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Abstract

Assuming an alternative corporate governance paradigm that puts employees in the firm's governance structures, as well as understanding their objective functions, we investigate the corporate capital structure choice. Examining corporate capital structure decisions in 12 European countries, we provide strong empirical evidence that employee-governed firms operate with lower leverage compared to the firms governed by other stakeholders. We found negative correlation of leverage to employees' entrenchment and employees' ownership rights. But in contrast to the expectations, we found that firm's leverage is, except in the UK, negatively associated with ownership concentration and the effectiveness of monitoring. Besides, we found that employee-governed firms tend to be less levered at the same amount of earnings volatility than the firms governed by other stakeholders.

Keywords: alternative corporate governance paradigm, employee-governed firm, capital structure, leverage, debt maturity, cost of debt

JEL classification: G32

1. Introduction

Modern capital structure theory that has developed in the last 50 years proposed various factors to explain the corporate capital structure choice. In the seminal paper, Modigliani and Miller (1958, 1963) identify taxes as the main driver for the use of debt financing, while the following research try to answer why the interest tax shields provided by debt do not lead firms to borrow as much as possible. Modigliani and Miller (1963), for example, suggest that firms maintain reserve borrowing capacity and that the incremental tax advantage of debt declines as more debt is issued and interest tax shields become less certain. Miller (1977) argues that the gain from leverage falls significantly if personal taxes are taken into account. DeAngelo and Masulis (1980) consider tax shields other than interest payments, such as accounting depreciation, depletion allowances, and investment tax credits. Others acknowledge bankruptcy costs and argue that optimal capital structure is defined by the trade-off between the value created by the interest tax shield and the value lost from bankruptcy costs. More recent literature focuses on agency costs and asymmetric information. Assuming that managers do not always act in the best interest of shareholders, the agency cost theory emphasizes the role of debt as a disciplining device. By increasing debt, shareholders reduce the free cash flow problem (Jensen, 1986) but, on the other hand, cause asset substitution (Jensen and Meckling, 1976) and suboptimal investment (Myers, 1977). Models based on asymmetric information hypothesize that capital structure choice can change the market perception and affect the firm's value. Myers (1984) argues that the firm's financing process follows a pecking order, forcing the firm to exhaust internal sources first and when external sources are required, to first issue debt, while issuing equity capital only as a last resort. However, empirical evidence suggests that modern capital structure theory cannot sufficiently explain firms' capital structure decisions. Empirical evidence show that firms' leverage is well beyond the levels suggested by modern capital structure theory and that little of the variation in leverage is captured by the proposed determinates. Firms pursue very conservative financial policies and their debt ratios exhibit significant stability over time (Lemmon and Zender, 2001). Moreover, little of the variation in leverage is captured by previously identified determinants and the majority of variation is driven by unobserved firm specific time-invariant effect (Lemmon et al., 2006).

We argue that modern capital structure theory is unable to sufficiently explain firms' capital structure decisions because it is developed on an incomplete assumption about the goal of the firm. Modern capital structure theory assumes that firms are governed by shareholders and follow the goal of maximizing shareholders' wealth. However, the concept of value maximization does not encompass all the corporate governance systems and the resulting goals of the firms nowadays. Just a glance over the corporate governance systems around the world suggests that there are stakeholders other than shareholders that significantly affect firms' behavior. In Germany, for example, the legal system is quite explicit that firms do not have the sole duty of pursuing the shareholders' interests. A system of codetermination enables employees' active participation in the firm's decision-making process. Germany is by no means the only country where one can expect firms' behavior to deviate from the concept of value maximization. Specific corporate governance arrangements can be found in other European countries, Japan, etc. Besides, the new theory of the firm identifies alternative sources of power within the firm. According to the property rights theory, power stems from ownership of physical assets. Hence, the firm is nothing but a collection of physical assets. It is no surprise then that there is no room for stakeholders other than shareholders, i.e. the owners of the assets, given that people cannot be owned. In contrast, Rajan and Zingales (1998) argue that power stems from control over a critical resource and that the main mechanism to allocate power is access; that is, the ability to use or work with a critical resource. An agent that is given privileged access to the resource receives no residual rights of control, but the opportunity to specialize his human capital to the resource and make himself valuable. Highlighting alternative sources of power, the new theory of the firm defines the firm in terms of unique assets, as well as in

terms of people that have access to the critical resources. Thus, it brings stakeholders other than shareholders within the boundaries of the firm.

In this paper, we investigate the capital structure implications of having employees in control. The firm having employees in control, i.e. employee-governed firm, does not follow the goal of maximizing the value of the firm. We intuitively expect that employees are maximizing the wages and other benefits. Theoretically we can derive employees' objective function by paralleling their claim to the debtholders' claim in the firm. Merton (1974) showed that the value of debt, as any other fixed claim in the firm, is equal to the difference between the value of the firm's debt discounted at a risk-free rate and the value of the put option on the firm's assets or to the payoff to debtholders when the firm is solvent and the debt repaid, and the expected recovery given bankruptcy, weighted by the probabilities of bankruptcy. Applying this logic to the employees' claim, we find that the value of the employees' claim is equal to the difference between the value of the wages the firm owes to employees discounted at a risk-free rate and the value of the put option on the firm's assets or to the payoff to employees when the firm is solvent and the expected recovery in bankruptcy weighted by the probabilities of bankruptcy. Thus, employees are aimed at maximizing the value of their wages and minimizing the value of the put option on the firm's assets. The put option value decreases with the value of the firm's assets, and it increases with the volatility of the firm's operating cash flow. However, as argued by Faleye et al. (2006), given that employees' careers with the firm are finite, it is assumed that they have limited horizons and that they employ an infinite discount rate in the period beyond their careers. Under this assumption, employees' objective is to minimize the value of the put option. Employees are thus maximizing the wages, as well as being highly risk averse in their decisions in order to minimize the probability of bankruptcy.

The paper is structured as follows. In the second section we hypothesize about the leverage of the employee-governed firm, we discuss the demand for debt and the supply of debt, as well as the choice of debt maturity and the cost of debt faced by employee-governed firm. In the third section, we present the data and in the fourth the methodology used in the empirical study. In the fifth section we present the results. The sixth section concludes.

2. Capital structure choice in employee-governed firm

Employee-governed firm that is maximizing the wages and minimizing the probability of bankruptcy is expected to operate with lower leverage compared to the value-maximizing firm that is governed by shareholders. Besides, employee-governed firm is expected to opt for debt of shorter maturity and to be faced with higher cost of debt. Lower leverage, shorter debt maturity and higher cost of debt in employee-governed firm are due to the specifics in the demand for debt and supply of debt.

2.1. Demand for debt

Intuitively, we can expect that employee-governed firm that is maximizing the wages and minimizing the probability of bankruptcy opt for the lowest possible level of debt because interests payments reduce cash flow and thus the wages and increase bankruptcy risk. Chang (1992) took a more theoretical approach and derived the firm's optimal debt level when employees face nonmonetary restructuring related costs. He arrived at optimal debt level 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 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 financial, as well as nonfinancial, benefits of restructuring is generally below the level that maximizes the value of the firm if the restructuring-related costs to employees are accounted for.

Employees prefer conservative financial policy because their under-diversified human capital represents a large share of their wealth. Portfolio theory states that the optimal portfolio of risky securities will be diversified across all the securities available in the market (Markowitz, 1952). However, employees invest a substantial part of their wealth, i.e. their human capital, in one firm. Hence, their risk is closely related to the risk of the firm. A failure of the firm to achieve predetermined performance targets, or in the extreme case the bankruptcy of the firm, results in employees losing their current employment. Moreover, risk cannot be effectively diversified away by allocating human capital across many investments. Employees cannot hold more than one job at a time. Compared to the capital market, 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. Employees are therefore expected to decrease the risk using other means. One of the ways is by choosing a conservative capital structure.

Berk et al. (2007), recognizing large human costs of bankruptcy, investigated capital structure implications by deriving an optimal employment contract. Their optimal employment contract 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 the interest payments at the contracted wage level, 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 the leverage of the firm. 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) argue that firms issue only modest levels of debt, and will also maintain cash balances despite these being associated with tax disadvantages. Firm's capital structure decisions are thus 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 also been empirically investigated. Chemmanur et al. (2009) tested whether the 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 also found 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 observed 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.

2.2. Supply of debt

Credit market equilibrium is characterized by credit rationing. Credit rationing refers to the equilibrium phenomenon when a potential borrower cannot obtain a loan that he wants even though he is willing to pay the interest rate that the lender requires or perhaps even offers to pay a higher interest rate. Normally, if demand exceeds supply, the price will rise, decreasing demand and/or increasing supply, until demand and supply are equal. However, it seems that the interest rate does not do its job on the credit market. Why are lenders not willing to raise interest rates if demand exceeds supply at the prevailing rates? Following the impetus of Jaffe and Russell (1976), Keeton (1979), and Stiglitz and Weiss (1981, 1983), economists have come to the conclusion that credit rationing is driven by the asymmetry of information between borrowers and lenders. It was shown that because of adverse selection and the moral hazard problem, some borrowers are unable to obtain credit, whereas the borrowers that do obtain credit face limited borrowing capacity.

Adverse selection occurs because lenders and borrowers have asymmetric information about the quality of the borrowers. When lenders cannot separate good borrowers (i.e., borrowers that have a high probability of repayment) from bad borrowers (i.e., borrowers with a low probability of repayment), bad borrowers are more likely to be selected than good borrowers. Higher interest rate tends to attract bad borrowers because good borrowers are willing to pay only a low interest rate and are thus driven out of the market. Lenders therefore want to keep interest rates low in order to attract good borrowers. As a result, some of the borrowers that want credit cannot obtain it. Moral hazard refers to the problem of inducing the borrower to behave as desired by the lender when the borrower's actions cannot be observed and contracted for. Because of the interest rate's incentive effects, the behavior of the borrower is likely to change with the increase in the interest rate. A higher interest rate decreases the borrower's return on projects that succeed and thus induces them to undertake riskier projects (i.e., projects with a lower probability of success but higher payoff, or projects that offer borrowers higher private benefits). For this reason, some borrowers are unable to obtain credit, whereas the borrowers that do obtain credit face limited borrowing capacity.

Firms mitigate the adverse selection problem and credit rationing by signaling the true quality to uninformed lenders, so that they invest their own funds in projects (Leland and Pyle, 1977), pledge collateral (Chan and Kanatas, 1985; Bester, 1985; Bester 1987; Besanko and Thakor, 1987), borrow short-term and securing fewer resources than needed in the future and thus conveying to uninformed lenders the confidence about their prospects and that they are not afraid of refinancing short-term debt (Flannery, 1986; Diamond, 1991) and choose an appropriate payout policy (Miller and Modigliani, 1961; Bhattacharya, 1979; Miller and Rock; 1985; John and Williams, 1985; Bernheim and Wantz, 1985). Firms mitigate the moral hazard problem and increase their borrowing capacity by pledging real assets as collateral (Bester, 1987), building reputation capital, and diversification (Diamond, 1989), as well as bringing down the bargaining power of human capital (Hart and Moore, 1994).

The problem of credit rationing and limited borrowing capacity is more severe in employee-governed firm compared to the problem in the firm that is governed by shareholders. The relationship between the lender and employee-governed firm is characterized by higher information asymmetry and higher agency costs. Moreover, because employees have limited personal wealth and are compared to shareholders more risk averse, as well as they disfavor large payouts, employee-governed firm is deprived of using the signals to convey its quality to uninformed lenders and thus to

mitigate lenders' informational disadvantage, which is crucial for reducing credit rationing and the firm's limited borrowing capacity. Limited personal wealth and risk aversion, as well as the bargaining power of human capital, also enables to control moral hazard and to increase their borrowing capacity. Since employee-governed firm is left only with the possibility to signal its quality to uninformed lenders by borrowing short term and pledging collateral, we expect employee-governed firm to opt for debt of shorter maturity, as well as to be forced to pledge more collateral to obtain debt financing. Besides, it is believed that financial markets disfavor democratic firms (Gintis, 1989), that is why it is expected that employee-governed firm will be faced with a higher cost of debt compared to the firm governed by shareholders. Rather than lending to employee-governed firms, lenders prefer to lend to firms governed by shareholders, which better protect their investments by enforcing value-maximizing decisions.

3. Data

3.1. Database and samples

The empirical study considers firms from four western European countries (France, Germany, Sweden, and the United Kingdom), five central and eastern European countries (the Czech Republic, Hungary, Poland, Slovakia, and Slovenia) and the three Baltic states (Estonia, Latvia, and Lithuania). The choice of the countries is intended to cover different legal environments in Europe. La Porta et al. (1997, 1998) argued that differences in the development of the financial system and thus the use of external resources stem from the differences in investors' protection. They provided evidence that legal rules protecting investors and the quality of law enforcement vary systematically by legal origin. Legal origin can be English, French, German, or Scandinavian. English law is common law, whereas French, German, and Scandinavian laws are part of the civil law tradition. Common law tends to protect investors the most and French the least, whereas German and Scandinavian are somewhere in the middle. Central and eastern European countries' and the Baltic states' (CEB) current legal systems are based on German civil law. Despite scoring higher than the other three civil law families on legal rules, they are relatively less protective taking into account law enforcement (Pistor et al. 2000).

The data come from the AMADEUS database of Bureau van Dijk. It is a comprehensive pan-European database containing financial information on over 10 million public and private companies in 38 European countries. In addition to general descriptive information such as the firm's legal form, year of incorporation, industry code, number of employees and so on, it includes data about 24 balance sheet items and 25 profit and loss account items. Moreover, AMADEUS, like no other pan-European source, includes ownership information.

The study considers only large firms (i.e., firms that have at least 250 employees). As it is typical for capital structure research, financial firms are excluded. Although data were collected for an eleven-year period, the panels cover only a seven-year period (i.e., the period from 2001 to 2007). This is due to the fact that for some explanatory variables data from the four preceding years are required.

Due to the poor quality of the data, unbalanced panels are considered. For example, in Sweden, which has the highest percentage of firms represented in every year of the period under investigation, only 43,2 percent of firms could be used if balanced panels are used. The percentage amounts to only 26,9 percent in France, 28,8 percent in the UK, 10,7 percent in CEB, and less than 5 percent in Germany.

Taking into account data from 1997 to 2007, the panels consist of a relatively large number of observations; however, when the variables of interest are calculated, it drops significantly. For the corresponding period there are 20.297 observations (4.244 firms) available in France, 6.434 observations (2.630 firms) in Germany, 7.229 observations (1.380 firms) in Sweden, 33.215 observations (6.946 firms) in the UK, and 11.752 observations (3.236 firms) in CEB.[1]

3.2. Descriptive statistics

As seen in table 1, the average value of sales, total assets, and number of employees differs significantly across countries. In Sweden, for example, the mean value of sales amounted to 4 billion EUR, whereas it was around 1,5 billion EUR in Germany and CEB, and only around 0,5 billion EUR in France and the UK. The mean value of total assets amounted to 4,5 billion EUR in Sweden, whereas it was around 1,5 EUR billion in Germany and CEB and 0,5 billion EUR in France and the UK. In all countries, the median value of sales and total assets was well below the mean value, suggesting that most of the firms are smaller than the mean firm. Analyzing the number of employees, there were 5.247 employees in the mean German firm (775 in the median firm), 2.533 employees in the mean French firm (459 in the median firm), 2.408 employees in the mean UK firm (560 in the median firm), 1.918 employees in the mean Swedish firm (481 in the median firm), and only 791 employees in the mean firm within CEB countries (390 in the median firm). Although similar differences are observed when analyzing the relations in mean (median) values of earnings before interests and taxes (EBIT) and net income across countries, the firms exhibit very similar average returns on assets (ROA). The mean value of ROA amounts to 6 to 7 percent, whereas the median value is 1 to 1,5 percentage points lower.

TABLE 1 APPROXIMATELY HERE

As found in the existing literature on cross-country capital structure research, firms' leverage differs on average across countries. As found by Rajan and Zingales (1995), the average firm in Germany has lower leverage than the average firm in France, but in contrast to their findings relatively higher leverage is observed in UK firms. The mean (median) value of total debt ratio amounts to 28,9 percent (26,0 percent) in Germany, 33,5 percent (31,5 percent) in France, and 45,3 percent (43,4 percent) in the UK. Lower leverage than in France and Germany is also observed in Sweden and CEB, 23,4 percent (17,8 percent) and 30,6 percent (26,5 percent), respectively. Similar relations are observed comparing average values taking into account only the long-term debt.

The next thing that has an important implication for this study concerns the evolution of leverage. Despite the fact that average leverage is fairly similar across years, there are significant differences among groups of firms that pursue different capital structure policies. We constructed four groups of firms based on their total debt ratio in 1998, defined as firms with a low, medium, high, and very high total debt ratio, and computed the average total debt ratio in all subsequent nine years, holding the composition of the groups constant. Groups were defined using 25th, 50th, and 75th percentiles for boundaries between groups. The results can be seen in figure 1. Consistent with the findings of Lemmon et al. (2006), who conducted a similar analysis, two features can be observed. There are significant differences in leverage between groups but there is a noticeable convergence among the leverage of groups over time.

[1] In addition, outliers are excluded. For most of the explanatory variables, outliers were defined by graphically inspecting distributions (no more than a few observations were defined as outliers), and for variables that take into account the number of employees, the lowest and the highest percentiles were excluded. Excluding several firms for variables that take the number of employees into consideration was necessary because the high variation in the number of employees for some firms was probably a mistake in the database.

FIGURE 1 APPROXIMATELY HERE

For example, in France the mean total debt ratio of the group with low leverage in 1998 amounted to 9,3 percent, whereas the mean total debt ratio of the group with medium leverage amounted to 23,6 percent. The difference in 1998 thus amounted to 14,4 percentage points and is highly statistically significant. The mean total debt ratio of the group with low leverage increased to 25,0 percent in 2007, and the mean total debt ratio of the group with medium leverage increased to 29,4 percent. The difference thus dropped to 4,3 percentage point, but remained highly statistically significant. The mean total debt ratio of the group with high leverage in 1998 amounted to 38,6 percent, and the mean total debt ratio of the group with very high leverage amounted to 60,2 percent, the difference being 21,6 percentage points and highly statistically significant. The mean total debt ratio of the group with high leverage decreased to 37,7 percent in 2007, and the mean total debt ratio of the group with very high leverage decreased to 46,9 percent; the difference thus dropped to 9,2 percentage points but remained highly statistically significant. Statistically significant differences are observed comparing the mean leverage of the group with medium leverage and the mean leverage of the group with high leverage, as well as the mean leverage of the group with low leverage and the mean leverage of the group with very high leverage. Similar patterns in the evolution of leverage as in France can be observed in Sweden, the UK, and CEB. However, as seen in figure 1, this is slightly different in Germany, where (except in 1998) only the differences between the group with very high leverage and other groups are statistically significant.[2]

As pointed out already by Lemmon et al. (2006), the differences in the leverage of different groups of firms may simply be capturing cross-sectional variation in the underlying capital structure determinants identified by modern capital structure theory, such as profitability, tax status, bankruptcy cost, agency cost, and asymmetric information. Namely, if profitability (for example) tends to be negatively correlated to leverage, firms included in the group with low leverage may simply be more profitable firms. To address this issue, we calculated and compared the average value of the proxies for the most common capital structure determinants (i.e., profitability, tangibility of assets, and firm size) across groups. Based on the results, it is not possible to conclude that the differences correspond to cross-sectional variation in the factors most commonly found significant in capital structure research. In particular, only differences in firm size in France correspond to the sorting of groups in the period studied. In contrast, in other countries, none of the factors can explain the sorting of groups.

Based on the results obtained here, it can be argued that capital structure decisions are driven by a factor with a significant permanent component. Because capital structure decisions are significantly affected by corporate governance issues, such as who governs the firm and what the objective function of the stakeholder in control is, this is one possible direction to look for a firm-specific time-invariant component.

4. Methodology

4.1. Leverage measures and explanatory variables

A firm's leverage is measured using two different ratios. Total debt ratio (LEV_1), which is defined as the ratio of long-term and short-term debt to the value of total assets, and long-term debt ratio (LEV_2) that takes into account only long-term debt. Leverage is measured only in book values because

[2] Weak evidence of leverage differences is due to a very low number of firms being represented in every year of the period under investigation.

the samples mostly consist of unlisted firms. Debt maturity (*MAT*) is approximated by the ratio of long-term debt to total debt, and cost of debt (*COST*) as the ratio of interests paid to total debt.

Employees' ability to affect capital structure decisions stems from at least three different sources. Employees can affect capital structure decisions if they have ownership rights in the firm. However, employees can also govern the firm without owning the firm. As already mention, in Germany, for example, a system of codetermination allows active participation of employees in the firm's decision-making process through workers' councils and employee and union representation on supervisory boards. Therefore, the more the corporate governance system recognizes employees' interest, the more employees' participation in decision-making is expected. And employees' participation is reflected in employees' entrenchment. Finally, employees' ability to affect capital structure decisions depends on the ownership structure and the effectiveness of monitoring.

Employees' ownership rights ($D_{E/M}$) are measured with a dummy variable, taking a value of 1 if the firm's main shareholders are employees or managers, and 0 if the firm's main shareholders are not employees or managers. Distinguishing only employee-owned firms is not possible because the AMADEUS database does not distinguish employee-owned and manager-owned firms. As argued by Jensen and Meckling (1976), as well as other authors, managerial ownership has an important influence on firm value. The higher the managerial ownership, the more powerful the incentives to make value-maximizing decisions. Focusing on managerial control motivations, Haris and Raviv (1988) and Stulz (1988) argue that managers use debt to increase their voting power, whereas Israel (1991) argue that this is to affect the distribution of cash flows between voting and nonvoting shares in order to influence the outcome of the takeover contest. However, Morck et al. (1988) argue that this may not hold over all ownership structures because high ownership shares may insulate managers against other disciplinary forces. On the other hand, Faleye et al. (2006) argue that firms in which labor has ownership stakes deviate from value maximization. Therefore an unambiguous prediction about the effect of employees' ownership rights on leverage cannot be made. Similar conclusions can be made for debt maturity and the cost of debt.

The extent to which employees' interests are recognized and their participation in decision-making is reflected in employees' entrenchment. Employees' entrenchment results in extracting rents through wages and other benefits. Following Črnigoj and Mramor (2009), employees' entrenchment is measured taking into account their ability to increase the wages relatively to the increase of the value added. In particular, employees' entrenchment is approximated by the difference between the growth rate of labor costs per employee and the growth rate of value added per employee (*DIFF*). The higher the difference, the more entrenched employees are, and the lower the leverage. As argued by Flannery (1986) and Diamond (1991), by borrowing short-term instead of long-term and securing fewer resources than needed in the future, firms signal their creditworthiness. Employee-governed firms, which are deprived of using signals, such as investing their own funds in the firm, pledging collateral, and payout policy, can signal their creditworthiness only by borrowing short-term. It is thus expected that employee-governed firms opt for debt of shorter maturity compared to firms governed by shareholders. Because financial markets disfavor democratic firms (Gintis, 1989), it is also expected that employee-governed firms will be faced with a higher cost of debt. Rather than lending to employee-governed firms, lenders prefer to lend to firms governed by shareholders, which better protect their investments by enforcing value-maximizing decisions.

Finally, employees' impact on leverage decisions depends on the ownership structure and the effectiveness of monitoring. It is expected that the higher the ownership concentration, the higher the incentives to monitor and the enforcement of value-maximizing decisions. As argued by Jensen (1986), debt is one of the disciplining mechanisms. Thus, the higher the ownership concentration, the higher the leverage. Ownership concentration should also result in longer debt maturity and lower

cost of debt. Ownership concentration and the effectiveness of monitoring is approximated by the ownership share of the largest shareholder (*OWNCON*).

Modern capital structure theory, suggests that a firm's leverage is driven by factors such as profitability, tangibility of assets, firm size, and so on, that is why a bundle of control variables is used. Trying to take into account the factors that exert the most significant effect on capital structure decisions, as well as the limitation of data availability in the AMADEUS database, five factors are considered. These are profitability, tangibility of assets, earnings volatility, firm size, and firm growth.

In the literature positive, as well as negative, effect of profitability can be found. According to the pecking order hypothesis (Myers, 1984), leverage tends to be negatively correlated to profitability. Profitability can also proxy for growth opportunities and again have a negative impact on leverage. Myers (1977) viewed part of the corporate assets, particularly growth opportunities, as call options, whose value depends on discretionary future investments, and showed that by issuing risky debt a firm reduces its value by inducing a suboptimal investment strategy or by forcing the firm and its debt holders to bear the costs of avoiding the suboptimal strategy. In contrast, the trade-off theory suggests that profitability is positively associated with leverage. More profitable firms have a larger income to shield, thus operate with higher leverage compared to less profitable firms (Modigliani and Miller, 1958, 1963).

Tangibility of assets is expected to have a positive impact on leverage. By pledging collateral, firms decrease the bankruptcy cost and tangible assets are more appropriate collateral compared to the intangibles. Lenders are thus more willing to lend to the firms that have more tangible assets. Myers and Majluf (1984) suggest that firms may find it advantageous to sell secured debt because firms securing debt by collateral with known values avoid the costs associated with underpricing resulting from asymmetric information. Jensen and Meckling (1976) argue that if debt is collateralized, the borrower is restricted to using the funds for the specified project, whereas Myers (1977) expects that funds are used to pursue a more optimal investment policy. This means a lower free cash flow and debt overhang problem. The agency cost associated with the free-cash-flow problem tends to be higher in firms that have less collateralizable assets because monitoring of such firms is more difficult. Higher leverage is thus required to discipline the managers.

Firms with more volatile earnings are expected to operate with lower leverage. Firms with more volatile earnings have a higher bankruptcy cost and thus according to the trade-off theory lower optimal capital structure.

Firm size is again expected be positively associated with leverage. Warner (1977) found that direct bankruptcy costs appear to constitute a larger proportion of firm value as the firm size decreases. Opler and Titman (1994) also stressed the importance of the indirect costs of bankruptcy. They found that highly levered firms lose substantial market share to their less levered competitors, as well as market value of equity, in downturns. Larger firms tend to be also more diversified and thus less prone to go bankrupt (Titman and Wessels, 1988). However, size can also proxy for information asymmetry and thus difficulties in tapping the capital market. Therefore, following Scott (1977), who showed that small firms tend to be faced with a higher cost of issuing equity compared to larger firms, it is expected that small firms will operate with higher leverage.

Faster-growing firms need more resources and taking into account pecking order considerations to accumulate higher debt levels. However, firm growth can also proxy for growth opportunities that result in higher information asymmetry. Then a negative impact is expected. As suggested by Jensen and Meckling (1976) and Myers (1977), shareholders tend to expropriate wealth from bondholders by investing in suboptimal fashion. Therefore, higher agency costs, which are also associated with growth opportunities, mean lower leverage.

Profitability (*ROA*) is approximated by the return on assets, calculated by the ratio of the firm's earnings before interests and taxes to the average value of total assets. Asset tangibility (*TANG*) is approximated by the ratio of the value of fixed assets to the value of total assets. Earnings volatility (*SDROA*) is approximated by the standard deviation of ROA, calculated from a three-year period. Firm size (*SIZE*) is approximated by the logarithm of sales. Firm growth (*GS*) is approximated by the growth rate of sales.

Being aware of persistent differences in the firms' leverage across industries industry-specific effects are taken into account. To cover the 15 industries defined by sections in NACE Rev 1.1. industries, 14 dummy variables are included (one industry is treated as a base category).

4.2. Regression models and estimation techniques

To test for the differences in leverage in employee-governed firms and the firms governed by other stakeholders the following regression model was estimated:

$$LEV = \alpha + \beta_1 D_{E/M\ it} + \beta_2 DIFF_{it} + \beta_3 OWNCON_{it} + \beta_{4,j} CONTROLS_{it} + \varepsilon_{it}$$

in which:

LEV	total debt ratio or long-term debt ratio;
$D_{E/M}$	employees' ownership rights, measured with a dummy variable, taking a value of 1 if the firm's main shareholders are employees or managers and 0 if the firm's main shareholders are not employees or managers;
DIFF	employees' entrenchment, approximated by the difference between the growth rate of labor costs per employee and the growth rate of value added per employee; and
OWNCON	ownership concentration, approximated by the ownership share of the largest shareholder.

CONTROLS include:

ROA	return on assets, calculated by the ratio of the earnings before interests and taxes to the average value of total assets;
TANG	asset tangibility, approximated by the ratio of the value of fixed assets to the value of total assets;
SDROA	earnings volatility, approximated by the standard deviation of ROA, calculated from a three-year period;
SIZE	firm size, approximated by the logarithm of sales;
GS	firm growth, approximated by growth rate of sales; and

industry dummies.

Because of adverse selection and the moral hazard problem and the resulting credit rationing and limited borrowing capacity, it is expected that employee-governed firms rely on internal sources to a larger extent, have to pledge more collateral, and are less levered at the same amount of earnings volatility compared to the firms governed by other stakeholders. Therefore, a dummy variable, which takes a value of 1 if the firm is employee-governed and 0 otherwise (D_{DIFF}), instead of *DIFF*, as well as

the corresponding interactive terms, are used to test for the different impacts through these capital structure determinants.[3]

To see whether employee-governed firms rely on internal sources to a larger extent, have to pledge more collateral, and are less levered at the same amount of earnings volatility compared to the firms governed by other stakeholders, we estimated the following regression model:

$$LEV = \alpha + \beta_1 D_{E/M\,it} + \beta_2 D_{DIFF\,it} + \beta_3 OWNCON_{it} + \beta_3 D_{DIFF\,it} ROA_{it} + \beta_4 D_{DIFF\,it} TANG_{it} + \beta_5 D_{DIFF\,it} SDROA_{it} + \beta_{6,j} CONTROLS_{it} + \varepsilon_{it}$$

In addition to the explanatory variables included in the static models, the dynamic models include lagged values of leverage (LEV_{t-1}).

To test for the differences in debt maturity (*MAT*) in employee-governed firms and the firms governed by other stakeholders, the following regression model was estimated:

$$MAT = \alpha + \beta_1 D_{E/M\,it} + \beta_2 DIFF_{it} + \beta_3 OWNCON_{it} + \beta_{3,j} CONTROLS_{it} + \varepsilon_{it}$$

To see whether employee-governed firms are faced with higher cost of debt (*DEBT*) compared to the firms governed by other stakeholders, we estimated the following regression model:

$$COST = \alpha + \beta_1 D_{E/M\,it} + \beta_2 DIFF_{it} + \beta_3 OWNCON_{it} + \beta_{3,j} CONTROLS_{it} + \varepsilon_{it}$$

The parameters of the static models were estimated as pooled regression using OLS, while when assuming FE and RE, using GLS. The parameters of dynamic models are estimated using the GMM: Anderson and Hsiao's (1982) estimator (AH), Arellano and Bond (1991) (AB), and Arellano and Bover's (1995) and Blundell and Bond's system estimator (SE).

5. Results

5.1. The firm's leverage

Regression results support the hypothesis that employee-governed firms operate with lower leverage compared to the firms governed by other stakeholders. As seen in table 2, the results show that across all countries, except in Germany, firm's leverage is negatively correlated to employees' entrenchment, approximated by the difference between the growth rate of labor costs per employee and the growth rate of value added per employee (*DIFF*). However, the impact is statistically significant only taking into account total debt.[4] OLS estimates of the regression coefficient range from −0,058 in the UK to −0,012 in Sweden. However, the F-test, testing for the statistical significance of the individual dummies, implies significant individual effects. OLS estimates that ignore individual effects suffer from the omission variables problem, thus being biased and inconsistent. As expected, the estimates of the regression coefficient decrease in value when individual effects are taken into account. FE and RE estimates range from −0,036 in France to −0,009

[3] The dummy variable indicating employee-governed is defined using *DIFF*, the 75th percentile being the boundary separating the value 1 from 0. Interactive terms are defined by multiplying a D_{DIFF} by *ROA*, *TANG*, and *SDROA*.
[4] Regression results for long-term debt are not reported in the paper. The results are available at authors at request.

in Sweden, and −0,037 in France and −0,009 in Sweden, respectively.[5] The Hausman test statistic rejects the null hypothesis of no correlation between individual effects with the explanatory variable and thus the RE estimator.[6]

TABLE 2 APPROXIMATELY HERE

Except for France (in part), no statistically significant effect is observed in the dynamic model.[7] This is somehow expected because employees' entrenchment, approximated by the difference between the growth rate of labor costs per employee and the growth rate of value added per employee (*DIFF*), approximates a permanent component being relatively stable over time.

Leverage is negatively correlated to employees' ownership rights, measured with a dummy variable, taking a value of 1 if the firm's main shareholders are employees or managers and 0 if the firm's main shareholders are not employees or managers ($D_{E/M}$), in France and CEB, whereas it correlates positively in the UK. In Germany and Sweden the impact is not statistically significant. As for employees' entrenchment (*DIFF*), the results for employees' ownership rights are statistically significant only when total debt is considered. Weak evidence of the impact of employees' ownership rights on leverage was to some extent expected. The AMADEUS database does not distinguish between employee-owned and manager-owned firms and therefore a dummy variable ($D_{E/M}$) considers employee and manager-owned firms together, although the behavior of employee-owned firms may differ from the behavior of firms owned by managers. Moreover, in all countries studied, employee- and manager-owned firms represent less than 0,5 percent of the firms, resulting in difficulties in proving any regularity.

In contrast to the expectations, a firm's leverage is generally negatively associated with ownership concentration and the effectiveness of monitoring, approximated by the ownership share of the largest shareholder (*OWNCON*). Statistically significant results were obtained in all countries, except in the UK, where positive association was observed. In most countries the results are statistically significant taking into account total debt and long-term debt. This suggests that large shareholders, except in the UK, substitute debt for another disciplining mechanism to align the interests of managers and employees with their own. The result is explained by the average ownership concentration. UK has significantly more dispersed ownership structure compared to other countries in which blockholders control the firms.

As expected, in addition to lower leverage in employee-governed firms, one can also observe significant differences in the impact through other capital structure determinants in employee-governed firms. As seen in table 3, employee-governed firms tend to be less levered at the same amount of earnings volatility, approximated by the standard deviation of ROA in a three-year period (*SDROA*), than firms governed by other stakeholders. Again, the results are statistically significant only taking into account total debt. However, the results do not support the hypothesis that employee-governed firms rely on internal sources to a larger extent and have to pledge more collateral than firms governed by other stakeholders.

TABLE 3 APPROXIMATELY HERE

[5] The results also suggest that employees' entrenchment is a factor with a permanent component and that corporate governance issues, such as who governs the firm and what the objective function of the stakeholders in control is, is one possible direction to look for a firm-specific time-invariant component determining the leverage of the firm.
[6] For total debt in Sweden and the UK the models fail to meet asymptotic assumptions of Hausman test.
[7] The results are not reported in the paper but are available at authors on request.

Going back to table 1 and analyzing the effects of factors suggested by modern capital structure theory, one can find that in line with the pecking order hypothesis, leverage across all countries is negatively correlated to profitability (*ROA*). This suggests that firms in the countries studied rely on internal sources and increase their leverage only when internal sources are exhausted. However, profitability can also proxy for growth opportunities. Negative correlation then implies difficulties in borrowing against growth options. Consistent results were also obtained when testing the effect in the dynamic model; however, for all countries only when total debt is taken into account.

As found by previous studies, long-term debt is positively correlated to tangibility of assets (*TANG*). When total debt is taken into account, a positive correlation is observed only in Germany and Sweden, whereas in other countries a negative or insignificant correlation is observed. The findings imply that firms have to pledge collateral when raising long-term debt, whereas collateral requirements do not play an important factor when a firm is raising short-term debt. Roughly consistent results were also obtained when testing the effect in the dynamic model.

In contrast to the expectations, leverage, except in Sweden, does not exhibit a significant correlation to earnings volatility (*SDROA*). This is found when total debt, as well as long-term debt, is taken into account. Likewise, no regularities were proved in the dynamic model. The result may be due to the possible nonmonotonic relation between leverage and earnings volatility that according to Morellec (2004) prevails if a manager-shareholder conflict is assumed. He argued that, for lower volatility levels, the manager is completely entrenched and the only effect of increased volatility is an increase in bankruptcy costs. This results in a negative relation between volatility and leverage. For higher levels of volatility, an increase in volatility increases bankruptcy risk, as well as the degree of managerial entrenchment. Something similar can be expected if an employee-shareholder conflict is assumed.

Leverage is positively correlated to firm size (*SIZE*) in France, Sweden, and the UK when total debt is taken into account, but only in Sweden when long-term debt is taken into account. The relation exhibits a negative correlation in Germany, but only when long-term debt is taken into account. The results thus confirm the hypothesis that bankruptcy costs constitute a larger proportion of firm value as the firm size decreases and that larger firms tend to be more diversified and thus less prone to go bankrupt, rather than the hypothesis that small firms tend to be faced with a higher cost of issuing equity compared to larger firms and are thus more levered.

The results provide weak evidence of a correlation between leverage and firm growth (*GS*). Leverage is positively correlated to firm growth in France and Germany when total debt is taken into account, and only in Germany when long-term debt is taken into account.

The estimates of the parameters of the dynamic model imply that leverage is significantly affected by the leverage in the previous year. The inclusion of the lagged value of leverage in the regression model significantly reduced the effects of other capital structure determinants. The estimates of the regression coefficient range as high as 0,762 when total debt is taken into account and 0,781 when long-term debt is taken into account.

Finally, it was found that firms' leverage ratios are affected by industry-specific effects. Most industry dummies are highly statistically significant.

5.2. Debt maturity

In contrast, employee-governed firms do not exhibit expected behavior when choosing debt maturity.[8] The results do not support the hypothesis that employee-governed firms opt for debt of shorter maturity. Except in Germany, no statistically significant correlation of debt maturity to employees' entrenchment was found. The OLS estimate of the regression coefficient in Germany amounts to −0,047 and −0,043. However, the F-test, testing for the statistical significance of the individual dummies, implies a significant individual effect, resulting in OLS suffering from the omission variables problem and thus being biased and inconsistent. As expected, the estimates of the regression coefficient decrease in value when individual effects are taken into account. The FE estimate does not exhibit statistical significance, whereas the RE estimate, being statistically significant, amounts to −0,038 and −0,033. However, the Hausman test statistic rejects the null hypothesis of no correlation between individual effects with the explanatory variable and thus the RE estimator. In addition, although the OLS estimate of the regression coefficient for employees' ownership rights suggests that in France and the UK employees' ownership is positively correlated with debt maturity, the FE and RE estimates are not statistically significant. However, except in CEB, the results suggest that debt maturity is negatively correlated to ownership concentration and the effectiveness of monitoring. Based on the findings, it can be concluded that, if shareholders use debt to control free-cash flow problems, they tend to use short-term debt rather than long-term debt.

Debt maturity is in France, Sweden, and the UK negatively correlated to profitability (*ROA*). Debt maturity is generally positively correlated to tangibility of assets (*TANG*). The results confirm the findings obtained when testing the leverage regression model that firms have to pledge collateral when raising long-term debt, whereas collateral requirements do not play an important factor when firms are raising short-term debt. Debt maturity is generally negatively correlated to earnings volatility (*SDROA*); however, FE estimates, except in CEB, besides being lower than OLS and RE estimates, do not exhibit statistical significance. Based on the result, it can be concluded that firms with more volatile earnings have shorter debt maturity. Debt maturity is positively correlated to firm size (*SIZE*) in the UK and negatively in CEB, France and Sweden.

As for the leverage ratios, it was found that debt maturity is affected by industry-specific effects. Most industry dummies are highly statistically significant.

5.3. Cost of debt

The evidence also suggests that employee-governed firms are generally not faced with a higher cost of debt.[9] In all of the countries studied the cost of debt is not significantly correlated to employees' ownership rights. Moreover, the evidence, in contrast to the expectations, implies a negative impact of employees' entrenchment on the cost of debt. The effect is statistically significant in France and Germany. Based on the results, it can be concluded that employee-governed firms in these countries are actually faced with a lower cost of debt compared to the firms governed by other stakeholders. Only in CEB a weak evidence of a positive impact is observed. Again, mixed evidence is obtained for the impact of ownership concentration and the effectiveness of monitoring. The relation exhibits a positive correlation in Germany and a negative one in the UK. As for the leverage regressions and debt maturity regressions, the F-test, testing for the significance of the individual dummies, implies a statistically significant individual effect, resulting in the OLS suffering from the omission variables problem and thus being biased and inconsistent. The Hausman test statistic across all countries rejects the null hypothesis of no correlation between individual effects with the explanatory variable and RE estimator.

[8] Results are not reported in the paper but are available at authors on request.
[9] Results are not reported in the paper but are available at authors on request.

The cost of debt is negatively correlated to profitability (*ROA*) only in Germany. The same findings were obtained investigating the impact of tangibility of assets (*TANG*) on the cost of debt. The results also do not support the hypothesis that firms with more volatile earnings (SDROA) are faced with a higher cost of debt. However, the evidence implies that the cost of debt is negatively correlated to firm size (*SIZE*). The effect is statistically significant in France, Germany, and Sweden. Based on the results, it can be concluded that larger firms in these countries are faced with a lower cost of debt. Again, no statistically significant evidence, except in Sweden, was obtained when investigating the impact of firm growth (GS) on the cost of debt. In Sweden, the cost of debt is negatively correlated to firm growth, suggesting that faster-growing firms obtain cheaper credit.

In contrast to the findings for the leverage ratios and debt maturity, it was found that the cost of debt is not significantly affected by industry-specific effects. None of the industry dummies across countries are statistically significant.

6. Conclusions

By taking into account various channels through which employees' voice is manifested in corporate governance, we studied the capital structure implications of having employees in control. We considered employees' ownership rights, employees' entrenchment, and firms' ownership structure. We provide strong empirical evidence that employee-governed firms operate with lower leverage compared to the firms governed by other stakeholders. We found negative correlation of leverage to employees' entrenchment and employees' ownership rights. But in contrast to the expectations, we found that firm's leverage is, except in UK, negatively associated with ownership concentration and the effectiveness of monitoring. In addition, we documented strong evidence suggesting that employee-governed firms are less levered at the same amount of earnings volatility than firms governed by other stakeholders. However, we did not find evidence that employee-governed firms rely on internal sources to a higher extent and that have to pledge more collateral to obtain debt financing compared to the firms governed by other stakeholders.

In contrast to the expectations, we also did not find evidence that employee-governed firms choose debt of shorter maturity and, somewhat surprisingly, that employee-governed firms in some countries are faced with lower (and not higher) cost of debt compared to firms governed by other stakeholders. It seems that lenders do not differentiate between firms using the price of debt, but instead using the quantity supplied.

Empirically examining capital structure decisions, we provided strong empirical evidence of the capital structure implications of having employees in control and contribute to the scarce literature available in this field. The main limitation of the empirical study relates to the inability of the proxy used to approximate employees' entrenchment, which nonetheless proved that it can explain conservative financial behavior, to fully explain a time-invariant permanent component that is a primary determinant of a firm's leverage. We believe that by more accurately approximating employees' entrenchment, one would explain more of the time-invariant permanent component. Other limitations refer to the abilities to draw conclusions about the effects of employees' ownership rights and ownership concentration, which results from using a database that is not the most appropriate for analyzing ownership structures.

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Tables and figures

Table 1: Descriptive statistics

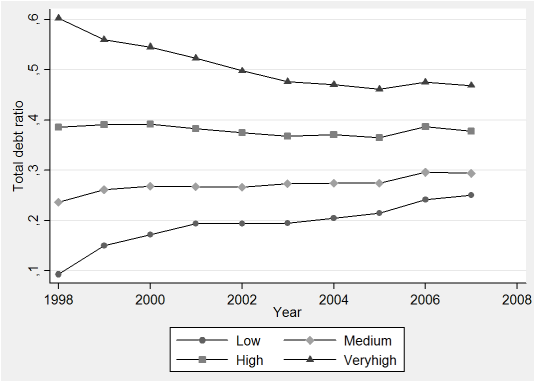
The table presents descriptive statistics (mean, median and standard deviation) of the panels used in the empirical study. LEV_1 refers to total debt ratio, defined as the ratio of long-term and short-term debt to the value of total assets. LEV_2 refers to long-term debt ratio which takes into account only long-term debt.

	France			Germany			Sweden			UK			CEB		
	Mean	Median	Standard deviation	Mean	Median	Standard deviation	Mean	Median	Standard deviation	Mean	Median	Standard deviation	Mean	Median	Standard deviation
Sales	531.909	80.218	3.580.866	1.358.684	160.961	7.134.340	4.043.920	1.029.295	1.38e+07	380.749	66.027	2.842.317	1.537.487	357.032	7.867.074
Total assets	596.719	54.044	5.018.604	1.692.185	130.818	1.15e+07	4.322.995	678.346	1.82e+07	479.028	47.070	5.046.018	1.419.614	268.888	7.641.494
No. of employees	2.533	459	16.715	5.247	775	27.709	1.918	481	8.377	2.408	560	10.900	791	390	1.697
EBIT	39.060	2.419	391.936	83.172	6.952	482.794	302.902	41.754	1.650.527	26.785	2.134	335.843	94.527	9.096	749.988
Net income	17.609	1.421	337.528	51.192	2.692	352.960	210.138	23.075	1.398.978	18.619	1.553	266.105	72.360	5.114	640.885
ROA	0.064	0.056	0.103	0.070	0.060	0.123	0.075	0.067	0.127	0.062	0.060	0.132	0.071	0.054	0.124
LEV_1	0.335	0.315	0.186	0.289	0.260	0.210	0.234	0.178	0.019	0.453	0.434	0.273	0.306	0.265	0.263
LEV_2	0.033	0	0.090	0.145	0.088	0.170	0.093	0.0003	0.153	0.128	0.038	0.183	0.064	0.014	0.120
Observations	20.297			6.434			7.229			33.215			11.752		
Firms	4.244			2.630			1.380			6.946			3.236		

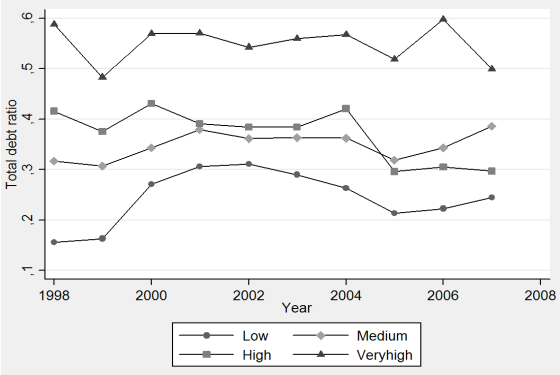
Figure 1: Evolution of leverage

The panels in the figure show the evolution of leverage in 10-year period of four groups of firms based on their total debt ratio in year 1998 (firms with low, medium, high and very high total debt ratio).

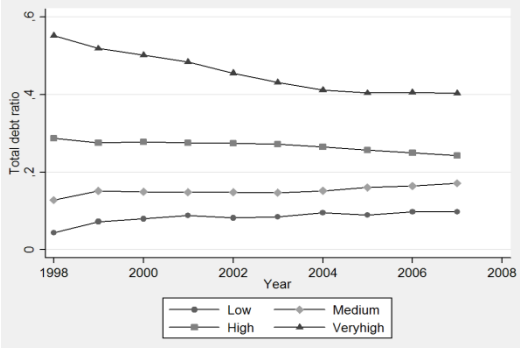
Panel 1: France



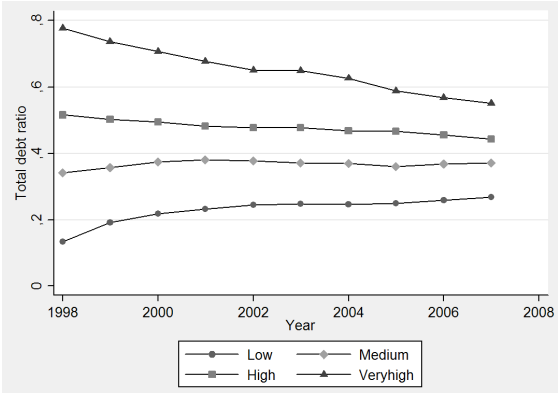
Panel 2: Germany



Panel 3: Sweden



Panel 4: U.K.



Panel 5: CEB

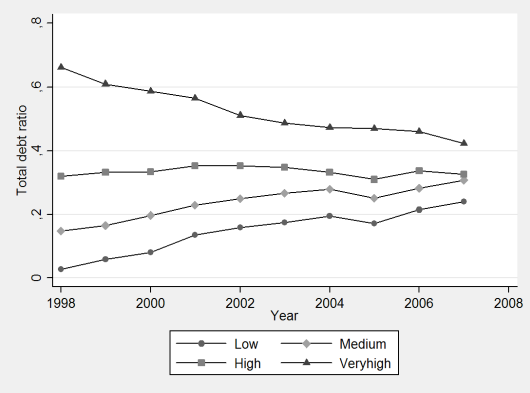


Table 2: Regression results / Total debt

The table presents regression results for total debt (regression coefficients and t –test). Dependent variable is total debt ratio (LEV_1). Explanatory variables include employees' ownership rights ($D_{E/M}$), employees' entrenchment (*DIFF*), ownership concentration (*OWNCON*), profitability (*ROA*), tangibility of assets (*TANG*), earnings volatility (*SDROA*), firm size (*SIZE*), and firm's growth (*GS*). All specifications include also industry dummies and year dummies. Besides, F-test, testing for the significance of individual effects, Hausman test, evaluating the significance of FE versus RE estimator, as well as number of observation and adjusted R-squared, are reported.

	France			Germany			Sweden			UK			CEB		
Variable	OLS	FE	RE	OLS	FE	RE	OLS	FE	RE	OLS	FE	RE	OLS	FE	RE
$D_{E/M}$	-0,060*		-0,071	-0,084		-0,060	0,088		0,065	0,115***		0,113***	-0,179*		-0,162
	-1,90		-1,03	-0,88		-0,54	1,18		0,42	6,39		2,86	-1,74		-0,87
DIFF	-0,042***	-0,036***	-0,037***	-0,009	-0,003	-0,006	-0,012*	-0,009**	-0,009**	-0,058***	-0,023***	-0,025***	-0,026***	-0,013***	-0,016***
	-5,11	-6,95	-7,38	-0,74	-0,35	-0,85	-1,67	-2,24	-2,26	-5,35	-3,87	-4,30	-3,76	-2,61	-3,50
OWNCON	0,000		0,000	-0,001***		-0,001***	-0,001***		0,000*	0,001***		0,001***	0,000***		0,000***
	1,49		0,20	-11,33		-6,81	-5,56		-1,80	18,77		9,01	-3,54		-2,59
ROA	-0,463***	-0,379***	-0,393***	-0,145***	-0,158***	-0,161***	-0,139***	-0,139***	-0,126***	-0,689***	-0,457***	-0,476***	-0,445***	-0,351***	-0,377***
	-35,09	-24,89	-29,26	-6,17	-5,80	-7,52	-7,18	-8,28	-8,05	-26,70	-21,33	-23,67	-22,27	-15,97	-19,95
TANG	-0,034***	0,005	-0,010	0,276***	0,158***	0,239***	0,113***	0,054**	0,082***	0,064***	0,016	0,043***	-0,190***	-0,061***	-0,136***
	-4,20	0,30	-0,90	21,26	5,36	14,61	9,34	2,28	4,66	5,47	0,84	2,83	-15,06	-2,75	-8,53
SDROA	0,241***	0,109***	0,137***	-0,222***	-0,027	-0,088**	-0,286***	-0,004	-0,040	0,015	0,000	-0,005	0,211***	-0,016	0,054
	5,56	3,13	4,14	-4,29	-0,63	-2,32	-6,25	-0,14	-1,33	0,31	0,01	-0,17	4,37	-0,36	1,32
SIZE	0,024***	0,027***	0,023***	0,013***	-0,003	0,009***	-0,005***	0,020***	0,009***	0,009***	0,032***	0,014***	-0,009***	0,004	-0,005**
	24,63	9,45	14,32	7,03	-0,41	3,11	-2,67	5,01	2,99	4,80	5,94	4,55	-5,67	0,69	-2,16
GS	0,000	0,001**	0,001**	0,006**	0,011***	0,009***	0,000	0,000	0,000	0,000	0,000	0,000	0,010***	0,001	0,002
	0,46	2,08	2,03	2,07	7,00	6,49	0,03	0,23	0,56	0,12	1,16	1,06	2,70	0,20	0,75
_cons	0,087***	0,064**	0,074	0,057	0,297***	0,157	0,305***	-0,052	0,124	0,242***	0,114*	0,199**	0,450***	0,325***	0,418***
	2,85	2,01	1,43	0,63	3,81	1,15	6,85	-0,93	1,57	7,37	1,90	3,23	13,95	4,17	7,82
F-test		14,47 (0,000)			13,03 (0.000)			21,84 (0.000)			18,68 (0,000)			6,56 (0,000)	
Hausman test		34,17 (0,000)			29,66 (0.000)			-125,64*			-235,22*			63,96 (0,000)	
N	20.297			6.434			7.229			33.215			11.752		
R-squared	0,193	0,106	0,192	0,176	0,037	0,175	0,106	0,008	0,093	0,213	0,045	0,149	0,199	0,059	0,195

Table 3: Regression results / Total debt with interactive terms

The table presents regression results obtained when testing for the difference in the impact trough capital structure determinants (regression coefficients and t –test). Dependent variable is total debt ratio (LEV_1). Explanatory variables include employees' ownership rights ($D_{E/M}$) employees' entrenchment (D_{DIFF}), ownership concentration (*OWNCON*), profitability (*ROA*), tangibility of assets (*TANG*), earnings volatility (*SDROA*), firm size (*SIZE*), and firm's growth (*GS*), interactive terms ($D_{DIFF}ROA$, $D_{DIFF}TANG$, $D_{DIFF}SDROA$). All specifications include also industry dummies and year dummies. Besides, F-test, testing for the significance of individual effects, number of observation and adjusted R-squared, are reported.

	France			Germany			Sweden			UK			CEB		
Variable	OLS	FE	RE	OLS	FE	RE	OLS	FE	RE	OLS	FE	RE	OLS	FE	RE
$D_{E/M}$	-0,057*		-0,068	-0,088		-0,056	0,097		0,070	0,115***		0,114***	-0,180*		-0,165
	-1,80		-0,99	-0,93		-0,50	1,29		0.45	6,39		2,88	-1,76		-0,89
D_{DIFF}	0,006	-0,006	-0,005	0,005	0,012	0,011	-0,030***	-0,027***	-0,028***	-0,008	-0,009	-0,010	0,020	-0,014	-0,007
	1,08	-1,56	-1,36	0,42	1,56	1,62	-2,70	-4,63	-4,84	-0,68	-1,33	-1,49	1,33	-1,35	-0,73
OWNCON	0,000		0,000	-0,001***		-0,001***	-0,001***		0,000*	0,001***		0,001***	0,000***		0,000***
	1,44		0,19	-11,36		-6,79	-5,48		-1,81	18,70		9,00	-3,54		-2,68
D_{DIFF} *ROA*	-0,081***	-0,007	-0,013	0,058	0,021	0,027	0,048	0,024	0,029	0,138**	0,126***	0,133***	0,033	0,014	0,016
	-2,73	-0,36	-0,71	1,15	0,65	0,90	1,16	1.03	1,26	2,43	3,98	4,26	0,77	0,46	0,55
D_{DIFF} *TANG*	-0,006	0,005	0,004	0,017	-0,013	-0,012	0,014	0,056***	0,057***	-0,008	0,001	0,002	0,009	0,029	0,025
	-0,33	0,48	0,42	0,65	-0,86	-0,83	0,56	4,40	4,45	-0,35	0,05	0,18	0,37	1,62	1,44
D_{DIFF} *SDROA*	-0,328***	-0,271***	-0,270***	-0,172	-0,293***	-0,269***	0,057	0,055	0,060	-0,345***	-0,102*	-0,130**	-0,606***	-0,307***	-0,389***
	-3,49	-4,51	-4,62	-1,60	-3,47	-3,85	0,61	1,14	1,23	-3,14	-1,70	-2,19	-5,98	-4,23	-5,61
ROA	-0,442***	-0,395***	-0,403***	-0,164***	-0,222***	-0,202***	-0,165***	-0,152***	-0,141***	-0,742***	-0,505***	-0,530***	-0,471***	-0,401***	-0,421***
	-27,49	-23,19	-26,60	-5,59	-6,43	-7,81	-6,54	-7,23	-7,15	-22,83	-19,93	-22,08	-18,61	-15,47	-18,73
TANG	-0,032***	0,003	-0,011	0,270***	0,158***	0,239***	0,111***	0,036	0,065***	0,065***	0,017	0,043***	-0,192***	-0,070***	-0,144***
	-3,45	0,19	-0,92	18,36	5,26	14,09	7,84	1,52	3,59	5,04	0,85	2,73	-13,32	-3,06	-8,57
SDROA	0,362***	0,244***	0,268***	-0,144**	0,033	-0,005	-0,271***	-0,014	-0,049	0,167***	0,054	0,059*	0,461***	0,132**	0,231***
	6,53	5,92	6,82	-2,10	0,71	-0,11	-4,23	-0,37	-1,29	2,80	1,49	1,67	7,08	2,40	4,61
SIZE	0,025***	0,027***	0,024***	0,013***	-0,001	0,009***	-0,005***	0,020***	0,008***	0,009***	0,032***	0,014***	-0,009***	0,005	-0,005**
	24,90	9,51	14,49	7,08	-0,14	3,13	-2,64	4,95	2,96	4,96	5,86	4,53	-5,60	0,90	-2,03
GS	0,000	0,001**	0,001**	0,006**	0,011***	0,009***	0,000	0,000	0,000	0,000	0,000	0,000	0,010***	0,001	0,002
	0,55	2,14	2,08	2,09	6,94	6,48	-0,06	0,10	0,41	0,28	1,29	1,20	2,78	0,25	0,84
_cons	0,079***	0,064**	0,071	0,055	0,281***	0,158	0,317***	-0,038	0,136*	0,244***	0,123**	0,205***	0,444***	0,316***	0,420***
	2,61	2,01	1,38	0,60	3,61	1,15	7,08	-0,69	1,73	7,40	2,06	3,33	13,72	4,06	7,88
F-test		14,50 (0,000)			13,06 (0.000)			21,86 (0,000)			18,70 (0,000)			9,56 (0,000)	
N	20.297			6.434			7.229			33.215			11.752		
R-squared	0,193	0,104	0,192	0,177	0,041	0,176	0,108	0,009	0,094	0,156	0,047	0,150	0,201	0,058	0,198

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