to-total capital or debt-to-equity quantify this relationship. Furthermore, understanding capital structure calls for an examination of certain aspects of risk, return, and value. Business, financial, and total risk is related to the level of economic income.

Business risk reflects all sources of risk that affect revenues, costs, and asset operation. Some of the factors affecting business risk are: (i) changes in the relative efficiency of manufacturing process; (ii) relative effectiveness of advertising; (iii) changes in interest rates that influence product demand; (iv) government actions that create uncertainty in a company's operation.

Financial risk results from commitments to use expected cash flows to service creditors and taxing authorities. Creditors stand in line ahead of stockholders. This form of risk arises from promises and requirements resulting from the use of debt and the tax environment. Examples of financial risk include uncertainty about interest rates and a change in the interest payments if the company has variable rate of debt or if it plans to raise debt in the future. The risk that taxing authorities will change tax rates also adds to financial risk.

The aggregate effects of all factors that influence business and financial risk ultimately determine the total risk borne by the stockholders. Risk affects the expected level and uncertainty of the economic net operating income (*NOI*). The *NOI* is the normal source of cash flow for the payment of interest and principal on debt.<sup>1</sup> The level and uncertainty in *NOI* affects the amount the company can borrow and the terms of borrowing. In general, the greater the level of *NOI*, the greater the borrowing capacity; the lower the risk in *NOI*, the greater the borrowing capacity. For a given level of *NOI* and a given amount of borrowing, the lower the risk of *NOI*, the lower the cost of borrowing.

### **3. CONCEPTUAL FRAMEWORK**

#### **Assumptions and definitions**

A rigorous academic examination of capital structure theory involves many assumptions. With the ultimate goal a practical simplified application, we take liberty and limit assumptions to: (i) interest is a tax-deductible expense; (ii) bankruptcy has costs; (iii) mistakes in financing a company may affect

its operations;<sup>2</sup> (iv) the company seeks to create value in a risky environment. (v) the environment is dynamic. For example, interest rates, the economic environment, and other factors that influence value may change. The last two assumptions are particularly relevant for the economies in transition.

Investors assign value to risky assets. We assume they favor: (i) less rather than more risk, return held constant; (ii) more return rather than less return, risk held constant; (iii) return now rather than later in time, return held constant. Finally, if the company does what investors like (dislike), the stock price increases (decreases), other factors constant.

Furthermore, a few definitions are given explicitly to help in the following discussion. Thus, *debt capacity* is the amount of money a company currently could borrow. It is not, however, the amount it should borrow. *Unused debt capacity* is capacity to borrow more. *Good debt* is debt that adds increments of value to share price. *Unused good debt capacity* is incremental borrowing that would add to share value. Unused debt capacity exceeds unused good debt capacity, because a company can borrow more than it should in terms of shareholders' interests.

Finally, throughout the discussion we assume a fixed amount of financing because our focus is on the debt-equity choice that firms make and not on the amount of financing they require. In the next sections we examine the effect of using different proportions of debt and equity in financing a company.

### **Stylized model**

Understanding why the correct proportion of debt in the capital structure lowers the cost of capital and increases stock price is in the focus of this analysis. There are many elegant and detailed approaches as proofs of the theory. Our explanation is simplified and rests on the astuteness of rational economic agents, which in fact, provides ultimately foundation to all theories.<sup>3</sup>

Creditors have very carefully organized and specified claims against a company's cash flows during normal operations as well as during bankruptcy. Equity holders are always last in line, behind all creditors. The position of each claimant in the line affects the riskiness of his/her cash flows. Those first in-line claim the most certain cash flows - and their removal of the most certain cash flows increases the risk of the cash flows that remain for those behind them. Creditors and equity holders

are rational. Claimants further back in-line demand higher returns to compensate themselves for the additional risk that they bear. Thus, shareholders require higher returns for the added financial risk of creditors.

However, shareholders know another very important fact about debt; they can make money from its use. In fact, the focal point of capital structure theory hinges on shareholders recognizing that debt use can add to their returns. Shortly, we will see that on an after-tax basis, the use of the appropriate amount of debt adds value if the company enjoys a tax deduction for interest payments.

The relationship between the weighted cost of capital (*WCOC*) and thus price of stock (*POS*) for a company, on the one hand, and the proportion of debt the company uses in its capital structure ( $D/(D+E)$ ), on the other hand, is of special interest here. This is a relationship that results from a change in the financing of the company. We assume the company has the same amount of total financing (e.g. 100 units). The relationship is depicted in figure 1.

- Figure 1 here -

At the one extreme (the left hand side of the *WCOC* curve), total capital is 100 units and all from equity. As we move to the (right) other extreme, total capital is still the same (100 units) but debt increases and with it financial risk increases as well. Total risk increases also since financial risk is increasing. Equity decreases as the number of shares of stock decreases. The company does not need as much equity financing because debt is replacing equity in the capital structure. Expected earnings per share (*EPS*) increase since fewer shares exist and the expected tax benefits of using debt contribute to the *EPS*. From this discussion it is clear that companies can fall into one of two cases.

*Case 1: Unlevered firm (no debt)*

Claimants are not in line. Only shareholders as a group have a claim on expected net operating income, *NOI*, and they bear the risk associated with this income. Total risk consists of business risk and the risk associated with the tax environment. The relationship between the expected level of earnings per share, *EPS* and an arbitrarily assumed price-earnings ratio (*P/E* ratio) for the *EPS* is of interest here. The *P/E* ratio changes as the risk of *EPS* changes. When moving to positive debt levels, the risk of *EPS* increases due to the added use of debt and resultant increase in financial risk and increased risk of *NOI*.

### *Case 2: Levering the firm*

Adding debt places additional creditors ahead of stockholders. Creditors have the right to take the most certain part of pre-tax earnings for interest. Creditors are entitled to the most certain after-tax earnings for the repayment of principle as well. If creditors take the best returns generated by the operations of the company, the quality of the remaining proceeds must be lower. The risk of the economic net income must be higher. Adding creditors ahead of shareholders adds financial risk and thus increases the total risk of *NOI*. This affects negatively how shareholders value a unit of expected earnings, and results in decreasing *P/E* ratio.<sup>4</sup> The greater the claims of creditors, the greater the risk for shareholders of each unit of net income.

To understand the relation between share price and debt, we focus further on the after tax cost of debt and the expected economic earnings per share, *EPS*. The ability to deduct interest charges for tax purposes affects the after-tax cost of debt. Assume, for example, the company borrows money at a 12 per cent annual rate and writes a cheque to the creditor actually paying the 12 per cent rate of interest. Tax time arrives. If the tax rate is 40 per cent and the company deducts the 12 per cent interest paid, the after-tax cost to the company is 7.2 per cent.<sup>5</sup> The deductibility of interest and the government essentially paying for part of the interest by allowing its deduction from pre-tax income does not change the cash flows to creditors. Creditors still get the 12 per cent. Consequently, the benefits of the tax deductibility must flow to the company and, ultimately, to the stockholders.

Thus, with the increase of debt, the expected earnings per share increase for two reasons. First, since debt replaced some equity, the number of shares outstanding is less. Second, the tax benefits of the deductibility of debt contribute to the expected earnings per share - so long as the contribution to earnings from the use of debt exceeds interest charges on debt. The price of the stock (*POS*) is the product of the expected earnings per share, *EPS* and the price-earnings ratio, *P/E*:  $POS = EPS \cdot P/E$ .

The market price of the stock continues to increase with the increased use of debt so long as the expected increase in *EPS* is sufficient to overpower the effects of the decline in the *P/E* ratio. However, the *P/E* ratio declines at an increasing rate with the increase in the use of debt. This behavior has its origin in investors' concerns about a host of factors associated with the use of "too



much debt". These concerns relate to the fact that pre-tax income may not be sufficient to allow the deduction of interest. If so, the tax advantages of debt no longer exist. In fact, if the company has a loss, the loss on a per share basis grows at a faster rate if the company is using debt. This happens for two reasons. First, the company is not earning enough on its assets to pay creditors; the shareholders must make up the difference. The shareholders effectively pay the full cost of borrowing money absent an effective tax deduction. Second, there is a possibility of creditors disrupting operations or, in the worse case, creditors initiating bankruptcy proceedings.

From the shareholder's point of view, the optimal capital structure results in the maximum share price. Increasing the proportion of capital from debt increases share price until reaching the optimal capital structure. Additional debt beyond this point causes share price to decline. Stock price begins to decline when the value in today's money or present value of expected tax advantages of incremental debt no longer are attractive enough to compensate investors for the additional financial risk associated with the incremental debt.

#### **4. DISCUSSION AND PRACTICAL IMPLICATIONS**

In a tax environment allowing the deduction of interest, capital structure does affect the value of a firm and its stock price. An optimal way to finance the firm thus exists. Capital structure theory is of value even if the array of assumptions in that theory does not hold. An environment characterized by changes in economic variables, e.g. changes in interest rates, price of bearing risk, institutional change, recessions, etc. does influence the choice and management of capital structure. Therefore, reasonable practical approaches to the management of capital structure are needed.

##### **The "optimal capital structure"**

No equation exists to determine the optimal capital structure for a company but clues and judgment guide the decision. Several clues that emanate from the market offer guidance on the approximate optimal debt ratio. Practical guidelines or "rules of thumb" on the optimal debt ratio might include one or more of the following: (i) increases in debt levels that result in a disproportional large jump in the cost of debt signal movement past the optimal debt point; (ii) comments by analysts offer

guidance; concerns about the company's ability to service its debt clearly signal the company already has exceeded the optimal ratio; (iii) the reaction of the market to the capital structure of other companies with similar business risk; (iv) the eagerness of underwriters to handle a new issue of incremental debt on an underwritten basis.

As market participants, the shareholders value flexibility in financing possibilities. The flexibility argument recognizes that the option to quickly obtain additional financing through unused good debt capacity is of significant value to shareholders. The degree of flexibility is a function of several variables including the business risk of the company, the cyclical nature of its business, the likely opportunity set facing the company, and characteristics of the company's existing financing.

A company benefits by having access to a reasonable amount of incremental debt regardless of economic and capital market conditions. Unused good debt capacity provides the opportunity to obtain capital short order. This may allow the company to take advantage of unusual opportunities or avoid being forced to take actions it deems undesirable. Once shareholders share this view, keeping unused good debt capacity in reserve adds to share price.

### **Managing the capital structure**

In our discussion of the management of capital structure a review of the relationship between the *WCOC* and the  $(D/(D+E))$  ratio is useful (see figure 1). The curve representing this relationship declines and is relatively flat as it approaches the minimum point, and increases relatively quickly once past the minimum or optimal point. We use the term "flat" to denote that the curve does not steeply slope at and to the left of the optimal point, which means changes in capital structure, in this range, do not have a large impact on *WCOC*.

The optimal company's strategy calls for normally maintaining its capital structure in the flat portion of the curve. The additional debt associated with moving towards the minimum point on the *WCOC* curve represents unused good debt capacity. The company keeps this in reserve for unanticipated needs. Possible strategies of the company are:

(a) moves to the right towards the minimum point such that it increases the use of debt and utilizes some of its debt capacity;

(b) moves to the left such that it decreases the use of debt and restores debt capacity;

(c) generates and retains earnings within the company such that it moves to the left since earnings represent equity, increasing the denominator in the  $D/(D+E)$  ratio;

(d) issues debt and uses the proceeds to buy back some stock such that it moves to the right. Issuing debt and buying equity affects both the numerator and denominator in the  $D/(D+E)$  ratio. This results in: (i) an increase in cost of equity due to increased financial risk; (ii) a lower weighted cost of capital as the company moved to the right towards the *WCOC* curve minimum point; (iii) an increase in share price, which stems from an interaction of fewer shares outstanding, greater expected earnings per share, and a decrease in the price-earnings ratio due to the increased risk of a unit of earnings.

Further, the investment in good projects results in the generation of economic profits. The retention of economic profit rather than payment of the full amount in dividends represents additions to equity. These additions to equity increase equity in the denominator of the  $D/(D+E)$  ratio. With the passage of time the generation and retention of profits increases the equity base and results in company moving back to the left on the *WCOC* curve. If with time the company also is paying down the principle on its debt, this reduces the numerator in the  $D/(D+E)$  ratio and further accelerates the movement to the left on the *WCOC* curve. Since the *WCOC* curve is flat as one approaches the optimal ratio, moving back to the left has little effect on the *WCOC*. If one accepts the flexibility argument and its potential value, financing in the flat portion of the curve would not adversely affect the *WCOC*.

With time, the firm restores its borrowing base for “good debt”. At a future time, it issues another chunk of debt. This moves the firm to the right, again towards the minimum point on the *WCOC* curve. The firm can use this debt to finance incremental investments. Since its equity base has grown, it is in effect financing part of these investments with equity -- the financing of incremental projects with this combination of debt and equity approximates the proportions of the long-term capital structure of the firm. New, good projects, will contribute to the equity base. If the firm has excess funds and wants to move towards the optimal capital structure, it can repurchase some of its own stock with attendant increase in share value.

## 5. CAPITAL STRUCTURE IN TRANSITION ECONOMIES

### Specificities

Before reforms firms had soft budget constraints that resulted largely from interdependence between the state and enterprises. While there were some constraints on firm spending, these constraints were not wholly binding because the state could readily reallocate funds to cover additional expenditures. The state used its network of administrative bureaus to control resource flows throughout the economy and to redistribute resources from profitable firms to those that were not performing well. This virtually guaranteed firm survival, but it also created resource shortages and intense pressure for firms to increase production (Kornai, 1986).

While the firm depended on the state for all inputs, the state also depended on firms to provide scarce resources to other enterprises and to provide employees with jobs, housing, medical care, and other social services. State bureaus closely monitored many of the firm's activities, and managers responded by hoarding resources and bargaining for favorable treatment. Bargaining for scarce capital was acute and financing was highly uncertain because funding varied with state political whims and the personal allegiances of high-ranking officials.

Since early stage of reforms, firms began to seek non-state sources of funding both because the state was reducing its financial support of the firms and because borrowing from non-state sources was becoming more attractive than state funds. In even the largest firms, the state began to transform its role from sole owner to that of a shareholder with limited responsibility and limited liability. While the state did not stop direct transfers completely, managers were increasingly aware that financing the firm was their responsibility. At the same time, financial autonomy was attractive to manager and created incentive for them to voluntarily seek non-state sources of capital. Supply shortages, uncertainty about levels of state funding, the need to bargain for favorable treatment, and the disincentives associated with having profits be redirected to non-profitable firms increased the appeal of external funding, particularly for firms that were performing relatively well financially and in economies where the transition process was smooth and more advanced.

Currently, firms have a variety of external finance alternatives available and their evaluations of these options are influenced by both an increasing desire for autonomy and the institutional context

of transition. Financing firm activities with retained earnings is one important option many managers consider first. Retained earnings are calculated as net profits accumulated in a business, as they are in the Western practice. Loans from domestic banks are increasingly available. When banks are still state-owned, bank loans involve relatively little risk, especially if state agencies are still more forgiving than other lenders. Loans and investments from other domestic firms, public debt, and borrowing from private or foreign entities are all relatively riskier than state bank loans for both the lenders and the borrowers. Lenders have limited information available for evaluating potential borrowers because borrowing histories are short and financial data are unavailable. Yet because of the autonomy advantages or simply increasing financing needs of borrowers and the potential financial gains for lenders these forms of exchanging capital become increasingly common.

Several factors, however, still complicate the capital structure decision and management in transition economies compared to more developed market environment. There is a perception of greater uncertainty in the taxes and tax rates that may prevail. Existing or potential impediments to cross boundary flows of capital may inhibit the availability and affect the cost of capital. The perceived risk of realization of the actual benefits of projects is high as well as the risk that projects may not attain expected cash flows. The volatility in equity markets also affects perceptions of the risks concerning availability of capital. Higher political risks influence perceptions (and often reality) of restrictive acts by governments that diminish the net cash benefits to the company or investors.

All these factors result in: (i) relatively high costs of capital; and (ii) absence of markets for long-term capital. The adverse effect on the cost and availability of capital is the transparent effect. Other effects exist that have a feedback on the development of the economy and the availability and cost of capital. The absence of markets for long-term capital results in: (i) mismatch of asset life with financing life; (ii) desire for projects that generate cash flow earlier in time; (iii) truncation of the investment set of companies.<sup>6</sup>

### **Evidence**

In this section, with the means of a descriptive empirical analysis of the evolution of capital structure (measured as  $D/(D+E)$  ratio) in eight transition economies, we reconcile the theory outlined with the

specificities of the transition process described above.<sup>7</sup> On this basis we derive later some practical guidelines that might be useful to firm managers in their financing decisions. We use manufacturing company account data for several years of transition (during the period 1992-1999) that are accumulated in the AMADEUS data set.<sup>8</sup> The mean and median yearly values of the  $D/(D+E)$  ratio for each country are reported in table 1. In table 2, the use of debt by companies with different cash flow positions is illustrated. Our approach is to compare the evolution of capital structure between countries and throughout time taking under consideration the specificities of the transition in each country.<sup>9</sup>

The empirical evidence derived in this simple way is useful and shows a good approximation of the reality achieved by our stylized theoretical model. Companies in less risky and volatile environment can operate closer to the optimal debt ratio. The range of the flat portion of the *WCOC* curve over which they operate is sensitive to several factors such as: (i) the need to have unused good debt capacity during downturns in the economy to take advantage of opportunities; (ii) the relationship between issuing debt and equity and the costs of issuing new financial securities; (iii) particular needs which may exist during transition and downturns in the economy.<sup>10</sup>

- Table 1 here -

Thus, during the early years of transition when the economic conditions were very risky, debt equity ratios in all countries were lower compared with the current levels and the average for the whole period. Exception is Bulgaria, where during the first years of transition soft budget constraint and low financial discipline were widely spread and companies were excessively levered. In contrast, in Poland and Slovakia, for example, where the reforms started earlier and were more strictly enforced, capital structure was characterized by much lower proportion of debt. Debt levels of Romanian firms were low due to the explicit government policy of debt repayment by all means, which, however, negatively affected investment.

With the advancement of the transition general trend is the increase in the  $D/(D+E)$  ratios and convergence towards industry optimal levels. Exception is again Bulgaria and also Romania, where in the last years following a severe financial crisis very strict lending restrictions are imposed on the financial institutions. This clearly results in extreme credit access limitation and even “credit crunch”,

which together with the bankruptcy or debt restructuring of the big debtors, is reflected in the very low debt ratios in these countries for the last year or two. However, in general for most of the Central and Eastern European countries there is clearly a convergence of debt ratios towards levels similar to the levels of Western companies.

The pattern of adjustment of  $D/(D+E)$  ratios, generally supports the mechanism described in the conceptual model. For most of the countries the highest levels of debt ratios are observed soon after relative stabilization in the economy is achieved. Past this point in time, somewhat lower debt ratio levels follow. This clearly is a result of the improved general lending conditions as well as of the individual firm behavior. Firms in their searching and adjusting towards optimal debt levels have increased their borrowing, which often resulted in relatively too high leverage. Discovering this fact in the following years firms have adjusted downwards (to the left on the *WCOC* curve) their  $D/(D+E)$  ratios.

Companies in more risky and volatile environment normally manage its capital structure over a broader range of the *WCOC* curve. Reviewing the standard deviations of the means of average  $D/(D+E)$  ratios, conforms the prediction that in more volatile and risky environment firms' debt ratios fluctuate in broader range. Thus the standard deviations for the countries characterized with most turmoil in their transition, Bulgaria and Romania, are highest both in absolute value and relative to the mean. Besides general industry evolution factors, this observation reflects the fact that firms in these countries are forced to change more often their capital structure throughout time and that they differ more widely in their pattern of financing.

Management of capital structure is sensitive to the cash flow patterns of the company during transition. Some companies generate cash by reducing inventories or selling redundant assets. Such companies may have the ability to operate in a narrower range of capital structure than companies lacking excess inventories and assets. As the economy emerges and grows there is increasing demand for cash by companies to fund production and restore inventory levels.

- Table 2 here -

The fact that capital structure is sensitive to the cash flow patterns, is illustrated in table 2. In most countries firms with negative cash flows borrow more and thus show up with higher  $D/(D+E)$

ratios. This pattern holds for more advanced transition economies where firms enjoy more unused (good) debt capacity. Clearly, in Bulgaria and Romania firms with negative cash flows are at the limit of their debt capacity, which puts them under financial distress. Such firms are denied access to capital and are forced to omit profitable investment opportunities.

### **Guidelines**

Decisions that involve risk call for common sense. One rule of risk management is to position the company so that it can choose to take an action rather than have circumstances compel it to take an action. The use of debt does add risk to a company. Therefore, it is important to position the company so that to be able at a later date to choose to borrow or pay off debt. In the economies in transition, particularly in countries where the process is less advanced, the above rule is often not applied. Therefore, companies are compelled by the circumstances to borrow or pay off debt. This situation is often reinforced by the inherited effect soft budget constraints under communism and in the early years of transition.

If a company generates cash in excess of its needs, it has free cash flow. Free cash flow companies enjoy an enviable position of generating sufficient equity internally so that the company does not have to raise capital in markets. Instead, the company can focus on finding attractive uses for its cash, use the cash to manage its capital structure, or return the cash to shareholders. Free cash flow companies have an expanding economic equity base. This expanding base changes the debt to capital ratio. The company can repurchase equity and issue additional debt as necessary to pursue the desired capital structure. Free-cash generating companies enjoy the luxury of choosing the timing of interaction with capital markets.

A company having cash generation less than its equity capital needs must resort to raising equity and debt in the appropriate ratios to pursue its target capital structure. Companies needing capital from external sources face the risk of changing capital market conditions. Common sense suggests issuing equity and restoring a cushion of equity during times of market euphoria rather than having the lack of good debt capacity and financing needs compel the issuance of equity during



downturns in the market. During good times the merit is of paying down principle on debt to restore “good” borrowing capacity.

Capital structure is sensitive also to expected opportunities. Good borrowing capacity during transition may allow the company to take advantage of opportunities that result from the failure of other companies to prudently manage their financial needs. Unused good debt capacity permits borrowing quickly and on favorable terms. Issuing equity normally is disadvantageous due to market conditions. In addition, usually an equity issue takes a relatively long time or it is often impossible to obtain in the economies in transition.

The strategy of a firm may influence the choice of capital structure. For example, the nature of future capital investments may call for an adjustment in target capital structure. Investments that will increase the business risk of the company will shift the optimal debt ratio to the left. Since the company does not want to find itself to the right of the optimal ratio, management should adjust the target capital structure. The company may anticipate acquisitions or divestitures. Either may alter the business risk of the company, calling for an attendant adjustment in capital structure.

## **6. SUMMARY AND CONCLUSION**

Capital structure reflects the manner of financing a company. Optimal capital structure results in lowering the cost of financial resources, improving net economic returns and increasing share value. The optimal capital structure is a function of several variables including the business risk of a company and the tax rate. The tax deductibility of interest makes the use of the appropriate amount of debt beneficial to shareholders and share price. The higher the tax rate, the greater the benefits of using a given amount of debt. The lower (higher) the business risk of a company, the greater (less) the proportion of debt it should use in its capital structure. Changes in business risk result in changes in the optimal capital structure. For example, a reduction in business risk without a decrease in net operating income allows the company to use more “good debt” with attendant additions to value stemming from the tax benefits of incremental debt.

Several factors prompt the adoption of a management strategy for capital structure of any modern corporation. The presence of issuance costs, economies of scale in new financing, the need

for underpricing new issues of stock, taxes on dividends, regulations, variance in market conditions, and other factors make it impractical to raise incremental capital in the exact proportions of a target capital structure. Clearly, optimal capital structure is a dynamic problem calling for continuous monitoring and adjustment. Furthermore, these considerations are increasingly important for the economies in transition where, with the development of markets, the potential of value enhancing management of capital structure is high.

In transition the economic environment is more volatile and risky than in developed markets. Therefore, a management scheme of capital structure that provides for flexibility in financing is preferable. The weighted cost of capital curve is flat at debt to equity ratios less than the optimal capital structure. Hence, the gain in flexibility has a small cost in terms of the weighted cost of capital and provides for more unused good debt capacity. In fact, markets may value this flexibility in which case the optimal use of debt might even be less than the theoretical proportion. In any case, a management strategy for capital structure in transition economies should focus on providing for capital needs of the firm while remaining in the flat portion of the weighted cost of capital curve. Proper selection and management of capital structure would offer the prospect of enhancing value for shareholders. At the same time, the reduction in cost of capital to the company has potentially favorable influence on the economy and the standard of living.

## FOOTNOTES

<sup>1</sup> Creditors normally expect a company to generate cash flow from operations to pay interest and repay principal. A company might sell assets to generate cash or engage in other financing to meet obligations. A company can only sell an asset once to raise cash. A company has a limit on alternative financing available. Hence, creditors expect companies to generate cash flow to service debt.

<sup>2</sup> Mistakes in financing may affect value by affecting the choice and timing of new investments.

<sup>3</sup> Here we avoid to advocate neither the “pecking order” nor the static-tradeoff models.

<sup>4</sup> Note the  $P/E$  ratio is the market price of a share divided by the earnings. In this case we are using market price and economic net earnings. Since this is a ratio, the  $P/E$  indicates the price a person will pay for a unit of expected earnings given the perceived risk associated with that unit. An increase in the risk of earnings is akin to lowering the quality of that unit and hence, its price and  $P/E$  ratio. Logical investors pay less for a unit of earnings if the risk of a unit of earnings increases; hence, the decline in the  $P/E$  ratio.

<sup>5</sup> The higher the tax rate, the greater the value of the tax deductibility of the debt and the more important it is to use the appropriate capital structure. This does not mean, however, that higher tax rates are more favorable. In fact, a zero tax rate would be optimal for shareholders - but there no longer would be a reason to use debt in the financing of a firm.

<sup>6</sup> The shortage of long-term financing results in the selection of projects with short lives. This short-life project phenomenon may adversely affect the long-term availability of cash flows.

<sup>7</sup> The countries considered are Bulgaria, Croatia, Czech Republic, Hungary, Poland, Romania, Slovakia, and Slovenia.

<sup>8</sup> The AMADEUS data set, provided by the Bureau van Dijk, Belgium, consists of large and medium sized firms, which are characterized by an employment level exceeding 100 or with total assets and total sales exceeding \$12 million.

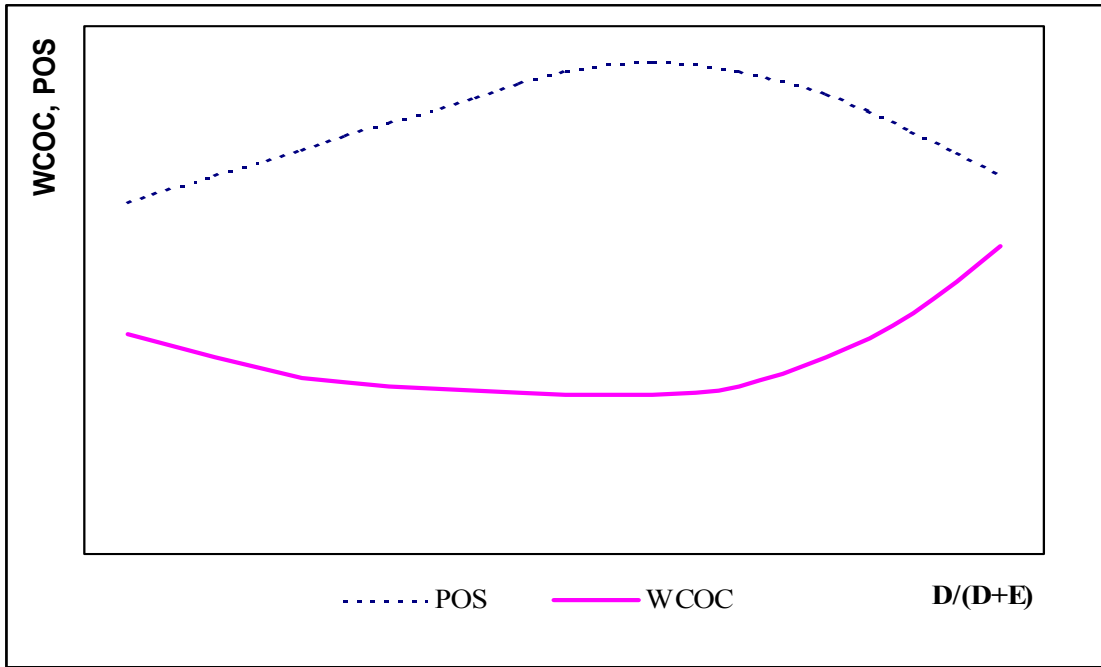
<sup>9</sup> We have calculated also the values of  $D/(D+E)$  ratio across various types of industry within the group of manufacturing firms. However, because of the homogeneity of the sample in this respect, there were no significant variations observed in any one of the countries.

<sup>10</sup> For example, utilities often must meet commitments for new services regardless of economic conditions to comply with the requirements of the grant of monopoly.

## REFERENCES

- DeAngelo, H. and Masulis, R. (1980) Optimal capital structure under corporate and personal taxation, *Journal of Financial Economics*, March, pp. 3-30.
- Harris, M. and A. Raviv (1991) The theory of capital structure. *Journal of Finance*, 46: 299-355.
- Jensen, M. and Meckling, W. (1976) Theory of the firm: managerial behavior, agency costs, and ownership structure, *Journal of Financial Economics*, October, pp. 305-60.
- Kornai, J. (1986) The soft budget constraint. *Kyklos*, 39: 3-30.
- Modigliani, F. and Miller, M. (1958) The cost of capital, corporation finance, and the theory of investment, *American Economic Review*, June, pp. 261-97.
- Modigliani, F. and Miller, M. (1963) Corporate income taxes and the cost of capital, *American Economic Review*, June, pp. 433-43.
- Modigliani, F. and Miller, M. (1965) Reply, *American Economic Review*, June, pp. 524-7.
- Myers, S. (1977) Determinants of corporate borrowing, *Journal of Financial Economics*, November, pp. 147-76.
- Myers, S. (1984) The capital structure puzzle. *Journal of Finance*, 39: 575-592.
- Warner, J. (1977) Bankruptcy, absolute priority, and the pricing of risky debt claims, *Journal of Financial Economics*, May, pp. 239-76.

**Figure 1: Relationship between capital structure ( $D/(D+E)$ ), cost of capital ( $WCOC$ ) and firm value ( $POS$ )**



Source: Based on Myers (1984)

**Table 1: Capital structure in Transition economies:  
Evolution of the  $D/(D+E)$  ratio in time\***

| Year    | Bulgaria  | Croatia   | Czech     | Hungary   | Poland    | Romania   | Slovakia  | Slovenia  |
|---------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 1992    | 0.51/0.59 | -         | -         | -         | 0.24/0.24 | -         | -         | -         |
| 1993    | 0.40/0.32 | -         | 0.29/0.29 | -         | 0.29/0.37 | -         | 0.24/0.25 | -         |
| 1994    | 0.80/0.75 | 0.29/0.30 | 0.28/0.25 | -         | 0.32/0.29 | 0.21/0.11 | 0.25/0.24 | 0.30/0.28 |
| 1995    | 0.73/0.63 | 0.28/0.25 | 0.28/0.25 | 0.33/0.33 | 0.32/0.30 | 0.20/0.14 | 0.32/0.30 | 0.32/0.30 |
| 1996    | 0.39/0.40 | 0.32/0.30 | 0.39/0.40 | 0.38/0.38 | 0.37/0.37 | 0.25/0.21 | 0.41/0.43 | 0.32/0.31 |
| 1997    | 0.27/0.25 | 0.33/0.32 | 0.40/0.41 | 0.39/0.39 | 0.38/0.38 | 0.26/0.21 | 0.40/0.41 | 0.32/0.32 |
| 1998    | 0.08/0.03 | 0.33/0.31 | 0.37/0.36 | 0.41/0.43 | 0.34/0.32 | 0.27/0.23 | 0.40/0.40 | 0.32/0.31 |
| 1999    | 0.08/0.05 | 0.31/0.29 | 0.38/0.35 | 0.33/0.31 | 0.27/0.25 | 0.09/0.04 | 0.40/0.42 | -         |
| Average | 0.26/0.16 | 0.32/0.31 | 0.35/0.35 | 0.38/0.38 | 0.35/0.34 | 0.22/0.16 | 0.36/0.37 | 0.31/0.30 |
| (Sd.)   | (0.30)    | (0.15)    | (0.18)    | (0.18)    | (0.18)    | (0.20)    | (0.17)    | (0.15)    |

\* Notation: Mean/Median

Source: AMADEUS dataset

**Table 2: Capital structure in Transition economies:  
Variation of the  $D/(D+E)$  ratio with the level of cash flows\***

| Cash flow             | Bulgaria            | Croatia            | Czech               | Hungary            | Poland             | Romani<br>a         | Slovakia            | Slovenia           |
|-----------------------|---------------------|--------------------|---------------------|--------------------|--------------------|---------------------|---------------------|--------------------|
| Negative<br>(% firms) | 0.21/0.09<br>(19.7) | 0.38/0.41<br>(2.7) | 0.38/0.38<br>(14.8) | 0.42/0.42<br>(7.2) | 0.40/0.39<br>(7.1) | 0.24/0.19<br>(14.8) | 0.40/0.44<br>(11.0) | 0.48/0.51<br>(0.6) |
| Below<br>average      | 0.23/0.14           | 0.37/0.36          | 0.35/0.35           | 0.38/0.38          | 0.34/0.32          | 0.20/0.15           | 0.35/0.36           | 0.33/0.32          |
| Above<br>average      | 0.37/0.31           | 0.31/0.30          | 0.34/0.33           | 0.37/0.37          | 0.34/0.33          | 0.26/0.20           | 0.37/0.37           | 0.31/0.30          |

\* Notation: Mean/Median

Source: AMADEUS dataset