

# RISK AVERSE INSIDERS WITH SPECIFIC OBJECTIVE FUNCTION AND CAPITAL STRUCTURE CHOICE IN EUROPEAN EMERGING ECONOMIES

*Matjaž Črnigoj\**

## Abstract

I provide new insights in capital structure choice in European emerging economies by extending the logic beyond the scope of modern capital structure theory, which is based on the assumption that firms are governed by shareholders and follow the goal of maximizing their wealth. I empirically investigate capital structure choice in these countries assuming an alternative corporate governance paradigm that puts risk averse insiders with specific objective function in the firm's governance structures. I found that firms that are owned by insiders operate with significantly lower leverage, as well as that the probability that a firm uses debt at all drops if insiders are the largest shareholders\*\*.

**Keywords:** Capital Structure, Emerging Economies, Leverage, Risk Averse Insiders

---

\* Institute for Economic research, Ljubljana, Slovenia  
Email: [crnigojm@ier.si](mailto:crnigojm@ier.si)

\*\* The author would like to thank Mihály Ormos, Peter Hernádi, Natalia Isachenkova and other participants at the SSEEM EuroConference 2010 Challenges and Opportunities in Emerging Markets (Milas, 2010) for helpful comments on earlier draft of this paper.

---

## 1 Introduction

Typically, capital structure decisions have been analyzed by conducting tests of modern capital structure theory. Empirical evidence clearly indicates substantial tax effects (Mackie-Mason, 1990; Graham, 1996; Masulis, 1980; Kemsley and Nissim, 2002), bankruptcy costs effects (Warner, 1977; Altman, 1984; Opler and Titman, 1994; Bradley et al., 1984), agency cost considerations (Long and Malitz, 1985), and mean reversion in debt ratios (Taggart, 1977; Marsh, 1982; Auerbach, 1985; Julilvand and Harris, 1984; Opler and Titman, 1994; Hovakimian et al., 2001; Flannery and Rangan, 2006), thus confirming the trade-off theory. On the other hand, there are several important contributions in favor of the pecking order hypothesis (Shyam-Sunder and Myers, 1999; Bharath et al., 2009).

However, modern capital structure theory does a poor job in explaining capital structure choice in European emerging economies. Delcours (2007) argues that neither the trade-off theory nor the pecking order hypothesis explain capital structure choice in these countries.<sup>1</sup> She found that modified pecking order proposed by Chen (2004), who rearranged the pecking order, as retained earnings, equity, and as a last resort debt, best describes firms'

financing process. Managers in these countries prefer equity to debt financing because it is not contractual obligation and appears to be a free source of capital. What is more, Delcours (2007) found that leverage ratios in these countries are well below the ratios observed in developed countries. Similarly, De Haas and Peters (2006) and Nivorozhkin (2005) observe that despite gradual development of the financial systems in the region enable firms to increase their leverage and bring their capital structures closer to the structures that tend to be optimal according to modern capital structure theory, firms in these countries remain underleveraged.

As already argued in Črnigoj and Mramor (2009), this is not surprising. Modern capital structure theory assumes that firms are governed by shareholders and the goal of the firm being to maximize the value of the firm. However, the firm's behavior can be also significantly affected by other stakeholders, i.e. employees and managers, whose objectives deviate from shareholder value maximization. One has to be aware, that just recently a large amount of the large and medium-sized firms in European emerging economies were privatized by employee and management buy-outs, moreover the power of insiders in these countries is augmented by the remains of the centrally-planned economic system in which equality and workers' rights were promoted.

I empirically investigate capital structure choice in these countries assuming an alternative corporate

---

<sup>1</sup> The same conclusions can be made based on the findings obtained by Mramor and Valentinčič (2001) and Berk (2006, 2007).

governance paradigm that puts risk averse insiders with specific objective function in the firm's governance structures. Using firm-level data for Central Eastern Europe in the Baltic States (CEB) from EBRD-World Bank Business Environment and Enterprise Performance Survey, BEEPS (III), I test the dependence of firm's leverage and the probability that the firm uses debt, on the fact who owns the firm. I have found that firms owned by insiders operate with significantly lower leverage, as well as that the probability that a firm uses debt at all drops if insiders are the largest shareholders. In all specifications of the empirical models I control for firm-specific capital structure determinants, industry-specific effects and differences in creditor rights between countries that affect the supply of debt.

The paper is structured as follows. In the second section I discuss capital structure choice in firms governed by risk averse insiders with specific objective function. In the third section I look at the data, while in the fourth I present the methodology used in the empirical study. In the fifth section I discuss the results and the sixth section concludes.

## **2 Risk averse insiders with specific objective function and capital structure choice**

Employees and managers do not follow the goal of maximizing the value of the firm as assumed by modern capital structure theory. Employees are aimed at maximizing wages and minimizing the probability of bankruptcy. Blinder (1993), who formally derived the goal of an employee-governed firm, argues that including employees' welfare in the firm's objective function leads the firm to maximize revenues rather than profits. Managers maximize utility stemming from wages and pecuniary and non-pecuniary benefits, and only then the value of the firm that also affects their compensation. Williamson (1963) showed that manager's expense preference lead a manager-governed firm to maximize utility subject to minimum profit constraint rather than profit. Baumol (1959, 1962) challenged the traditional value-maximizing hypothesis by proposing revenue maximization. Marris (1964) argues that manager-governed firm maximizes the growth rate of the firm (constrained by the minimum level of security). Gordon (1994) argues that manager-governed firms maximize the probability of the firm's long-term survival. The objective functions of employees and managers are also compared to those of the shareholders characterized by higher risk aversion.

### **2.1 Specific objective function**

Agency costs theory (Jensen and Meckling, 1976; Jensen, 1986; Grossman and Hart, 1982; Myers, 1977), as well as models focusing on costly intervention (Stulz, 1990; Hart and Moore, 1998;

Berglof and von Thadden, 1994; Dewatripont and Tirole, 1994), emphasizes the role played by debt in reducing agency conflicts between managers and shareholders. It is argued that debt increases efficiency because it prevents managers from pursuing their own interests and forces them to take action to maximize shareholders' wealth, solve collective action problems and change incentives. The problem is that agency cost theory assumes that although managerial behavior is subject to agency problems, shareholders force managers to make capital structure decisions so as to maximize the value of the firm and thus their wealth. The question is why managers, if they have capital structure decisions under their control, would use debt to decrease their own discretion.

This question has been addressed by managerial literature on capital structure choice. Focusing on managerial control motivations, Haris and Raviv (1988) and Stulz (1988) argue that managers use debt to increase their voting power, and Israel (1991) to affect the distribution of cash flows between voting and nonvoting shares in order to influence the outcome of the takeover contest. Zwiebel (1996) argue that managers, trading off their empire-building ambitions and their needs to ensure sufficient efficiency to prevent control challenges, use debt as a credible signal to constrain their future empire building. In contrast to the agency cost theory, in which the discipliner is imposed ex ante, managers voluntarily choose debt, using potential bankruptcy as a mean to credibly commit to foregoing bad investments because of the constant presence of a potential discipliner. Morellec (2004) showed that a manager trading off his empire-building ambitions and the potential loss of control would underlever the firm relative to the optimal capital structure that maximizes the value of the firm. The numerical results of his model suggest that leverage implemented by the manager amounts to only 17,6 percent (10,0 percent when corporate control consideration are not assumed), relative to the 37,0 percent that is the optimal leverage that the manager would implement if acting in the best interests of the shareholders and maximizing the value of the firm. In addition, the results suggest that leverage decisions are related to the degree of managerial entrenchment.

Although some empirical evidence confirmed the hypothesis that shareholders improve their bargaining position by issuing additional debt and reducing the firm's financial flexibility (Bronars and Deere, 1991; Hirsch; 1991; Sarig; 1998; Hanka; 1998; Matsa, 2010), few US CFOs admitted in a 1999 survey conducted by Graham and Harvey (2001) that "A high debt ratio helps us bargain for concessions from our employees". Besides, Kale et al. (2008), investigating the disciplining role of debt and analyzing the relation between employees' productivity and leverage, observe a positive influence on employee productivity only up to some

critical value at which negative effects resulting from the costs of financial distress begin to offset the disciplining incentives. Moreover, the effect of debt on employees' productivity weakens if employees have more outside employment opportunities.

Taking into account employees' nonmonetary restructuring related costs, Chang (1992) identified firm's optimal capital structure investigating firms' restructuring decisions and deriving an optimal contract between shareholders and employees, which includes also capital structure choice. Restructuring involves asset liquidation, job reassignments and reallocations, and cost cutting, while losses include the time and effort that the relocated employees spend to learn new skills for new job assignments, extra effort due to a more demanding working environment, and so on. Because employees have no incentive to restructure, debt is used to implement the first-best restructuring rule. If the expected output exceeds the debt payment, debt can be rolled over and restructuring will not occur; otherwise the firm is forced to restructure because of the potential loss of control. He showed that an ex ante optimal level of debt that balances the financial as well as nonfinancial benefits of restructuring is generally below the level that maximizes the value of the firm because the restructuring-related costs to employees have to be accounted for.

Mramor and Valentinčič (2001) considered the theoretical framework that assumes that employees govern the firm. They argue that because the goal of an employee-governed firm is to maximize wages, its capital structure is characterized by the lowest possible level of debt. Črnigoj and Mramor (2009) provided strong empirical evidence of the negative correlation of leverage and the extent to which firms are characterized by employee-governed behavior. Črnigoj and Mramor (2009) also discuss some different channels through which capital structure choice is affected and identify some differences in the impact of the capital structure determinants proposed by modern capital structure theory. They argue that debt is preferred to equity capital when external sources are required because of the possible dilution of employees' control when issuing equity. Because employee-governed firms have a specific objective function, they expect leverage to be negatively correlated with profitability, while they expect faster-growing firms to operate with higher leverage. In addition, they expect employee-governed firms to be credit rationed and thus bankruptcy cost and collateral to be an important determinant that affects the firm's leverage.

## **2.2 Risk aversion**

As argued in the previous section, a large body of research followed Jensen and Meckling (1976) and used an ex ante efficiency perspective to derive predictions about a firm's capital structure choice in

agency setting. The problem is that the agency cost theory ignores the fact that capital structure choice itself is subject to an agency conflict. As argued in the previous section, conflicts of interest over capital structure choice arise because of managers' and employees' disutility derived when subject to the performance pressures resulting from large fixed interest payments (Jensen, 1986; Grossman and Hart, 1982; Myers, 1977) and managers' preference for job retention (Haris and Raviv, 1988; Stulz, 1988; Israel, 1991; Zwiebel, 1996). This section discusses another important source of conflicts. This is managers' and employees' preference for lower risk due to the underdiversification of their human capital that represents a large share of their wealth.

The portfolio theory states that the optimal portfolio of risky securities will be diversified across all securities available in the market (Markowitz, 1952). However, managers and employees invest a substantial part of their wealth (their human capital) in one firm. Hence, their risk is closely related to the firm's risk. A firm's failure to achieve predetermined performance targets, or in the extreme case the bankruptcy of the firm, results in managers and employees losing their current employment, managers also seriously damaging their future employment opportunities because of losing reputation. Moreover, risk cannot be effectively diversified by allocating human capital across many investments. An employee or a manager cannot hold more than one job at a time. Compared to the capital market, the labor market is also less flexible, meaning that human capital does not move across firms as financial capital. Finally, human capital investments are more long-term oriented. Managers and employees are therefore expected to diversify risk by other means. One of the ways is by choosing a conservative capital structure.

The first test of whether capital structure decisions are motivated by managerial risk-reduction motives was conducted by Friend and Lang (1988). They showed that a firm's leverage is negatively related to managers' shareholdings, reflecting the greater nondiversifiable risk of debt to managers than outside shareholders and the desires for maintaining low leverage. The existence of nonmanagerial principal shareholders seems to provide little evidence in affecting managers' conservative behavior. However, firms with large nonmanagerial shareholders tend to operate with higher leverage, suggesting that the existence of large nonmanagerial shareholders might force the interests of managers and shareholders to coincide. They also found that in public firms with a principal shareholder, nonmanagerial shareholders' leverage is still negatively related to managers' shareholdings; however, the impact is less significant than in closely-held firms. This reflects only a lesser desire and ability of management in public firms than in closely-

held firms to adjust capital structure according to their own interests.<sup>2</sup>

Strong empirical evidence that the firm's capital structure choice is significantly affected by the degree of managerial entrenchment and that managers seek to avoid debt was provided by Berger et al. (1997). Examining the relations between leverage and corporate governance variables, they found that leverage is lower when the CEO has a long tenure in office, has weak stock and compensation incentives, and does not face strong monitoring from the board of directors or major shareholders. In addition, they investigated whether the leverage changes in the aftermath of events that reduce managerial entrenchment. They found that leverage increases by 13 percent on average when firms are targets of unsuccessful tender offers. The targets that increase leverage use the proceeds to finance large special dividends, equity repurchase offers, or operational restructuring. Although one can conclude that entrenched managers use leverage as a defensive commitment device, the apparent persistence of higher leverage for two years after an unsuccessful takeover suggests that managers tend to move to a more optimal capital structure, which they would have avoided if they had been able to remain entrenched. They also observed an increase in leverage after the replacement of the firm's CEO when the turnover appeared to be forced, as well as after a major stakeholder joined the board of directors. Moreover, they found that firms with leverage deficits react to threats to entrenchment by levering the firms beyond the predicted levels, whereas no significant changes in leverage are observed in firms with leverage surpluses.

In contrast, just a few contributions investigate the impact of employees' risk aversion on capital structure choice. Berk et al. (2007), recognizing the large human costs of bankruptcy, investigated capital structure implications by deriving an optimal employment contract. Their optimal employment contract builds on Harris and Holmstrom (1992). It guarantees employees job security, unless the firm is in financial distress, and pays a fixed wage that rises when employees are more productive than expected. This is why employees become entrenched. However, if the firm cannot make interest payments at the contracted wage level, the employees experience a temporary pay cut. If the firm's performance improves, wages return to the contracted level, and if it worsens further the firm is forced into bankruptcy. Because entrenched employees are being paid more than the value they create, shareholders benefit from filing bankruptcy and normally have no incentive to avoid bankruptcy. Employees are terminated or replaced with more productive ones. As a result,

entrenched employees face substantial bankruptcy costs, such as taking a wage cut and earning the current market wage. The implications for optimal leverage occur *ex ante* because the amount of risk sharing between shareholders and employees depends on leverage. Higher leverage implies a higher probability of bankruptcy and thus lower risk sharing. An optimal capital structure thus trades the benefits of risk sharing against the benefits of debt, such as tax shields, for example. Berk et al. (2007) argued that firms issue only modest levels of debt and will maintain cash balances despite these being associated with tax disadvantages. A firm's capital structure decisions are affected by the firm's idiosyncratic characteristics. Namely, firms with more risk-averse employees will operate with lower leverage. Because such firms attract other more risk-averse employees, they argued that the effect is self-enforcing. Heterogeneity in risk aversion in the labor market thus results in a clientele effect, implying a persistent heterogeneity in capital structure choices among otherwise identical firms. According to their optimal employment contract, firms with higher leverage pay higher wages to compensate employees for potential bankruptcy costs.

The effects of human capital costs associated with bankruptcy in capital structure decisions have been also empirically investigated. Chemmanur et al. (2009) tested whether firms with higher leverage pay their employees more and whether the resulting additional costs are large enough to offset the incremental tax benefits of debt. They found that leverage has a positive impact on average employee pay and that the additional total labor expenses associated with an increase in leverage are large enough to offset all the incremental tax benefits. The evidence thus suggests that the incremental labor costs associated with an increase in leverage are substantial enough to limit the use of debt. They found also that leverage positively affects the magnitude of CEO compensation. Finally, they tested the importance of employees' entrenchment. Examining old versus new economy firms, associated with more and less entrenchment, respectively, they documented significant differences in the effect of leverage on average employee pay and CEO compensation. They observe a positive impact of leverage on average employee pay only in old economy firms. Similarly, the impact of leverage on CEO compensation proves to be significant only in old firms, whereas leverage in new economy firms tends to affect only the cash pay of the CEO.

### 3 Data and methodology

#### 3.1 Database

The data comes from third EBRD-World Bank Business Environment and Enterprise Performance Survey, BEEPS (III). Even though the survey

---

<sup>2</sup> However, they found one puzzling piece of evidence. In public firms without principal shareholders, leverage increases with the managers' shareholdings.

encompasses firms from almost 30 transition economies, I restrict the analysis to 8 most advanced European emerging economies – Czech Republic, Hungary, Poland, Slovak Republic, Slovenia, Estonia, Latvia and Lithuania (CEB). Privatization in these countries has been finished and I believe that the economies have been sufficiently transformed to market economies, thus we can expect controlling stakeholders to be powerful enough to behave independently of the central authority commands and that observed capital structures is determined by forces within the firm and not outside the firm, as was often the case in the former economic system.

Beside country composition, BEEPS data takes into account sector, size, ownership, export orientation, and location distributional criteria. The sectoral composition is determined by their relative contribution to GDP, while size composition requires that at least 10 % of the sample is in the small and 10 % in the large size categories. Proper rules are considered also at other distributional criteria.

### 3.2 Variable definitions

Since BEEPS data were collected by a questionnaire, I have to approximate firm's leverage from the answers on the question about the firm's financing. Firm's leverage is determined by the question in which the proportions of the firm's fixed investments financing sources are revealed (Q.45a). I use two proxies for leverage, first taking into account only borrowing from banks, while in the other I take into account also other debt sources, such as borrowing from family and friends, other money lenders and informal sources, and leasing. I determine a dummy variable  $D_{bank\ loan}/D_{debt}$ , which takes the value of 1 if the firm has a bank loan/debt and 0 otherwise, using the same question.

Employee-owned firm was approximated by a dummy variable ( $D_{employee}$ ), taking the value of 1 if the largest shareholders are employees and 0 otherwise. It is determined by the question (Q.4a) asking the respondents who best describes firm's largest shareholder(s). In a similar manner, I approximated manager-owned firm ( $D_{manager}$ ).

Then I determined some firm-specific capital structure determinants, i.e. profitability, growth and firm size.<sup>3</sup> Profitability ( $PROF$ ) is approximated using

the question on the operating margin – per cent by which sales price exceeds operating costs (Q.14), growth ( $GROWTH$ ) using the question about the change of sales over the last 3 years (Q.55b1), and firm size ( $SIZE$ ) using the question about the estimate of firm's total sales (Q.57acat). According to the trade-off theory, profitability is expected to be positively correlated to leverage because more profitable firms have higher incomes to shield and thus operate with higher leverage. On the other hand, the theory based on agency costs and the pecking order hypothesis predicts negative correlation. According to the theory based on agency costs debt serves as a disciplining mechanism and ensures that managers pursue firm's activities in a manner to maximize shareholders' wealth rather than build empires. Jensen (1986) argues that debt commits to pay out cash, thus reduces the amount available to managers to overinvest. According to the pecking order hypothesis capital structure decisions are driven by asymmetric information. Myers and Majluf (1984) argue that firm's financing process follows a pecking order, forcing the firms to exhaust internal sources first, and when external sources are required, first to issue debt, while issuing equity capital only as a last resort. Growth should be positively correlated with leverage since faster growing firms are expected to need more external finance, and taking into account pecking order hypothesis debt is preferred to equity. However, firms with high growth opportunities borrow less because growth opportunities cannot serve as collateral. Jensen (1986) and Myers (1977) also argue that in firms with high growth opportunities shareholders expropriate wealth from bondholders. Firm size is expected to be positively correlated to leverage. Rajan and Zingales (1995) argue that larger firms tend to be more diversified and thus less prone to go bankrupt.

Besides, I use seven industry dummies, determined by the question in which the respondent indicated the percentages of the sales coming from different industries (Q.2), and proxy for industry competition ( $COM$ ), determined using the question that asks a hypothetical question what will be the result of rising the prices of the firm's main product or service by 10 % (Q.11). Industry-specific effects proved to be significant determinant of capital structure choice, while I use proxy for industry competition to see if insiders to become less conservative in their capital structure decisions when faced with pressure from competition.

Creditors' rights controls are taken from Pistor et al. (2000), who adopted and upgraded La Porta et al. (1997) indices to transition economies.  $CREDCON$  captures the extent to which creditors can control the bankruptcy process,  $COLLAT$  captures the existence

<sup>3</sup> There are some other firm specific determinants which have proved to significantly affect capital structure choice. The most important one missed here is tangibility of assets. Trade-off theory suggests that using tangible assets to collateralize the loan decrease bankruptcy costs, while Jensen and Mackling (1976) argue that collateral protects lender from moral hazard problem in conflicts between equity and debtholders. However, capital structure research in European emerging economies mostly failed to document positive correlation (see for example, De Haas and Peeters (2006), Nivorozhkin (2005), Črnigoj and Mramor (2009),

Berk, (2006, 2007), and Mramor and Valentinčič (2001). Besides, tangibility of assets is to some extent controlled for by controlling for industry-specific effects.

of legal provision on security interests, while *REMEDY* refer to the sanctions that creditors can impose on management ex-post, which goes beyond the original contractual rights or claims based on the security interest. I approximated legal effectiveness (*LEGALEFF*) by legal effectiveness index from the EBRD Transition Report (EBRD, 2002), as found in Pistor et al. (2000) being among several alternatives the best proxy for legal effectiveness available.

### 3.3 Descriptive statistics

Despite the fact that BEEPS (III) includes 3.000 firms from CEB, my sample consists of only 2.117 firms. This is due to the missing data for the explanatory variables. Country decomposition is not far away from the relations between size of the countries under investigation, thus the highest number of firms being Polish, followed by firms from Hungary and Czech Republic, while other countries are being represented

by approximately similar number of firms. In the sample there are 3,4 % of firms owned by insiders, 1,2 % majority owned by employees and 2,1 % majority owned by managers. Besides, there are 0,14 % and 0,19 % of firms in which managers and employees share the largest ownership share with other stakeholders. Concerning the origin of the firms, 84,3 % of firms are originally private, while only 10,5 % of them are privatized state-owned firms.

Descriptive statistics of the sample are presented in table 1. Taking into account number of employees, 74,8 % of firms can be characterized as small firms, 17,7 % as medium-sized, and 7,5 % as large firms. Median firm has sales from 250.000 to 499.000 USD. Profitability of the firms on average amount to 23,0 % (measured by the margin by which the sales price exceed operating costs). Over the last 3 years firms exhibited 8,1 % growth rate of sales on average.

**Table 1.** Descriptive statistics

with t-tests for the difference between average leverage among insider-governed firms and firms governed by other stakeholders.

	Mean (t-test)	Median	Std. Deviation
Sales (in \$)	-	250.000-499.000	-
Profitability (in %)	23,0	20,0	15,3
Growth (in %)	8,1	0	33,4
Leverage – bank loans (in %)	10,9	0	26,0
Leverage – total debt (in %)	20,1	0	34,0
Leverage of employee-governed firms – bank loans (in %)	4,2 (2,72)	-	12,4
Leverage of employee-governed firms – total debt (in %)	8,9 (2,69)	-	21,2
Leverage of manager-governed firms – bank loans (in %)	11,6 (-0,16)	-	27,3
Leverage of manager-governed firms – total debt (in %)	14,4 (1,32)	-	29,0

N = 2.117

Source: Author's calculations

Firms on average operate with relatively low leverage. The share of firms' fixed investments that have been financed by bank loans amounts to only 10,9 % on average, while all debt sources together represents only 20,1 % of the financial sources. Moreover, median firm actually does not use bank loans or any other source of debt finance to finance capital expenditures. Analyzing leverage of the firms given their ownership structure, I observe significantly lower leverage in the employee-owned firms, while the difference is not significant for manager-owned firms. Among employee-owned firms there are 5 % more of them without bank loans compared to the firms owned by other stakeholders, and 7 % more without any debt. Again, the difference is smaller for manager-owned firms. Leverage of the

manager-owned firms may not differ significantly because some of these firms accumulated higher debt levels in leveraged buyouts resulting in high variability of the leverage ratios.

### 4 Empirical models and estimation techniques

I investigate capital structure choice in European emerging economies by testing two empirical models. The first model tests for the dependence of firm's leverage on the fact who own the firm, controlling for firm-specific capital structure determinants, industry specific effects, and differences in creditors' rights between countries.

The linear regression model can be written as:

$$LEV = \alpha + \beta_1 D_{employee} + \beta_2 D_{manager} + \beta_{3i} CONTROLS_i + \varepsilon, \quad (1)$$

where  $LEV$  represents firm's leverage,  $D_{employee}/D_{manager}$  are dummy variables taking the value of 1 if employees/managers are the largest shareholders and 0 otherwise,  $CONTROLS_i$  represent a vector of firm-specific capital structure determinants (profitability ( $PROF$ ), growth ( $GROWTH$ ) and firm size ( $SIZE$ )), industry specific effects (7 industry dummies and proxy for competition ( $COM$ )) and creditors' rights approximated by  $CREDCON$ ,  $COLLAT$ ,  $REMEDY$  and  $LEGALEFF$ .

$$\logit(P) = \alpha + \beta_1 D_{employee} + \beta_2 D_{manager} + \beta_{3i} CONTROLS_i + \varepsilon \quad (2)$$

The parameters of the first regression model are estimated by OLS, while estimation technique for the logistic regression model is ML.

## 5 Results

As hypothesized, insider-owned firms in European emerging economies proved to be very conservative in their financial decisions. When employees or managers hold the largest ownership stakes, thus expecting the firms to be employee or manager-governed, firms do not use debt finance as aggressively as firms that are governed by outside shareholders. As seen in table 2, employee-owned firms tend to operate with significantly lower leverage compared to the firms owned by outside shareholders

The second model tests for the dependence of the probability that a firm uses a bank loan/debt on the fact who owns the firm. Dependent variable ( $D_{bank\ loan}/D_{debt}$ ) is approximated by a dummy variable taking the value of 1 if the firm has a bank loan/debt and 0 otherwise, while the model includes the same explanatory variables and controls as the first model. Logistic regression model can be written as:

(coefficient at  $D_{employee}$  is significant at 10 % level). Lower leverage can also be observed in firms owned by managers, however the difference is smaller and statistically not significant. The results may be due to the accumulation of debt in recent leveraged buyouts in some of these firms. I estimated regressions explaining firm's leverage also excluding outliers, which were determined by Cook's distance (4/n). After excluding approximately 5 % of the firms (128 in the regression with bank loan and 121 firms from the regression with all debt sources) from the sample, all the coefficients retained the same signs but became highly significant.

**Table 2.** Linear regression results

in which  $LEV_{bank\ loan}/LEV_{debt}$  measures firm's leverage,  $D_{employee}/D_{manager}$  is a dummy variable taking value of 1 if the largest shareholders are employees/managers and 0 otherwise.  $COM$  proxies for competition,  $PROF$  profitability,  $GROWTH$  growth, and  $SIZE$  firm size (I also control for industry specific effects by including seven industry dummies).  $CREDCON$  captures the extent to which creditors can control the bankruptcy process,  $COLLAT$  captures the existence of legal provision on security interests,  $REMEDY$  refers to the sanctions that creditors can impose on management ex-post, which goes beyond the original contractual rights or claims based on the security interest, while  $LEGALEFF$  proxies for legal effectiveness.

	$LEV_{bank\ debt}$			$LEV_{debt}$		
	Coef.	Std. Err.	t	Coef.	Std. Err.	t
$D_{employee}$	-9,03865*	5,08124	-1,78	-11,57864**	6,60429	-1,75
$D_{manager}$	-1,24820	3,88547	-0,32	-7,53464	5,05010	-1,49
$COM$	0,385778	0,530724	0,73	1,01643	0,6898028	1,47
$PROF$	-0,0617312*	0,037155	-1,66	-0,0824466*	0,0482918	-1,71
$GROWTH$	0,0377072**	0,0172643	2,18	0,1170693***	0,022439	5,22
$SIZE$	1,33729***	0,2375089	5,63	0,9572075***	0,3086996	3,10
$CREDCON$	-3,02852	3,21724	-0,94	-4,61077	4,18158	-1,10
$COLLAT$	-0,0404063	0,9184267	-0,04	-1,82734	1,19372	-1,53
$REMEDY$	4,49239	3,24819	1,38	-1,16615	4,22180	-0,28
$LEGEFFE\sim 2001$	5,58695***	1,78145	3,14	3,96161*	2,31541	1,71
$Const.$	-7,64710	1,03766	-0,74	25,62338*	13,48685	1,90
N	2.117			2.117		
Adj. R <sup>2</sup>	0,0335			0,0446		

Source: Author's calculations.

As seen in table 3, if the largest shareholder(s) are employees or manager(s), a drop in probability that the firm uses debt finance can be observed, however none of the impacts proved to be statistically significant. In the similar manner as in leverage regression, I tried to address the problem of influential observation and estimated logistic regression without outliers, which were determined by Pregibon's  $\delta$  (3 times of the average value). By doing so, I got very

interesting results. In both specifications only employee-owned and manager-owned firms without bank loan/debt were left in the sample because all levered employee-owned and manager-owned firms have been characterized as outliers and thus excluded. The dummy variable  $D_{employee}/D_{manager}$  thus perfectly predicts zero probability that the firm has bank loan/debt.

**Table 3.** Logistic regression results

in which depended variable  $D_{bankloan}/D_{debt}$  is a dummy variable taking value of one if a firm has a bank loan/debt and zero otherwise.  $D_{employee}/D_{manager}$  is a dummy variable taking value of 1 if the largest shareholders are employees/managers and 0 otherwise.  $COM$  proxies for competition,  $PROF$  profitability,  $GROWTH$  growth, and  $SIZE$  firm size (I also control for industry specific effects by including seven industry dummies).  $CREDCON$  captures the extent to which creditors can control the bankruptcy process,  $COLLAT$  captures the existence of legal provision on security interests,  $REMEDY$  refers to the sanctions that creditors can impose on management ex-post, which goes beyond the original contractual rights or claims based on the security interest, while  $LEGEFF$  proxies for legal effectiveness.

	$D_{bank loan}$			$D_{debt}$		
	Coef.	Std. Err.	z	Coef.	Std. Err.	z
$D_{employee}$	-0,5904179	0,5580555	-1,06	-0,3815073	0,4507143	-0,85
$D_{manager}$	-0,1576469	0,3880118	-0,41	-0,3349826	0,3395078	-0,99
$COM$	-0,0547304	0,0540473	-1,01	0,0027203	0,0449621	0,06
$PROF$	-0,0083797*	0,0046916	-1,79	-0,0030684	0,0035762	-0,86
$GROWTH$	0,0041661**	0,0016126	2,58	0,007442	0,0014751***	5,05
$SIZE$	0,1891929***	0,0233775	8,09	0,0929516	0,0198773***	4,68
$CREDCON$	-0,0364462	0,3346287	-0,11	-0,3724538	0,276316	-1,35
$COLLAT$	0,0970236	0,098527	0,98	-0,0926084	0,07832	-1,18
$REMEDY$	0,3149067	0,3339547	0,94	0,1526792	0,2782614	0,55
$LEGEFFE\sim 2001$	0,3512695*	0,1758721	2,00	0,2177554	0,1495953	1,46
$Const.$	-3,887338***	1,139330	-3,41	-0,3351529	0,8898104	-0,38
N	2.117			2.117		
Pseudo R <sup>2</sup>	0,0629			0,0387		

Source: Author's calculations

It is expected financial decisions of insiders to become less conservative when faced with pressure from competition. Competition ( $COM$ ) should also make rent extraction by insiders less desirable. However, I cannot check this directly because of high multicollinearity when including the interactive terms. Firm's leverage tends to increase when faced with pressure from competition, but I got insignificant and inconsistent results for the impact of competition on the probability that the firm uses debt finance. Acknowledging that, I can confirm that rent excretion from insiders is taking place in firms from European emerging economies because firms only when faced with pressure from competition are willing to burden with debt.

All firm-specific capital structure determinants have expected signs and are statistically significant. Profitability ( $PROF$ ) is negatively correlated to firm's leverage and the probability that a firm uses debt

finance. This is in line with the pecking order hypothesis which suggests that firms' financing process because of asymmetric information and thus high transaction costs follows a specific hierarchy – using first internal sources available, and only then resort to external finance; first debt and only as a last choice to equity. However, Delcours (2007) argues that the order of external financing in European emerging economies appears to be different and confirm a modified pecking order hypothesis proposed by Chen (2004) for developing countries. Since bond market in these countries is still developing and banks provide short-term liquidity loans rather than long-term financing, firms have to rely on equity to finance their fixed assets. In addition, shareholder rights are not well protected. Managers thus prefer equity financing since it is not binding and it appears to free source of capital. Not least, this is also inline with employees' and



managers' conservative behavior. Then, I found positive correlation of firm's growth (*GROWTH*) and firm's size (*SIZE*) to firm's leverage and the probability that a firm uses debt finance. Faster growing firms are expected to need more external finance and taking into account huge transaction cost associated with issuing equity in these countries, debt looks often as their only choice. Firm's size in contrast, should positively impact asymmetric information and lowers transaction cost and thus increase firms' ability to reach equity market. Observing positive correlation of firm's size with firm's leverage and the probability that a firm uses debt finance, I can confirm that financing practices observed in European emerging economies rarely include issuing equity. Besides, observing many significant coefficients at industry dummies, I can conclude that the industry specific effects are important determinants as well.

As already found in La Porta et al. (1997) and Pistor et al. (2000), law enforcement (*LELAGEFF*) have large and significant effect on leverage of the firms, as well as on the probability that a firm uses debt finance, while measures for law on books (*CREDCON*, *COLLAT* and *REMEDY*) do not exhibit any expected effects. The result was expected because law enforcement proved to have a much stronger impact on external finance supplied than law on books.

## 6 Conclusions

Capital structure choice in European emerging economies have been studied so far only by applying empirical test of modern capital structure theory, which is based on the assumption that firms are governed by shareholders and follow the goal of maximizing their wealth. I extend the logic beyond the scope of modern capital structure theory and empirically investigate capital structure choice in these countries assuming an alternative corporate governance paradigm that puts risk averse insiders with specific objective function in the firm's governance structures.

Using firm-level data for Central Eastern Europe in the Baltic States (CEB) from EBRD-World Bank Business Environment and Enterprise Performance Survey, BEEPS (III), I found that firms owned by insiders operate with significantly lower leverage, as well as that the probability that a firm uses debt at all drops if insiders are the largest shareholders. In the linear regression model, as well as in logistic regression, I found also that firm's leverage decreases with profitability and increases with firm's growth rate and firm's size. Besides, observing many significant coefficients at industry dummies, I conclude that the industry specific effects are important determinants as well. Not least, as already found in La Porta et al. (1997) and Pistor et al. (2000), leverage of the firms, as well as on the probability that

firm uses debt finance, is significantly affected by law enforcement in the country, while measures for law on books do not exhibit any expected effects.

Despite one could argue that the results hold only for less than 5 % of the firms, one has to be aware that I consider only firms that are majority owned by insiders that is not so common to observe nowadays. However, similar implications can be observed when insiders hold nonprincipal ownership shares. What is more, ownership is not the only source of power. Insiders can govern the firms also without owning the firms. Approximating the power of insiders stemming from other sources and investigating capital structure implications is an ongoing research that already provided some plausible results (see for example Črnigoj and Mramor (2009)). This will allow us to address larger proportion of firms, to generalize the results and explain firms' conservative financial behavior observed in practice.

## References

1. Altman, E.I. 1984. A Further Empirical Investigation of the Bankruptcy Cost Question. *Journal of Finance*, 39 (4), 1067–1089.
2. Auerbach, A. 1985. Real Determinants of Corporate Leverage. In Friedman, B. (ed.), *Corporate Capital Structures in the United States* (301–324), Chicago: University of Chicago Press.
3. Baumol, W.J. 1959. *Business Behavior, Value and Growth*. New York: Harcourt, Brace & World.
4. Baumol, W.J. 1962. On the Theory of Expansion of the Firm. *American Economic Review*, 52 (5), 1078–1087.
5. Berger, P.G., E. Ofek, and D.L. Yermack. 1997. Managerial Entrenchment and Capital Structure Decisions. *Journal of Finance*, 52 (4), 1411–1438.
6. Berglof, E., and E.L. von Thaden. 1999. Short-Term Versus Long-Term Interests: Capital Structure with Multiple Investors. *Quarterly Journal of Economics*, 109 (4), 1055–1084.
7. Berk A. 2006. Determinants of Leverage in Slovenian Blue-chip Firms and Stock Performance Following Substantial Debt Increases. *Post-communist Economies*, 18, (4), 479–494.
8. Berk, A. 2007. The Role of Capital Market in Determining the Capital Structure: Evidence from Slovenian Public and Private Corporations. *Acta Oeconomica*, 57 (2), 123–155.
9. Berk, J.B., R.H. Stanton, and J. Zechner 2007. Human Capital, Bankruptcy and Capital Structure. *NBER Working Paper Series*, 13014.
10. Bharath, S.T., P. Pasquariello, and G. Wu 2009. *Review of Financial Studies*, 22 (8), 3211–3243.
11. Blinder, A. 1993 A Simple Note on the Japanese Firm. *Journal of the Japanese and International Economies*, 7 (3), 238–255.
12. Bradley, M., G.A. Jarrell, and E.H. Kim 1984. On the Existence of an Optimal Capital Structure: Theory and Evidence. *Journal of Finance*, 39 (3), 857–878.
13. Bronars, S.G., and D.R. Deere 1991. The Threat of Unionization, The Use of Debt, and the Preservations of Shareholders' Wealth. *Quarterly Journal of Economics*, 106 (1), 231–254.

14. Cavanaugh, J.K., and J. Garen 1997. Unionization and the Firm's Use of Debt. *Managerial and Decision Economics*, 18 (3), 255–269.
15. Chang, C. 1992. Capital Structure as an Optimal Contract between Employees and Investors. *Journal of Finance*, 47 (3), 1141–1158.
16. Chemmanur, T.J., Y. Cheng, and T. Zhang 2009. Capital Structure and Employee Pay: An Empirical Analysis. Available at SSRN: <http://ssrn.com/abstract=1361752>.
17. Chen, J.J. 2004. Determinants of Capital Structure of Chinese-Listed Firms. *Journal of Business Research*, 57 (12), 1341–1351.
18. Črnigoj, M., and D. Mramor 2009. Determinants of Capital Structure in Emerging European Economies: Evidence from Slovenian Firms. *Emerging Markets Finance & Trade*, 45 (1), 72–89.
19. De Haas, R. and M. Peeters 2006. The dynamic adjustment towards target capital structures of firms in transition economies. *Economics of Transition*, 14 (1), 133–169.
20. Delcours, N. 2007. The Determinants of Capital Structure in Transitional Economies. *International Review of Economics and Finance*, 16 (2), 400–415.
21. Dewatripont, M. and J. Tirole. 1994. A Theory of Debt and Equity: Diversity of Securities and Manager-Shareholder Congruence. *The Quarterly Journal of Economics*, 109 (4), 1027–1054.
22. EBRD 2006. *Transition Report 2006, Finance in transition*. London: European Bank for Reconstruction and Development.
23. Flannery, M.J., and K.P. Rangan 2006. Partial Adjustment toward Target Capital Structures. *Journal of Financial Economics*, 79 (3), 469–506.
24. Friend, I., and L.H.P. Lang 1988. An Empirical Test of the Impact of Managerial Self-Interest on Corporate Capital Structure. *Journal of Finance*, 43 (2), 271–281.
25. Gordon, M.J. 1994. *Finance, Investment and Macroeconomics – The Neoclassical and a Post Keynesian Solution*. Aldershot: Edward Elgar.
26. Graham, J.R. 1996. Debt and the Marginal Tax Rate. *Journal of Financial Economics*, 41 (1), 41–73.
27. Graham, J.R., and C.R. Harvey 2001. The Theory and Practice of Corporate Finance: Evidence from the Field. *Journal of Financial Economics*, 60 (2–3), 187–243.
28. Grossman, S.J., and O.D. Hart 1982. Corporate Financial Structure and Managerial Incentives. In McCall, J. (ed.), *The Economics of Information and Uncertainty* (107–140), Chicago: University of Chicago Press.
29. Hanka, G. 1998. Debt and the Terms of Employment. *Journal of Financial Economics*, 48 (3), 245–282.
30. Harris, M., and A. Raviv 1988. Corporate Control Contests and Capital Structure. *Journal of Financial Economics*, 20, 55–86.
31. Harris, M., and B. Holmstrom 1982. A Theory of Wage Dynamics. *The Review of Economic Studies*, 49 (3), 315–333.
32. Hart, O., and J. Moore 1998. Default and Renegotiation. *Quarterly Journal of Economics*, 98 (6), 1119–1158.
33. Hirsch, B.T. 1991. *Labour Unions and the Economic Performance of Firms*. Kalamazoo: W.E. Upjohn Institute for Employment Research.
34. Hovakimian, A., T. Opler, and S. Titman 2001. The Debt-Equity Choice. *Journal of Financial and Quantitative Analysis*, 36 (1), 1–24.
35. Israel, R. 1991. Capital Structure and the Market for Corporate Control: The Defensive Role of Debt Financing. *Journal of Finance*, 46 (4), 1391–1409.
36. Jensen, M.C. 1986. Agency Costs of Free Cash Flow, Corporate Finance, and Takeovers. *American Economic Review*, 76 (2), 323–329.
37. Jensen, M.C., and W.H. Meckling 1976. Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure. *Journal of Financial Economics*, 3 (4), 305–360.
38. Julilvand, A. and R.S. Harris 1984. Corporate Behavior in Adjusting to Capital Structure and Dividend Targets: An Econometric Study. *Journal of Finance*, 39 (1), 127–145.
39. Kale, J.R., L. Wang, and H.E. Ryan 2008. Debt as a Disciplining Mechanism: Evidence from the Relations between Employee Productivity, Capital Structure, and Outside Employment Opportunities. Available at SSRN: <http://ssrn.com/abstract=1022067>.
40. Kemsley, D., and D. Nissim 2002. Valuation of the Debt Tax Shield. *Journal of Finance*, 57 (5), 2045–2073.
41. La Porta, R., F. Lopez-De-Silanes, A. Shleifer, and R.W. Vishny 1997. Legal Determinants of External Finance. *Journal of Finance* 52 (3), 1131–1150.
42. Long, M.S., and E.B. Malitz 1985. Investment Patterns and Financial Leverage. In Friedman, B. (ed.), *Corporate Capital Structures in the United States* (325–352), Chicago: University of Chicago Press.
43. MacKie-Mason, J.K. 1990. Do Taxes Affect Corporate Financing Decisions? *Journal of Finance*, 45 (5), 1471–1493.
44. Markowitz, H.M. 1952. Portfolio Selection. *Journal of Finance*, 7 (1), 77–91.
45. Marris, R. 1964. *The Economic Theory of Managerial Capitalism*. Glencoe: Free Press of Glencoe.
46. Marsh, P. 1982. The Choice between Equity and Debt: An Empirical Study. *Journal of Finance*, 37 (1), 121–144.
47. Masulis, R.W. 1980. The Effects of Capital Structure Change on Security Prices. *Journal of Financial Economics*, 8 (2), 139–178.
48. Matsa, D.A. 2010. Capital Structure as a Strategic Variable: Evidence from Collective Bargaining. *Journal of Finance*, Forthcoming (June 2010).
49. Morellec, E. 2004. Can Managerial Discretion Explain Observed Leverage Ratios? *The Review of Financial Studies*, 17 (1), 257–294.
50. Mramor, D. and A. Valentinčič 2001. When Maximizing Shareholders' Wealth Is Not the Only Choice. *Eastern European Economics*, 39 (6), 64–93.
51. Myers, S.C. 1977. Determinants of Corporate Borrowing. *Journal of Financial Economics*, 5, 147–175.
52. Myers, S.C., and N.S. Majluf 1984. Corporate Financing and Investment Decisions When Firms Have Information That Investors Do Not Have. *Journal of Financial Economics*, 13 (2), 187–221.
53. Nivorozhkin, E. 2005. Firms' Financing Choices in EU Accession Countries. *Emerging Markets Review*, 6 (2), 138–169.

54. Opler, T.C., and S. Titman 1994. Financial Distress and Corporate Performance. *Journal of Finance*, 49 (3), 1015–1040.
55. Pistor, K., M. Raiser, and S. Gelfer 2000. Law and Finance in Transition Economies. *Economics of Transition* 8 (2), 325–368.
56. Sarig, O.H. 1998. The Effect of Leverage on Bargaining with a Corporation. *Financial Review*, 33 (1), 1–16.
57. Shyam-Sunder, L., and S.C. Myers 1999. Testing Static Tradeoff against Pecking Order Models of Capital Structure. *Journal of Financial Economics*, 51 (2), 219–244.
58. Stulz, R. 1988. Managerial Control of Voting Rights: Financing Policies and the Market for Managerial Control. *Journal of Financial Economics*, 20, 25–54.
59. Taggart, R.A. 1977. A Model of Corporate Financing Decisions. *Journal of Finance*, 32 (5), 1467–1484.
60. Warner, J. 1977. Bankruptcy Costs: Some Evidence. *Journal of Finance*, 32 (2), 337–347.
61. Williamson, O.E. 1963. Managerial Discretion and Business Behavior. *American Economic Review*, 53 (5), 1032–1057.
62. Zwiebel, J. 1996. Dynamic Capital Structure under Managerial Entrenchment. *American Economic Review*, 86 (5), 1197–1215.