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Corporate Finance and Restructuring: Evidence from Central and Eastern Europe

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Abstract: After the end of communism enterprises in Central and Eastern Europe (CEE) were marked by low levels of labor productivity, mainly because of too high employment levels. According to economic theory, the corporate capital structure can be an important element in the restructuring process. But both, empirical evidence on corporate finance in CEE countries and its relation to employment is still sparse. This study describes the patterns of the corporate capital structure for ten CEE countries over the years 1993-1998, taking two major Western economies as a benchmark. An impressive rise in total indebtedness suggests that there is room for creditors to fulfill their role in corporate governance. On the other hand, investment is predominantly financed internally in CEE firms, making creditor and shareholder governance more difficult. But a regression analysis shows that inefficient CEE firms are forced to downsize employment when they finance themselves largely externally, but less so for those firms with high levels of debt. However, downsizing is limited by soft budget constraints.

Key Words: Central and Eastern Europe; corporate finance; industry restructuring

JEL Classification: G 31, G 34, O 12

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Non-Technical Summary

After the end of communism enterprises in Central and Eastern Europe (CEE) were marked by low levels of labor productivity and low levels of debt. At the same time, the financial sector did not function as an intermediary of financial resources as in developed Western economies. Also, it did not fulfill its control function over debtors' activities. The central question of this study is whether the corporate capital structure works as a disciplining device in CEE enterprises, or more specifically, whether creditors can fulfill their corporate governance function by forcing inefficient firms to downsize.

Based on firm-level data for the period 1993-1998, we find the following patterns of corporate finance for CEE companies:

- Indebtedness of CEE enterprises has increased rapidly during transition, although the total level of debt is still lower than in Western firms; the dominance of short-term debt has weakened only slightly during transition; coverage of current liabilities has declined, indicating shrinking liquidity of CEE firms.
- Labor productivity is much lower than in Western enterprises, indicating low efficiency; funding from current income reaches or exceeds Western levels, probably due to still less intensive competition in CEE product markets; during transition, productivity as well as reserves have increased rapidly, and growth of sales and current income have decreased.
- CEE firms finance themselves predominantly internally, and external finance by debt is much more important than external finance by equity; during transition, internal finance has become much more important in all CEE countries with the exception of Poland; the likelihood of soft budget constraints has increased, and is the largest in Romania and the Czech Republic during 1996-1998.
- Slovenia, Hungary, Poland and the Czech Republic are the most advanced economies in terms of efficient usage of resources; Estonia, the Czech Republic and the Slovak Republic show the highest levels of debt.

Taken together, these descriptive results suggest that there is room for corporate governance exercised by creditors: CEE enterprises are already highly indebted after only ten years of transition, and their liquidity is shrinking, possibly indicating hardening budget constraints. At the same time, CEE enterprises finance themselves largely internally, even more so during later transition, making corporate governance action from creditors, but also from shareholders more difficult.

In a more formal analysis we examine the effect of financial pressure on downsizing under *ceteris paribus* conditions. We find that firms with a larger burden of debt do not downsize significantly more, but that firms, which finance themselves largely by debt, show significantly larger downsizing activity. This effect is stronger, the lower the total burden of debt is. This suggests that financial intermediaries are already able to fulfill their monitoring function by pressing CEE firms to downsize, but only when these firms are dependent on bank finance. Likewise, firms which show larger inflows of capital from equity issues show larger downsizing activity – an indicator of corporate governance action by shareholders. Downsizing seems to hit the 'right' firms as inefficient firms reduce their labor force significantly more. Finally, firms which are likely to have soft budget constraints reduce employment significantly less. There is evidence that this kind of governmental support limits restructuring especially in Bulgaria and Romania.

1 Introduction

After the end of communism CEE enterprises were marked by low levels of labor productivity and low levels of debt. At the same time, the financial sector did not function as an intermediary of financial resources as in developed Western economies. Also, it did not fulfill its control function over debtors' activities. The central question of this study is whether the corporate capital structure works as a disciplining device in CEE enterprises, or more specifically, whether creditors can fulfill their corporate governance function by forcing inefficient firms to downsize.

To tackle this question we make use of a data set which is unique in three perspectives: In contrast to previous studies we do not exclusively analyze listed firms. Second, our medium- and large-sized firms are taken from a broad set of industries, including manufacturing, mining, trade and non-financial services. Third, besides broad geographical coverage we have data on a long period of transition, at the maximum for the years 1993-1998.

Section 2 starts with a brief review of previous evidence on patterns of corporate finance in CEE economies, and a short discussion of the role of corporate finance as a corporate governance device. Section 3 describes our data set. In section 4, we compare the patterns of corporate finance in CEE enterprises with those in Western enterprises, taking Germany and the United Kingdom as a benchmark, and look for cross-country heterogeneity within Central and Eastern Europe. This descriptive analysis serves to indicate how financial pressure has evolved during transition, and in which countries it is likely to be the largest. Section 5 contains a more formal analysis of the effect of the corporate capital structure on downsizing activity. Section 6 concludes.

2 Literature Review and Hypotheses

We start with a brief overview of previous descriptive evidence on corporate finance in CEE countries (2.1). Then we shortly review the theoretical literature on the corporate capital structure as a corporate governance device (2.2).

2.1 Corporate Finance in CEE Countries: Previous Evidence

In the planned economy, investment was financed through funds allocated through the plan. Thus, existing CEE companies started out without any debt to financial institutions, and most investment is still internally financed (BEVAN et al. 1999, GROS AND STEINHERR 1995).

Regular evidence on recent developments of corporate finance in CEE enterprises can be found in the annual reports of the European Bank for Recovery and Development (EBRD). Generally, the EBRD reports are regionally broad as they include all CEE countries as well as all former Soviet Republics. Based on survey results, EBRD (1999) reports that CEE companies fund gross fixed investment primarily from internal sources. External funding plays a much smaller role: Bank loans account for an average of 12 percent and sales of stock for 11 percent of gross fixed investment. In the countries of South Eastern Europe these figures are much lower with eight and one percent, respectively. In the survey, business managers cite "the lack of access to finance as the single most important obstacle to the operation and growth of their business" (EBRD 1999: 137).[1]

Since CEE capital markets are still underdeveloped (EBRD 1999, LANNOO and SALEM 2000) and mainly function as a vehicle for privatization (KÖKE et al. 2000), the role of bank finance becomes crucial. EBRD (1999) confirms that it is mainly the privatized, but also new private firms that can raise equity through initial or second public offerings on the stock market. In turn, "government firms tend to have favored access to [cheaper] government credits" (EBRD 1999: 137). Tax arrears seem to be the most likely for Slovenia, the Czech and the Slovak Republic. However, pressure from creditors and the government seems to affect the likelihood for organizational change (EBRD 1999: 141). Whereas the EBRD study offers broad country coverage it steps short of providing detailed information on core measures of corporate finance, e.g. the debt margin or the interest burden. In addition, due to the method of data collection (survey) the country-specific sample sizes are rather small.

HUSSAIN and NIVOROZHKIN (1997) and CSERMELY and VINCZE (1999) solve the first problem by providing detailed evidence on the corporate capital structure of Polish and Hungarian firms, respectively. For Poland, HUSSAIN and NIVOROZHKIN (1997) report an average debt margin of 32 percent, which is very low compared with an average of 66 percent documented for Western enterprises (RAJAN and ZINGALES 1995). They interpret this as evidence of banks' unwillingness to grant new loans to old and risky firms that have accumulated bad debt in the communist era. Larger and newer firms have higher levels of leverage, probably indicating

[1] The existing evidence on financial constraints in CEE economies is mixed, and only relates to investment in assets. Using survey data on small- and medium-sized enterprises from the three most advanced transition countries BRATKOWSKI et al. (1999) find that the only real constraint for investment is a lack of collateral. JOHNSON et al. (1999), using survey data on firms in Poland, Romania, Russia, the Slovak Republic and the Ukraine, confirm that collateral is an important determinant of loans. But they find that credit is less important than retained earnings for investment. The willingness to reinvest profits does not depend on access to credits, but on the perceived security of property rights.

their better reputation and hence a higher willingness of banks to lend. For Hungary, CSERMELY and VINCZE (1999) report similarly low levels of debt, but find a high importance of equity finance. They attribute this to privatization, but also limited access to bank loans. CORNELLI et al. (1996) confirm an average debt level of 30 to 40 percent in Hungary and Poland using samples of 2700 and 40000 firms, respectively. All three studies contain detailed measures of corporate finance. However, the first two exclusively analyze listed firms. And all three studies are of limited use for comparison with other CEE or Western economies because balance sheet items are not treated consistently.

KÖKE et al. (2000) address this lack of comparative evidence. They analyze the corporate capital structure in detail for five EU accession countries: the Czech Republic, Hungary, Poland, Estonia and Slovenia. The result of previous studies concerning low levels of debt is confirmed: 35 percent in Poland and 29 percent in Hungary. In Slovenia it is even lower with only 19 percent. In addition, by analyzing flow of funds data KÖKE et al. (2000) can confirm these results which have been calculated from balance sheet data. Although KÖKE et al. (2000) provide comparative evidence for several CEE countries, the study is limited by its focus on listed firms. Besides, differing accounting rules make it difficult to compare the results directly with Western economies.

2.2 The Corporate Capital Structure as a Disciplining Device

The literature on corporate governance discusses various mechanisms how management can be induced to maximize shareholder value (SHLEIFER and VISHNY 1997). One of these mechanisms is the corporate capital structure.[2]

ROSS (1977) argues that management is better informed about the firm's future profitability than providers of external capital. But managers can use the capital structure to signal creditworthiness to investors. When managers know that they are better able than their competitors to adjust to demand shocks and hence to avoid bankruptcy, *ceteris paribus*, their firms can stand a higher debt burden. ZWIEBEL (1996) extends this argument to agency costs, the classical problem of corporate governance: Managers can commit themselves to invest funds from external investors efficiently by increasing firm leverage. In this sense, an increase in leverage at the expense of free cash flow (JENSEN 1986) signals creditworthiness to outside investors because managers are forced to pay out all cash flow which cannot be invested in profitable

investment projects inside the firm.[3] Likewise, high interest payments can put firms under significant pressure from the creditors' side.[4] Hence, we hypothesize that financial pressure should support restructuring towards cost-efficient production, e.g. through layoffs. This financial pressure should be higher, the more dependent a firm is on external finance, e.g. due to low internally generated funds.

The empirical literature on transition economies has shown that downsizing of capital and labor is associated with the stage of enterprise restructuring preceding investment. It mainly concerns firms that have been suffering from production inefficiencies, or that have lost the markets they used to produce for before the start of transition (FAGGIO and KONINGS 1999, REPKIN and WALSH 1999). We therefore hypothesize that in particular inefficient firms, or those which can draw only on small current or retained income, are forced to restructure and hence to downsize their labor force. However, defeating inefficiencies through initial labor-shedding also depends on firms' access to alternative sources of finance, most notably direct subsidies from the government or tax arrears (EBRD 1999). Hence, we hypothesize that decreases in employment are less likely for firms which have access to governmental support.

Besides creditors, shareholders play a crucial role in corporate governance.[5] But information asymmetries and coordination costs among shareholders can reduce shareholders' incentives to monitor management. However, shareholders' incentive to screen a firm thoroughly should be particularly large, when (new or old) shareholders are requested to invest fresh capital, e.g. to finance new labor-substituting machinery. Hence, we hypothesize that an inflow of equity capital (as an indicator of corporate governance action) will have a positive effect on downsizing, in particular for inefficient firms.[6]

In sum, we hypothesize that firms will downscale employment, if they face a strong need to downsize, reflected in low productivity and low profitability, and if external pressure is large, reflected in a strong position of creditors and a high dependency on external funds.

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[2] For a review of the existing literature on gross job flows in transition economies see DAVIS and HALTIWANGER (1999). There are analyses on the relation of changes in the level of employment and ownership types of firms, but not on the relation to the corporate capital structure.

[3] On the other hand, growing leverage might increase the risk of bankruptcy too much. Then firms might be unable to obtain further external funds (MYERS 1977). In this case, firms with a high debt burden might have to forego good investment opportunities.

[4] NICKELL and NICOLITSAS (1999) show for British firms that high financial pressure has a large negative impact on employment and a small positive impact on productivity growth.

[5] See again SHLEIFER and VISHNY (1997) and SHORT (1994) for a review of the literature.

[6] As explained in section 4, we use increases in the book value of share capital as an indicator of corporate governance action.

3 Data

The data source we use to construct our basic sample is AMADEUS, purchased by LICOS from Bureau van Dijk/Belgium. Our data set is unique in at least three perspectives. First, we do not exclusively analyze firms which are listed on the stock exchange. Our data set consists of medium- and mostly non-listed large-sized firms.[7] The median firm has about 250 employees (Table 1). Since stock market capitalization in all CEE countries is still low compared with developed Western stock markets, we want to shift the focus slightly to these medium-sized and non-listed firms.

Table 1: Firm Size by Sales and Number of Employees

Sales (in US$)			Number of Employees		
	total	in percent		total	in percent
<1,000,000	8094	16.7	<100	4563	9.0
<2,000,000	13903	28.7	<250	24815	49.4
<5,000,000	24308	50.1	<500	37091	73.8
<10,000,000	32768	67.5	<750	41889	83.4
<20,000,000	40142	82.7	<1000	44270	88.1
<50,000,000	45401	93.6	<2000	48034	95.6
>=50,000,000	3117	6.4	>=2000	2198	4.4
Total	48518	100	Total	50232	100

Second, in order to make our conclusions as representative as possible we include a broad range of industries: the manufacturing sector, the coal and mining industry, the trade sector, and industries providing non-financial services. We exclude the agricultural sector, industries providing financial services and all governmental agencies.[8]

Third, all ten CEE countries are covered with which the EU started negotiations on EU accession.[9] In addition, we include two major Western economies as a benchmark to assess the state of transition of the CEE countries.[10] By calculating the same measures for this broad range of countries we ease cross-country comparison. Finally, we use panel data instead of cross-section data: We cover the years 1993-1998, hence a large part of the transition period.

[7] AMADEUS comprises company accounts data for all firms whose number of employees exceeds 100, or where total assets and sales exceed 12 ml. US$. Either, not both of these conditions must be met.

[8] Although in particular the agricultural sector is still very important in terms of employees in most CEE economies, we prefer to exclude it from the analysis since the disclosure requirements for agricultural enterprises are rather complicated and much different from other industries.

[9] These are Bulgaria, Czech Republic, Estonia, Hungary, Poland, Lithuania, Latvia, Romania, Slovenia and the Slovak Republic.

[10] These are Germany and the United Kingdom.

In total, we have over 48,000 observations on CEE enterprises and over 60,000 on Western enterprises.[11] These are used to calculate the descriptive statistics shown in section 4. The regression in section 5 is run on a subset of this sample. Since our endogenous variable is calculated as a growth rate and since we use lagged values for the exogenous variables, sample size is reduced significantly. The basic regression model is run on 9033 observations.

All data are taken from corporate annual accounts and are denominated in US dollars. As far as the exchange rate does not fully adjust to inflation, in particular during times of hyperinflation, these dollar values might be biased. To cope with this problem all financial variables in this study are used in ratios only. Therefore we do not deflate our data. To cope with potential estimation bias caused by outliers we truncate all variables, taking the 1 percentile and 99 percentile as cut-off points. Finally, besides financial variables we also have information on employment, but we lack information on ownership structures.

4 Descriptive Evidence

Before analyzing formally whether the corporate capital structure already performs a disciplining function in CEE enterprises (section 5) we roughly sketch the patterns of corporate finance in the CEE economies. We compare them with the patterns that we find for our Western benchmark countries, and we look for cross-country heterogeneity within Central and Eastern Europe.

4.1 Potential for Internal Finance

To assess the potential for internal finance we use several measures: *return-on-sales* and the *growth rate of sales* as measures of current income, the ratio of *retained earnings* to assets as a measure of funding from past income, and *labor productivity* as a measure of efficiency indicating how internal funds are 'generated' by cost-efficient production (Tables 2 and 3).[12]

[11] See Table A.1 in the appendix for the number of observations by country and period covered (1993-1995 vs. 1996-1998).

[12] For definitions of all variables used in this study see Table A.2 in the appendix.

Table 2: Potential for Internal Finance (1996-1998)

in percent	Return-on-Sales	Growth Rate of Sales	Retained Earnings	Labor Productivity
Bulgaria	3.6 (4.8)	-13.5 (39.9)	19.7 (25.3)	3.0 (13.9)
Czech Republic	2.9 (2.3)	-0.3 (18.4)	6.1 (8.8)	32.1 (115.3)
Estonia	2.7 (2.3)	10.1 (37.4)	18.3 (20.5)	22.9 (117.6)
Hungary	2.9 (3.4)	1.8 (19.5)	10.9 (13.0)	33.1 (99.2)
Lithuania	3.0 (0.7)	16.1 (36.7)	12.1 (16.6)	15.4 (39.1)
Latvia	2.2 (0.3)	17.3 (57.1)	8.4 (8.6)	14.5 (57.4)
Poland	4.0 (4.7)	1.0 (9.3)	26.4 (27.8)	32.7 (102.1)
Romania	6.9 (7.5)	-2.8 (15.2)	7.5 (10.6)	5.9 (11.0)
Slovenia	3.9 (1.4)	-7.9 (7.1)	n.a.	43.9 (81.7)
Slovak Republic	2.6 (1.5)	3.2 (28.0)	7.2 (8.2)	24.1 (69.4)
Total	4.1 (4.6)	-0.1 (21.1)	10.1 (15.5)	16.7 (65.9)
United Kingdom	3.7 (5.8)	n.a.	19.1 (19.4)	208.1 (534.0)
Germany	3.2 (3.9)	n.a.	13.5 (17.1)	279.0 (1249.2)

Notes: Median of variable (mean in parentheses). For definitions of variables see Table A.2 in the appendix.

First, we find a large discrepancy between CEE and Western enterprises on the measures of retained earnings and labor productivity (Table 2). The median level of retained earnings in the UK (19.1 percent) is almost twice as high as the median level in the CEE countries (10.1 percent). Likewise, labor productivity in both Germany and the UK is more than ten times the CEE labor productivity. Thus there is still a very large gap between CEE and Western enterprises concerning efficiency and the potential to finance investment from past income. This gap is much smaller or non-existent for current income, depending on the CEE country we look at.

Second, we find significant heterogeneity among the CEE economies. Looking at return-on-sales, the potential for internal funding from current income is high in Romania, Poland and Slovenia. Profitability is lower in Estonia and Hungary. Regarding the growth rate of sales, especially the Baltic States have a sound potential for internal funding when rapidly increasing sales reflect large profit margins in the product markets. Comparing the figures on labor productivity across the ten CEE countries we find that Slovenia, Hungary, Poland and the Czech Republic are the most advanced, but Bulgaria and Romania are far behind in terms of efficient usage of resources. The potential for internal funding from past income is by far the highest in Polish companies, the lowest in Czech and Slovak enterprises.

Table 3: Potential for Internal Finance (1993-1995)

in percent	Return-on-Sales	Growth Rate of Sales	Retained Earnings	Labor Productivity
Bulgaria	1.9 (0.7)	8.8 (16.1)	0.3 (0.0)	5.5 (11.88)
Czech Republic	4.0 (3.8)	18.9 (42.1)	7.7 (10.9)	26.9 (96.78)
Estonia	4.0 (4.0)	22.6 (59.1)	25.2 (26.9)	14.1 (73.9)
Hungary	2.5 (1.5)	9.9 (51.3)	7.9 (10.8)	30.7 (115.1)
Lithuania	6.2 (4.5)	11.9 (11.9)	20.0 (24.2)	14.3 (15.2)
Latvia	3.4 (2.9)	24.1 (73.8)	7.5 (12.3)	32.3 (11.1)
Poland	5.1 (5.7)	31.2 (49.3)	26.6 (29.0)	30.7 (92.3)
Romania	7.0 (8.0)	-0.6 (25.0)	4.5 89.7)	5.5 (11.5)
Slovenia	n.a.	15.2 (32.5)	n.a.	41.8 (72.7)
Slovak Republic	3.5 (2.6)	18.1 (57.7)	8.5 (10.5)	18.9 (61.7)
Total	4.5 (4.5)	13.1 (32.3)	5.7 (9.8)	13.0 (50.2)

Notes: Median of variable (mean in parentheses). For definitions of variables see Table A.2 in the appendix.

Third, a comparison between the two periods 1993-1995 and 1996-1998 reveals some interesting developments over time (Table 3). In the median, the potential for internal funding from current income has declined when we look at return-on-sales and sales growth. In the mean, however, the opposite is the case, indicating increasing margins for few companies. In contrast, efficiency and retained earnings have improved strongly. If firms finance investment in capital or labor from retained income or 'saved' resources (by means of efficient production), then this is evidence that the potential for internal funding has grown during transition. The largest decrease in returns-on-sales takes place in Poland, the Czech and the Slovak Republic; the largest improvement in labor productivity can be found in Estonia, the largest increase in reserves in Bulgaria and Hungary.

4.2 Structure of External Finance

To assess the structure of external finance we use the following measures: the *debt margin* as a measure of the total burden of debt, the *short-term ratio* as a measure of the maturity of debt, the *borrowing ratio* as a measure of the corporate interest burden, and the *current ratio* as a measure of corporate liquidity (Tables 4 and 5).[13]

[13] For definitions of all variables used in this study see Table A.2 in the appendix.

Table 4: Structure of External Finance (1996-1998)

in percent	Debt Margin	Short-Term Ratio	Borrowing Ratio	Current Ratio
Bulgaria	44.8 (49.8)	100.0 (90.9)	3.9 (19.1)	117.1 (153.9)
Czech Republic	57.4 (58.2)	80.3 (73.9)	44.7 (45.5)	123.4 (173.5)
Estonia	60.9 (60.4)	85.9 (78.9)	13.6 (19.6)	112.1 (147.7)
Hungary	46.8 (49.5)	86.0 (79.1)	n.a.	138.1 (180.0)
Lithuania	41.6 (44.2)	97.3 (82.8)	n.a.	144.3 (220.8)
Latvia	57.2 (57.0)	100.0 (83.2)	n.a.	124.9 (197.6)
Poland	48.8 (50.4)	96.2 (85.5)	2.8 (12.4)	132.7 (173.8)
Romania	41.2 (44.3)	99.9 (89.6)	15.5 (25.9)	123.0 (149.9)
Slovenia	45.2 (49.9)	89.3 (82.2)	n.a.	111.6 (153.0)
Slovak Republic	53.5 (57.0)	82.4 (74.2)	31.7 (32.5)	120.6 (161.7)
Total	48.3 (50.9)	95.5 (83.8)	24.9 (30.9)	124.3 (164.9)
United Kingdom	70.3 (65.9)	93.2 (81.4)	10.2 (16.6)	117.9 (223.5)
Germany	72.7 (69.6)	57.2 (56.8)	13.2 (19.7)	132.6 (240.9)

Notes: Median of variable (mean in parentheses). For definitions of variables see Table A.2 in the appendix.

First, previous evidence that CEE enterprises are less indebted than Western firms is strongly supported by the present data (Table 4). A median debt margin of 48.3 percent in the CEE economies contrasts with 70.3 percent in the UK and 72.7 percent in Germany. However, indebtedness of CEE firms is large, considering that the burden of debt was accumulated only within a few years of transition. Differences emerge also in the maturity structure of debt: German enterprises have much less short-term debt (57.2 percent) than CEE enterprises where almost all debt is short-term (95.5 percent). On the other hand, British firms also show a high fraction of short-term debt similar to CEE companies.[14] Looking at the interest burden we find that the borrowing ratio is much higher in the Czech and the Slovak Republic.

Second, there are again significant discrepancies between the CEE economies. The burden of debt is highest in Estonia (60.9 percent), the Czech Republic (57.4 percent) and Latvia (57.2 percent). It is the lowest in Romania (41.2 percent) and Lithuania (41.6 percent). The highest fraction of short-term debt can be found in Bulgaria, Latvia and Romania where almost no long-term debt exists.

[14] This difference between Germany and the UK might be explained with fundamental differences how capital is provided: Germany is often referred to as a bank-based system with long-term relationships between creditors and borrowers, but the UK as a market-based system in which firms primarily finance themselves in the capital markets (MAYER 1988, EDWARDS and FISCHER 1994).

Table 5: Structure of External Finance (1993-1995)

in percent	Debt Margin	Short-Term Ratio	Borrowing Ratio	Current Ratio
Bulgaria	32.5 (39.1)	100.0 (88.7)	20.0 (26.7)	127.7 (184.7)
Czech Republic	47.7 (52.3)	79.0 (73.1)	40.1 (40.9)	145.2 (203.1)
Estonia	49.5 (50.0)	91.4 (79.9)	9.7 (20.3)	144.4 (192.6)
Hungary	41.7 (46.4)	83.9 (77.3)	n.a.	145.6 (196.8)
Lithuania	36.4 (40.8)	100.0 (86.8)	n.a.	149.3 (227.1)
Latvia	45.1 (48.7)	100.0 (88.5)	n.a.	143.9 (206.8)
Poland	49.4 (52.0)	89.0 (79.3)	8.5 (17.3)	142.0 (185.3)
Romania	23.3 (30.2)	100.0 (91.6)	21.9 (30.6)	128.5 (158.1)
Slovenia	35.6 (40.3)	90.0 (84.7)	n.a.	117.9 (157.6)
Slovak Republic	43.7 (48.9)	86.6 (77.7)	29.7 (35.3)	135.2 (184.1)
Total	36.6 (42.5)	96.7 (83.9)	28.8 (31.8)	133.9 (182.0)

Notes: Median of variable (mean in parentheses). For definitions of variables see Table A.2 in the appendix.

Third, a comparison between the two periods 1993-1995 and 1996-1998 shows that the median debt margin increased significantly from 36.6 percent to 48.3 percent (Table 5). This suggests that, in terms of indebtedness, the CEE economies are catching up rapidly to Western levels. No significant improvement, however, can be found concerning the maturity structure because the fraction of short-term loans decreased only by one percentage point. The decrease in the borrowing ratio suggests that the effect of decreasing interest rates is stronger than the effect of more intensive lending activity. In turn, the large decrease in the current ratio shows that coverage of short-term liabilities has weakened significantly. In sum, reduced liquidity of CEE companies combined with increasing indebtedness might expose CEE companies to higher pressure from the lenders' side during later transition.

4.3 Internal versus External Finance

Let us now turn to the relative importance of the different sources of finance. We define total finance as the sum of gross profits (*internal finance*), the net increase in debt (*external debt finance*) and the net increase in the book value of share capital (*external equity finance*).[15] The degree of internal finance and external finance by debt and equity as shown in Tables 6 and 7 is calculated as the fraction of total finance. We also provide information on soft budget constraints, calculated as an indicator how likely a particular firm is to receive direct subsidies or tax arrears.

[15] Note that internal finance does not include depreciation. This is certainly an important element of internal finance but we choose to neglect it because accounting data are most likely to be biased on this item. Therefore, the degree of internal finance as reported here is a lower bound. Note that we do not have information on the actual value of share issues, but just their book value. Equity finance is therefore underestimated.

Table 6: Internal versus External Finance, Soft Budget Constraints (1996-1998)

in percent	Internal Finance	Debt Finance	Equity Finance	Soft Budget Constraints
Bulgaria	62.7	34.8	2.5	0.6
Czech Republic	46.3	42.8	10.9	2.8
Estonia	43.9	44.2	11.9	0.7
Hungary	57.5	35.6	6.9	1.8
Lithuania	43.7	40.9	15.4	0.0
Latvia	47.5	39.7	12.8	0.0
Poland	60.9	32.0	7.1	2.4
Romania	68.0	29.4	2.6	4.6
Slovenia	n.a.	n.a.	n.a.	1.2
Slovak Republic	48.7	46.4	4.9	2.5
Total	58.5	35.3	6.2	2.6

Notes: Mean of variable. The first to third column add up to 100. These variables could not be calculated for Germany and the United Kingdom because for these countries only data on the year 1997 is available. For definitions of variables see Table A.2 in the appendix.

First, we find that internal finance is the dominant source of finance in CEE enterprises (Table 6). This is a result, which is also known for Western companies (HELLWIG 1997). During 1996-1998, CEE companies generated about 59 percent of their funds internally. About 35 percent are obtained from increases in debt, and only a small fraction (6.2 percent) stems from equity issues.

Second, a comparison between the CEE countries reveals significant cross-country heterogeneity. Internal finance is the highest in Romania and Bulgaria, but much lower in all three Baltic states. The degree of debt finance is high in the Slovak Republic, Estonia and the Czech Republic. At the same time, Estonia and the two other Baltic states were able to finance a larger portion of their investments through equity finance. On the other hand, equity finance is very low in Bulgaria and Romania.

Table 7: Internal versus External Finance, Soft Budget Constraints (1993-1995)

in percent	Internal Finance	Debt Finance	Equity Finance	Soft Budget Constraints
Bulgaria	50.9	42.1	7.0	0.9
Czech Republic	23.6	44.6	31.8	0.9
Estonia	33.3	45.2	21.5	1.4
Hungary	54.1	36.5	9.4	0.5
Lithuania	n.a.	n.a.	n.a.	0.0
Latvia	34.4	41.4	24.2	0.0
Poland	67.1	27.2	5.7	0.2
Romania	56.7	37.7	5.6	4.5
Slovenia	n.a.	n.a.	n.a.	0.8
Slovak Republic	28.0	37.2	34.8	0.4
Total	43.2	41.1	15.7	1.7

Notes: Mean of variable. The first to third column add up to 100. For definitions of variables see Table A.2 in the appendix.

Third, a comparison of the two periods 1993-1995 and 1996-1998 shows that, on average, the importance of internal finance increased significantly (Table 7). In turn, external finance from equity and debt is much less important in 1996-1998. The largest increases in internal finance can be found in the Czech and Slovak Republics as well as in Latvia. As can be seen from Table 6, these are also the countries that have very high external equity finance during 1993-1995. Internal finance has therefore increased, to a large extent at the expense of equity finance, but also debt finance. Poland is an exception in this trend as it is the only country where equity finance has increased

Finally, we find evidence that the likelihood of soft budget constraints increased from 1993 to 1998. During 1996-1998 about 2.6 percent of the firms were likely to have a soft budget constraint, but only 1.7 percent during 1993-1995.

In sum, if we take the degree of debt finance, i.e. the percentage of gross investments which is financed by debt, as an indicator of financial pressure from creditors on management, then this pressure appears to have weakened during transition. Likewise, shareholders' opportunities to exercise corporate control seem to have been reduced during transition because less capital has been raised through equity issues during later transition. The only exception is Poland because financial pressure from creditors as well as from shareholders appears to have increased, based on larger external finance by debt and equity. However, the likelihood of soft budget constraints has increased for most CEE economies, in particular also for Poland.

5 The Role of Financial Pressure in Downsizing Activity

The intent of this study is to determine whether the corporate capital structure plays a significant role in corporate governance, or more specifically, in forcing inefficient CEE firms to downsize.

5.1 Summary Statistics

Table 8 displays in how far CEE firms actually increase or decrease employment. For about 15 percent of the firms in the sample we observe a significant annual increase in employment, and for about 20 percent a significant annual decrease. [16]

[16] By significant we mean an annual increase/decrease in the labor force by ten percent or more.

Table 8: Percentage of Firms with Increasing/Decreasing Employment (1993-1998)

in percent	Increase in employment	No significant increase or decrease in employment	Decrease in employment
Bulgaria	10.42	67.77	21.81
Czech Republic	6.33	82.39	11.28
Estonia	29.98	46.84	23.19
Hungary	16.10	69.72	14.18
Lithuania	17.50	52.5	30.00
Latvia	36.32	42.13	21.55
Poland	23.21	61.33	15.46
Romania	15.92	53.39	30.70
Slovenia	13.03	69.28	17.69
Slovakia	n.a.	n.a.	n.a.
Weighted Average	15.07	65.19	19.74

Notes: *Increase in employment:* positive annual growth rate of employment of ten percent or more. *No significant increase or decrease in employment:* annual growth rate of employment of less than plus ten percent and more than minus ten percent. *Decrease in employment:* negative annual growth rate of employment of ten percent or less.

Restructuring is not distributed evenly over the CEE economies. The largest numbers of firms with increasing employment are observed for Latvia, Estonia and Poland, and the least for the Czech Republic, Bulgaria and Slovenia. In turn, significant downsizing takes place in Romania, Lithuania and Estonia, much less in the Czech Republic. Hence, according to Table 8 restructuring is stagnating the most seriously in the Czech Republic.

Table 9: Descriptive Statistics for Exogenous Variables

	Increase in employment	No significant increase or decrease in employment	Decrease in employment
Debt Margin	0.544**	0.433	0.409**
Current Ratio	1.676**	1.829	1.650**
Borrowing Ratio	0.276**	0.335	0.276**
Short-Term Ratio	0.856**	0.826	0.864**
Return-on-Sales	0.077**	0.046	0.023**
Cash Flow	5.960**	6.221	5.638**
Retained Earnings Ratio	0.148**	0.103	0.053**
Labor Productivity	102.759**	51.669	22.147**
Degree of Debt Finance	0.410**	0.369	0.328
Degree of Internal Finance	0.509**	0.537	0.583**
Soft Budget Constraints	0.005**	0.027	0.032**
Mean Growth Rate of Sales	0.735**	0.212	0.076**
Size	4.920**	5.777	5.946**
Age	9.270**	14.711	14.374

Notes: All variables refer to the period preceding the restructuring activity. * (**) indicates that the means of the second and the third, the third and the fourth column respectively, are significantly different at the 5%-level (1%-level) of significance.

Table 9 shows that firms, which increase their labor force, have significantly higher levels of debt, better profitability, more reserves, much higher labor productivity and better growth opportunities than downsizing firms. Also, they rely relatively more on external finance by debt, less on internal funding. According to the univariate analysis of Table 9, downsizing does not seem to be fueled by financial pressure from creditors because downsizing firms, on average, have a *lower* debt margin, a *lower* borrowing ratio and even a *higher* probability of soft budget constraints than firms which do not downsize. Management in downsizing firms seems to face *less* pressure from outside suppliers of capital because a larger share of investments is financed internally compared with firms that do not downsize. But downsizing firms have also a much lower potential for internal funding, as reflected by lower returns-on-equity, lower labor productivity and a smaller cash flow position. In sum, there is no clear evidence from the univariate analysis that firms downsize following financial pressure from creditors or investors. To answer this question we next analyze downsizing under *ceteris paribus* conditions, estimating an empirical model using regression analysis.

5.2 Econometric Considerations

Our key determinant of downsizing, the corporate capital structure, is likely to be endogenous. For example, revenues are likely to increase when a firm enters a new market and costs are likely to decrease when the labor force is reduced. To cope with potential bias in estimated coefficients due to this endogeneity problem we employ all variables with a lag of one period. We recognize that this procedure does not exclude estimation bias. For example, a restructuring program planned for the period ahead might affect lending already in the current period. Banks might, in this instance, be more willing to extend their credits to that firm. But we would argue that this effect of reverse causality is less likely for variables like the debt margin or reserves since these measures change rather in the longer-term.

Second, other firm-specific factors might be important determinants of corporate restructuring. For example, FRYDMAN et al. (1999) show for the Czech Republic, Hungary and Poland that privatization has different effects on enterprise performance depending on the type of the owner. Privatization significantly improves labor growth only in foreign-owned and manager-controlled firms. Thus, the ownership structure is likely to be important; likewise, the creditor structure might be relevant. Essentially, these are major elements of corporate governance.[17]

[17] See SHLEIFER and VISHNY (1997) for a in-depth review of the mechanisms of corporate governance.

Unfortunately, we lack this kind of information. But we try to proxy for this by taking changes in outstanding capital as an indicator of corporate governance action.[18]

Third, market entry and market exit of firms is likely to be important information for the analysis of company performance. For example, a firm exiting its market might have adapted insufficiently to the optimal level of employment and, as a consequence of low labor productivity, have been forced to shut down production. To adjust for potential selectivity bias, information on entry and exit should be incorporated in the empirical analysis. Unfortunately, we only have a balanced panel, though with different spell lengths for the ten CEE countries. Therefore, our sample is biased towards surviving firms and those which already existed at the beginning of each country-specific sampling period. But since our sample starts in 1993,[19] it already includes a large number of firms founded at the outset of transition. At least, bias resulting from too few new and fast growing firms should therefore be limited.

Finally, as far as unobserved firm heterogeneity influences restructuring, the results reported in section 5.4 might be biased. As a check of robustness we also calculate random effect estimators. However, none of our results is sensitive to this check.[20]

5.3 Empirical Model

We model downsizing as a function of the corporate capital structure. More specifically, we examine the non-positive growth rate of employment, *given that a particular firm decreases employment*.

All results were calculated by maximum likelihood estimation of Tobit models.[21] Our basic model for downsizing is specified as follows:

$$\begin{aligned} downsize_{it} = {} & \alpha + \gamma_{country,year} + \delta_{industry} + \beta_1 debt\ margin_{it-1} + \beta_2 soft\ budget\ constraint\ s_{it-1} \\ & + \beta_3 labor\ productivity_{it-1} + \beta_4 retained\ earnings\ ratio_{it-1} \\ & + \beta_5 return\ on\ sales_{it-1} + \sum_{m=6}^{m} \beta_m x_{mit-1} + \varepsilon_{it} \end{aligned}$$

[18] See Table A.2 in the appendix for the definition of this measure.

[19] For Hungary, Lithuania, Latvia and Romania the sample starts in 1994.

[20] Therefore, we do not report estimation results from the random effect models separately.

[21] The Tobit model corrects for the estimation bias that would result from estimating our empirical model with OLS. The reason is that our endogenous variable, the non-positive growth rate of employment is truncated at zero. All calculations were performed with STATA 6.0.

where i refers to the individual firm, t is the year for which non-positive labor growth is observed, and m are control variables. The endogenous variable is the non-positive annual growth rate of employment.[22]

We expect that firms with higher financial pressure, measured by the debt margin,[23] downsize more, $\beta_1<0$.[24] Since we do not observe how weak the budget constraint for a given firm is, we include a proxy for the likelihood that a firm is supported by direct subsidies or tax arrears.[25] We expect that firms with weaker budget constraints can avoid layoffs and hence downsize less, $\beta_2>0$. Likewise, availability of internal funds, both from reserves and current income, are used as proxies for the firm's ability to avert downsizing. We expect that firms with a large pool of internal funds downsize less, $\beta_4>0$ and $\beta_5>0$. To check whether indeed inefficient firms downsize and not those that incidentally lack cash, we include labor productivity. We expect that firms with lower productivity should downsize significantly more, $\beta_3>0$. Finally, we include a range of control variables: firm size, firm age as well as the full set of country-year and industry dummies.

To check the robustness of our results we run an extended model 1: We consider the different sources of finance and add the degree of debt finance to the basic model.[26] We expect that firms, which primarily finance themselves by debt, are also more likely to be pressed towards downsizing. In addition, in firms that show an inflow of equity capital, probably corporate governance action has taken place. If investors grant new funds, they probably will do so under the condition that firms increase efficiency. Hence we would expect a positive effect on downsizing, i.e. a negative coefficient.

Finally, to see whether the effect of financial pressure and soft budget-constraints change over time, we run an extended model 2. We augment the extended model 1 by interacting the main finance variables with a dummy, taking the value one for the years 1996-1998, and zero otherwise. This allows us to check whether there is a difference in these variables' effect on downsizing, comparing the periods 1993-1995 and 1996-1998. As argued in section 4.2, we

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[22] Besides the constant term α we include a set of country-year dummies (country interacted with year for nine countries and five years, taking Poland in the year 1998 as our reference category), and a total of 44 industry dummies (at the two-digit industry level using the European NACE code standard).

[23] As a check of robustness we also use the borrowing ratio instead, a measure of interest pressure suggested by NICKELL and NICOLITSAS (1999).

[24] Note that the endogenous variable is negative. Thus, in this case the expected coefficient of financial pressure is *negative*.

[25] Dummy variable taking the value one if growth of sales is negative at least since two years and if the firm has over 1000 employees, zero otherwise (see Table A.2 in the appendix).

[26] *Degree of debt finance:* increase in debt divided by gross finance (see Table A.2 in the appendix).

should expect stronger pressure towards downsizing in 1996-1998, when a higher borrowing ratio and a higher debt margin reflect larger financial pressure from creditors. On the other hand, as argued in section 4.3, the relative importance of debt finance as well as equity finance has been weaker during the years 1996-1998, hence financial pressure from creditors and shareholders might also have weakened. Also, soft budget constraints have become more likely during later transition as demonstrated in section 4.3.

5.4 Determinants of Downsizing

The following results are based on the analysis of firms, which have non-positive growth rates of employment in a given year. For the basic model (Table 10, column 1) we find that the level of debt does not have a significant impact on downsizing: A large debt burden does not seem to press inefficient firms to downsize.[27] An important determinant of downsizing is, however, productivity: We find that less productive firms downsize significantly more. Hence downsizing generally affects the 'right' firms, and not those, which incidentally lack internal funding but are run efficiently.

Table 10: Regression Results for Decreases in Employment (Tobit)
Endogenous Variable: Non-Positive Growth Rate of Employment

	Basic Model	Extended Model 1	Extended Model 2
Debt margin	-0.001 (0.006)	-0.013 (0.008)	0.003 (0.017)
Debt margin$_{96\text{-}98}$			-0.001 (0.017)
Degree of debt finance		-0.030** (0.007)	-0.014** (0.004)
Degree of debt finance$_{96\text{-}98}$			0.067 (0.039)
Debt margin * degree of debt finance		0.038** (0.012)	
Degree of equity finance		-0.030** (0.006)	-0.032** (0.006)
Soft budget constraints	0.025** (0.007)	0.025** (0.007)	0.020 (0.040)
Soft budget constraints$_{96\text{-}98}$			0.005 (0.040)
Labor productivity	0.00007** (0.00001)	0.00007** (0.00001)	0.00007** (0.00001)
Retained earnings ratio	0.037 (0.007)	0.011 (0.008)	0.010 (0.008)
Return-on-sales	0.100** (0.012)	0.090** (0.015)	0.030 (0.037)
Growth opportunities	0.010** (0.002)	0.009** (0.002)	0.009** (0.002)
Age	0.0002 (0.0001)	0.00009 (0.0001)	0.00009 (0.0001)
Size	-0.016** (0.001)	-0.017** (0.002)	-0.017** (0.002)
Number of observations	10649	9033	9033
Pseudo R^2	0.7941	0.9359	0.9341

Notes: Standard errors in parentheses. For definitions of all variables see Table A.2 in the appendix. All regressions include two-digit industry dummies and a set of country-year dummies. * 5%-level of significance, ** 1%-level of significance.

[27] Note that the endogenous variable is negative. Therefore, a *negative* coefficient in the regression results indicates a *positive* influence on downsizing.

Soft budget constraints represent a significant barrier to downsizing. We find that firms, which are likely to receive governmental support, downsize significantly less. This result is robust to the inclusion of the structure of internal versus external funding (Table 10, column 2).[28] Hence, the results from the univariate analysis were misleading: There we have seen that downsizing firms have, on average, lower debt margins (Table 9) what we (falsely) interpreted as lower financial pressure. Now, total indebtedness *per se* does not seem to have a disciplinary function.

Firms with a larger potential for internal funding and better growth opportunities downsize significantly less, as the positive coefficient on return-on-sales indicates. This suggests that for a given level of labor productivity profitable firms, on average, face a smaller need to downsize. On the other hand, availability of reserves, measured by the retained earnings ratio, does not limit downsizing. This is probably due to the fact that reserves still play a minor role in all CEE countries and are simply not large enough to withstand the pressure for downsizing.

In extended model 1 we see that firms, which finance themselves largely by debt, downsize significantly more. This indicates that in particular when firms are dependent on external funding by debt, financial pressure can act as an effective disciplining device.[29] Interacting the degree of debt finance with the level of debt, we see that financial pressure is stronger in firms which simultaneously have *low* levels of debt and a *high* degree of debt finance. This suggests that firms must downsize when they are dependent on debt financing *and* could not yet accumulate much debt, for example because they were less creditworthy. Again, the results from the univariate analysis were misleading because downsizing firms, on average, have a lower degree of debt finance (Table 9), what we (falsely) interpreted as lower financial pressure.

Corporate governance action, indicated by an increase in the book value of share capital, is associated with significant decreases in employment. This is evidence for pressure also from shareholders: They only grant new funds if the firm fulfills a restructuring effort.

Checking for changes in financial pressure and soft budget constraints over time (Table 10, column 3), we find that financial pressure - if measured by the degree of debt finance - leads to downsizing throughout the years 1993-1998: The degree of debt finance has a significantly

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[28] We also included the current ratio as a measure of firms' liquidity and hence as an indirect measure of financial pressure (Table 4), but we find that it has no significant impact on downsizing.

[29] When we substitute the degree of debt finance with the borrowing ratio we find an analogous result.

positive impact on downsizing as indicated by the negative coefficient. This effect is slightly, but not significantly weaker during the years 1996-1998.[30] Soft budget constraints limit downsizing throughout the sampling period and slightly stronger during later transition. Both coefficients are not significantly different from zero; but the hypothesis that they are simultaneously zero is strongly rejected by an F-test. Comparing these results with our descriptive results from section 4 we cannot confirm a significant decrease in financial pressure, as for example indicated by a strong increase in the degree of debt finance and the probability of soft budget constraints (Tables 6 and 7). But also the major increase in the debt margin (Tables 4 and 5), which could reflect larger pressure from creditors, has not translated into significantly higher pressure towards downsizing.

Table 11: Country-Specific Impacts on Decreases in Employment (Tobit)
Endogenous Variable: Non-Positive Growth Rate of Employment

	Debt Margin	Degree of Debt Finance	Soft Budget Constraints
Reference Country (Poland)	-0.011 (0.037)	-0.046 (0.027)	-0.019 (0.042)
Bulgaria	-0.019 (0.039)	0.009 (0.028)	0.056 (0.056)
Czech Republic	0.085* (0.038)	0.035 (0.027)	-0.009 (0.044)
Estonia	-0.024 (0.046)	-0.034 (0.033)	0.026 (0.063)
Hungary	0.00003 (0.053)	0.035 (0.034)	0.037 (0.090)
Lithuania	-0.124 (0.280)	-0.058 (0.130)	n.a.
Latvia	-0.010 (0.058)	-0.013 (0.045)	n.a.
Romania	-0.057 (0.038)	0.014 (0.027)	0.059 (0.042)
Slovenia	n.a.	n.a.	n.a.
Slovakia	n.a.	n.a.	n.a.
Number of observations	9033	9033	9033
Pseudo R^2	0.9690	0.9410	0.9410

Notes: Standard errors in parentheses. All three regressions were run with the same variables as used in the extended model 1 as shown in Table 10. The only difference is that country dummies were interacted with the variable shown in the first row and included in the regression to determine country-specific effects. Only these country-specific coefficients are shown in this table. * 5%-level of significance, ** 1%-level of significance.

Turning to the country-specific effects, we find that for most countries the effects do not differ significantly (Table 11). For the debt margin, only in the Czech Republic firms with larger levels of debt downsize significantly less. This is evidence that debt does not act as a disciplining device there. One reason might be that the Czech bankruptcy laws are inefficient and do not allow lenders to put their debtors under pressure.[31] As it is Czech firms which are, on average, the most indebted as measured by the debt margin (Tables 4 and 5), this questions if the burden of debt *per se* has any disciplinary role at all.

[30] Instead, when we use the borrowing ratio we find that financial pressure has weakened significantly.

The degree of debt finance has a positive impact on downsizing, although significant only at the ten percent level (Table 11, column 2). Thus in Poland, our reference country, debt inflow works as a disciplining device. No country-specific differences emerge. But an F-test shows that the remaining seven country-specific coefficients are different from zero at the one percent level. The negative coefficients for the three Baltic states suggest that financial pressure is the most likely in these countries.

Weak budget constraints do not seem to be country-specific either (Table 11, column 3). But when we test whether the effects for Bulgaria and Romania are the same as in Poland, we must strongly reject this hypothesis. Budget constraints appear to be weaker there.

6 Conclusions

The central question of this study is whether the corporate capital structure already works as a disciplining device in CEE enterprises, or more specifically, whether creditors can fulfill their corporate governance function by forcing inefficient firms to downsize. To answer this question we first have analyzed the patterns of corporate finance in CEE enterprises, comparing them with the patterns in Western enterprises. Based on firm-level data for the period 1993-1998, the main results from our descriptive analysis can be summarized as follows:

- Indebtedness of CEE enterprises has increased rapidly during transition, although the total level of debt is still lower than in Western firms; the dominance of short-term debt has weakened only slightly during transition; coverage of current liabilities has declined, indicating shrinking liquidity of CEE firms.
- Labor productivity is much lower than in Western enterprises, indicating low efficiency; funding from current income reaches or exceeds Western levels, probably due to still less intensive competition in CEE product markets; during transition, productivity as well as reserves have increased rapidly, and growth of sales and current income have decreased.
- CEE firms finance themselves predominantly internally, and external finance by debt is much more important than external finance by equity; during transition, internal finance has become much more important in all CEE countries with the exception of Poland; the likelihood of soft budget constraints has increased, and is the largest in Romania and the Czech Republic during 1996-1998.

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[31] An F-test shows that, jointly, the country-specific coefficients are different from zero.

- Slovenia, Hungary, Poland and the Czech Republic are the most advanced economies in terms of efficient usage of resources; Estonia, the Czech Republic and the Slovak Republic show the highest levels of debt.

Taken together, these descriptive results suggest that there is room for corporate governance exercised by creditors: CEE enterprises are already highly indebted after only ten years of transition, and their liquidity is shrinking, possibly indicating hardening budget constraints. At the same time, CEE enterprises finance themselves largely internally, even more so during later transition, making corporate governance action from creditors, but also from shareholders more difficult.

Additionally, we find that a large fraction of CEE firms significantly reduce or increase their labor force. A univariate analysis shows that downsizing firms, on average, have a *lower* debt margin, a *lower* borrowing ratio and even a *higher* probability of soft budget constraints than firms which do not downsize. Management in downsizing firms seems to face also *less* pressure from outside suppliers of capital because a larger share of gross investment is financed internally, compared with firms that do not downsize. But downsizing firms have also a much lower potential for internal funding, as reflected by lower returns-on-equity, lower labor productivity and a smaller cash flow position. Hence, from the univariate analysis there is no clear evidence that firms downsize following financial pressure from creditors or outside investors.

In a second step, we examine the effect of financial pressure on downsizing under *ceteris paribus* conditions using a regression analysis. We find that firms with a larger burden of debt do not downsize significantly more, but that firms, which finance themselves largely by debt, show significantly larger downsizing activity. This effect is stronger, the lower the total burden of debt is. This suggests that financial intermediaries are already able to fulfill their monitoring function by pressing CEE firms to downsize, but only when these firms are dependent on bank finance. Likewise, firms which show larger inflows of capital from equity issues show larger downsizing activity – an indicator of corporate governance action by shareholders. Downsizing seems to hit the 'right' firms as inefficient firms reduce their labor force significantly more extensive.

Interestingly, only in the Czech Republic firms with higher debt levels downsize significantly less. As Czech firms have, on average, one of the highest debt levels, this casts doubt on the usefulness of the total burden of debt as a measure of financial pressure from creditors. But it could also be due to the fact that in particular Czech firms receive government-subsidized

loans. Finally, firms which are likely to have soft budget constraints reduce employment significantly less. There is evidence that this kind of governmental support limits restructuring especially in Bulgaria and Romania.

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Appendix

Table A.1: Observations by Country and Period

Country	Number of Observations		
	Period 1: 1993-1995	Period 2: 1996-1998	Total
Bulgaria	4892	3532	8424
Czech Republic	4782	5140	9922
Estonia	673	710	1383
Hungary	1204	2538	3742
Lithuania	91	157	248
Latvia	276	609	885
Poland	3954	5077	9031
Romania	5940	6215	12155
Slovenia	1091	263	1354
Slovak Republic	585	789	1374
Total CEE Countries	23488	25030	48518
United Kingdom	0	23515	23515
Germany	0	36529	36529
Total Western Countries	0	60044	60044

Notes: Only observations with no missing values on the item “sales”.

Table A.2: Definition of Variables

Variable	Definition
Debt margin	total debt / total assets
Short-term ratio	short-term debt / total debt
Borrowing ratio	interest payments / (gross profit + interest payments + depreciation)
Current ratio	current assets / current (short-term) debt
Gross finance	Δ book value of share capital + Δ debt + gross profits before interest and taxes
Degree of equity finance	Δ book value of share capital / gross finance
Degree of debt finance	Δ debt / gross finance
Degree of internal finance	gross profits before interest and taxes / gross finance
Soft budget constraints	dummy: 1 if growth of sales is negative at least since two years and firm has over 1000 employees, 0 otherwise
Retained earnings ratio	reserves / assets
Cash flow	profit after taxes and extraordinary items + extraordinary expenses + taxes + interest payments + depreciation
Labor productivity	sales / number employees
Growth opportunities	mean growth rate of sales over all past available years
Return-on-sales (ROS)	profit from operations (before financial profit and taxes) / sales
Firm size	natural logarithm of sales
Firm age	year less year of foundation