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# CORPORATE CAPITAL STRUCTURE AND HOW SOFT BUDGET CONSTRAINTS MAY AFFECT IT

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**Abstract.** This survey paper examines existing theories of capital structure and related empirical tests with the aim to derive theoretical as well empirically testable predictions about the implications of the soft budget constraint for corporate capital structure. We show that the soft budget constraint syndrome is relevant for a variety of institutional environments, from central planning to capitalist economic systems, and consider features of company financing patterns in various institutional contexts. Special attention is paid to emerging and transition economies where, with the development of financial markets, companies reduce their financial dependence on the state and begin to borrow from a variety of sources. However, due to the persistence of soft budget constraints, corporate capital structure in transition and emerging economies may still deviate significantly from the capital structure of companies operating under hard budget constraints.

**Keywords.** Capital structure; Soft budget constraints; Transition and emerging economies

## 1. Introduction

‘How do firms choose their capital structure? ... The answer is: we do not know’ (Myers, 1984, p. 575). This question has been asked by many researchers, before and after Myers, and despite the numerous answers offered there still are issues unsolved and questions arising with the changes in economic reality. An important issue calling for answers is the capital structure of companies operating in environments with soft budget constraints. Such environments are typical for centrally planned, transition and emerging economies but as Kornai *et al.* (2003) assert the relevance of the soft budget constraint syndrome is increasingly acknowledged for market economies as well. The term soft budget constraint (SBC) is borrowed from the terminology of microeconomics. However, in standard microeconomic theory attention is focused on the budget constraints faced by consumers rather than the budget constraints of producers. Since most of the theory is not concerned with the relationship between financing and production, a standard assumption that producers are unconstrained is often made. Clearly, in the analysis of the link between financing and production, which is important for understanding investment and capital structure decisions, budget constraints faced by companies become important.

As Harris and Raviv's (1991) survey paper demonstrates, the motives and circumstances that could determine the choice of capital structure seem nearly uncountable. In perfect and complete capital markets a company's capital structure is irrelevant to real investment decisions (Modigliani and Miller, 1958). However, capital structure may be relevant to the investment decisions of companies facing uncertain prospects and operating within budget constraints with varying levels of hardness such that the relative cost of external capital compared with internal funds varies accordingly. Questions about how to finance the company are among the most critical decisions managers make; however, research on how borrowing decisions are made has been somewhat limited even in western organizational and finance theory. Research has identified how companies behave, and organizational theorists have identified some important influences on corporate debt financing, yet analysis has been restricted almost entirely to companies in the USA and a few other market economies with little attention to how variations in institutional context impact corporate borrowing and capital structure.

A fundamental transformation of company borrowing strategies is a central component of the economic transition from central planning to market system. During transition, companies drastically reduce their reliance on state capital and begin borrowing from alternative sources. This transformation of the state's relationship with companies is necessary to reduce state monopolies and to end the system of bargaining between the state and companies that leads to SBC and undermines reforms (Kornai *et al.*, 2003). Restructuring the financial relationships between the state and companies also facilitates financial market development by increasing enterprise autonomy and creating incentives for companies to seek external funding. However, SBC can persist and even coexist with credit crunches as the evidence from transition economies indicates (Berglöf and Roland, 1997).

In this survey paper, we examine the existing theories of company borrowing and investment in order to derive specific hypotheses about the effect of SBC on the corporate capital structure. First, in Section 2 a framework for understanding the SBC syndrome is devised. In Section 3, theories developed to explain the capital structure puzzle are examined with an emphasis on the potential implications of SBC for company borrowing and financing behaviour. Four main strands of the theoretical literature are reviewed: agency cost theories of capital structure, various theories of asymmetric information, theories based on input–output market interactions, and theories of corporate control and capital structure. In Section 4, important empirical studies testing capital structure theories are reviewed and implications for further empirical tests in the context of environments with SBC are derived. Section 5 offers a summary, including testable hypotheses concerning the interaction of corporate capital structure and the SBC as well as suggestions for further research.

## **2. Understanding the SBC**

The nature of budget constraints has been continuously changing with the evolution of economic systems. The early period of capitalism was characterized by hard budget constraints. Debtors were imprisoned, borrowers compelled to auction off

their property, and businessmen committed suicide under the threat of bankruptcy. Since then there has been a tendency in the capitalist world of gradual softening budget constraints. The introduction of the principle of limited liability in corporate finance and the modern forms of separation of ownership and management have effectively led to protection of managers from the adverse consequences of their actions. The fact that corporate managers can survive financial failures without losing their own property has led to expectations and behaviour typically considered characteristic of SBC as first defined by Kornai (1980), in the context of centrally planned economies.<sup>1</sup>

The literature on SBC identifies three groups of instruments for support and rescue of troubled enterprises and their managers. The first group of softening instruments involves some form of credit. Soft credit is the most common mean when we think of SBC and their behavioural effects on managers' expectations and ultimately corporate capital structure. The second group includes fiscal measures, in the form of subsidies or tax considerations such as reduction or postponement of obligations. Finally, there are various indirect methods of support. For example, the government may rescue an enterprise suffering from sales difficulties by imposing trade restrictions on imports thus limiting foreign competition. A crucial feature of the SBC syndrome, however, in any case is that support measures are not completely unexpected, nor are they limited to one-off interventions.<sup>2</sup>

## 2.1 *The Nature of SBC*

Independent of historic context and means of softening, in the core of the SBC concept is a dynamic commitment problem where the financing organizations cannot commit not to provide financial rescue to borrowing enterprises (Dewatripont and Maskin, 1995).<sup>3</sup> The simplest model of dynamic commitment problem underlying the SBC syndrome comprises two periods. There is a financing organization (FO) and a set of borrowing enterprises (BE), each headed by a manager, that require funding to undertake a project. Projects are of two types, either good, with probability  $a$ , or poor, with probability  $1 - a$ . The type of the project is known to the BE's manager but not to the FO at time of submission.

If a project is submitted at time  $t = 1$  the required funding is 1. A good project yields a verifiable gross return  $R_G > 0$  and private benefit  $B_G > 0$  for BE by the beginning of period  $t = 2$ . If the funded project is of a bad type, by the beginning of period  $t = 2$ , gross return is  $R_B = 0$ . Faced with a project of a bad type, FO could liquidate the BE's assets and obtain value  $R_L \geq 0$  and BE ends up with a private benefit of  $B_L < 0$ ; for example, BE's manager gets fired. Alternatively, the bad project can be refinanced by FO with additional capital of 1. In this case, the gross return is  $R_B > 0$  and the manager's private benefit is  $B_B > 0$ , at the end of period  $t = 2$ .

Asymmetric information is at the heart of the model: the BE knows which are bad projects; the FO does not. The relevant equilibrium concept of the game is subgame perfect equilibrium and the decision to liquidate or refinance a bad project need not be a pure strategy. FO may choose to refinance with probability  $\sigma$  and to liquidate

with probability  $1 - \sigma$ . Thus hard budget constraints will be faced by BE if FO decides to liquidate a bad project, i.e.  $\sigma$  is close to 0. BE will face SBC, however, if FO opts to refinance; thus  $\sigma$  tends to 1. More generally, as  $\sigma$  fluctuates between 0 and 1, it measures the degree of softness of BE's budget constraints.

Clearly, the degree of softness in BE's budget constraints will influence the manager's expectations and behaviour. Specifically, the decision whether or not to submit a bad project will depend on the degree of SBC. If manager's payoff equals BE's private benefit, she will submit a bad project if and only if  $\sigma B_B + (1 - \sigma)B_L \geq 0$ , i.e.  $\sigma \geq -B_L/(B_B - B_L) \equiv \sigma^*$ . Thus, there is a minimum degree of softness,  $\sigma^*$ , above which managers will pursue bad projects. Note that  $\sigma^*$  decreases with  $B_B$  and increases with  $-B_L$ .

Another set of factors affecting the level of SBC is related to FO's objectives and the conditions under which it will fund projects *ex ante* and either liquidate or refinance bad projects *ex post*. In different economic and political settings the goal of FO may vary importantly. In centrally planned economies where the FO is effectively the government its objective is to maximize the overall social welfare. In the terms of our model this can be represented as a sum of the project's monetary returns and private benefit to the enterprise plus the external effect of the project,  $E$ , on the rest of the economy.  $E$  may be thought of as potential benefits of keeping project workers employed. Thus, if we have  $R_B + B_B + E_B - 1 > R_L + B_L$ , where  $E_B$  is the external effect of a bad project, the government will prefer to refinance a bad project, which will lead to  $\sigma$  getting close to 1.

It has to be pointed out that the above condition does not imply that the project is efficient nor that the FO would have chosen to go ahead with financing *ex ante* had it known the project was of a bad type. A bad project can be considered efficient only if its total benefits,  $R_B + B_B + E_B$ , outweigh its total costs of 2 at the end of period  $t = 2$ . The project is inefficient if  $1 > R_B + B_B + E_B - 1$ . The SBC is related to the discrepancy that arises between the *ex ante* efficiency condition and the *ex post* criterion that is imposed after an investment of 1 has already been sunk in the project in period  $t = 1$ . The inconsistency between these *ex ante* and *ex post* criteria is at the heart of the SBC syndrome, which can be viewed as a dynamic commitment problem. The inability of the government to commit to a single efficiency goal results in it refinancing bad projects and thus creating incentives amongst managers of submitting them *ex ante*. Managers would do this because of high expectations that even in case of a bad project outcome they would not suffer a negative payoff,  $B_B < 0$ .

It is important to emphasize that the SBC problem is not due to the FO's (welfare) objective function but rather to the way the project is initially financed. Specifically, this initial financing consideration enters the FO's *ex ante* but not *ex post* decision, since once extended in period  $t = 1$ , funds become a sunk cost for the FO. The *ex ante* uncertainty here is important; if the FO could identify bad projects *ex ante*, they would not be financed. However, because *ex ante* FO cannot distinguish between good and bad projects, it will either finance all projects or none. Projects will be financed if  $\alpha(R_G + B_G + E_G - 1) + (1 - \alpha)(R_B + B_B + E_B - 2) > 0$ , i.e.  $\alpha > (2 - R_B - B_B - E_B)/(R_G + B_G + E_G - R_B - B_B - E_B + 1) \equiv \alpha^*$ . Dewatripont and

Maskin (1995) demonstrate that if  $R_L + B_L < 1$  and  $\alpha > \alpha^*$ , the only equilibrium of this model is one in which managers submit bad projects and all projects are refinanced ( $\sigma = 1$ ), even though bad projects are *ex ante* inefficient; this is the SBC equilibrium. The opposite, hard budget constraint equilibrium would prevail if FO's refinancing criterion is reversed, i.e.  $R_B + B_B + E_B - 1 < R_L + B_L$ ; this would entail that all bad projects be liquidated *ex post* which means that bad projects would not be submitted by managers *ex ante*. Note that the hardness of the budget constraints is not a matter of direct policy choice but rather an indirect result of putting a market organization and institutions in place that discourage or interfere with refinancing.<sup>4</sup>

## 2.2 Behavioural Effects of SBC

A key characteristic of the SBC syndrome is that companies expect to be rescued from financial trouble, and those expectations in turn affect their behaviour. Furthermore, such expectations have much to do with collective experiences. The more frequently support is provided to troubled companies, the more companies will count on getting support themselves. The SBC syndrome embraces not just a characteristic sequence of events and financial transactions but also the perceptions of enterprise managers that give rise to those events.

The SBC behavioural implications can help understand several characteristic distortions at both aggregate economy and individual company levels. At aggregate economy level we can consider the SBC syndrome within the Schumpeterian theory of creative destruction; in market economies where hard budget constraint prevails, even in good times, the rate of company exit is significant. Clearly the refinancing of bad projects under SBC will result in deviations from normal exit rates, by weakening or even eliminating the destructive aspect of the Schumpeterian process. Several studies examine how the softness or hardness of budget constraints affects the companies' performance. Special interest is paid to consequences of hardening of particular budget constraints. A key problem in any company is to attenuate managerial effort to maximize profits, or when there is no profit motive, to reduce costs. Furthermore, there is always a problem with inducing a drive towards innovating and developing new technologies and products. Besides, as Krueger (1974) points out, rather than wooing customers, sellers concentrate more on winning the favour of governmental FOs and attaining plan targets – behaviour known as rent-seeking. Clearly, these distortions reduce the efficiency of companies affected by SBC. Djankov and Murrell (2002) review a large number of papers and conclude that hardened budget constraints have had a beneficial effect on company restructuring (and efficiency) in Eastern Europe and the former Soviet Union.

Another important distortion resulting from the SBC syndrome is the diminished sensitivity of companies to price signals. There is less need to attend to relative prices on the output and input sides if the difference between revenue and expenditure is no longer critical. This is a significant behavioural implication of SBC that directly affects the demand for investment and financing, and ultimately the corporate capital structure, as demonstrated in the following sections. By reducing the risk to

investors, who can anticipate assistance from the FO should the investment turn out unsuccessful, the SBC gives inordinate boost to the propensity to invest.

Both phenomena resulting from the SBC – runaway demand and over-investment in risky projects – may lead to excessive economic expansion which in turn can end up with economic crisis such as the Asian crises of 1997–1998. The SBC effect on demand is one of the fundamental explanations of why centrally planned economies were characterized by generalized shortages, which in turn affected the behaviour of agents at all levels of the economy as asserted by Kornai (1980). More generally, the SBC syndrome substantially alters the selection processes operating in the economy, compared with their operation in a market (with hard budget constraint) economic system.

### **3. SBC and the Theories of Capital Structure**

The majority of theories of corporate capital structure examined here have been developed under the standard assumption of hard budget constraint in the economy. Nevertheless, the corporate finance theories explaining the behaviour of large corporate organizations consisting of many business units, such as big American conglomerates, Japanese keiretsu and zaibatsu, and Korean jaebol organizations, are close to the intuition of SBC modelling (La Porta *et al.*, 2003). These theories establish that cross-subsidization serves as insurance against failure and may importantly alter managerial behaviour. In the following sections, we examine existing capital structure theories and point out what can be the implications of SBC for these theories' predictions.

#### **3.1 Agency Cost Theories**

Research on agency cost in finance was initiated by Jensen and Meckling (1976) building on earlier work of Fama and Miller (1972). Agency costs are defined as the costs arising due to conflict of interests. Jensen and Meckling identify two types of conflicts. These are, on the one hand, conflicts between shareholders and managers, and, on the other hand, conflicts between debt holders and equity holders.

Conflicts between shareholders and managers arise because managers hold less than 100% of the residual claim.<sup>5</sup> Consequently they do not capture the entire gain from their profit enhancement activities, but they do bear the entire risk of these activities. All these considerations are particularly relevant for the companies in the emerging and transition economies where the role of the principal is weak or ambiguously defined. For example, managers can invest less effort in managing company resources and may be able to transfer company resources to their own, personal benefit, e.g. by consuming perquisites, gaining political support, or even acquiring assets through obscure privatization activities.<sup>6</sup> Managers bear the entire cost of refraining from these activities but capture only a fraction of the company's gain. As a result managers overindulge in such pursuits relative to the optimal level that would maximize firm value.

Inefficiency is reduced if the fraction of the company's equity owned by the managers is large. Holding constant the manager's absolute investment in the

company, increases in the fraction of the company financed by debt increase the manager's share of the equity and mitigate the loss from the conflict between managers and equity holders. Moreover, as pointed out by Jensen and Meckling (1976), since debt commits the company to pay out cash, it reduces the amount of free cash available to managers to engage in the type of pursuits discussed above. This mitigation of the conflict between managers and equity holders constitutes the benefits of debt financing.

Another benefit of debt is pointed out by Grossman and Hart (1982). If bankruptcy is costly to managers, perhaps because they lose benefits of control or reputation, then debt finance can create incentives for managers to work harder, consume fewer perquisites, make better investment decisions, etc. because this behaviour reduces the probability of bankruptcy. Under SBC, however, the disciplining role of debt will be diminished, especially when the state is both equity holder and debt holder. Furthermore, in emerging and transition economies where SBC are most common, the bankruptcy procedures are underdeveloped or non-existent. In such environments the benefit of debt to managers is in fact reinforced due to the minimal threat of bankruptcy.

Conflicts between debt holders and equity holders arise because the debt contracts give equity holders an incentive to invest suboptimally.<sup>7</sup> More specifically the debt contract provides that if an investment yields large returns, well above the face value of the debt, equity holders capture most of the gain. If, however, the investment fails, because of limited liability, debt holders bear the consequences. As a result, equity holders may benefit from 'going for broke', i.e. investing in very risky projects, even if they are value-decreasing. Such investments result in a decrease in the value of debt. The loss in value of equity from the poor investment can be more than offset by the gain in equity value captured at the expense of debt holders. The incentives for such behaviour are exacerbated in an environment with SBC, and are much more likely in the emerging and transition economies where the control and bankruptcy procedures are weak.

Equity holders bear this cost to debt holders when the debt is issued if the debt holders correctly anticipate equity holders' future behaviour and budget constraints are hard. Then the equity holders receive less for issuing debt than they otherwise would. Thus, the cost of the incentive to invest in value-decreasing projects created by debt is borne by the equity holders who issue debt. This effect, generally called 'asset substitution effect', is an agency cost of debt financing.<sup>8</sup> Further, Myers (1977) points out another agency cost of debt that is quite relevant to the emerging and transition economy setting. This is when companies are likely to go bankrupt in the near future; equity holders may have no incentive to contribute new capital even to invest in value-increasing projects. The reason is that equity holders bear the entire cost of the investment, but the returns from the investment may be captured mainly by the debt holders. Thus, larger debt levels result in the rejection of value-increasing projects.

Clearly, the optimal capital structure will be achieved by trading off the agency cost of debt against the benefit of debt as discussed above. Taking into consideration the above arguments and the specific features of the environment in the emerging and



transition economies with SBCs, a number of implications can be formulated. First, under hard budget constraint, one would expect debt contracts to include covenants that attempt to prevent asset substitution, such as interest coverage requirements, prohibitions against investments in new, unrelated lines of business, etc. The lack of financial discipline and sophisticated financial practices, typical for emerging and transition economies, would soften the budget constraints of companies so that the incentive to use debt finance will increase leading to asset substitution. This asset substitution effect will ultimately manifest itself in deteriorating quality of a company's assets and thus in decreasing a company's value. Second, industries in which the opportunities for asset substitution are more limited will have higher debt levels, *ceteris paribus*. Thus, for example, theory predicts that regulated public utilities, banks, and companies in mature industries with fewer growth opportunities will be more highly leveraged. In the emerging and transition economies, into this category are likely to fall state-owned or recently privatized large companies. Third, companies for which slow or even negative growth is optimal and that have large cash inflows from operations should have more debt. Large cash inflows without good investment prospects create the danger of managers consuming perquisites, striving for political power, overplaying subordinates, etc. Increasing debt reduces the amount of free cash and increases the manager's fractional ownership of the residual claim. According to Jensen (1989) industries with these characteristics include steel, chemicals, brewing, wood and paper products. The theory predicts that these industries should be characterized by high leverage.

Several important implications can be formulated on the basis of agency theories. First, leverage is positively associated with company value (Harris and Raviv, 1990; Stulz, 1990), extent of regulation (Jensen and Meckling, 1976; Stulz, 1990), free cash flow, i.e. profitability (Jensen, 1986; Stulz, 1990), and liquidation value (Williamson, 1988).<sup>9</sup> Some other implications include the prediction that debt bonds will have covenants that attempt to restrict the extent to which equity holders can pursue risky projects that reduce the value of debt (Jensen and Meckling, 1976) and that (older) companies with longer credit history will tend to have lower default rates and thus lower costs of debt (Diamond, 1989). This summary of main implications shows that the SBC, in an emerging and transition economy context, will be manifest in higher bank borrowing and debt levels, respectively, by companies with a low value and profitability as well as with low liquidation value, which do not necessarily operate in regulated industries. Companies with bad default history will still enjoy low cost of debt and the conditions of their debt bonds will be fairly unrestrictive with respect to undertaking risky investments.

### 3.2 *Asymmetric Information Theories*

These theories are based on the notion of private information to explain capital structure. Company managers or other insiders are assumed to possess private information about the characteristics of the company's return stream or investment opportunities. Capital structure is designed to mitigate inefficiencies in the company's investment decisions that are caused by the information asymmetry.<sup>10</sup> In their pioneering work

Myers and Majluf (1984) showed that if investors are less well informed than current company insiders about the value of the company's assets, then equity may be mispriced by the market. If companies have to finance new projects by using equity, underpricing may be so severe that new investors capture most of the NPV of the new project resulting in a net loss to existing equity holders. In such a case the project will be rejected even if its NPV is positive. This under-investment can be avoided if the company can finance the new project using a security that is not so severely undervalued by the market. For example, internal funds or riskless debt involve no undervaluation, and therefore will be preferred to equity by companies. Even not too risky debt will be preferred to equity. Myers (1984) refers to this hierarchy as a 'pecking order' theory of financing, i.e. that capital structure will be driven by companies' desire to finance new investments, first internally with the cheapest available source, then with low risk debt, and finally with equity, only as a last resort.

An important empirical implication of Myers' pecking order theory is that, upon announcement of an equity issue, the market value of the company's existing shares will fall. This is so because investors, due to asymmetric information, believe that issuing equity is a sign of overvaluation of the company's current assets. Then investors react accordingly by paying a lower price for the new equity offer. This may result in passing up investment opportunities with positive NPV when the undervaluation is severe. Thus, financing via internal funds or riskless debt (or any security whose value is independent of private information) will not convey information and will not result in any stock price reaction. A second implication is that new projects will tend to be financed mainly from internal funds or the proceeds of low risk debt issues.<sup>11</sup> Third, as companies with few tangible assets relative to company value are more vulnerable to information asymmetries, such companies will face under-investment problems more often than companies facing less severe information asymmetries. Thus, companies with few tangible assets can be expected to accumulate more debt over time, other things equal.

Several other studies have confirmed the above propositions. Krasker (1986) shows that the larger the equity issue the worse the signal and the fall in the company's share price. Narayanan (1988) and Heinkel and Zechner (1990) obtain results similar to Myers and Majluf (1984) using a slightly different approach. They show that when the information asymmetry concerns only the value of the new project, there can be an over-investment, i.e. some negative NPV projects will be taken. This is so because the equilibrium involves pooling of companies with different NPV projects and because equity issued by each company is priced at average value. Companies whose projects have low NPV will benefit from selling overpriced equity. This may more than compensate for a negative project NPV. The result is negative cut-off NPV such that all companies with project NPV above the cut-off point invest. In Narayanan's model, because (risky) debt is still less overpriced than equity, the cut-off level is higher when projects are financed by debt issues. In Heinkel and Zechner (1990), existing debt makes investment less attractive (as in Myers, 1977) and increases cut-off level. Thus new or existing debt reduces the over-investment problem relative to all equity financing. The models imply that when a company

undertakes a new project, the company's stock price will increase since the market discovers that the project's NPV is above the cut-off level. Naraynan (1988) shows that when companies are allowed to issue either debt or equity all companies either issue debt or reject the project. In this sense his results are consistent with the pecking order theory. Debt is not a signal in the Heinkel and Zechner model since it is issued before companies have private information. Also, internal funds can substitute for debt in the Heinkel and Zechner model.

The intuition of the models reviewed above suggests an interesting link with the Dewatripont–Maskin model of SBC examined in Section 2.1. The mechanism through which the dynamic commitment problem occurs implies that in SBC environments the negative NPV projects may crowd out positive NPV investments. Thus under SBC, debt will not perform its predicted role under hard budget constraints, i.e. to reduce the over-investment problem. Indeed, both centrally planned economies and East Asian countries, before the 1997–1998 crises, where SBC pervasively affected business practices, experienced severe over-investment in bad projects.

Several papers, however, question the pecking order theory. Brennan and Kraus (1987), Noe (1988) and Constantinides and Grundy (1989) demonstrate that allowing companies a wider range of financing choices can invalidate the Myers–Majluf results in some cases. Whether the types of examples in these papers are more important empirically than those of Myers–Majluf is an open question. It is important to note, however, the finding of Noe (1988) that the average quality of companies issuing debt is higher in equilibrium than that of companies issuing equity. Therefore, like the Myers–Majluf model, Noe's model predicts a negative stock market response to an equity issue. Noe also predicts a positive market response to an announcement of a debt issue. Moreover, when Constantinides and Grundy (1989) further extend their model to allow different company types to have different optimal investment levels and assume that investment is observable, they show that companies can fully differentiate using investment and the size of a straight bond issue as signals. Thus, in this situation straight debt is a preferred financing tool, although the reason here is that it helps to signal a company's true type while in the Myers–Majluf model debt is a device to avoid signalling.

So far capital structure was shown to emerge as part of the solution to problems of over- and under-investment. There are models where investment is fixed and capital structure is purely a device of signalling private insider information. Thus, in the Ross (1977) model managers know the true distribution of company returns, but investors do not. Managers benefit if the company's securities are more highly valued by the market but are penalized if the company goes bankrupt. Investors take larger debt levels as a signal of higher quality. Since lower quality companies have higher marginal expected bankruptcy cost for any debt level, managers of low quality companies do not imitate higher quality companies by issuing more debt. Clearly, in emerging and transition economies under SBC the marginal cost of bankruptcy may turn out to be low even for the low quality companies, thus encouraging such companies to issue more debt than they otherwise would. The main result of Ross's model is that the company value (or profitability) and the debt–equity ratio are

positively related. Increase in the bankruptcy cost, other things equal, decreases the debt level and the probability of bankruptcy. These implications are consistent with the hard budget constraint notion, while under SBC the opposite relationships can be expected.

Heinkel (1982) develops a model similar to Ross (1977) where higher quality companies have higher overall value but lower quality bonds (lower market value for given face value), hence higher equity value. In this model any company attempting to convince the market that it is a type other than its true type will gain from overvaluation of one security but lose from undervaluation of the other. In equilibrium, the amounts issued of the two securities for each type of company are such that the gains and losses balance at the margin. High value companies issue more debt. To imitate a high value company, a lower value company must issue more underpriced debt and reduce the amount of overpriced equity. Since higher quality companies have higher total value, the result that they issue more debt is consistent with Ross's model.<sup>12</sup>

Finally, several studies exploit managerial risk aversion to obtain a signalling equilibrium in which capital structure is determined. The basic idea is that increases in company leverage allow managers to retain a larger fraction of the (risky) equity. The larger equity share reduces managerial welfare due to risk aversion, but the decrease is smaller for managers of higher quality projects. Thus managers of higher quality companies can signal this fact by having more debt in equilibrium (Leland and Pyle, 1977). Under certain conditions, companies with larger debt also have a larger fraction of the equity owned by insiders and are of higher quality. In the emerging and transition economies under SBC even low quality companies (managers) will find it optimal to maintain a high level of debt because the bankruptcy cost is lower in such environments.

In summary, the main predictions of asymmetric information theories imply that leverage increases with the extent of the information asymmetry concerning external finance (Myers and Majluf, 1984). Leland and Pyle (1977), Ross (1977), Heinkel (1982), John (1987) and Poitevin (1989) all derive a positive correlation between leverage and value in a cross-section of otherwise similar companies. Leland and Pyle also predict a positive correlation between value and equity ownership of insiders. Most importantly several studies (Myers and Majluf, 1984; Krasker, 1986; Narayanan, 1988) support the existence of a pecking order of financial sources. The implication of these theories is that under SBC where the relative costs of financing are distorted with bankruptcy costs being suppressed, risky bank debt will be preferred to internal funds. Thus low quality companies managed by bad managers will end up having higher leverage than they would otherwise have had.

### *3.3 Theories Based on Input–Output Market Interactions*

There are two categories of models of capital structure that use features of industrial organization. One approach is based on the relationship between a company's capital structure and its strategy when competing in the product market. Another approach addresses the relationship between a company's capital structure and the

characteristics of its products or inputs. This literature links capital structure and product market strategy and adopts the finance view that managers generally tend to maximize equity value as opposed to profits or total value. In such models leverage changes the payoffs to equity and thus affects the equilibrium product market strategies.<sup>13</sup>

Brander and Lewis (1986), using the basic idea of Jensen and Meckling (1976) that increases in leverage induce equity holders to pursue riskier strategies, develop a model in which oligopolists increase risk by a more aggressive output policy. Thus, to commit to pursuing a more aggressive strategy in a subsequent Cournot game, companies choose positive debt levels. Besides the standard assumption that one company's profit decreases in the other company's output there is an assumption that the marginal profit of a company increases in random shocks with a random component. This assumption states that the profit is high in a *good* state. If profit is high, the company will optimally choose higher output than when it is low. However, in this model the company must choose output before its marginal product is known. Since levered equity holders receive payoffs only in good states (because of limited liability) they ignore the possibility that the profit is low. Consequently, leverage creates an incentive to increase output. Moreover, in Cournot oligopoly models, companies have an incentive to commit to producing large outputs since this causes their rivals to produce less. Leverage thus provides a device that allows companies to commit to producing more in the Cournot oligopoly. Therefore, in equilibrium, companies will choose a positive debt level.

For a monopoly situation, often observed under central planning, the above theory implies that high leverage would not be justified on strategic grounds. Then the reason for the high leverage might be, besides other factors, the existence of SBC. As is well known (see Green and Porter, 1984) the monopoly solution can be achieved in an infinitely repeated Cournot oligopoly by a subgame perfect equilibrium in which each company reverts to the Cournot output forever in the period after any company deviates from its share of the monopoly output. The condition for this result to hold is that the present value of monopoly profits exceeds the value of deviating for one period, and then obtaining Cournot profits forever.

Maksimovic (1988) develops this idea further. If managers are assumed to maximize the value of equity (as opposed to the value of the company) the above-mentioned condition can be modified by including debt payments per period forever. The condition for supporting the monopoly solution is then that the per-period debt payment must be smaller than the sum of monopoly profit and the discounted difference of the monopoly profit and the one-period profit from deviating. This condition can be interpreted as a debt capacity, i.e. the maximum amount of leverage that company can support without destroying the possibility of tacit collusion. By modelling profits explicitly in terms of demand and cost functions and number of companies, Maksimovic derives comparative statics results on debt capacity as a function of industry and company characteristics. He shows that debt capacity increase with the elasticity of demand and decreases with the discount rate.

Another line of analysis is to identify product (input) or product market (input market) characteristics that interact in a significant way with the debt level. Examples

are customers' needs for a particular product or service, the need for workers to invest in company-specific human capital, the bargaining power of suppliers, etc.

Titman (1984) observes that liquidation of a company may impose costs on its customers (or suppliers) such as inability to obtain the product or service.<sup>14</sup> The costs of liquidation are transferred to the equity holders in the form of a lower price for the company's product. Consequently, the equity holders would like to commit to liquidate only in those states in which the net gains to liquidation exceed the costs imposed on customers. However, when the company's investors make the liquidation decision, they ignore these costs. Titman shows that capital structure can be used to commit the equity holders to an optimal liquidation policy. Capital structure is composed such that equity holders never wish to liquidate, debt holders always wish to liquidate when the company is in bankruptcy, and the company will default only when the net gain from liquidation exceeds the cost to customers. The implication of this theory is that for unique and durable products, the costs imposed on customers when a producer goes out of business are higher than for non-durable products or those made by more than one producer. Thus industries vulnerable to such costs are, for example, computer and automobile manufacturing, while hotel and restaurant services are less affected. An extension to these propositions is that a similar effect can be observed as a result of the variability and unobservability of the quality of the goods produced. If the reputation of a company being a high quality producer is lost when the company goes bankrupt then the incentive to produce high quality is diminished by debt. Thus companies that can easily switch from high to low quality output but whose customers cannot distinguish quality without purchasing the good would have less debt as a signal, other things equal.

The main implication of Titman's theory for environments with SBC is that in the liquidation decisions various (social) costs are likely to be considered by the financing organization, when pursuing goals beyond value maximization. This strategy will inhibit the optimality of liquidation policy. Furthermore, the link between level of debt and product quality will be broken as high debt levels may still induce companies to produce high quality products because of the relatively low bankruptcy risk, other things equal. Clearly the product quality problems in emerging and transition economies can be better explained by distortions in prices.

Another effect of debt, very relevant for environments characterized by SBC, is the strengthening of the bargaining position of equity holders in dealing with input suppliers. Sarig (1998) argues that debt holders bear a large share of the costs of bargaining failure but get only a small share of the gains to successful bargaining. In this way, debt holders insure equity holders against failure of negotiations with suppliers. Thus increase in leverage increases the extent of this insurance and therefore the equity holders' bargaining power against suppliers. This implies that a company should have more debt the greater is the bargaining power and market alternatives of its suppliers. Sarig predicts that highly unionized companies and companies that employ workers with highly transferable skills will have more debt, other things equal. Notwithstanding the relevance of Sarig's theory to the SBC analysis, it should be noted that high debt levels in centrally planned and transition

economies cannot be justified on the grounds of interactions between customers and suppliers if one accepts the absence of bargaining in these economies.

Besides the theories concerning the effects of input–output market interactions on the debt level, there is a fairly large strand of literature looking at the relationship between the companies and their suppliers. An important aspect of this relationship is the trade credit enjoyed by companies and how it may affect the capital structure of companies. As noted by Mian and Smith (1992, 1994) credit extended by a seller who allows delayed payment for his products represents a substantial fraction of corporate liabilities, especially for middle-market companies. There are number of studies suggesting that companies suffering from credit rationing use trade credit. Petersen and Rajan (1994a, b, 1997) find that companies that are less likely to be bank credit constrained tend to rely less on trade credit. Nilsen (2002) finds that during monetary contraction small firms, which Gertler and Gilchrist (1994) suggest are likely to be particularly credit rationed, react by borrowing more from their suppliers. Also, trade credit tends to be used less in economies where relationships between banks and firms are stronger (e.g. Germany), or where financial markets play an information transmission and monitoring role (e.g. the USA). Typically, trade credit is used more in economies where financial markets are less developed and bank–company relationships are more distant (Biais and Gollier, 1997).

A widely held assumption in the literature ranks trade credit as more expensive than bank credit, implying that the former is taken only if the company is rationed (Jaffee and Stiglitz, 1990; Huyghebaert *et al.*, 2001). The assumed cost hierarchy, however, is significantly mitigated, or even reversed, if debtors take, as they frequently do, an extra delay. To do so is possible for the debtors because of the implicit equity stake that suppliers perceive themselves to possess in their customer companies. This implicit equity stake arises from capitalized future cash flows realized from future trade. The implication of this argument is that trade credit creates a softening mechanism, similar to the dynamic commitment problem underlying the SBC.

Furthermore, on theoretical grounds, besides its role as a financial instrument, trade credit has a unique role in non-competitive markets, because it enables companies to implement an implicit intertemporal price discrimination policy, as pointed out by Schwartz and Whitcomb (1979) and later elaborated by Brennan *et al.* (1988). They show that a cost comparison between trade credit and bank loans can be misleading if the isomorphism between a sale on credit, on the one side, and the bundling of a good and a financial service, on the other side, is overlooked. Building on the assumption of non-competitive product markets, possibly in conjunction with adverse selection in the credit market, price discrimination between cash and credit customers is shown to be advantageous whenever cash customers' reservation prices are systematically higher than those of credit customers. Unlike a pure intermediary, a non-financial company can thus offset losses on financial transactions (e.g. in extending trade credit at cheaper terms than bank rates) with profit on real transactions. Also, Long *et al.* (1994) show that trade credit can serve as a warranty for product quality.

Another mechanism underlying trade credit behaviour might be based on the fact that suppliers have some comparative advantage in lending. For example, it

is reasonable to assume that suppliers place more value on the collateral of their customers than the bank would (Mian and Smith, 1992). Alternatively it is plausible that sellers have private information that banks do not have.

To sum up, in general, models of capital structure based on industrial organization considerations have the potential to provide interesting results, particularly concerning the effect of SBC. For example, models similar to the ones surveyed here could delineate more specifically the relationship between capital structure and observable industry characteristics such as demand and supply conditions and extent of competition (Campello, 2003). In addition, it would be useful to explore the impact of capital structure on the choice of strategic variables other than price and quantity. These could include advertising, research and development expenditure, plant capacity, location, and product characteristics. Such research could help in explaining inter-industry variations in capital structure as well.

### *3.4 Theories of Corporate Control and Investor Relations*

These theories examine the linkage between the market for corporate control and capital structure. The basic proposition is that common stock carries voting rights while debt does not. Thus capital structure may affect the outcome of takeover contests through its effect on distribution of votes, especially the fraction owned by the manager (Harris and Raviv, 1988; Stulz, 1988). Besides this, capital structure affects the distribution of cash flows between voting (equity) and non-voting (debt) claims (Israel, 1992).

There is a relationship between the fraction of the equity owned by a company's manager and the value of outside equity, held by non-contestants. This relationship follows from the dependence of a company's value on whether the company is taken over and, if so, how much the successful bidder is expected to pay. The manager's equity ownership is determined in part by the company's capital structure. Thus, capital structure affects the value of the company, the probability of takeover, and the price effects of takeover.

Harris and Raviv (1988) focus on the ability of an incumbent company manager to manipulate the method and probability of success of a takeover attempt by changing the fraction of the equity he owns. The outcome of the takeover contest depends on the difference in the abilities of the incumbent and the rival managers to run the company. This ultimately would affect the value of the company as well. The manager's ownership share determines one of three possible outcomes: the rival manager takes over for sure, the incumbent manager remains in control for sure, or the outcome is determined by the votes of outside investors and this leads to the election of the better candidate. The optimal ownership share is determined by the incumbent manager who trades off capital gains on his stake against the loss of any personal benefits derived from being in control.

In the Harris–Raviv framework the fraction of the manager's equity ownership is determined indirectly through the firm's capital structure. In particular, the incumbent manager is assumed to have a fixed amount of wealth represented by her initial stake. She can increase her stake by having the company repurchase equity from the outside



investors while financing the repurchase by debt. Maximizing the manager's payoff is actually accomplished by choosing the debt level that determines the optimal fraction of equity ownership. If expected benefits of control are assumed to be decreasing with the debt level then it would be optimal to choose the lowest debt level consistent with the three cases considered.<sup>15</sup> However, in general, takeover targets will increase their debt levels on average and targets of unsuccessful tender offers will issue more debt on average than targets of successful tender offers. Considering the previous analysis of the value of the company it can be seen that, on average, debt issues are accompanied by value increases. However, this would not necessarily be the case under SBC where the incumbent manager would find it optimal to increase debt levels excessively and to secure control even if she is of a low ability; then the value of the company will remain (low) unaffected.

The value of the net cash flow (net of private benefits) generated by the company depends on the ability of the manager, which can be low or high. In addition to the outside equity holders, there is also a rival manager aspiring for control of the company (and control benefits, respectively). It is common knowledge that either the incumbent or the rival manager is of a higher ability but who exactly is the one is private knowledge. When the rival appears, the incumbent changes the equity ownership share and thus the capital structure. The rival then acquires equity from the outside investors and the takeover contest is decided by a simple majority vote. Depending on the choices of equity ownership by the incumbent and the rival managers, the takeover contest can have one of three possible outcomes. First, the incumbent's stake may be so small that, even if the rival is of lower ability, she still succeeds in taking over and the value of cash flows in this case is affected by the rival's control of the company. Second, the incumbent's stake may be so large that she remains in control independently of her ability. The value of the cash flows in this case is determined by the incumbent's control. Finally, for intermediate values of incumbent manager's fraction of equity ownership, she will win if and only if she is of higher ability. In this case the best candidate wins for sure and the value of cash flows is the highest possible. The value of the company's cash flows is determined by the incumbent's stake through its effect on which of the three cases prevails. If the objective were to maximize the value of cash flows to outside investors, then the manager's equity ownership share would be optimal if it resulted in the third outcome.

Clearly, this setup corresponds to a competitive market economy with hard budget constraints. In the economies in transition or even more so in centrally planned economies, characterized by SBC competition is very limited or non-existent so that the rival manager is missing or the rivalry for corporate control is driven by (uncompetitive) forces different from the ones described above. Then on the grounds of corporate control theories, capital structure will not be a relevant determinant of the value of the company and corporate control will be unaffected by the ability of the manager.

Under hard budget constraints the fraction of outside investors who vote for the incumbent manager is determined by the information that these outside investors receive regarding the relative abilities of the two candidates. More outside investors

would vote for the incumbent manager if there is a high expected probability that she is of higher ability. Consequently, less debt is required to affect a situation where there will be a contest (*proxy fight*) if the incumbent manager is of higher ability. Since winning a proxy fight is positively related to the probability of being a more able manager, the incumbent's winning is also associated with less debt. Thus among the companies experiencing proxy fights, less leverage will be observed for the companies in which the incumbent manager remains in control. Stulz (1988) also derives similar results: takeover targets have an optimal debt level that maximizes the value of outside investors' equity; targets of hostile takeovers have more debt than companies that are not targeted; the probability of a takeover is negatively related to the target's debt-equity ratio, and the takeover premium is positively related to this ratio.

A similar approach is taken by Israel (1992) who finds that increases in debt lead to higher gains for target equity holders if a takeover occurs but at the same time debt lowers the probability of takeovers. However, the reason for such increases is different. Israel observes that debt commands a contractually fixed share of any gains from takeover. Target and acquiring equity holders bargain only over the portion of the gains that is not previously committed to debt holders. Moreover, target equity holders can capture the gains accruing to target debt holders when debt is issued. Thus, they capture all of the gains not transferred to acquiring equity holders. Since debt reduces the gain captured by acquiring equity holders, the payoff to target equity holders, given that a takeover occurs, increases with debt levels. The optimal debt level is determined by balancing this effect against the reduced probability of takeover resulting from the reduced share of the gain that accrues to acquiring equity holders.

Based on the theories examined here it is clear that capital structure is relevant to corporate control and takeover interests. However, it should be borne in mind that the relationships analysed are relevant only to short-term changes in capital structure. Main implications are that takeover targets will increase their debt level, which will result in a positive stock price reaction. The success of a tender offer is negatively related to leverage and the leverage is lower when (in proxy fight) the incumbent manager remains in control. The premium to target equity holders increases with the rise in the target's debt level. However, if the bargaining power of target equity holders decreases (see Israel, 1992) the target company optimally issues more debt, and the fraction of the takeover premium captured by the targeting equity holders falls. Israel also shows that targets, which are more costly to take over, have less debt but capture a larger premium if a takeover occurs. Thus, companies that command greater potential takeover gains will have more debt.

Implication of these theories with respect to the effect of SBC on incumbent manager's strategies, specifically in emerging and transition economies, is that capital structure may reflect managers' strategies of preserving their control over companies in the process of privatization. Thus excessively high debt levels achieved under SBC may allow even managers of a low ability to preserve control and enjoy control benefits by preventing effective privatization bids. In such circumstances, one could still expect that the capital structure of companies, whose managers

are of higher ability, would be characterized by lower debt level, other things equal.

#### **4. Overview of Empirical Literature**

From the examination of the theory it became clear that there is a diversity of models and respective hypotheses about the functions and determinants of capital structure. The important implication of our analysis of capital structure theories is that the presence of SBC and their operation in different institutional contexts may often alter predictions of the standard theories. A number of authors argue that the way to approach the analysis of capital structure is to focus on studying the predictions associated with a particular theory. Other authors, however, take several relevant theories into account, at once. In the review of empirical research here we try to describe broader implications of empirical tests but without losing scope for the important empirical results concerning each specific theory. Special attention is devoted to implications of existing studies on capital structure for testing for SBC and how the presence of SBC may affect standard tests of capital structure theories.

##### *4.1 Leverage Ratio Analyses*

Early attempts to explore determinants of capital structure through analysis of leverage in different countries are undertaken by Remmers *et al.* (1974) and Stonehill *et al.* (1975). Both studies analyse large companies from four selected industries in five industrial countries in the period 1966–1972. They find that industry and company size are not important determinants of leverage, while profitability and company growth generally are. Research has also indicated that both the level of leverage (Rajan and Zingales, 1995) and the determinants of leverage (Van der Wijst and Thurik, 1993; Chittenden *et al.*, 1996; Michaelas *et al.*, 1999) vary significantly depending on the definition of leverage adopted. It is worth also mentioning that for the emerging and transition economies there are only a limited number of studies concerning leverage and specifically the effect of the SBC on changes in debt–equity ratio.<sup>16</sup>

In their cross-sectional analysis of the determinants of company capital structure in the G-7 economies, Rajan and Zingales (1995) examine the extent to which leverage may be explained by various factors. There is consensus that leverage increases with fixed assets, investment opportunities and company size and decreases with volatility, non-debt tax shields, probability of bankruptcy, advertising expenditures, profitability and uniqueness of the product. Four of these factors are usually considered in the literature: tangibility of assets (the ratio of fixed to total assets), the market-to-book ratio (usually thought of as a proxy for investment opportunities), company size and profitability (cash flow). These factors have shown up most consistently as being correlated with leverage in previous studies (Bradley *et al.*, 1984; Long and Malitz, 1985; Harris and Raviv, 1991). Besides this, the data often limit possibilities to develop proxies for other relevant factors.<sup>17</sup> The basic estimating equation of Rajan

and Zingales (1995) is

$$L_i = a + b_1TA_i + b_2MBR_i + b_3\text{Log}S_i + b_4RA_i + e_i \quad (1)$$

where  $L_i$  is company leverage,  $TA_i$  tangible assets,  $MBR_i$  market-to-book ratio,  $\text{Log}S_i$  the logarithm of sales, and  $RA_i$  the return to assets;  $a$ ,  $b_1$ ,  $b_2$ ,  $b_3$ ,  $b_4$  are parameters to be estimated, and  $e_i$  is the error term and  $i$  indexes companies.

Rajan and Zingales use two measures of leverage based on the adjusted debt to capitalization ratio. When equity is measured at book value, the measure is referred to as book leverage. The second measure is market leverage where the market value of equity is used in computing capitalization. Their results show that tangibility is always positively correlated with leverage in all countries. The market-to-book ratio enters with a negative coefficient in all country regressions, and is always significant at the conventional levels in the market leverage regressions. Interestingly, market-to-book ratio seems to have both a between industry component and a within industry component. So the idiosyncratic component of the market-to-book ratio for a company matters as much as the industry market-to-book ratio. Size is positively correlated with leverage, except in Germany where it is negatively correlated. This correlation continues to hold in within industry regressions suggesting that this is not simply an industry effect. Finally, profitability is negatively correlated with leverage in all countries, except Germany. It appears that less profitable companies in Germany are able to obtain more credit, which may be explained by the stronger links between companies and banks in this country. Such relationship can be interpreted as a form of SBC.

Theories of capital structure suggest channels through which some factors might be correlated with leverage. If a large fraction of a company's assets are tangible, then assets should serve as collateral, diminishing the risk faced by the lender due to the agency cost of debt (e.g. risk shifting or asset substitution). Tangible assets should also retain more value in liquidation. Therefore, the greater the proportion of tangible assets on the balance sheet (fixed assets divided by total assets), the more willing should lenders be to supply loans, and leverage should be higher. The underlying rationale is that tangible assets are easy to collateralize and thus they reduce the agency costs of debt. Berger and Udell (1994) show that companies with close relationships with creditors need to provide less collateral. They argue that this is because the relationships and the better informed monitoring by creditors substitute for physical collateral. If so, one can expect that tangibility matters less in countries with bank-oriented financial systems. Such predictions are also valid for environments characterized by SBC. In the emerging and transition economies, however, the assets of companies are often outdated and with very low liquidation value, which is not always reflected in their book value. Such a situation may lead to misleadingly justifying relatively high leverage as optimal, while in fact the high level of debt is mostly due to SBC faced by the companies (Rizov, 2004a).

Another line of empirical research shows that highly levered companies are more likely to pass up profitable investment opportunities (Myers, 1977). Therefore, companies expecting high future growth should use a greater amount of equity

finance. As suggested by Myers, the ratio of the market value of assets to the book value of assets can be a good proxy for growth opportunities. However, the measurement of this factor in the emerging and transition economies is complicated or impossible because the history of operating in a market environment is short and information about the market value of assets is often missing. Therefore, as previously mentioned, we have to compromise by using other proxy variables for growth opportunities such as growth in output as in Lizal and Svejnar (2002) and Konings *et al.* (2003) or in investment, for example.

The theory predicts that companies with high market-to-book ratios have higher costs of financial distress, which is why one can expect a negative correlation. However, there may be other potential reasons why the market-to-book ratio is negatively correlated with leverage. For instance, the shares of companies in financial distress (with high leverage) may be discounted at a higher rate because distress risk is priced accordingly as suggested by Fama and French (1992). If this is the dominant explanation, the negative correlation should be driven largely by companies with low market-to-book ratios. Another reason for the market-to-book ratio being negatively correlated with book leverage stems from the tendency of companies to issue stock when their stock price is high relative to earnings or book value. This would imply that the correlation between the market-to-book ratio and leverage is driven by companies who issue lots of equity. If the market-to-book ratio proxies for the under-investment costs associated with high leverage, then companies with high market-to-book ratios should have low debt, independent of whether they raise equity internally, via retained earnings, or externally. An alternative explanation is that companies attempt to time the market by issuing equity when their price and hence their market-to-book ratio is perceived to be high. Thus these companies have temporarily low leverage.

The effect of size on equilibrium leverage is more ambiguous. Large companies tend to be more diversified and fail less often, so size, computed as the logarithm of net sales, may be an inverse proxy for the probability of bankruptcy. If so, size should have a positive impact on the supply of debt. However, size may also be a proxy for the information outside investors have, which should increase their preference for equity relative to debt. Thus, large companies should be more capable of issuing information sensitive securities like equity, and should have lower debt. In the emerging and transition economies, size may be viewed also as a proxy for softness of the lending practices. Large firms, usually state owned or recently privatized, are more likely to have special links with financial institutions or enjoy preferential conditions applied by the state, due to the importance of large companies for employment, for instance. Thus, in order to distinguish these potential effects the size variable should be combined with proxy variables for ownership, and organization. For example, Rizov (2005) demonstrates that changes in the hardness of budget constraints, conditional on leverage and controlling for ownership, significantly affect the company size. If size is a proxy for the inverse probability of default, it should not be strongly positively correlated with leverage in countries with SBC, where costs of financial distress are low. Sheard (1989) and Hoshi *et al.* (1991) have suggested that also Japanese companies, tied to a main bank, may

face lower costs of financial distress because the main bank organizes corporate rescues.

There are also conflicting theoretical predictions about the effect of profitability on leverage. Myers and Majluf (1984) predict a negative relationship, because companies will prefer to finance with internal funds rather than debt. Jensen (1986) predicts a positive correlation if the market for corporate control is effective and forces companies to commit to paying out cash by leveraging up. If it is ineffective, however, managers of profitable companies prefer to avoid the disciplining role of debt which would lead to a negative correlation between profitability and debt; this prediction is relevant for emerging and transition economies, characterized by SBC. On the supply side, suppliers should be more willing to lend to companies with current cash flows; usually, profitability is measured as cash flow from operations normalized by the book value of assets.

If in the short run dividends and investments are fixed, and if debt financing is the dominant source of external funds, then changes in profitability will be negatively correlated with changes in leverage. Rajan and Zingales (1995) found that large companies tend to issue less equity. Then the negative influence of profitability on leverage should become stronger as company size increases. However, there may be other forces at work. For instance, profitability of small companies may proxy for both the amount of internally generated funds and the number and quality of investment opportunities, which have opposite effects on the demand for external (debt) funds.

In the emerging and transition economies the effect of profitability is also ambiguous. In general, less profitable companies with scarce liquidity would try to obtain loans as under the conditions of SBC this will be easier and then the negative relationship between profitability and leverage will be observed. However, high profitability and thus liquidity would signal to external lenders higher quality of the borrowers, which will facilitate obtaining loans. Then the observed relationship will be positive, especially when budget constraints harden. In support of the above predictions are recent results of de Haas and Peeters (2006) who study company leverage in 10 transition economies and find that profitability and age are the most robust determinants of target leverage. However, leverage is higher only where the level of information asymmetries between companies and banks is low; otherwise companies exhibit pecking order behaviour. For the case of China, Keister (2004) finds that borrowing behaviour of companies over the 1980–1989 period is driven by two major motives. Profitable companies signal financial health by both using retained earnings (deemed state owned) for investment and borrowing externally to reduce dependence on the state.

## *4.2 Direct Tests of Pecking Order and Trade-off Theories*

Previous studies find that a simple pecking order model explains much more of the time-series variance in actual debt ratios than a target adjustment model based on the static trade-off theory. The pecking order theory asserts that because of asymmetric information and signalling problems associated with external funding, companies'

financing policies follow a hierarchy with a preference for internal over external finance and for debt over equity. A strict interpretation of this theory suggests that companies do not aim at any target debt ratio; instead, the debt ratio is just the cumulative result of hierarchical financing over time. Companies that face a financial deficit will first resort to debt and will be observed later having higher debt ratios. This reasoning could readily explain the negative relationship between past profitability and debt ratios.

Much of the support for the pecking order theory comes from event studies, which are at best indirect tests of the pecking order theory. In these studies, it is found that companies that issue equity have a share price drop of the order of 3%. It is also found that companies that issue debt achieve positive abnormal returns. This adverse selection result is often interpreted as supporting Myers and Majluf's (1984) propositions. However, Brennan and Kraus (1987) show that adverse selection by itself does not imply a pecking order.

Controlled experimental evidence also provides some support for the Myers and Majluf (1984) theory. For example, when experimental subjects have been placed in a setting that matches the theory, Cadsby *et al.* (1990) find the predicted equilibrium behaviour. However, when the environment has been enriched by the addition of a signalling opportunity, Cadsby *et al.* (1998) find much greater complexity of behaviour. Note, however, that experiments test what happens in a particular well controlled setting. They do not show which setting better mirrors the economy in general.

A prominent quantitative test of the pecking order theory is by Shyam-Sunder and Myers (1999). These authors test the pecking order model of corporate leverage against a standard target adjustment model of leverage. Their finding is that the pecking order theory is an excellent first-order approximation of actual corporate financing behaviour for the 157 companies in their sample. Tests of the standard target adjustment model are shown to lack power. The same tests show that the target adjustment model accounts for less of the variation in the data than does the pecking order theory. These findings are attractive since the pecking order is offered as a parsimonious empirical model of corporate leverage that is descriptively reasonable. However, the findings are theoretically challenging since they interpret the target adjustment framework as nesting many different static trade-off models. Thus many different models are being rejected simultaneously in favour of the pecking order theory. Clearly, a simple theoretical structure is needed to successfully account for the available information about corporate financing, and Shyam-Sunder and Myers argue that the pecking order theory provides such a structure. The empirical specification is given as

$$\Delta D_{it} = a + b_{PO} DEF_{it} + e_{it} \quad (2)$$

where  $\Delta D_{it}$  is the amount of debt issued and  $i$  and  $t$  index companies and time periods, respectively. The flow of funds deficit is specified as  $DEF_{it} = DIV_{it} + I_{it} + \Delta W_{it} + R_{it} - C_{it}$ , where  $DIV_{it}$  is dividend payments,  $I_{it}$  capital expenditures,  $\Delta W_{it}$  net increase in working capital,  $R_{it}$  current level of long-term debt at the start of the period, and  $C_{it}$  operating cash flow after interest and tax;  $e_{it}$  is the error term.

All stock variables are measured at the end of each period  $t$ . In this equation the pecking order hypothesis is that  $a = 0$  and  $b_{PO} = 1$ . Shyam-Sunder and Myers find that the coefficient of interest,  $b_{PO}$ , is 0.85 in a regression with goodness of fit  $R^2 = 0.86$ .

Chirinko and Singha (2000) have questioned Shyam-Sunder–Myers' testing methods. According to Shyam-Sunder–Myers, the pecking order model predicts that a regression of change in debt on financial deficit should yield a coefficient of one. Chirinko and Singha show that for an empirically relevant amount of equity issue, the coefficient can be significantly smaller than one even when firms follow a financing hierarchy consistent with the pecking order model. They also show that the regression coefficient on deficit can be close to one even when firms do not follow pecking order theory. Finally, they show that Shyam-Sunder–Myers' test can result in incorrect inferences that the financing pattern is consistent with the pecking order model even in a situation where debt and equity are always issued in fixed proportions. They therefore argue that alternative testing methods are needed, possibly based on a conditional target adjustment model.

Recently, Fama and French (2002) have tested some of the qualitative predictions of the pecking order theory against the qualitative predictions of the trade-off model. They find that more profitable companies are less levered. This is consistent with the pecking order theory. But as discussed below, there are also other common interpretations of this observation that do not stem from pecking order. Fama and French also find that companies with greater investment opportunities are less levered as predicted by the trade-off theory. They point out, however, that qualitative relationships can be caused by a range of factors.

Jung *et al.* (1996) study major new debt issues and primary equity offerings by American firms from 1977 to 1984. They consider agency, market timing and pecking order theories to account for the security issuing decision. Some companies are found to issue equity when the pecking order would predict the issue of debt. Their findings seem supportive of the agency theory. Helwege and Liang (1996) find that the use of external financing by companies, undertaken IPO in 1983, does not match the pecking order prediction that financing deficit is the critical factor. Note that under SBC the deficit of funds can be expected to have a less important impact on external financing as well. This implies that under SBC the pecking order theory may be invalidated. However, in environments with underdeveloped financial markets that often coexist with SBC, the primary reliance on internal funds will be higher; thus the support to the predictions of the pecking order theory will be determined by the trade-off between forces of SBC and other financial market imperfections.

A number of researchers study incremental financing decisions as a function of company characteristics. The standard target adjustment model is associated with Taggart (1977), Marsh (1982) and Jalilvand and Harris (1984). Marsh uses 10-year averages in his study of UK companies and finds that companies with high leverage relative to the target are more likely to issue equity. Jalilvand and Harris estimate a partial adjustment model for companies that have complete records for the 1963–1978 period. Companies with a low level of long-term debt tend to issue more debt. The authors assume that the long-term average debt level is the target. Fischer *et al.*



(1989) find that companies with low bankruptcy costs allow more variation in their leverage ratios. Hovakimian *et al.* (2001) find that companies are most likely to issue equity following a share price increase. If there were a fixed target leverage ratio these companies would have issued debt.

To conclude this section, we should mention that there are no empirical studies directly testing the pecking order theory in the conditions of the emerging and transition economies characterized by the presence of SBC.<sup>18</sup> As noted in the previous theoretical review section, pecking order theory may yield useful results in detecting the presence of SBC in the emerging and transition economies. A change in the pecking order can be an important indicator of the presence of SBC. For example, an indirect test of the pecking order theory under SBC is the analysis of Konings *et al.* (2003) where the sensitivity of investment to internal funds for four transition countries is estimated. The finding is that in environments with SBC the investment sensitivity is much lower (or even negative) compared to investment sensitivity under hard budget constraint. Generally, the findings under SBC are opposite to what the pecking order theory would predict under hard budget constraints. This line of research can be potentially important for studying capital structure in differential economic environments, with varying degrees of hardness of the budget constraint. In the next section, these relationships are discussed in detail.

#### 4.3 Analyses of Investment Equations

Fazzari *et al.* (1988, 2000) and a number of subsequent studies provide strong support for the existence of a financial hierarchy, which is most prevalent among companies that have been identified as facing a high level of financial (hard budget) constraints.<sup>19</sup> These studies categorize companies according to characteristics such as dividend payout, size, age, group membership or debt ratings that are supposed to measure the level of financing constraints. The results suggest that investment decisions of companies that are more financially constrained are more sensitive to company liquidity than investment decisions of less constrained companies, experiencing somewhat softer budget constraints for one reason or another.

Fazzari *et al.* (1988) use value line data for 422 large US manufacturing companies over the 1970–1984 period to analyse differences in investment behaviour by companies classified according to earnings retention.<sup>20</sup> The argument is that companies with higher retention ratios face higher informational asymmetry problems and are more likely to be liquidity constrained. Fazzari *et al.* (1988) run the following regression for several models of investment:

$$(I/K)_{it} = f(X/K)_{it} + g(CF/K)_{it} + e_{it} \quad (3)$$

where  $I_{it}$  represents investment in plant and equipment;  $K_{it}$  is the beginning of period book value for net property, plant and equipment;  $g(CF/K)_{it}$  is a function of current cash flow which measures company liquidity;  $f(X/K)_{it}$  is a function of variables related to investment opportunities;  $e_{it}$  is the error term and  $i$  and  $t$  index companies and time periods, respectively. The analysis focuses on the  $q$ -theory of investment, which suggests that  $f(X/K)_{it}$  is represented by a company's Tobin's  $q$  value. The

investment of younger companies that exhaust all their internal finance is found to be much more sensitive to fluctuations in cash flow than that of mature, high dividend companies. Fazzari *et al.* attribute these results to a financing hierarchy in which internal funds have a cost advantage over new equity and debt.

Subsequent studies have confirmed the central Fazzari *et al.* result by dividing samples according to other *a priori* measures of financial constraints. For example, Hoshi *et al.* (1991) conclude that the investment outlays of 24 Japanese manufacturing companies that are not members of a keiretsu are much more sensitive to company liquidity than are 121 companies that are members of a keiretsu and presumed to be less financially constrained. Oliner and Rudebusch (1992) examine 99 NYSE-listed companies and 21 over-the-counter companies during the 1977–1983 period. They find that investment is most closely related to cash flow for companies that are young, whose stocks are traded over-the-counter, and that exhibit insider trading behaviour consistent with privately held information. Shaller (1993) studies 212 Canadian companies over the 1973–1986 period and concludes that investment for young, independent, manufacturing companies with disperse ownership are the most sensitive to cash flow.

Whited (1992) and Bond and Meghir (1994) employ a Euler equation approach to directly test the first-order condition of an intertemporal maximization problem which does not require the measurement of Tobin's  $q$ . The strategy is implemented by imposing an exogenous constraint on external finance and testing whether that constraint is binding for a particular group of companies. Whited uses a sample of 325 US manufacturing companies over the 1972–1986 period, and Bond and Meghir use an unbalanced panel of 626 UK manufacturing companies over the 1974–1986 period. Both of these studies find the exogenous financial constraint to be particularly binding for the constraint groups of companies which supports the basic Fazzari *et al.* result. Rizov (2004b) follows similar methodology and estimates the investment behaviour of companies in Romania. He finds that for subsamples of companies that face hard budget constraints investment is sensitive to external financing, amongst other factors, while for the subsamples of companies operating under SBC the relationships do not hold.

Furthermore, a large international study by Mayer (1990) examines the sources of industry financing of eight developed countries from 1970 to 1985 and reveals a number of stylized facts regarding global corporate financing behaviour which also support the existence of financing hierarchies. Mayer finds that retentions are the dominant source of financing in all countries; the average company in every country does not raise substantial amounts of financing from security markets in the form of short-term securities, bonds or equities; and the majority of external financing comes from banks in all countries.

However, for some time, there has been a heated debate on the validity of the investment sensitivity and pecking order theory, fuelled by the work of Kaplan and Zingales (1997, 2000) who challenge the generality of the conclusions reached by the literature initiated by Fazzari *et al.*<sup>21</sup> In their study Kaplan and Zingales classify companies according to the degree of financial constraint, based on quantitative and qualitative information. Contrary to previous evidence, they find that investment

decisions of the least financially constrained companies are most sensitive to the availability of cash flow. In Kaplan and Zingales (1997) companies are classified as financially constrained if the cost or availability of external funds precludes the company from making an investment it would have chosen to make had internal funds been available. Their classification scheme uses data from letters to shareholders, management discussions of operations and liquidity (when available), financial statements, notes to those statements for each company-year, and financial ratios obtained from the COMPUSTAT database. Kaplan and Zingales determine company financial constraint status every year but they classify the companies into one of three groups for the entire period for regression analysis. Companies are categorized as not financially constrained in a particular year if they initiated or increased cash dividends, repurchased stock or explicitly indicated in their annual reports that they had more liquidity than they would need for investment in the foreseeable future. Companies were more likely to be classified as not constrained if they had a large cash position (relative to investment), or if the company's lenders did not restrict the company from making large dividend payments (relative to investment). Thus, this classification scheme suggests that the unconstrained company sample tends to include financially healthy companies with low debt and high cash level. The Kaplan–Zingales sample, however, consists of only 49 low-dividend-paying companies, identified by Fazzari *et al.* as having extremely high investment–cash flow sensitivity. Contrary to the Fazzari *et al.* prediction that this entire sample will face severe financial constraints, Kaplan and Zingales find that in only 15% of company-years is there some question as to a company's ability to access internal or external funds to increase investment. In fact, almost 40% of the sample companies could have increased investment in every year of the sample period. Contrary to previous research, Kaplan and Zingales find that the least financially constrained companies exhibit the greatest investment–cash flow sensitivity. They argue these controversial results capture general features of the relationship between corporate investment and cash flow, and are not specific to the sample or techniques utilized. Kaplan and Zingales' findings that investment outlays of the least financially constrained companies are most sensitive to cash flow contradict a large body of empirical results. Their results are puzzling because they suggest that managers choose to rely primarily on internal cash flow for investment, despite the availability of additional low cost external funds.

In support of the Kaplan–Zingales result is the analysis of Cleary (1999) who uses a large sample of 1317 US companies over the period 1987–1994. Cleary follows the approach of Kaplan and Zingales (1997) by classifying companies according to financial variables that are related to financial constraints. Company financial status is determined using multiple discrimination analysis, similar to Altman's Z-factor, for predicting bankruptcy. This multivariate classification scheme captures desired cross-sectional properties of companies. It also allows reclassification of a company's financial status every period, and sample composition is allowed to vary over time to reflect changing levels of financial constraints at the level of the company. Investment decisions of all companies are found to be very sensitive to company liquidity which is consistent with previous evidence (under hard budget constraints). Cleary employs

a bootstrap methodology to determine the significance levels of observed differences in coefficient estimates. The conclusion of the analysis is that companies that are more creditworthy exhibit greater investment-liquidity sensitivity than companies classified as less creditworthy.<sup>22</sup> Applying this conclusion to less creditworthy companies operating under SBC would imply that such companies would exhibit lower or no investment-liquidity sensitivity. This prediction is confirmed by studies of companies in a number of transition economies (Lizal and Svejnar, 2002; Konings *et al.*, 2003).

Related studies offering similar findings are by Budina *et al.* (2000) and Bratkowski *et al.* (2000).<sup>23</sup> These studies, however, are mostly concerned with analyses of investment and only indirectly derive conclusions about the company's capital structure and its relationship with the presence of SBC. The analysis of Lizal and Svejnar (2002) brings interesting methodological insights for future empirical analysis of company capital structure in the emerging and transition economies. The model specification in Lizal and Svejnar corresponds to the accelerator and neoclassical models of investment demand (Jorgenson, 1966, 1971; Kopcke, 1985).<sup>24</sup> In this specification the company investment-capital ratio is related to its output-capital ratio. In accounting for the possibility that the company faces transaction costs or restrictions in obtaining external finance, the authors augment the original equation by cash-flow variables such as profit. Then the estimating equation of investment  $I_{it}$  is

$$I_{it}/K_{it-1} = \alpha + \beta_m (T_{it-m}/K_{it-1}) + \gamma_m (Y_{it-m}/K_{it-1}) + e_{it} \quad (4)$$

where  $T_{it}$  is gross profit,  $Y_{it}$  output,  $K_{it}$  capital stock, and  $e_{it}$  is the error term;  $m$  denotes the number of lags and  $i$  and  $t$  index companies and time periods, respectively.

Lizal and Svejnar analyse the investment behaviour of Czech companies using 83,500 quarterly observations from the population of about 4000 medium and large industrial companies during the 1992–1998 period. The companies are grouped according to ownership and legal status. Among other results, the authors reject the Calvo and Coricelli (1994) credit crunch hypothesis and find that cooperative and smaller and medium sized private companies are rationed in their access to credit, but the majority of companies, including the state-owned and large privatized companies, are not. Moreover, for many of the latter companies the availability of investment funds is negatively related to profitability. This availability of investment funds primarily to the state-owned and larger privatized companies, despite poor performance, together with the high rate of investment of these companies, provides an explanation why under SBC Czech banks accumulated large amounts of bad company loans in the 1990s. Taken together, the findings provide strong evidence that many large companies operated under SBC during the period of analysis.

## 5. Summary and Implications for SBC Testing

In this survey paper we examined a broad range of theories on corporate capital structure with the goal to interpret their main propositions in the context of SBC, a

phenomenon that has attracted increasing interest of researchers and policy makers over the last few years. Manifestations of SBC are found throughout the spectrum of economic systems, which makes studying the issue of high relevance for economics and finance research, in general. The focus of examination of the theories is on the underlying mechanisms, which are rooted in standard microeconomic theory. Agency-cost-based models have been among the most successful in generating relevant predictions. The main implications of these models are that leverage is positively associated with company value, default probability, extent of regulation, free cash flow, liquidation value, extent to which the company is a takeover target, and the importance of managerial reputation. Also leverage is expected to be negatively associated with the extent of growth opportunities, interest coverage, and the probability of reorganization following default. Another important strand of microeconomic theory, asymmetric information modelling, has facilitated a number of approaches to explaining capital structure. The main predictions of asymmetric information theories concern stock price reactions to issuance and exchange of securities, the degree of leverage, and whether companies apply a pecking order in their financing. Models of capital structure that use features of the theory of industrial organization have increasingly been attracting research interest as well. These models have explored the relationship between capital structure and either product market strategy or characteristics of products and inputs. Models show that oligopolists will tend to have more debt than monopolists or firms in competitive markets. If, however, tacit collusion is important, debt is limited, and debt capacity increases with the elasticity of demand. Companies producing unique products and companies for which reputation of being a high quality producer is important will be expected to have less debt in their capital structure, while highly unionized companies and companies whose labour force is highly mobile should have more debt. Finally, there is a set of models that relate explanations of capital structure to the corporate control motive. These theories, concerned with the short-term capital structure decisions, predict that takeover targets will increase their debt levels, which will result in positive stock price reaction. However, the probability of success of the tender offer is negatively correlated with leverage, targets of unsuccessful tender offers will have more debt than the targets of proxy fights, and companies with higher potential takeover gains will have more debt in their capital structure.

The review of the theories and empirical studies on corporate capital structure demonstrates that numerous potential determinants and hypotheses concerning the capital structure can be identified. In general, models from a given theoretical background have many common predictions. Empirical evidence is diverse and broadly consistent with the theory. However, many of the theoretical implications have not yet been tested in a satisfactory manner and in different economic contexts. Therefore, in this paper we take the survey of literature one step further by relaxing the standard microeconomic assumption of companies operating under hard budget constraints and look at the implications of the various theories of capital structure for environments characterized by SBC. SBC of different degree are observed in all economic environments but they are most important in the centrally planned,

emerging and transition economies. It is shown that the research on the relationship between corporate capital structure and the presence of SBC is incomplete. From the theories examined here it is evident that only indirect predictions concerning the effect of SBC on capital structure can be derived. The stock of empirical results is scant and only in the last few years have relevant studies been undertaken. The deficiency of these empirical studies is that they have been primarily concerned with analysis of company investment and not specifically focused on the link between SBC and company borrowing and capital structure decisions. This survey paper of the capital structure literature is first to derive testable predictions about the relationship between SBC and corporate capital structure, measured as company leverage. As a result several hypotheses can be formulated about the impact of SBC on leverage.

*Hypothesis 1:* Leverage is independent of the free cash flow. This relationship is empirically manifested in low investment–cash flow sensitivity.

*Hypothesis 2:* Leverage is not correlated or is negatively correlated with the extent of the company management equity ownership.

*Hypothesis 3:* Leverage increases with the closeness of the links between companies and financing institutions.

*Hypothesis 4:* Leverage decreases with increase in profitability. However, the opposite might also be true when profitability is interpreted as a measure for growth opportunities.

*Hypothesis 5:* Leverage has a low sensitivity to the fluctuations in demand for the product.

*Hypothesis 6:* Leverage increases with the extent to which the company is likely to be privatized.

This list of hypotheses should not be considered exhaustive but rather a synthesis of the main relationships between corporate capital structure and SBC. For further empirical analysis several extensions can be suggested. For example, incorporating the working capital in the investment equation when testing for sensitivity of investment to cash flow or considering the trade credit in the tests of the pecking order theory should offer interesting avenues of research. Furthermore, explicitly modelling the relationship between capital structure and observable industry characteristics such as demand and supply conditions and the extent of competition can be a promising approach to incorporating the effects of SBC on capital structure decisions.

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## Notes

1. Another example of SBC in quite a different historic and political context is the Asian crisis from 1997 to 1998 when the system of over-guaranteed and under-regulated financial intermediaries resulted in excessive (bad) investment by the aggregate economy (Krugman, 1998; Kim and Lee, 2006). Lamoreaux (1994) also provides evidence of SBC in yet another context – industrial New England.
2. There is a substantial literature on the sources and determinants of SBC (e.g. Berglöf and Roland, 1997, 1998; Schaffer, 1998). The literature extensively analyses how SBC is affected by transition of the financial system, e.g. in Russia and Eastern Europe. For example, even if monitoring passes from central planners to banks, facing hard budget constraints, SBC can persist due to sunk costs in existing loans. Exploration of this literature, however, is beyond the scope of our survey, which is specifically concerned with the implications of SBC for corporate capital structure.
3. Schaffer (1989) is the first attempt to formally model SBC in a dynamic commitment framework. However, the paper does not satisfactorily address issues such as why the commitment problem exists in the first place and why the problem is more pronounced in the centrally planned and transition economies than in market economic systems.
4. There are several varieties and extensions of the model presented here augmenting our understanding of the SBC syndrome (e.g. Berglöf and Roland, 1998) and numerous empirical studies exploring ways of how the SBC problem can be measured and ameliorated (e.g. Schaffer, 1998). Increased competition across enterprises (Segal, 1998), entry of new better projects competing for funding with the incumbent projects (Berglöf and Roland, 1998), decentralization of financing institutions and thus dispersion of capital (Dewatripont and Maskin, 1995; Povel, 1995), *ex ante* screening (Schnitzer, 1999) are all pointed out as budget constraint hardening mechanisms. This line of research, however, is beyond the scope of the current survey.
5. There are several models that differ in the specific way in which conflict arises or how debt alleviates the problem (e.g. Harris and Raviv, 1990; Stulz, 1990). Models also differ in the way disadvantage of debt arises and how companies choose between bank and arm's-length sources (e.g. Rajan, 1992). In Harris and Raviv (1990), managers are assumed to want always to continue the company's current operation even if liquidation is preferred by investors. In Stulz (1990), managers are assumed to want always to invest all available funds even if paying out cash is better for investors. Debt mitigates the problem in the Harris–Raviv model by giving debt holders the option to force liquidation if cash flows are poor. In the Stulz model, debt payments reduce free cash flow. Cost of debt in the above models is related to the production of information used in the liquidation decision, about the company's prospects, and the fact that debt payments more than exhaust the free cash so reducing the funds available for profitable investments, respectively.
6. In transition economies, through privatization many managers obtained equity stakes in the privatized enterprises. However, because of the lack of corporate culture and appropriate legislation and covenants, often they may behave opportunistically and try to extract excessively short-term gains, thus harming the interests of outside equity holders.
7. Conflicts of this nature do not arise if each investor holds all securities in proportion to their values, i.e. if each investor holds a *strip*. Consequently, this literature assumes that equity holders are disjoint classes of investors.

8. This reasoning motivates the Stiglitz (1994) risky bids of banks in environments with SBC. Diamond (1989) shows how managers of companies have an incentive to pursue relatively safe projects out of reputational considerations. Since lenders can observe only a company's default history, it is possible for a company to build a reputation for having only the safe projects by not defaulting. The longer the company's history of repaying its debt the better is its reputation, and the lower is its borrowing cost. Therefore, older, more established companies find it optimal to choose the safe projects, i.e. not engage in asset substitution to avoid losing a valuable reputation. When these reputation considerations are not important as might be the case in emerging and transition economies, under SBC, then riskier projects will be undertaken and asset substitution will occur.
9. In Williamson (1988), the benefits of debt are the incentives provided to managers by the rules under which debt holders can take over the company and liquidate the assets. The costs of debt are that the inflexibility of the rules can result in liquidation of assets when they are more valuable under operation in the company. Thus, Williamson concludes that assets that are more redeployable should be financed with debt. This inference is usually in conflict with the situation in emerging and transition economies, where highly specific assets are often financed with debt, which is probably due to SBC.
10. In another (earlier) approach to the problem of asymmetric information capital structure signals to outside investors information about insiders (Leland and Pyle, 1977; Ross, 1977).
11. Lucas and McDonald (1990) consider a model in which Myers-Majluf type information asymmetries are temporary and companies can delay the adoption of a project. They show that companies with private information and low current earnings will not delay projects, while companies whose current earnings are high will delay investment until this information becomes public. The result is that, on average, equity is issued after a period of abnormally high returns to the company. The implication of this is that in emerging and transition economies where external finance is predominantly (risky) debt, issuing such debt under SBC will be independent of or even negatively correlated to current earnings.
12. Other signalling models that obtain similar results are developed by John (1987) and Poitevin (1989).
13. Recent studies show a growing interest in the relationship between the real sector and financial behaviour as summarized in the review paper by Istaitieh and Rodriguez-Fernandez (2006). For example, Chevalier (1995) examines the effect of leveraged buyouts on pricing as well as the probability of exit in the supermarket industry. Similarly, there is empirical work that examines the effect of debt on the company competitiveness (Opler and Titman, 1994; Kovenock and Phillips, 1995; Phillips, 1995; Zingales, 1998).
14. Heinkel and Zechner (1990) assert that bankruptcy costs emanating from the product market may lead companies in financial distress to postpone investments, thus giving an advantage to their competitors.
15. Harris and Raviv (1988) assume that benefits of control would decrease with the debt level because the benefits are lost in bankruptcy and higher debt levels make the project more prone to bankruptcy. This proposition demonstrates clearly that under SBC the situation is completely opposite. Without the risk of bankruptcy, the manager will have the incentive to increase debt levels in order to secure control as at the same time she will not experience decreasing benefits due to high leverage.



16. Konings and Vandenbussche (2004) is an important study of the convergence of financial ratios such as liquidity ratio, current ratio and solvency ratio, in economies in transition under the conditions of possible SBC. The authors find that the industry means of these ratios are lower than those found for western economies and that adjustment is slower in companies experiencing SBC. They do not find significant difference between quoted and unquoted companies. An earlier study by Rizov (2001) uses the framework of the trade-off theory of capital structure to derive implications for company financial management in transition economies. More recently, Nivorozhkin (2004) and de Haas and Peeters (2006) use target adjustment models and analyse determinants of company leverage in a number of transition economies.
17. In emerging and transition economies it is difficult to calculate the market-to-book ratio for most companies; therefore other proxies for investment opportunities have to be designed. The magnitude of non-debt tax shields, other than depreciation, is not possible to measure as well, while advertising and R&D expenditure are rarely reported separately (or often they are capitalized).
18. There are indeed a few recent studies employing target adjustment models of capital structure (e.g. Nivorozhkin, 2004; de Haas and Peeters, 2006) and using international data in order to understand quantitative and qualitative developments of the financial systems in transition economies.
19. Refer to Hubbard (1998) for an extensive survey of this literature.
20. In particular, Fazzari *et al.* (1988) classify companies into the following three groups based on their dividend behaviour: (1) those that have a ratio of dividends to income of less than 0.10 for at least 10 years; (2) those that have a dividend-income ratio between 0.10 and 0.20 for at least 10 years; and (3) all other companies.
21. It is important to bear in mind that Kaplan and Zingales (1997) challenge, in fact, the inference concerning the monotonicity of the relationship between investment and cash flow conditional on the degree of financing constraint. Kaplan and Zingales do not challenge the existence of a positive investment-cash flow relationship, in general, under the standard assumption of hard budget constraint. Moyen (2004) tries to reconcile the conflicting evidence by constructing two models, of constrained and unconstrained companies respectively, and then simulating data from the models. Moyen's major conclusion is that conflicting results are due to the use of different criteria for identifying financially constrained firms.
22. Note that the data used are extracted from the SEC Worldscope disclosure data set in which requirement for complete information disclosure is imposed, over the entire sample period. The rationale underlying the use of this criterion is to focus attention on companies that have wealth to distribute. This requirement implicitly selects companies that are more creditworthy, and almost as a rule, operating under hard budget constraints.
23. There are a few earlier studies on company investment in transition economies; examples are Belka *et al.* (1994), EBRD (1995) and Eickelpasch (1995).
24. As an alternative to the accelerator and neoclassical models specification, Lizal and Svejnar also estimate a Euler equation derived from a dynamic structural model of investment demand.

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