Determinants of Financial Distress:

What Drives Bankruptcy in a Transition Economy?

The Czech Republic Case

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Abstract

The main factors influencing the probability of bankruptcy are analyzed on Czech Republic 1993-1999 firm data. Basic models of the bankruptcy are compared: neoclassical, financial and corporate governance. The corporate governance hypothesis does not receive support in the ownership but the indicator of voucher privatization supports it. The initial conditions from early 90's were not the driving the financial distress. The voucher-scheme privatization results in poorer corporate governance. These firms are more likely to go bankrupt, ceteris paribus. On the other hand, former large SOEs are less likely to bankrupt than firms with a similar debt structure - this is an evidence of soft budget constraints.

Non-technical Summary

Enterprises in financial distress are the most endangered ones. Firm level data from the Czech Republic from the period 1993-1999 is used to assess the main factors influencing the probability of bankruptcy. Three competing models of principal cause of the distress are compared:

1. Neoclassical model. In this case bankruptcy is a good thing since it frees badly allocated resources. This is a "restructuring" case when the bankrupt has the wrong mixture of assets;

2. Financial model. The bankrupt has the right mixture of assets but the wrong financial structure; and

3. Corporate governance model. Here, the bankrupt has the right mixture of assets and financial structure but is badly managed. In this case bankruptcy is an inefficient way of solving the problem. More efficient is to fire the management.

While corporate governance does not receive much support in ownership structure, it is well supported by the indicator of voucher privatization, which can be interpreted in certain setups as a different measure of the corporate governance structure.

When fully controlling for the composition of debt and liabilities, the firms from voucher privatization are less likely to go bankrupt. This can be interpreted as an indication of a soft budget constraint. There is quite a substantial role of bank debt/assets that increases the probability of bankruptcy. Moreover, the voucher-firms are on average three times more sensitive to this factor. The profitability measured by profit/assets is never significant for the non-voucher firms. The effect on voucher firms is negative (i.e., lowers the probability of bankruptcy) but not always significantly.

On the other hand, when the specification does not fully control for the composition of the financial state, the voucher privatization firms are more likely to face financial distress leading to bankruptcy. In this setup it should be interpreted as a result of poorer performance due to the initial stage or less capable management (i.e., corporate governance). Since we found no difference between voucher privatization firms and other firms in the mid-nineties, we can rule out the effect of initial conditions. We have found no significant ownership effect (as another measure of the corporate governance) while controlling for voucher privatization and basic or full financial state.

There is no evidence that the initial conditions from the first half of the 90's were the driving force of the financial distress in conjunction with the selection of voucher

privatization scheme. This leads us to the policy conclusion that the voucher scheme leads to poorer corporate governance (while the ownership structure does not necessarily have this effect) and therefore these firms are more likely to go bankrupt, ceteris paribus. On the other hand, since these former large SOEs selected for the voucher privatization scheme are safer from bankruptcy in distress than other firms with a similar debt structure, there is other limited evidence for soft budget constraints on these firms.

The voucher scheme as conducted in the Czech Republic could not be recommended as a means of privatization since it was identified as a risk factor or a signal of future soft budgeting.

Introduction and Institutional Background

One of the ultimate goals of economic transformation in CEE countries and also its Achilles heel is to select viable firms among the newly established undertakings as well as to find out which of the former SOEs can be successfully reorganized to survive the free market environment. The majority of literature deals with the privatization issues and related corporate governance (e.g., Blanchard et al., 2000, Bornstein, 1999, Frydman, 1999, Gupta et al., 2000, Hashi, 1998, Havrylyshyn and Mcgetting, 1999, Kotrba et al., 1999, Lastovicka et al., 1995, Mertlik, 1997, Weiis and Nikitin, 1999). There also exist vast amount of studies modeling the restructuring process on the macroeconomic level (e.g., Dewatripont and Roland, 1997, Li and Cornelli, 1995). Papers discussing the political window of any reform (e.g., Persson and Svensson, 1989) are not so common. Aghion and Blanchard (1994) model the sectoral re-allocation using labor market. Quite popular is also the Kornai's (1979) concept of soft-budget constraints that should be eliminated during the reform (e.g., Berglof and Roland, 1997, model it using bank loans). Models based on the point of a typical (average) industrial outcome (Estrin and Hare, 1992), or dealing with privatization process and restructuring as a (sequential) game on the level of enterprise and management (Kotrba, 1996; Aghion, Burges and Blanchard, 1994, etc.) give a theoretical predictions that could be verified using the data. However, all these studies presume viability of the enterprise after restructuring or a simple close-down as Estrin and Hare (1992) but do not take the dissolution process as an integral part of the restructuring. Moreover the possibility of wrong decisions that can result in a financial distress is ignored. However, in the standard market economies under the neoclassical view, the bankruptcy of the firm is a way to free unproductive or inefficiently used resources and transfer them to another firm within the same industry or even across industries. Legros and Mitchell (1995) provide a theoretical attempt to model the bankruptcies as a way to guide the transition and first empirical evidence can be found in Mitchell (1998).

All theoretical studies of voucher privatization also predict that the firms selected for this method of privatization should be the better ones (not lemons). An interesting summary of the possible objectives the government can pursue during the privatization, together with empirical tests, is provided by Gupta and Svejnar (2001). They use the Czech enterprise data in their empirical part. On the other hand, for example, Stiglitz (1999), argues that the outcome of the Czech privatization scheme is among the worst ones in CEECs. This brings

up an interesting point: although the firms selected for the mass privatization schemes are the better ones, the method (or, to be precise, subsequent corporate governance implemented in the lack of proper institutional environment) can turn these firms into losers.

The research is focused on firms in financial distress in the Czech Republic, and on the related corporate governance issues and the implications of the corporate governance for the handling of the financial distress. Particularly, the main focus is on the firms that (subsequently) underwent the bankruptcy procedures. There is a significant lack of applied studies dealing with the financial distress in the CEE countries. An overview of the situation in CEE countries up to the mid-nineties can be found in Kruse (1994); a vast amount of the more recent literature deals only with case studies.

In the transitional economies scope is also quite interesting a general equilibrium model of Aghion et al. (1999) where they are analyzing economy populated by 'satisfying' entrepreneurs whose main objective is to minimize innovative effort while keeping the firm alive (i.e., to move along the survival boundary). Such approach also resembles a simple model of *Homo se assecurans* presented by Hlavacek (1990) of a typical managerial behavior under central planning, however, the managerial incentives were just opposite - to maximize the probability of survival, i.e., minimize the (economic) distress, measured by output cushion. Since we can consider all firms operating near the survival boundary (for whatever reasons) in economic distress, the corresponding managerial incentives could have similar patterns even under such different economic systems. Yet, this idea has to be theoretically proved and is beyond the scope of this paper.

Marin and Schnitzer (1999) developed theory that helped to explain how the three observed phenomena in transition countries (mostly observed together in the former Soviet Union) output decline, inter-firm arrears and barter in transition economies were connected. They use Ukrainian data on barters to show that the input shortage, the financial shortage, and barter have each an important effect on output growth. Gaddy and Ickes (2000) motivated by the situation in Russia developed a simple model that shows that even a small number of "virtual enterprises" can draw the whole economy to the bad equilibrium.

Our major interest is in which financial (sometimes as a result of primary economic) conditions led to the filling of bankruptcy petition (procedure remotely similar to Chapter 11 under the US law code) or to the dissolution (liquidation) of the firm and then a subsequent bankruptcy. The Czech commercial code allows only four ways how to dissolve any firm. Apart from the mergers and acquisitions that are hard to trace, the three remaining ones that fit the scope of this research is the so-called liquidation, bankruptcy, and immediate dissolution. Liquidation means that the firm's assets are enough to cover all outstanding liabilities and just the owners feel that the dissolution is more profitable than the continuous operation. However, during the liquidation process can be found that the current value of the assets is not enough to cover the liabilities and the liquidator (trustee) of the firm (a person legally responsible for the satisfaction of all outstanding debts) has to fill in with the court the petition do declare bankruptcy. Immediate dissolution can be declared if the assets of the firm do not cover the costs of the bankruptcy procedure.

Trinity of causes of financial distress

There are three possible reasons why the firm can go bankrupt. The first one, neoclassical, is a result of a state when the allocation of assets is inappropriate. The assets are usually industry specific and the bankruptcy is a mean of their re-allocation. Within the (neo)classical approach, the bankruptcy procedures are the inevitable way to allocate resources efficiently. In this case the amount and size of bankrupted firms can give a first insight on the speed of restructuring. Moreover, this is the typical approach in the transition literature to the bankruptcy as restructuring wheels.

The second reason for bankruptcy might be just financial. The firm has the right structure of assets but its financial structure is bad with liquidity constraints. This means that even if the firm is viable in the long run it has to go to bankrupt in the short run. The link with imperfection of capital market and inherited capital structure is the main driving force in these cases. We cannot unambiguously determine whether the bankruptcy is good or bad for the restructuring in this case.

The last reason of bankruptcy might be that the firm has the proper asset and financial structure but a bad management. The x-inefficiency is then driving the firm out of the market as a consequence of unsolved problems in corporate governance. Instead of

bankruptcy the owner just should fire the managers. Therefore, the bankruptcy is definitely bad not only form the point of restructuring but even harmful from the point of social welfare.

All these three issues and basic causes of bankruptcy are addressed with a competing specification in the empirical section. On the macroeconomic level we cannot distinguish these three states leading to the bankruptcy. In this light we should read the following comparison. Although the common wisdom favors the first, classical, reason of bankruptcy in the transition economies.

Bankruptcies in Europe and the Czech Republic

For example, over the last seven years the number of bankruptcies approximately halved in Finland, France, Holland and Sweden, while Belgium, Italy and Switzerland keep approximately the same number of bankruptcies during the seven years (Table 1). The Central European countries under transition give a completely different picture.

In the Czech Republic there was a substantial growth up to the last year when the number of declared bankruptcies stagnated at the same level. This rapid growth basically copies the evolution of the legal framework of bankruptcy procedures in the Czech Republic. Initially, the bankruptcy was almost impossible since the government feared massive layoffs and collapse of the economy. As these fears faded out and the law converges towards a standard one for market economy, the bankruptcy procedures are more likely happen. Similar time evolvement of bankruptcies can be observed in Slovakia and Hungary, although the latter country took more courageous approach and make the bankruptcies easier than the former two with an automatic trigger in the early transition stage. Taking into account the country sizes, we observe the same pattern in all these countries. A completely different situation is in Poland, where the peak occurred just in the first year of available data. Moreover, the total number of bankruptcies is remarkably lower since Polish economy is larger than all the other three economies altogether and than all so-called EU First Wave Candidates (Table 2 and 3). As Graph 1 shows, the Polish economy was the one that first recovered from the initial drop.

Table 1.   Declared Bankruptcies in Selected Countries in Western and Central Europe

	1992	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**
France	57795	60481	56573	54800	58576	47751	36800	34980
Italy	11703	14094	16506	13347	15500	13774	12000	13000
Switzerland	9578	10513	10350	9761	10192	9182	8980	8474
Sweden	n.a.	18731	15666	12184	12200	13493	8959	7319
Belgium	5115	6154	6354	7088	7539	7751	6860	6550
Holland	n.a.	6428	6644	6199	5573	5547	5300	3770
Finland	7348	6769	5502	5234	4800	2743	2650	2325
Czech Rep.	**1**	**66**	**294**	**727**	**808**	**1251**	**2022**	**2000**
Slovakia	0	7	33	70	126	329	755	n.a.
Hungary	n.a.	n.a.	n.a.	1616	2000	4569	7297	n.a.
Poland	n.a.	n.a.	n.a.	1008	683	550	818	n.a.

Sources: Intercredit Praha, Dept. of Justice.

Table 2. Economic Performance of Selected EU Countries and Czech Republic

	Czech Rep. (1998)	Austria (1997)	Greece (1997)	Portugal (1997)	EU-15 (1997)
Population (in mil.)	10.3	8.1	10.6	9.9	374.3
GDP, mld. USD (at ER)	56.4	234.0	130.0	107.0	8,981.0
GDP, real growth rate %	-2.3	2.1	3.5	3.5	2.3
GDP/capita PPP	13.2	21.8	13.3	13.8	19.8
General budget balance (% GDP)	-1.6	-2.5	-4.0	-2.5	2.4
Rate of inflation (average) %	10.7	1.1	5.2	1.8	1.6
Rate of unemployment (%, end of year)	7.5	4.3	9.0	7.1	10.8
Current account balance (% GDP)	-1.9	-1.6	-3.6	-2.5	1.1

Sources: European Economy, Annual Economic Report for 1997 European Commission, 1997, CESTAT.

Table 3 Economic Performance and Size of the First Wave Candidates and EU

	Czech Rep.	Cyprus	Estonia	Hungary	Poland	Slovenia	EU-15
Population (million)	10.3	0.8	1.5	10.2	38.6	2.0	374.3
GDP/capita PPP (1000 USD)	11.5	13.5	4.9	10.0	7.9	14.1	19.8
GDP PPP (billions USD)	118.5	10.1	7.4	102.0	304.9	28.1	7417.1
Growth of GDP (real, %)	1.0	2.5	6.1	4.4	6.9	3.8	2.3
Inflation (CPI, %)	8.5	3.6	11.2	18.3	14.9	8.4	2.2
Unemployment (%)	5.2	3.4	3.3	10.4	11.5	14.5	10.8
Budget deficit (% GDP)	-1.0	-5.3	2.1	-4.4	1.3	-1.2	-2.4

Sources: CESTAT, WIIW, Eurostat

Graph 1. Real GDP Level in Selected CEE Countries, 1989=100%
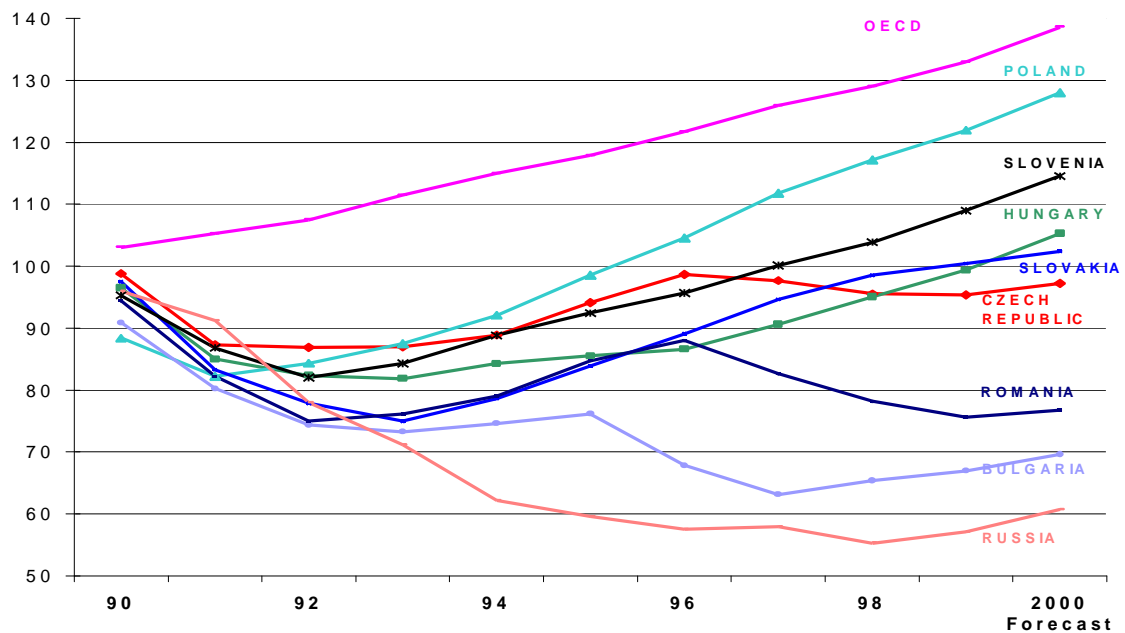
Source: World Bank Development Indicators, EBRD Transition Report 2000 and WDI.

Graph 2. Successfulness of Bankruptcy Filing in the Czech Republic
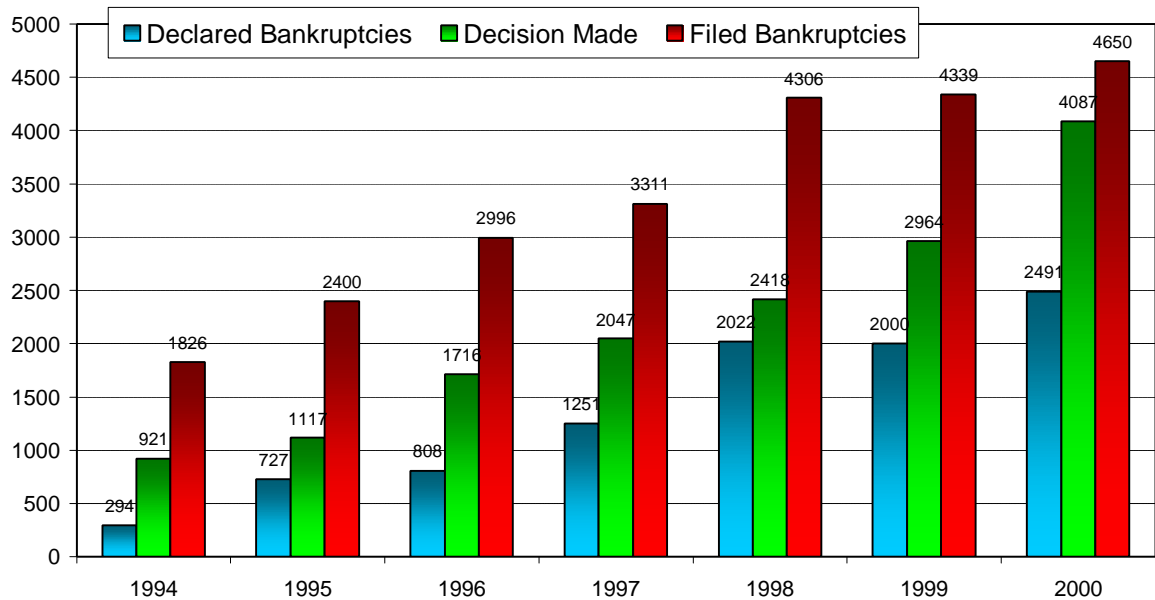
Source: Dept. of Justice, MPO

Graph 3. Regional Distribution of Declared Bankruptcies in the Czech Republic

1998

1999
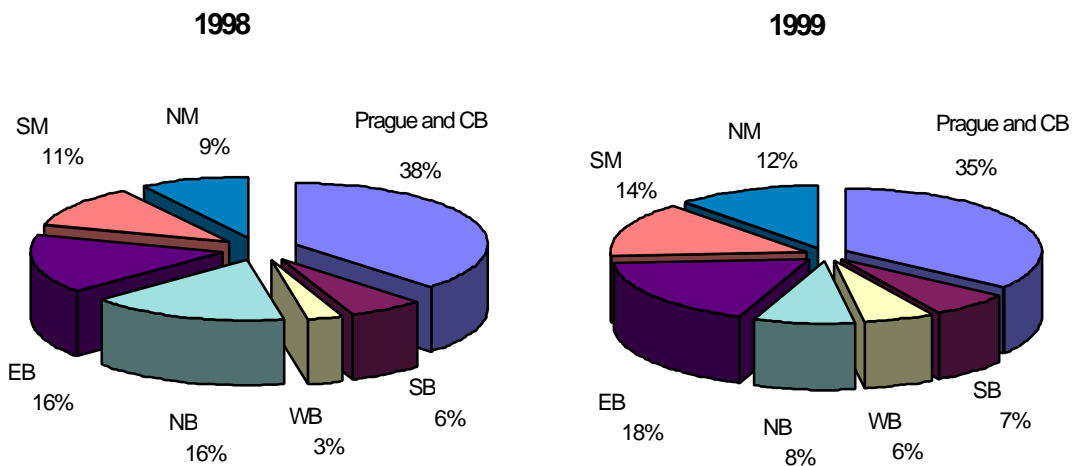
Source: Intercredit Praha, Dept. of Justice, MPO
Note: S=Southern, N=Northern, E=Eastern, W=Western, C=Central, B=Bohemia, M=Moravia

Graph 4. Composition of the Bankruptcies in the Czech Republic, %
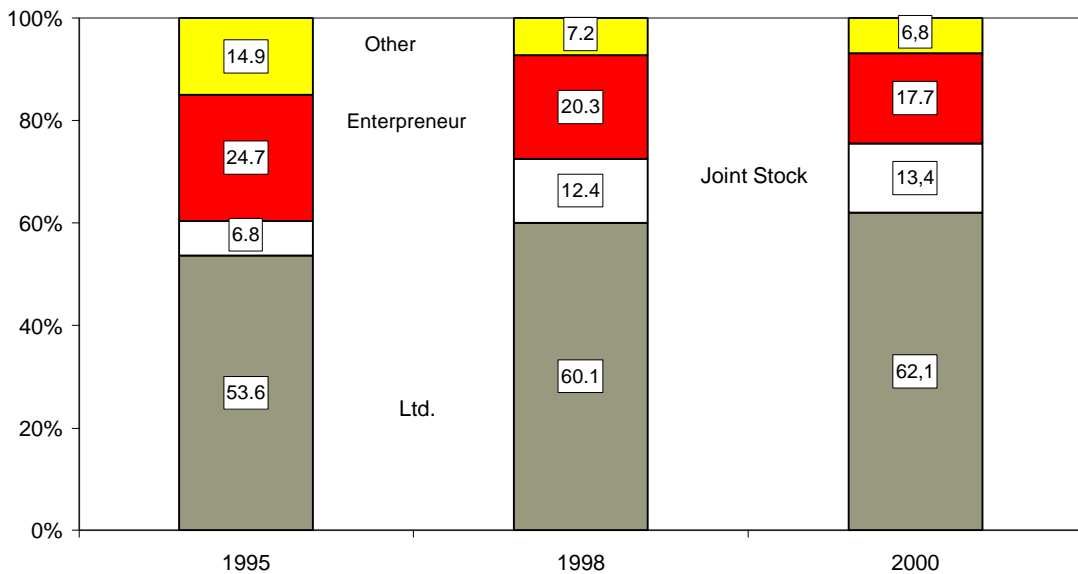
Source: Dept. of Justice, MPO

As the Graph 2 shows, after the rapid growth in the mid-nineties the pace of filed and declared bankruptcies stagnated during the last year, the actual growth from 1998 to 1999 was 0.8 %. In 1999 there were 4339 filings in total, while from 1997 to 1998 there was approximately 30 % growth. Moreover, the declared number of bankruptcies has lowered by 1.1 % to exactly 2000 in total in 1999. In 2000, there was a 7.2% increase in the filings. The successfulness rate is 46.1 % in 1999 compared to 47% in 1998 and grew to 53.4% in 2000. Major change is related to the rate of decision made by the courts. While in the

middle nineties the rate was around 50% and slowly increased to 60% in 1997 and then to 70 in 1999, in 2000 it reaches 88%. This is clear evidence that the bankruptcy code was slowing down the decision process and the last amendment made in 2000 really achieved its goal since in the year 2000 the economy started to grow and the recession was already over (compare with Graph 5). Over the whole period 1993-2000 there were 25286 filed bankruptcy petitions. In the period of 1994-2000 there were 23828 petitions filed with the overall success ratio of 40% and the courts decided on 64% cases.

As far as the regional distribution of declared bankruptcies in concerned, the majority of bankruptcies in declared in Prague, where a substantial portion of all firms is also registered. The data is based on the registry, not actual establishment location (Graph 3). Graph 4 depicts the distribution of bankruptcies (filings) across the major legal categories. The major group consists of limited liability companies, which typically represent SMEs. The category other comprises mainly cooperatives of various kinds (the most frequent are aricultural ones) and special types of companies (e.g., societé comandité). Over the time there is a clear pattern of the growing share of the companies with limited liability and joint stock companies, while the remaining types are less becoming present.

Another misleading information stemming from the usage local accounting standards can be drawn from the performance indicators. According to the Czech accounting standards ROA can be calculated as a ratio of two negative numbers (i.e., the firm is making loss and value of its assets is also negative; in standard case such firm would be already liquidated or put in the bankruptcy procedure earlier), see Tables X1-X11.

Economic state of the Czech Republic in late 1990's
The economic reform and privatization of companies have led to a great differentiation in the performance of individual companies. These differences have been increasing over time. The economic survey of all industrial firms with more than 100 employees should outline the major trends in the medium and large enterprises.

As was the case in 1997, the biggest improvements in performance may be observed in the foreign-controlled sector. This sector, representing about one fifth of the total industry sales, grew by more than 3 % in the first half of 1998, which was the last period before the

Czech recession. This sector is the leader of the industrial growth. Foreign investors have been permanently enhancing productivity, which is approximately 40% above the average level in the remaining industrial sectors. Employment in the foreign-controlled sector has been steadily growing, while in other sectors it has been decreasing. The average monthly sales per employee in current prices rose by 26.9% (19.4% in constant prices) in the first half of 1998 compared to 1997, while average monthly wages grew by 11.6%. The trend in the public sector followed a less healthy pattern: monthly sales per employee increased by 13.4% (7.0% in constant prices) and wages grew by 13.7%. The respective figures in the private sector were 14.0% (6.6%) and 11.6%.

Financial indicators also exhibited significantly higher performance in the foreign-controlled sector: in the same period profits increased by 144.4%, value-added by 52.3% and returns on equity by 117.5%. The private sector grew by 14.3%, 9.8% and 20.0%, which was quite similar to the public sector whose growth rates equaled to 16.8%, 7.2% and 15.2% respectively.

In the first half of 1998 the best results were realized by organizations with 1000 – 1499 employees, which achieved a growth in profits before taxation of 77.2% and an increase in value-added of 35.2%, compared to the first half of 1997. The worst performing large organizations exhibited growing insolvency.

The average picture of these differences among different types of owners has not changed when we compare the next three years 1998, 1999 and 2000. However, the recession that started in 1997 and lasted till 1999 affected the overall performance of all firms, especially the fiscal results. The total profit felt by 10.3% in 1999 while the industrial firms suffered much more and the total profit felt by 29.4% in total (Table X1). In 2000 the profits doubled on average, the industrial firms were better off, with 135% increase. The number of firms that made profit and loss stagnated, however the total volume of the profit did not rise while the volume of the loss increased by almost 44% (Table X2). The changes between 1999 and 2000 were minimal. From Table X7 we can see that the public sector was the one driving the losses in the industry while the foreign firms and private firms were able to increase the average profit before taxes by approximately 20%. In 2000 all the sectors were again out of the red numbers. Foreign firm keep the highest value added per employee

(Table X8), however, the good result of state owned enterprises are driven by the utility sector where the state has purposely maintained a significant level of involvement (see line E). As the recession vanished, the value added per employee increased significantly in the public and private sector. The foreign one grew with the constant pace as in previous years. Also, the foreign firms have the highest average ROA, 18%, while the public sector has a negative one, -1.9%, leaving the private firms in the middle with ROA 4.3%. In 2000 the sector ranking was the same, with values 20, 5.4, and 2.5%, respectively. Both private and foreign firms improved ROA from 1998 to 1999, the state controlled sector deteriorated by enormous change from +6.7% (Table X11). All sectors improved their ROA with the deceased recession.

The insolvency problem reduced by little, the total amount of receivables overdue decreased by 4.5%, payables overdue by 2%, however, the primary insolvency increased by 1% (Tables X5 and X6). A surprising fact is documented in the Tables X9 and X10 - the foreign firms exhibit enormously large increase in the primary insolvency, it grew by 62.1% from 1998 to 1999, while the state controlled firms' reduced primary insolvency grew by 1%. The private sector was even able to reduce it by 4.7%. On the other hand, the payables overdue grew by 43.5%, 20% and felt by 9.5% in these sectors, respectively. In 2000 the primary insolvency grew, however the receivables overdue and payables overdue declined significantly as well.

It may be assumed that performance indicators reflect the scope and intensity of restructuring. Clearly, restructuring still has to take place in the majority of Czech companies. This unfavorable situation has resulted from "fictitious privatization" (a remaining significant share of direct or indirect state ownership, indeed, as Kocenda, 1999, shows the state can significantly influence about 75% of the whole economy), privatization to owners who lack a long-term commitment, as well as still insufficient number of declared and executed bankruptcies. The slow privatization of the banking sector is another contributing factor. These factors, together with poor corporate governance, have hampered restructuring processes in the microsphere and improvements in competitiveness of Czech companies.

Since July 1998, the higher dynamics of the comparable period of the previous year started to slow down the growth indices and resulted in a decrease in industrial production. In October 1998 the industrial production fell by 7.4 compared to October 1997. This represents the peak of the recession in the 1998 with slow recovery in 1999, as the Graph 5 shows.

Graph 5. GDP Growth in the Czech Republic
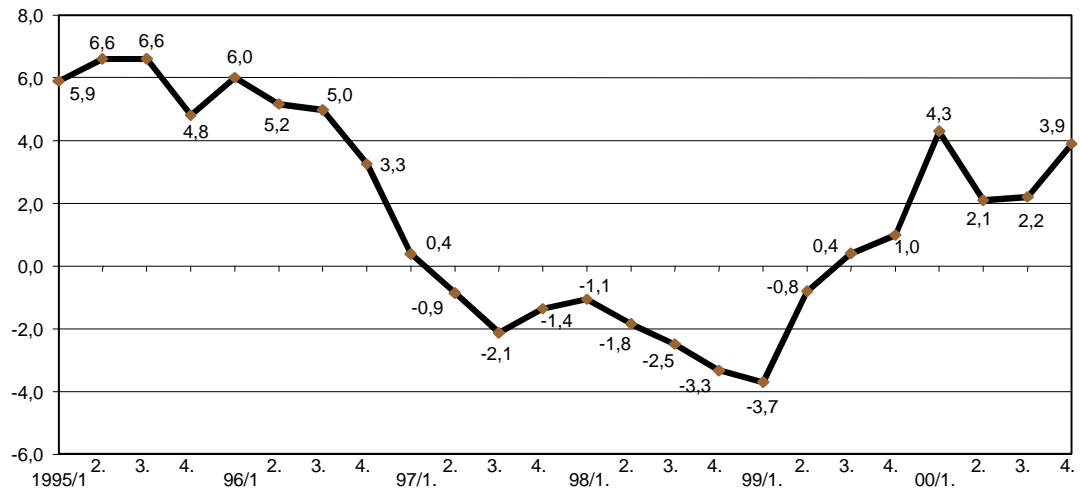
Source: CSO

Graph 6. Classified Loans
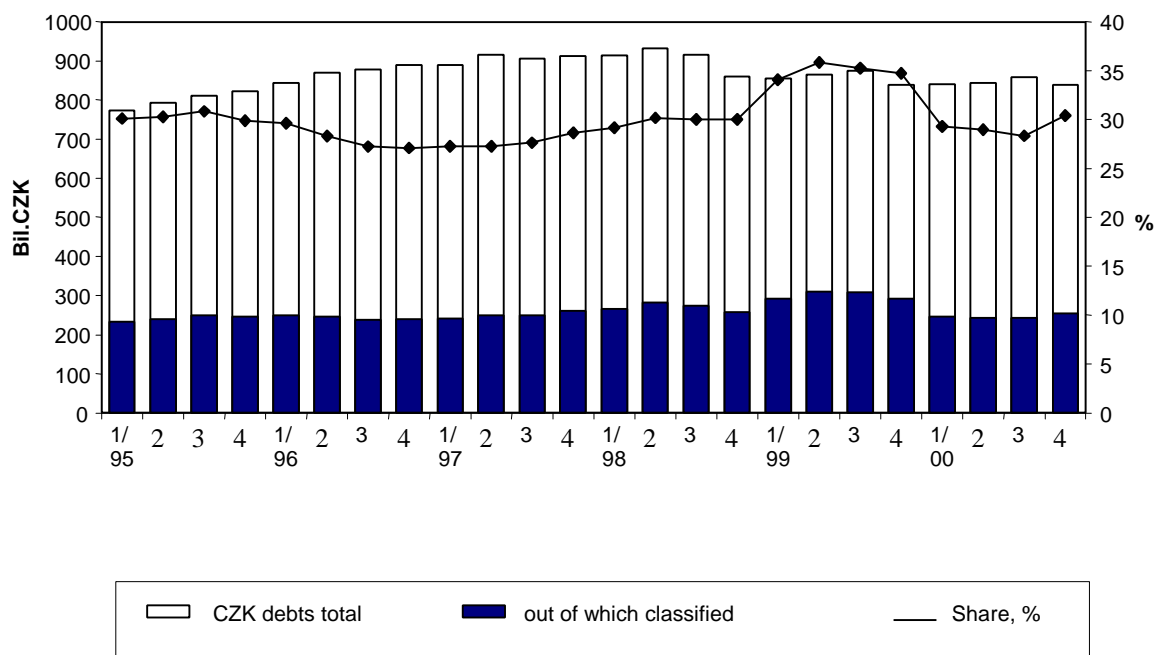
Source: CNB, MPO. Konsolidacni Banka is not included neither are bankrupt banks.

Institutional Framework of the Bankruptcies in the Czech Republic

In order to help large enterprises in financial distress, the government has lunched a targeted program. However, the recently adopted law, which, in line with the EU legislation, prohibits the government to subsidize any firm without EU approval, nullifies the program. Anyway, after more than one year, debate on the form and scope of the so-called "Revitalization Program" has formally ended and on October 19, 1999, the program was officially launched. A state-controlled agency, the so-called Revitalization Agency, was established. Together with Lazard Bank, which was selected as an advisor, its major partner is Konsolidacní Banka. This is another state-owned bank institution, which bought a vast amount of non-performing loans from commercial banks during the past at prices well above the market value, at about five or even more times above the value on average. It could be considered a transparent program if these two state-controlled institutions would be the only players. However, Konsolidacní banka was established as one of the institutions to ease the initial loan burden together with similar institutions like Ceská Inkasní, Ceskomoravská Hypotécní a Zárucní Banka, and Ceská Financní. All these off-budgetary institutions are mainly warehouses for closets full of various types of financial skeletons. The decline of the classifieds loan as can be seen in the Graph 6 in year 2000 is not caused by the overall improvement (growth of the economy, Graph 5). It is simply caused by the fact that the main institution that took over a large amount of the skeletons is not included in the reported volume of the classified loans.

The Revitalization Program was intended to help the overdebted large industrial companies. The major idea was to select promising companies in (temporary) distress or need and promote the usual debt-equity swap, which would allow the state to increase its influence, exercise corporate governance and restructure the firms under the state governance with the help of the aforementioned restructuralization advisor.

Leaving aside the discussion of problems of such state-governed restructuralization and the government's direct influence on semi-private companies there exist even more severe problems that critics point out, aside the EU disagreement. Primarily, the current Czech legislation does not easily allow for such debt-equity swaps; the owners have to agree with such an arrangement since such a deal limits their ownership rights. The other possibility is

to declare bankruptcy - but then the whole bankruptcy process is under the governance of appointed liquidators (trustees) of the local courts and under court control, and the state (and hence the Revitalization Agency) has no influence over the process. To sum it up, the whole process would have been, at least partly, already started by commercial banks to recover their bad loans in the past if it would be easier than engaging in problematic Czech bankruptcy procedures.

There were nine companies selected for the program and the unofficially estimated costs are at least 60 billion CZK. However, after the announcement of some of the selected companies, several of them publicly declined their involvement in the program. This clearly means that the government has selected the companies without consulting their management or owners. By the early year 2001, the program was silently abolished anyway with no real effect.

Let's have a closer look at the major indicators of financial distress. On the industrial level three major indicators are reported. The primary interest is, of course, focused profit. Payables overdue are a better indicator of distress and the primary insolvency is vital information in this respect. While the former one (payables overdue) is crucial to the debtors (i.e., the filings for bankruptcy) the latter one shows whether the firm is the one causing the troubles or whether it was deadlocked by non-paying customers. The typical deadlock is, for example, when a coal-mining firm supplies coal to the steel mill in troubles. Non-supplying the coal means such a huge drop in sales that the mining firm would not survive. On the other hand, the mill is not paying in time, or not at all. Since the bankruptcy proceedings from the forced liquidation of steel mill would no be high enough to ensure the survival of the mine, no petition is filled. The mining firm cannot do anything else than hope the mill will pay in the future. However, the mine could be declared bankrupt for non-paying its own suppliers. Such a deadlock is typical for several regions with non-diversified industrial structures.

The Bankruptcy and Composition Act (Act No. 328/1991 Coll.) was fourteen times amended since it's initial adoption in 1991 (Detail description: see Janosik and Lizal, 2001). Primary positive aspects of the thirteenth and fourteenth amendments prevail such as the introduction of a preliminary (interim) trustee in bankruptcy, whose main role is to

document the debtor's assets and secure such assets until such time as the proposed bankruptcy order is made. The trustee in bankruptcy was given additional powers, particularly in respect of the documentation of the debtor's assets in order to prevent the assert stripping. The amendment also introduced criminal liability for negligence of the executives and members of the board of directors; for example, the managers are legally obliged to file the petition if the firm is overdebted (similar feature as the Hungarian automatic trigger in 1997). Yet, no one was hold responsible for not filing. The threshold in respect of composition was lowered from 45% to 30% and in respect of forced composition from 33% to 15%. This may serve as a way out of certain deadlocked situations. The role of the creditors' committee was strengthened and the priority of claims has been substantially reclassified. Problematic issues that survived are that the secured creditors are to receive satisfaction of their claims up to a maximum of 70% of the proceeds gained from the sale of the respective security. The balance of their claims may be satisfied proportionally as the unsecured creditors are. The Bankruptcy Act still does not provide for an effective alternative to bankruptcy (e.g., U.S. Chapter 11-type process that allows companies to be revived rather than put into liquidation). Still there are no time limits are imposed on courts for making bankruptcy related decisions, bankruptcy proceedings will continue to be time consuming affairs. The powers of creditors have not been expanded to a great degree. Since in the thirteenth amendment the part of the Bankruptcy Act that dealt with procedural matters has unintentionally been left out causing the bankruptcy procedures to be unconductible (sic!), another amendment had to be passed within several months just to put the omitted sections back in effect.

Enterprise Level Data Description

Extensive data manipulation and preparation is necessary for the major task of the research. Unfortunately, none of the databases used was shaped for academic research so all the firm bankruptcy data and ownership data had to be extracted manually firm by firm.

We use a commercial database collected by Aspekt, Inc., and a similar database collected by Cekia, Inc. (a daughter company of Czech News Agency, CTK). The former database is more reliable and more suitable for our task; the latter one contains various additional information that appeared in the news and agencies. Both data sets cover the period from

1995 or 1996, depending on the particular firm. The information prior to 1995 is not available (see note below). Currently, these databases include around 10000 firms with at least basic information. 5000 firms provide at least once their employment and also on 5000 firms we had any ownership information.

The data collection of the commercial databases deserves more clarification to highlight its strengths and weaknesses.

The database contains detail information about each enterprise. The major items of our interest are: balance sheets, income statements, employment, and ownership (up to seven major owners of the company as well as the owned stakes). Information on managers, locations of the divisions, types of products and major trading partners are also included. The time coverage starts from 1993 (major economic indicators of publicly traded companies, i.e., information based almost solely on voucher scheme data), however, from 1996 on ownership and other data is noted with reasonable precision and firms outside the stock exchange become included. This feature is common for all commercial databases since the market for such information was evolving together with the establishment and growth of stock exchanges.

The database itself is constructed out of several different kinds of raw data resources. The first source is the register of shares (most of the Czech companies use dematerialized shares). All stakes above 10% are public information published on daily base together with the volumes and price traded each day on the PSE (Prague Stock Exchange). The second source is the companies themselves (annual reports, shareholders' meetings, annual meetings of limited liability companies etc.) and the economic information they are required to provide according the type of listing on the PSE and to the court where they are registered. The third resources are questionnaires sent to the firms. The last but not least source of information is the daily news (press releases, known commercial agreements, etc.).

Out of these sources the final database is compiled. As can be seen from the nature of the data, the primary information is based on Czech legal and accounting standards. Certain firms provide also economic indicators according to their international standards. However,

this data is mostly in form of press releases and quite rare. The described features of the data are common for all commercially sold databases on enterprises in the Czech Republic. Therefore, any study claiming that the used data is based on international standards should be treated with a high portion of skepticism since such data is rare and not available with exception of special cases (namely foreign-owned companies sometimes maintain accounting books according both Czech and their international accounting standards) and therefore such sample suffers from the sample selection bias, Heckman (1979). On the other hand, the Czech accounting system belongs to the continental family of accounting standards; therefore the accounting data is quite reliable.

The construction of the database also implies the coverage of the sample and availability of particular information. All firms listed on the PSE are included and this was the original core of the database. Then, as the economic relations are interesting and can tell a lot about the perspectives of the particular enterprise, the coverage is expanding and includes major partners according the economic as well personal linkages. Of course, the higher is the economic importance of each particular entity, the more effort was given to collect the relevant information. To give a flavor of the size of the database - it covers more than 50000 entities. Out of these, about 10000 (one fifth) are enterprises registered at a court as legal entities (i.e., corporations of any kind). Then, about 2000 enterprises are (or were) publicly traded share companies, out of which about 250 are currently listed on the PSE at segments A and B (i.e., those with the most reliable information).

The full balance sheets and income statements are usually available for the firms that wanted their situation to be known or when the law requires disclosure. The latter are the case of the companies listed on the Prague Stock Exchange (PSE), however, this sample has rather limited information value since not all these firms did select the listing on their own will. The listing may suffer from the privatization decisions made in early nineties when all firms selected for the voucher scheme privatization were required to be listed on the PSE or RMS (secondary market). Quite a few firms want to be de-listed and they hope that their misbehavior in the reporting process would eventually lead to the "punishment" in the form of de-listing. Therefore, we plan to use the commercial databases when the firms collecting the date already made an attempt to eliminate false and unreliable information. Both the databases also contain indicators of various internal consistency checks.

Therefore, the problem of the data quality and availability prior to 1995 could be overcome as can be illustrated with research by Claessens and Djankov (1999), where they mixed several data resources to achieve reliability and sufficient time span for their analysis. Namely, they have included the information available from the Czech voucher privatization. However, such an approach has two major shortcomings. The first one is that such information still does have a gap between the years 1992 and 1995. The second one, and more serious, is that they introduced a sample selection bias - only the firms that were included in the voucher privatization could be analyzed. (As we show later, this is a crucial fact in the bankruptcy analysis. Since we believe that there is a strong link with between bankruptcy and financial status, their results could be heavily affected by such selection bias.) Since we plan to use a similar data set as they did to assess the financial distress, we should pay an attention to these critical issues. Fortunately, there were not many bankruptcies prior to 1996 (Table 1) and hence the time span is not severely limiting for our study and can be generally controlled for by the Heckman two-step procedure.

In order to verify our crucial parameter, we use existing on-line source (maintained by the Czech Department of Justice) of the firms declared bankrupt in addition to the above listed sources. Therefore, we are able to furnish the financial data with the up-to-date court decision on the legal status of the firm and verify the crucial information indicating the status of the dissolution.

On the other hand, the balance sheets and income statements are available almost for the whole population of medium and large sized firms. The detection of the "outliers," i.e., firms in financial distress, in the population should be possible as can be illustrated with a study of Czech bank failures by Hanousek (1999). In his study he was comparing the information value of public information (e.g., published balance sheets and offered deposit rates) and the information of the regulator. He was able to show that the usage of only public (!) information on banks is sufficient to predict the troublesome. Such a result implies the efficiency of an inter-bank market and immediate public information reveal on that particular part of the financial market. Therefore, the market is at least as efficient as the regulators in the information reveal and the regulator has no advantage over outsiders.

Regarding the legal status of the firm, four possible stages of registration exist. The first one is an ordinary "living" firm. The owner(s) can decide to dissolve the firm for any reason – the firm is then in stage of "liquidation by arrangement" and term "v likvidaci" is a part of the official name. When a bankruptcy procedure is started, part of the name has to be "v konkurzu", which indicates the firm went into compulsory liquidation (compulsory winding up). The last stage, when the firm was finally winded up, is denoted by "zruseno" or "vymazano" in the registry (de-registered). If the appointed administrator of liquidation by arrangement (trustee) finds that there are not enough assets to cover outstanding debts, he or she has to file for the bankruptcy. A special case can happen – the judge can declare the firm immediately dissolved after the bankruptcy filing if the assets are such that they cannot cover even the costs of the bankruptcy procedure itself.

Each firm in the primary Aspekt database was checked with the Department of Justice firm register to find out its status. As of June 2000, 185 firms underwent (or are still in the process of) the standard bankruptcy procedure (konkurs). 535 firms were liquidated by agreement (likvidace). However, out of them 47 firms had to be filed for bankruptcy (konkurs). 497 firms were already deleted from the registry (zruseno). 43 of the already de-registered firms underwent the liquidation by agreement. Two (2) firms are de-registered and underwent forced liquidation (bankruptcy). One of them went through all stages from alive, over liquidation by agreement and forced liquidation to de-registering.

Out of the 185 firms that went in the standard bankruptcy process (konkurs) we have been able to identify 29 that were excluded out of the process for various reasons (mainly settlement or other agreement with the initiator – so called strategic filling). Therefore, 156 firms form the core of our analysis. The average lifetime of these firms (from the establishment till the court approval of the beginning of the bankruptcy procedure) is 8 years and 1 month. When we exclude firms that were established prior to 1990 (the start of the market economy), i.e., these firms were not subject to any change from the centrally planed era and are dubious cases (9 firms), the average lifetime drops to 6 years and 1 month. Median lifetime is 6 years and 3 months. The minimal lifetime in our sample is 23 months; the maximal one is 126 years. This firm was established even during the Austro-Hungarian monarchy. We have checked the database once more in May 2001 and the total number of declared bankruptcies we have been able to identify rose up to 300. This is

another evidence of the speed up of the process of the bankruptcy procedures allowed by the latest amendments of the Bankruptcy Act. The relative fractions remained the same with exception of the exclusion from the bankruptcy – there was only one entry where the bankruptcy was replaced with the settlement of the creditors and debtor with debt-equity swap.

Next step was to determine the ownership and its concentration. The major obstacle was the relatively low reliability of the commercial data. Combining the available open resources and checking against Cekia database, we constructed the following measures of concentration for each firm. In order to filter out the bankruptcy and merges/split effects, only the firms that did not underwent any such change (i.e., **are continuously present in the financial database**) were selected into **the control group**. We call them balanced panel, since the panel constructed using the control group firms only is really balanced. The control group comprises of 227 firms over the years 1996 to 1999. No really valuable and reliable information on ownership prior 1996 exists. Moreover, the financial data from 1999 are still rare and the sample size of the balanced panel should at least double with the 2000-year database update. The balance sheets and income statements has to be approved by the shareholders meeting which should follow within 6 month after the closure of the fiscal year. The closure depends on the tax calendar; the common deadline is June 30. That is why the fiscal data are coming up from the firms with approximately one-year delay. (Unfortunately, the evidence of a link between the ownership and probability of bankruptcy was found to be quite weak in the conducted analysis.)

Both samples, balanced and unbalanced are used to construct various measures of ownership based on the type of the owner and performance. Controlling for both effects, ownership and performance, we might be able to distinguish, which of these factors are more significant in the poorly performing enterprises. This approach can, as a by-product of our study, serve as indicative evidence in the recent discussion – whether the ownership structure determines the performance or whether the performance attracts various types of ownership.

Table I Distribution of Firms over PSE Industries in the Control Group

PSE sector	Name	number of firms
1	Agriculture	4
2	Food production	5
3	Beverages&Tobacco	4
4	Mining	2
5	Textile	14
6	Wood and Paper	12
7	Chemicals	15
8	Construction	28
9	Metallurgy	10
10	Mechanical Engineering	41
11	Electrical Engineering	7
12	Utilities	5
13	Transport&Telecommunication	7
14	Trade	21
16	Services	23
17	Glass and Ceramics	7
18	Financial Services	22
Total		**227**

Tables CB96-CB99 Summary Characteristics of Control Group Concentration

1996	C1	C2	C3	C5	CALL	H
Mean	37.26	48.93	53.59	55.45	55.58	0.21
Standard Error	1.29	1.34	1.35	1.39	1.40	0.01
Median	33.98	45.72	54.33	58.05	58.05	0.15
Mode	20.00	33.56	49.91	63.73	63.73	0.12
Minimum	5.82	11.18	11.18	11.18	11.18	0.01
Maximum	100.00	100.00	100.00	100.00	100.00	1.00
Confidence Level(95.0%)	2.55	2.63	2.65	2.74	2.75	0.02

1997	C1	C2	C3	C5	CALL	H
Mean	41.34	54.10	58.39	59.99	60.14	0.25
Standard Error	1.34	1.41	1.42	1.44	1.44	0.01
Median	40.10	53.88	60.48	63.61	63.76	0.22
Mode	20.00	62.51	62.51	62.51	62.51	0.02
Minimum	8.97	10.54	10.54	10.54	10.54	0.01
Maximum	100.00	100.00	100.00	100.00	100.00	1.00
Confidence Level(95.0%)	2.65	2.78	2.80	2.84	2.85	0.02

1998	C1	C2	C3	C5	CALL	H
Mean	42.34	58.96	64.95	67.76	67.98	0.53
Standard Error	1.58	1.52	1.40	1.40	1.40	0.01
Median	40.72	61.71	66.33	70.54	70.98	0.53
Mode	40.00	40.00	82.98	82.98	82.98	0.40
Minimum	0.20	3.48	3.48	3.48	3.48	0.03
Maximum	100.00	100.00	100.00	100.00	100.00	1.00
Confidence Level(95.0%)	3.11	3.00	2.75	2.75	2.75	0.03

1999	C1	C2	C3	C5	CALL	H
Mean	45.58	54.37	55.67	56.03	56.03	0.51
Standard Error	1.65	1.79	1.78	1.80	1.80	0.02
Median	44.98	52.75	57.34	57.87	57.87	0.50
Mode	40.00	40.00	40.00	40.00	40.00	0.40
Minimum	1.32	1.68	1.68	1.68	1.68	0.02
Maximum	100.00	100.00	100.00	100.00	100.00	1.00
Confidence Level(95.0%)	3.25	3.53	3.51	3.54	3.54	0.03

Note: C1- percentage holding of largest shareholder
C2- combined percentage holdings of 2 largest shareholders
C3- combined percentage holdings of 3 largest shareholders
C5- combined percentage holdings of 5 largest shareholders
H- Herfindahl index, CALL- Cubin-Leach index

Tables CU96-CU99 Characteristics of Concentration Structure of the Whole Sample

1996	C1	C2	C3	C5	CALL	H
Mean	39.92	51.51	55.85	57.42	57.56	0.23
Standard Error	0.55	0.55	0.55	0.57	0.57	0.01
Median	36.82	49.97	56.98	59.24	59.30	0.18
Minimum	5.82	8.51	10.00	10.00	10.00	0.00
Maximum	100.00	100.00	100.00	100.00	100.00	1.00
Confidence Level(95.0%)	1.08	1.07	1.08	1.11	1.12	0.01

1997	C1	C2	C3	C5	CALL	H
Mean	42.82	55.24	59.43	60.99	61.18	0.26
Standard Error	0.65	0.65	0.65	0.67	0.67	0.01
Median	41.85	55.63	60.77	63.83	63.94	0.22
Minimum	7.03	10.00	10.00	10.00	10.00	0.01
Maximum	100.00	100.00	100.00	100.00	100.00	1.00
Confidence Level(95.0%)	1.28	1.28	1.28	1.31	1.31	0.01

1998	C1	C2	C3	C5	CALL	H
Mean	41.94	57.80	63.07	65.22	65.54	0.30
Standard Error	0.66	0.60	0.56	0.56	0.56	0.01
Median	37.97	59.54	65.29	67.83	68.09	0.26
Minimum	0.08	1.08	1.44	1.44	1.44	0.00
Maximum	100.00	100.00	100.00	100.00	100.00	1.00
Confidence Level(95.0%)	1.30	1.18	1.11	1.10	1.10	0.02

1999	C1	C2	C3	C5	CALL	H
Mean	44.23	52.02	53.46	53.99	54.00	0.50
Standard Error	0.93	0.93	0.93	0.93	0.93	0.01
Median	41.00	50.00	52.41	53.43	53.74	0.49
Minimum	0.03	0.03	0.03	0.03	0.03	0.00
Maximum	100.00	100.00	100.00	100.00	100.00	1.00
Confidence Level(95.0%)	1.82	1.83	1.82	1.83	1.83	0.02

Note: C1- percentage holding of largest shareholder
C2- combined percentage holdings of 2 largest shareholders
C3- combined percentage holdings of 3 largest shareholders
C5- combined percentage holdings of 5 largest shareholders
H- Herfindahl index, CALL- Cubin-Leach index

Tables OB96-OB99 Summary Characteristics of Control Group Ownership Structure

1996	Mean	Total Mean	St. Error	Median	Minimum	Maximum
SFR	20.59	4.60	2.23	14.78	0.70	61.83
IFFR	29.94	15.10	1.83	27.85	0.02	99.98
BAFR	22.92	2.15	3.79	16.24	6.67	60.90
LOFR	25.51	3.76	2.56	19.88	6.13	57.61
INDFR	37.47	4.52	5.18	35.78	0.79	92.27
ASFR	44.09	24.80	2.10	46.07	0.58	100.00
FORFR	38.31	5.99	4.14	36.71	5.71	84.64

1997	Mean	Total Mean	St. Error	Median	Minimum	Maximum
SFR	21.45	2.78	3.26	13.57	0.70	61.83
IFFR	32.47	14.64	2.09	29.80	2.43	99.98
BAFR	27.21	1.46	5.63	20.65	7.33	62.48
LOFR	22.50	1.10	3.64	20.31	5.71	50.30
INDFR	33.87	5.14	3.99	31.89	0.79	81.42
ASFR	47.45	33.68	1.87	48.13	10.00	100.00
FORFR	40.35	5.76	4.15	38.23	10.06	94.10

1998	Mean	Total Mean	St. Error	Median	Minimum	Maximum
SFR	55.14	4.51	1.91	52.46	10.10	100.00
IFFR	29.11	12.02	5.62	18.06	8.00	79.32
BAFR	36.07	13.02	2.65	29.57	1.32	92.95
LOFR	34.69	6.33	3.25	34.07	0.79	86.92
INDFR	37.36	3.25	4.87	38.23	10.06	90.63
ASFR	19.52	1.95	3.78	15.26	0.70	61.83
FORFR	41.60	5.25	4.42	41.58	10.06	94.10

1999	Mean	Total Mean	St. Error	Median	Minimum	Maximum
SFR	60.01	4.70	1.99	61.95	6.41	100.00
IFFR	28.11	0.49	7.58	30.24	8.94	43.03
BAFR	45.85	7.77	5.43	44.76	1.68	100.00
LOFR	58.87	4.61	5.76	60.40	10.00	91.13
INDFR	52.49	0.91	16.84	53.22	12.63	90.90
ASFR	39.92	1.39	5.82	42.01	15.26	61.83
FORFR	40.15	5.06	4.56	34.88	10.06	94.10

Note: SFR   - fraction of state ownership

         IFFR   - fraction of investment funds

         INDFR   - fraction of individual ownership (citizens)

         LOFR   - fraction of portfolio companies

         BAFR   - fraction of direct ownership by banks

         ASFR   - fraction of ownership by local strategic investors (large individual owners and all local companies)

Total Mean is the mean out of the whole used sample. *Mean* is the mean using only firms that have non-zero ownership of that kind.

Tables OU96-OU99 Characteristics of Ownership Structure of the Whole Sample

1996	Total Mean	Mean	St. Error	Median	Minimum	Maximum
SFR	6.62	30.97	1.19	26.77	0.09	95.00
IFFR	14.18	30.79	0.79	24.93	0.02	100.00
BAFR	2.80	33.36	2.57	21.53	3.22	100.00
LOFR	4.00	31.68	1.58	25.03	3.40	100.00
INDFR	6.30	36.13	1.33	35.78	0.27	92.27
ASFR	23.00	43.40	0.87	43.94	0.58	100.00
FORFR	4.94	42.55	2.17	39.44	4.10	100.00

1997	Total Mean	Mean	St. Error	Median	Minimum	Maximum
SFR	5.56	35.80	1.77	33.98	0.09	94.00
IFFR	13.18	33.61	0.99	29.67	0.94	100.00
BAFR	2.00	35.15	3.92	19.03	7.33	100.00
LOFR	2.04	29.62	2.55	22.35	1.74	100.00
INDFR	7.14	35.47	1.63	30.52	0.26	100.00
ASFR	30.32	47.93	0.96	48.91	0.97	100.00
FORFR	6.09	44.59	2.42	40.00	1.98	100.00

1998	Total Mean	Mean	St. Error	Median	Minimum	Maximum
SFR	35.97	51.33	0.80	50.00	0.40	100.00
IFFR	1.13	36.92	4.18	31.22	5.92	100.00
BAFR	12.05	36.32	1.01	30.53	0.74	100.00
LOFR	10.66	40.14	1.18	36.25	0.26	100.00
INDFR	2.55	37.40	2.14	36.45	7.49	100.00
ASFR	2.65	29.21	1.97	22.25	0.09	100.00

1999	Total Mean	Mean	St. Error	Median	Minimum	Maximum
SFR	36.55	59.25	1.11	61.25	0.03	100.00
IFFR	1.27	42.31	5.60	37.69	3.46	100.00
BAFR	6.34	41.85	2.43	40.39	1.44	100.00
LOFR	7.57	53.56	2.44	52.40	0.09	100.00
INDFR	1.25	41.60	5.36	41.10	4.28	91.02
ASFR	0.87	35.45	6.53	26.79	2.12	100.00

Note: SFR   - fraction of state ownership
        IFFR   - fraction of investment funds
        INDFR - fraction of individual ownership (citizens)
        LOFR   - fraction of portfolio companies
        BAFR   - fraction of direct ownership by banks
        ASFR   - fraction of ownership by local strategic investors (large individual owners and all local companies)

Total Mean is the mean out of the whole used sample. *Mean* is the mean using only firms that have non-zero ownership of that kind.

Means and Standard Deviations

The distribution of the data across years is given in Table D1. The 1993 data is rare and mostly on voucher scheme firms (above 70% in 1993) while 1999 is still preliminary in the available database. The fraction of voucher firms is around 20% in all years except 1993 and 1994 where the fraction is 71% and 31%, respectively. Except the border years the distribution of all observations in time is close to uniform one (Table D1).

Table D1

Year	Freq.	Percent
1993	4280	8.74
1994	6811	13.92
1995	8458	17.28
1996	8386	17.13
1997	8401	17.16
1998	7565	15.46
1999	5046	10.31
Total	48947	100

The overall means and standard deviations of all variables are note in the Table D2 as well as the comparison of voucher and non-voucher firms. The voucher firms are less profitable (measured by profit/assets and ROA). They also have lower volume of liabilities and higher portion of the bank debt on the liabilities. The non-voucher firms have twice as large liabilities as the voucher ones. The voucher firms are also larger as shows the log(assets). On average, there are 20% of firms coming out of the voucher scheme privatization.

Table D2

Variable	All			Voucher Firms			Non-Voucher Firms		
	Obs.	Mean	Std.Dev.	Obs.	Mean	Std.Dev.	Obs.	Mean	Std.Dev.
ROE	28504	-31.46	3689.21	8956	-11.87	419.37	19548	-40.44	4445.82
ROA	28593	-5.83	471.31	9017	-11.99	817.30	19576	-2.99	129.48
VADD/A	37119	0.28	0.68	9236	0.24	0.19	27883	0.29	0.78
BANK/LIAB	36375	0.29	3.42	9108	0.56	6.82	27267	0.19	0.27
BS_SHR	37095	0.34	0.64	9229	0.49	0.56	27866	0.29	0.66
LS_SHR	37178	0.60	0.34	9247	0.46	0.29	27931	0.65	0.34
PROF/A	37346	-0.07	4.79	9249	-0.12	8.07	28097	-0.05	3.01
REC/A	37134	0.25	0.22	9235	0.20	0.15	27899	0.26	0.23
BANK/A	37169	0.18	8.99	9259	0.16	0.17	27910	0.19	10.37
LIAB/A	37220	0.67	14.14	9261	0.46	7.91	27959	0.74	15.66
Log(A)	37389	11.30	1.78	9264	12.49	1.39	28125	10.91	1.72
VP	49017	0.21	0.41	x	1	0	x	0	0

Legend: A=Assets, VP=dummy for Voucher Privatization, PROF=Profit, LIAB=liabilities, BANK=debt to banks, BS_SHR=share of the short-term bank debt on the total bank debt, LS_SHR=share of the short-term liabilities on the total liabilities, REC=receivables, VADD=value added.

Table D3 contains a comparison of the bankrupt firms with the rest of the sample. There are several notable differences. First of all, the bankrupt firms do have much higher returns to equity. This probably reflects the fact that these firms have to have higher returns to equity (riskier firms should have higher returns that go to shareholders). All other differences are as expected, the bankrupt firms do have lower returns to assets, value added per assets, lower profitability per assets, higher liabilities and bank loans as well as slightly higher portion of short-term bank debt.

Table D3

Variable	In Bankruptcy			Not in Bankruptcy		
	Obs.	Mean	Std. Dev.	Obs.	Mean	Std. Dev.
ROE	543	13.12	778.30	27961	-32.33	3723.28
ROA	546	-18.89	105.28	28047	-5.57	475.64
VADD/A	893	0.14	0.63	36226	0.28	0.68
BANK/LIAB	877	0.40	0.29	35498	0.28	3.46
BS_SHR	889	0.51	0.41	36206	0.33	0.65
LS_SHR	891	0.50	0.31	36287	0.61	0.34
PROF/A	898	-0.76	15.50	36448	-0.05	4.19
REC/A	892	0.31	0.23	36242	0.25	0.22
BANK/A	897	2.26	57.82	36272	0.13	0.20
LIAB/A	897	4.93	87.21	36323	0.56	4.10
Log(A)	899	11.90	1.75	36490	11.29	1.78
VP	1301	0.38	0.49	47716	0.20	0.40

Legend: A=Assets, VP=dummy for Voucher Privatization, PROF=Profit, LIAB=liabilities, BANK=debt to banks, BS_SHR=share of the short-term bank debt on the total bank debt, LS_SHR=share of the short-term liabilities on the total liabilities, REC=receivables, VADD=value added.

Estimation Methodology and Results

Since the number of other settlements is extremely limited, we cannot use the classical methodological approach of loosening and tightening like, for example, Asquit et al. (1994). Instead we focus only on the first part – the determinants of the distress leading to the bankruptcy. The Czech firms use a variant of international accounting standards so far and therefore the analysis can rely on the accounting data in usual extent. We note that due to historical factors, the Czech accounting system belongs to the Continental family of accounting systems. It is similar, though not identical to the system of International Accounting Standards. Our checks of variable definitions indicate that the relevant data are adequate for our analytical purposes. The main difference would lie in the interpretation of the results – one has to keep on mind these limits. (Nevertheless, the desired outcome is to find the financial indicators under the local accounting standards that reflect the danger of

the default and their statistical importance. Therefore, even different accounting standards do not prove themselves to be a problem if one accounts for their definitions.)

The basic estimated equation (as the starting workhorse) should had the form:

*Probabilty (Bankruptcy $_t$) = Probit (Financial status and indicators $_{t-i}$), i > 0, **EQ1***

where the financial status variables comprise various individual measures of distress. Financial theory is inconclusive which measures can serve as predictors of firm failure (Scott, 1981). Also, the measures used depend on the environment, whether the firm has an easy access to capital or whether it is subject to hard constraint in the access to capital (Altmann et al, 1977).

Adopting too many financial measures introduces a severe multicollinearity and the model becomes too sensitive, and consequently, useless. Summarizing empirical literature Altman (1991) found four crucial indicators: solvency, liquidity and profitability ratios and leverage. These four measures are included in the data. The data contains these commonly used indicators of firm performance and health: Turnover/Total Assets, Revenues/Turnover, ROA, ROE, Profit margin, Stock turnover, Receivables turnover, Cash flow/Total equity, Debt ratio, Cash Flow/(Liabilities – reserves), Current ratio, Acid test, Current liquidity, Short term assets/Daily operating expenses, Gearing ratio, Turnover per employee, Coverage of fixed assets, Working capital, Total equity per share, and EPS ratio.

In addition to these commonly used measures we explored various debt ratios and indicators using the balance sheet and income statement data that would better describe the composition of the debt. For example, various overdue items should serve as perfect indicators of arrears and should be treated as a part of the outstanding debt. Just to illustrate the magnitude of secondary indebtedness in the Czech Republic, we can remind that the estimated magnitude in early nineties was well above 200bln CZK, which equaled more than one fourth of the yearly GDP that time. Interesting question is how early could be the firm detected as the troublesome (i.e., the highest value of i with reasonable predicting power of the failure forecast).

Microeconomic study on determinants of investment during the transition in the Czech Republic by Lizal and Svejnar (2000) highlighted the importance of financial health of firms. Their results are consistent with the financing hierarchy and credit rationing hypotheses — indicating that domestic firms cannot easily borrow investment funds externally and that net investment varies with retained profits. Firms take into account various stock measures of internal finance; in particular, a stock of cash, receivables, receivables overdue, payables, and payables overdue systematically affect net investment. Moreover, as shown by Lizal and Svejnar (2001) in their study of investment behavior of all medium and large manufacturing firms in 1992-98 period, the Czech firms face soft-budget constraint that is closely connected with their history, namely the former large state owned enterprises are financed irrelevant of their performance while small private firms and coops are credit rationed. The foreign-controlled enterprises behave consistently with the hypothesis of perfect access to capital.

Trinity of bankruptcy reasons

Therefore, based on the availability of data, we estimated three types of the model: The first one uses balance sheet and income statement data, the second one uses the common financial indicators, and the third one uses ownership information. We have also explored the effect of ownership in the first two models. These three models should reflect the three main reasons leading to bankruptcy. The ownership is related to the corporate governance structure and firm goodwill. The profit measures should control for the long-term viability of the firm while the financial structure controlled for by the structure of the debt and receivables.

Models based on balance sheet and income statement data

We have started our examination of the bankruptcy with the commonly used predictors. However, we found that these do not work at all (or perform quite poorly). The results that took into the account the composition of the debt worked better. Moreover, there are significant differences between the voucher scheme firms and the rest of the sample. Reasonable indicators of possible bankruptcy are shown in the following Table R1. We have used dummy variable to indicate the voucher scheme firms and a log of assets to control for the size effect. First of all, the profitability measured by profit/assets is never significant for the non-voucher firms. The affect on voucher firms is negative, but not always significantly.

The liabilities/assets increase the probability of bankruptcy only for the non-voucher firms, the effect of liabilities/assets in the opposite for the voucher firms, i.e., the larger liabilities of the former SOEs, the lower is the probability of failure, ceteris paribus. The voucher scheme dummy is consistently negative and usually significant (voucher firms are less likely to go bankrupt). There is systematic quite substantial role of bank debt/assets. Moreover, the voucher-firms are on average three times more sensitive to this factor. The shares of short-term bank debt and short-term liabilities are harder to interpret, the pattern is not clear. Yet, the short-term liabilities are consistently significant and positive for the voucher firms. The effect of debt/asset is the same for both types of firms and significantly increases the risk of the bankruptcy.

We have used ownership data to explore whether the financial indicators are sufficient to predict the probability of bankruptcy or whether there are owners that are facing lower risks. Since the data of ownership and balance sheet do not fully overlap and the resulting number of observations would be much smaller we used method similar to analysis of residuals in the OLS setup. During the probit estimation with ownership structure included we have kept the coefficients associated with the fiscal variables fixed at their values as they are noted in the Table R1 (i.e., treated as fixed parameters) and allowed just the ownership coefficients to be estimated.

Just in one case (for one year before the bankruptcy) we have found a significant effect that reduces the probability of bankruptcy. Coefficient associated with Herfindahl ownership concentration index was significantly negative on 10% level. Therefore we believe that once the financial structure is known, the ownership information plays no role. This result leads us to the conclusion, that we can rule-out the managerial hypothesis of the cause of the bankruptcies with respect to ownership but not with respect to the way of privatization.

Table R1

Timeframe	All available	T=-1	T=-2	T=-3
N. of obs.	37072	36230	36316	36381
N. of Yes obs.	889	47	133	198
Log likelihood	-3828.88	-261.466	-770.322	-1126.84
R-squared	0.032883	0.072196	0.016886	0.004305
Fraction of Correct Predict.	0.975912	0.998648	0.996228	0.994393
	Estimate	Estimate	Estimate	Estimate
	(Error)	(Error)	(Error)	(Error)
Constant	-3.11644 ***	-4.68937 ***	-4.19992 ***	-3.71888 ***
	(0.129984)	(0.469287)	(0.271859)	(0.229662)
Dummy VP	-0.16743 *	-0.35894	-0.30457 *	-0.45037 ***
	(0.093036)	(0.278027)	(0.184318)	(0.167252)
Log(assets)	0.061877 ***	0.104726 ***	0.087755 ***	0.073144 ***
	(9.77E-03)	(0.033881)	(0.020235)	(0.017112)
PROF/A	3.75E-03	-7.86E-03	-8.38E-03	0.010107
	(0.013052)	(0.029204)	(0.017559)	(0.020502)
LIAB/A	0.031157 ***	0.026329	0.026222 **	0.023179 *
	(9.00E-03)	(0.017214)	(0.012447)	(0.013826)
LIAB/A*VP	-0.08671 ***	-0.0718	-0.10783 ***	-0.03785
	(0.028656)	(0.061649)	(0.030392)	(0.088375)
PROF/A*VP	-0.05747 *	-0.03595	-0.07124 **	-0.02373
	(0.029459)	(0.064544)	(0.031855)	(0.087861)
BANK/A	0.822662 ***	0.59884 ***	0.704046 ***	0.706138 ***
	(0.062207)	(0.125316)	(0.089722)	(0.085887)
BANK/A*VP	1.18152 ***	1.94048 ***	1.30394 ***	1.01582 ***
	(0.153591)	(0.273643)	(0.236873)	(0.254238)
BS_SHR	0.029514 **	0.016235	0.012365	0.023916
	(0.013429)	(0.0357)	(0.030179)	(0.017235)
BS_SHR*VP	0.015946	-0.69587 ***	-0.09586	7.89E-03
	(0.034788)	(0.237441)	(0.146558)	(0.054195)
LS_SHR	0.068556	0.026625	0.233801 **	0.026757
	(0.065122)	(0.235202)	(0.117584)	(0.10947)
LS_SHR*VP	0.222591 *	0.46719	0.43086 **	0.35261 *
	(0.125149)	(0.325637)	(0.197291)	(0.208908)
REC/A	0.483896 **	0.4021 ***	0.408779 ***	0.476438 ***
	(0.065425)	(0.133268)	(0.105295)	(0.09135)
REC/A*VP	0.135696	0.804065 *	0.39646	0.369228
	(0.18206)	(0.432499)	(0.319678)	(0.305322)

***, **, * denote significance on 1%, 5% and 10% level, respectively.

Legend: A=Assets, VP=dummy for Voucher Privatization, PROF=Profit, LIAB=liabilities, BANK=debt to banks, BS_SHR=share of the short-term bank debt on the total bank debt, LS_SHR=share of the short-term liabilities on the total liabilities, REC=receivables.

Models based on common performance indicators

We have explored the predictive power of Turnover/Total Assets, Revenues/Turnover, ROA, ROE, Profit margin, Stock turnover, Receivables turnover, Cash flow/Total equity, Debt ratio, Cash Flow/(Liabilities – Reserves), Current ratio, Acid test, Current liquidity, Short term assets/Daily operating expenses, Gearing ratio, Turnover per employee, Coverage of fixed assets, Working capital, Total Equity per Share, and EPS ratio. In addition we have controlled for the size of the enterprise by using log of the total assets and for the inclusion of the firm in the voucher scheme privatization.

To our surprise, the indicators that are connected with the liquidity and debt turned out to be mostly irrelevant no matter the time-frame used. The results are shown in Table R2. Out of the battery of indicators used to measure the health of the firm only two play always role: returns to assets and earning per share. There are also significant differences between the voucher-scheme firms ant the others. The higher the earning per share, the lower is the probability of bankruptcy. This effect is even hundred times stronger for the voucher scheme firms, ceteris paribus. On the other hand, returns to asset are a relevant measure for the non-voucher firms. The voucher firms are more likely to go bankrupt the higher are the earnings per equity. Surprisingly, the leverage pays no role for any type of firm. However, the voucher firms are more likely to go bankrupt, ceteris paribus.

To explore the effects of ownership we fixed the coefficients and re-estimated the model with ownership information, as in previous cases. We have found no single significant effect of any type of ownership or concentration of ownership in any year before the bankruptcy. Therefore, we have the same conclusion, as before – financial indicators are sufficient to reveal the risk of failure, controlling for the voucher privatization selection and we can rule out the managerial cause of the bankruptcies related to the ownership structure.

Since we have found weak no link between profitability and probability of bankruptcy in both models (higher ROE*VP even increases probability of bankruptcy while ROE was not significant at all) the second hypothesis of just financial causes of bankruptcies in the case of voucher firms gets more support than the neoclassical re-allocation one.

Table R2

Timeframe	All available	T=-1	T=-2	T=-3
N. of obs.	27629	27118	27172	27200
N. of Yes obs.	543	32	86	114
Log likelihood	-2517.38	-227.124	-523.955	-708.576
R-squared	0.015411	0.001401	0.019722	0.000735
Fraction of Correct Predict.	0.98013	0.998783	0.996798	0.995699
	Estimate (Error)	Estimate (Error)	Estimate (Error)	Estimate (Error)
Constant	-3.03287 *** (0.137294)	-3.69772 *** (0.438815)	-3.64748 *** (0.286391)	-3.47603 *** (0.24686)
Dummy VP	0.296588 *** (0.039444)	0.507964 *** (0.130751)	0.272364 *** (0.082087)	0.138155 * (0.071091)
Log(assets)	0.069089 *** (0.011711)	0.031344 (0.037374)	0.063423 *** (0.024199)	0.064367 *** (0.020985)
ROA	-9.29E-04 *** (2.48E-04)	-8.44E-04 ** (3.53E-04)	-8.83E-04 *** (3.06E-04)	-6.25E-04 * (3.69E-04)
ROA*VP	9.21E-04 *** (2.49E-04)	8.33E-04 ** (3.54E-04)	8.71E-04 *** (3.07E-04)	6.22E-04 * (3.77E-04)
ROE*VP	2.46E-04 *** (9.59E-05)	4.90E-04 * (2.68E-04)	4.34E-04 ** (1.93E-04)	-2.15E-05 (8.21E-05)
Leverage*VP	3.13E-03 * (1.88E-03)	-3.28E-03 (7.56E-03)	-4.54E-03 (3.79E-03)	1.64E-03 (2.59E-03)
EPS	-1.45E-06 *** (3.11E-07)	-4.98E-07 (1.12E-06)	-1.11E-06 ** (4.41E-07)	-1.11E-06 *** (4.08E-07)
EPS*VP	-5.15E-04 *** (5.29E-05)	-2.53E-04 *** (9.55E-05)	-4.85E-04 *** (7.12E-05)	-3.78E-04 *** (7.14E-05)

***, **, * denote significance on 1%, 5% and 10% level, respectively.

Models based on ownership data

The effect of ownership on bankruptcy is as expected – state ownership reduces the probability of bankruptcy as well as the foreign ownership. Although the effect is not always significant, it has always the same sign. Also the firms privatized by means of vouchers are more likely to go bankrupt, ceteris paribus. Therefore, we can conclude that the dispersed ownership created by the voucher scheme seems to be really riskier. Table R3 contains estimates for T=3, where we had the largest amount of bankruptcy observations. (The concentration measures were highly collinear with the ownership fractions and the regression results were extremely sensitive, the coefficients had switching signs when an insignificant variable was added/dropped. The partial results showed that the increasing any measure of concentration decreases the probability of failure.)

Table R3 (base is individual ownership and third companies ownership)

Parameter	Estimate (Error)
Constant	-3.85*** (.43)
State ownership fraction	-.87e-02* (.51E-02)
Foreign ownership fraction	-.89E-02* (.52E-02)
Funds, banks, etc. ownership	-.22E-02 (.25E-02)
Dummy Voucher Scheme	.675*** (.159)
Log(total assets)	.077** (.037)

Number of observations = 8575
Number of positive obs. = 49
Log likelihood =   -277.520
R-squared =   .634E-02
Fraction of Correct Predictions = 0.994
***, **, * denote significance on 1%, 5% and 10% level, respectively.

The early years of transition

In order to analyze the time effect from the perspective of early transition and to assess whether initial conditions play a role we have estimated the basic two models using the data from the first half of nineties – during the year 1993 – the year of the start of the second wave of mass voucher privatization and finished the first one. These results should then reflect the state of the firms as they emerged from the centrally planned system.

Unlike to the previous estimations, none of the financial variables is significant, see Table R4a. Neither the dummy controlling for the voucher privatization is significant. This would imply that there was no difference between the voucher firms and the others.

For the second model, the results are reported in Table R4b. As well as in the previous case, none of the financial variables is significant. However, as in the previous analysis, the dummy is positive and significant. This could be interpreted as before, that the voucher firms' debt structures are less healthy.

Table R4a

Timeframe	1993
N. of obs.	1935
N. of Yes obs.	74
Log likelihood	-269
R-squared	0.04968
Fraction of Correct Predict.	0.9602

	Estimate (Error)
Constant	-4.4242 ***
	(0.7759)
Dummy VP	0.49043
	(0.5579)
Log(assets)	0.125212 ***
	(0.04548)
PROF/A	0.497264
	(1.63557)
LIAB/A	0.201964
	(0.752338)
LIAB/A*VP	0.70698
	(0.83711)
PROF/A*VP	-2.08467
	(1.8105)
BANK/A	-0.02592
	(1.02408)
BANK/A*VP	0.854823
	(1.16767)
BS_SHR	0.163774
	(0.444)
BS_SHR*VP	0.114971
	(0.481248)
LS_SHR	0.07663
	(0.303432)
LS_SHR*VP	-0.399101
	(0.415685)
REC/A	1.16569
	(0.780042)
REC/A*VP	-0.431789
	(0.890155

***, **, * denote significance on 1%, 5% and 10% level, respectively.

Legend: A=Assets, VP=dummy for Voucher Privatization, PROF=Profit, LIAB=liabilities, BANK=debt to banks, BS_SHR=share of the short-term bank debt on the total bank debt, LS_SHR=share of the short-term liabilities on the total liabilities, REC=receivables.

Table R4b

Timeframe	1993
N. of obs.	1855
N. of Yes obs.	74
Log likelihood	-286
R-squared	0.03989
Fraction of Correct Predict.	0.9595

	Estimate (Error)
Constant	-3.97962 ***
	(0.525373)
Dummy VP	0.555027 ***
	(0.192854)
Log(assets)	0.135397 ***
	(0.040092)
ROA	-8.84E-03
	(0.018356)
ROA*VP	-0.023305
	(0.022399)
ROE*VP	-2.34E-03
	(4.11E-03)
Leverage*VP	0.025223
	(0.18043)
EPS	-1.25E-06
	(3.96E-06)
EPS*VP	-1.36E-04
	(1.94E-04)

***, **, * denote significance on 1%, 5% and 10% level, respectively.

In order to analyze just the difference between the firms that underwent the voucher scheme privatization and the others we run a simple regression of the probability of the bankruptcy as a function of a constant, dummy and log(asets) as the size control. The coefficients on the dummy in years 1993-98 are reported in Table R4c. In 1993 more than 71% of the firms in our sample are from the voucher scheme privatization. This portion of firms explains the highly positive and significant coefficient. In the subsequent years the share of the se firms is around 20% in each regression, just in 1994 the share is still 30%. From 1994, when the second wave of voucher scheme privatization ended, was no significant difference between these firms and the others until 1997 when the voucher scheme firms become riskier. Therefore, we conclude that there is no evidence that the initial conditions from early 90's were the driving force of the financial distress.

Table R4c

Year	Dummy VP
1993	0.620838 ***
	(0.182591)
1994	0.065661
	(0.076581)
1995	-0.01396
	(0.071844)
1996	0.085308
	(0.07353)
1997	0.302431 ***
	(0.085164)
1998	0.440949 ***
	(0.117546)

***, **, * denote significance on 1%, 5% and 10% level, respectively. There were too few observations in 1999 on assets to run comparable regression.

The last comment relates to the interpretation of the voucher scheme dummy we used in various specifications. The interpretation should vary with the model definition. Once we fully control for the financial structure, the effect of managers is already in the financial data and the dummy controls for outside-firm effects (like state influence). If the model is not so detail one, the dummy controls for both outside- and inside-firm (i.e., managerial or corporate governance) effects.

Concluding Remarks and Policy Implications

We have found that the financial information is sufficient to reveal the health of the firm and no systematic effects of ownership could be found. In this respect we can rule out the managerial causes of bankruptcy linked with the ownership type. On the other hand, the information whether the firm was privatized by means of vouchers plays a quite crucial role. This implies that the corporate governance linked to the voucher scheme privatization and state influence do play a role. Unfortunately, the evidence is somehow mixed and needs to be carefully analyzed in the future research. If the full structure of the debt is known, than the voucher firms seem to be more secure because of the outside-firm effects. If just the common indicators of financial health are used then the firms from voucher scheme are riskier and the dummy captures both inside and outside effects. These two pieces of evidence could be interpreted as follows:

1. The firms selected for voucher scheme (mostly large SOEs) do carry a riskier structure of the debt, on the other hand, these firms are safer compared to others with a similar bad structure of the debt. However, we found no support for the fact that the voucher firms carried riskier debt from the past at the time of privatization (item 4 below).

2. Given the same structure of common quick indicators of health of a firm, the firms that underwent voucher privatization are riskier. The reason could be either because the structure of the debt is worse than in any average firm or, more generally, the corporate governance is likely to be poorer.

The final observation we made is that for firms with no information on their financial status we can expect the state-controlled firms and foreign firms to be less susceptible to financial distress resulting in a bankruptcy (no surprise). However:

3. Given the ownership structure, the firms that were subject to voucher privatization are more likely to go bankrupt. The firms selected for voucher scheme (mostly large SOEs) therefore do carry a larger debt or riskier structure of the debt or do have problems in the corporate governance.

4. There is no significant effect of the initial fiscal conditions in early nineties.

Our overall impression is that the voucher scheme leads to poorer corporate governance and therefore these firms are more likely to go bankrupt. On the other hand, since these former large SOEs are safer than firms with similar debt structure, there is another, yet limited, evidence for soft budget constraints of these firms. In addition to governmental interventions, the soft budgeting can be caused by the unwillingness of banks to reveal the bad loans in their portfolio (Mitchell, 1997).

The fact that the voucher scheme indicator plays always a crucial role should be explored more closely in the future research. This would help to verify or disprove the hypotheses that stem from the regression results presented in this paper. The next analysis should also focus on the hazard models that allow better to control for the "accumulation" of the stock of the debt and changes in the structure of the financial status and, presumably, decipher the reasons of the crucial effect of the voucher scheme privatization.

Current Policy Implication:

Voucher scheme as conducted in the Czech Republic is not recommended since it was identified either as a risk factor or a signal of a soft budgeting. The reason(s) could be:

1. These firms were not able within the 10 years restructure their debt.
2. These firms have poor corporate governance not linked with particular type of ownership and accumulated bad debt.
3. These firms are not able to receive capital needed for true restructuring.
4. These firms face soft budget constraint due to the state-controlled banking sector.
5. The voucher method as such prevents elimination of the above listed problems for some other reason.

All these are linked with the way the transition was conducted. Therefore, our evidence supports Stiglitz's (1999) critique of the reform.

References:

Aghion, Philippe, Olivier Blanchard and John Burgess, 1994, "The Behaviour of State Firms in Eastern Europe Pre - Privatization," *European Economic Review*, 38, 1327-1349.

Aghion, Philippe; Blanchard, Olivier-Jean; Carlin, Wendy. 1994, "The economics of enterprise restructuring in Central and Eastern Europe," *CEPR Discussion Paper* No. 1058 , November 1994.

Aghion, Dewatripont and Rey, "Competition, Financial Discipline and Growth," *CEPR Discussion Paper #2128*, 1999.

Altman, E, R. Haldeman, and P. Narayanan, 1977, "ZETA Analysis: A New Model to Identify Bankruptcy Risk of Corporations," *Journal of Banking and Finance*, vol. 1, pp. 29-54.

Altman, E., 1991, "Techniques for Predicting Bankruptcy and Their Use in a Financial Turnaround," in Levine, S. (ed): *Investing in Bankruptcies and Turnarounds: Spotting Investment Values in Distressed Businesses,* New York, NY, Harper-Collins.

Asquith, Gertner, and Scharfstein, "Anatomy of Financial Distress: An Examination of Junk-Bond Issuers," *Quarterly Journal of Economics*, 1994, pp. 625-658.

Astebro, Thomas and Joachim Winter, 2000, "More than a Dummy: The Probability of Failure, Survival and Acquisition of Firms in Financial Distress," EFA meeting in August, 2000, London. Revised 2001.

Blanchard, O., R. Dornbusch, P. Krugman, R. Layard and L. Summers. 1991. *Reform in Eastern Europe*. Cambridge, Mass.: MIT Press.

Bornstein, Morris, 1999, "Framework Issues in the Privatisation Strategies of the Czech Republic, Hungary and Poland," *Post Communist Economies*; 11(1), March 1999, pages 47-77.

Claessens, Stijn, 1997, "Corporate Governance and Equity Prices: Evidence from the Czech and Slovak Republics," *Journal of Finance*; 52(4), September 1997, pp. 1641-58.

Claessens, Stijn, and Djankov, Simeon, 1999a, "Enterprise Performance and Management Turnover in the Czech Republic," *European Economic Review* 43, 1115-1124.

Claessens, Stijn, and Djankov, Simeon. 1999b. "Ownership Concentration and Corporate Performance in the Czech Republic," *Journal of Comparative Economics* 27, 498-513.

Coffee, J., 1996, "Institutional Investors in Transition Economies: Lessons from the Czech Experience," in Frydman, R., C. W. Gray, and A. Rapaczynski (eds.), *Corporate Governance in Central Europe and Russia*, Vol. I, CEU Press, Budapest, London, New York, 111-186.

Estrin, Saul and Paul Hare, 1992, Firms in Transition: Modelling Enterprise Adjustment. CEPR Working Paper No. 89

Frydman, Roman et al, 1999, "When Does Privatization Work? The Impact of Private Ownership on Corporate Performance in the Transition Economies," *Quarterly Journal of Economics*; 114(4), November 1999, pages 1153-91

Gaddy Clifford and Ickes Barry, 2000, "An Evolutionary Analysis of Russia's Virtual Economy," WDI seminar series, November 2000.

Gupta Nandini, Ham John C., Svejnar Jan, "Priorities and Sequencing in Privatization: Theory and Evidence from the Czech Republic" *W. Davidson Institute WP No. 323,* 2000

Hanousek, Jan, "Predicting Bank Failure in Transition: Lessons from Czech Bank Crisis of the Mid Nineties," *CERGE-EI DP #15/99*, October 1999.

Hanousek, Jan, and Kocenda, Evžen, 1998, "The Impact of Czech Mass Privatization on Corporate Governance" in *Mass Privatization Schemes in Central and East European Countries, Implications on Corporate Governance*. Edited by Plamen D. Tchipev, Jürgen G. Backhaus, Frank H. Stephen. GorexPress, Sofia.

Hashi, Iraj, 1998, "Mass Privatization and Corporate Governance in the Czech Republic," *Economic Analysis*, Vol. 1, No. 2, 163-187.

Havrylyshyn, Oleh, and Mcgetting Donal, 1999, Privatization in transition countries, a sampling of the literature, *IMF Working Paper* 99/6

Heckman, J., "Sample Selection Bias as Specification Error," *Econometrica*, 1979, vol. 47, pp. 153-167.

Hlavacek, "Producer's Criteria in a Centrally Planned Economy," in Quandt and Triska: *Optimal Decisions in Markets and Planned Economies*, Westview Press, 1990.

Jánošík, David and Lubomír Lízal, 2001, History and Development of Bankruptcy Procedures in the Czech Republic, CERGE-EI DP 67.

Kocenda, Evžen, 1999, "Residual State Property in the Czech Republic," *Eastern European Economics*, 37, 5, 6-35.

Kocenda, E. and Cábelka, Š., 1999, "Liberalization in the Energy Sector: Transition and Growth," *Osteuropa Wirtschaft*, 44, 104-116.

Kotrba, Josef, 1996, Privatization and Restructuring: Friends or Enemies, CERGE-EI WP #103.

Kotrba J., Kocenda, E., and Hanousek, J., 1999, *The Governance of Privatization Funds in the Czech Republic*, 7-43. In: Simoneti, M., Estrin, S., and Bohm, A. (eds.), The Governance of Privatization Funds: Experiences of the Czech Republic, Poland and Slovenia. Edward Elgar, London.

Kruse, "Financial Distress in Central and Eastern Europe: An Overview: Discussion" in: Bonin, and Szekely *"The development and reform of financial systems in Central and Eastern Europe,"* Aldershot, U.K.: Elgar; 1994: pp 61-67.

Laštovicka, R., A. Marcincin, and M. Mejstrík, 1995, Corporate Governance and Share Prices in Voucher Privatized Companies. In: J. Svejnar ed., *The Czech Republic and Economic Transition in Eastern Europe*, San Diego etc.: Academic Press

Legros, Patrik and Janet Mitchell, 1995, "Bankruptcy as a Control Device in Economies in Transition," *Journal of Comparative Economics*, pp. 265-301.

Li, David D. and Francesca Cornelli, 1995, Enterprise Behavior before Restructuring, unpublished manuscript

Lizal L and Jan Svejnar, "Financial Conditions and Investment during the Transition: Evidence from Czech Firms," *CERGE-EI Working Paper #153*, March 2000.

Lizal L. and Jan Svejnar, 2001, "Investment, Credit Rationing and the Soft Budget Constraint: Evidence from Czech Panel Data," *Review of Economics and Statistics*, forthcoming, 2002.

Maddala, G. S., Limited Dependent and Qualitative Variables in Econometrics, Cambridge: Cambridge University Press, 1983.

Marcincin, Anton, 1997, "Manazeri a politici: Model slovenskej privatizacia. (Managers and Politicians: Model of Slovak Privatization.) *Finance a úver,* vol. 47(12), 743-55.

Marin and Schnitzer, "Disorganization and Financial Collapse," *CEPR Discussion Paper #2245*, 1999.

Mertlik, Pavel, 1997, "Czech Privatization: From Public Ownership to Public Ownership in Five Years?," *Eastern-European-Economics,* vol. 35(2), March-April 1997, pages 64-83.

Nellis, John, 1999, "Time to Rethink Privatization in Transition Economies?" *Finance and Development*; 36(2), June 1999, pages 16-19.

Scott, J. 1981, "The Probability of Bankruptcy: A Comparison of Empirical Predictions and Theoretical Models," *Journal of Banking and Finance*, Vol. 5, pp. 317-344.

Stiglitz, Joseph (1999), "Whither Reform?, Ten Years of the Transition," for the Annual Bank Conference on Development Economics, Washington, D.C., April, 1999.

Toporowski, Jan: 1998: Capital Market Inflation and Privatisation in Capitalist and Post-Communist Economies, *Zagreb International Review of Economics and Business*; 1(2), November 1998, pages 77-89.

Weiss, Andrew , Nikitin, Georgiy, 1998, Performance of Czech Companies by ownership structure , *The Davidson Institute Working Paper No.* 186

Pre-Tax Profit or Loss (mil.CZK)

(firms with 100 or more employees)

Industry NACE		Pre-Tax Profit or Loss			Change y-o-y %	
		1998	1999	2000	99/98	00/99
CA	Mining and quarrying of energy producing mater	1907	1373	2585	-28.0	88.3
CB	Mining and quarrying except energy producing mater	-141	191	216	-235.5	13.1
C	Mining and quarrying	1766	1564	2801	-11.4	79.1
DA	Manufacturing of food products,beverages and tobacco	4504	7427	10758	64.9	44.8
DB	Manufacture of textiles and textile products	-76	359	2030	-572.4	465.5
DC	Manufacture of leather and leather products	-1064	-587	16	-44.8	-102.7
DD	Manufacture of wood and wood products	523	1206	991	130.6	-17.8
DE	Manufact.of pulp, paper and pap. products, publis. printing	1240	-231	5582	-118.6	-2516.5
DF	Manufacture of coke, refined petroleum	3316	1798	3712	-45.8	106.5
DG	Manufacture of chemic.,chem.prod. and man-made fibres	3148	1615	3282	-48.7	103.2
DH	Manufacture of rubber and plastic products	3121	4381	4573	40.4	4.4
DI	Manufacture of other non-metallic mineral products	4861	5329	9525	9.6	78.7
DJ	Manufacture of basic metals and fabricated metal products	1513	-10253	-6800	-777.7	-33.7
DK	Manufacture of machinery and equipment n.e.c.	-1051	-2139	1029	103.5	-148.1
DL	Manufacture of electrical and optical equipment	4452	3357	9745	-24.6	190.3
DM	Manufacture of transport equipment	811	2734	8990	237.1	228.8
DN	Manufacturing n.e.c.	909	2776	3071	205.4	10.6
D	Manufacturing	26208	17772	56504	-32.2	217.9
E	Electricity, gas and water supply	19750	14335	19964	-27.4	39.3
	Total industry	47725	33672	79268	-29.4	135.4
F	Construction	1020	5104	5359	400.4	5.0
G	Wholesale and retail trade,repair of motor vehicles,motor.	-2635	-2184	3553	-17.1	-262.7
H	Hotels and restaurants	-1003	-322	1631	-67.9	-606.5
I	Transport, storage and communication	20333	22707	32354	11.7	42.5
K	Real estate, renting and business activities	2888	2866	5526	-0.8	92.8
A	Agriculture, hunting and forestry	1529	1762	3173	15.2	80.1
L	Other	3397	2123	3284	-37.5	54.7
	Total CR	73254	65729	134149	-10.3	104.1

Unbalanced change reported

The Amount of Profit, Loss and Number of Enterprises

(firms with 100 or more employees)

Industry NACE		Enterprises with profit								Enterprises with loss							
		am. in mill.CZK			change % y-o-y		number of firms			am. in mill.CZK			change % y-o-y		number of firms		
		1998	1999	2000	99/98	00/99	1998	1999	2000	1998	1999	2000	99/98	00/99	1998	1999	2000
CA	Mining and quarrying of energy producing mater	2245	2275	3044	1.3	33.8	9	7	8	-338	-902	-459	167.2	-49.1	4	4	3
CB	Mining and quarrying except energy producing mater	361	409	337	13.3	-17.7	21	17	14	-502	-218	-120	-56.5	-44.9	11	8	8
C	Mining and quarrying	2606	2684	3380	3.0	25.9	30	24	22	-840	-1120	-579	33.4	-48.3	15	12	11
DA	Manufacturing of food products,beverages and tobacco	10504	12951	14229	23.3	9.9	227	227	200	-6000	-5524	-3471	-7.9	-37.2	122	106	89
DB	Manufacture of textiles and textile products	1420	1831	2790	29.0	52.4	128	122	112	-1495	-1472	-760	-1.5	-48.4	74	68	68
DC	Manufacture of leather and leather products	252	221	198	-12.2	-10.6	22	25	24	-1316	-808	-182	-38.6	-77.5	31	20	15
DD	Manufacture of wood and wood products	1277	1710	1648	33.9	-3.6	41	46	40	-754	-504	-657	-33.2	30.5	25	21	22
DE	Manufact.of pulp, paper and pap. products, publis. print	2902	2428	6848	-16.4	182.1	70	65	67	-1662	-2659	-1266	59.9	-52.4	36	38	32
DF	Manufacture of coke, refined petroleum	3443	2002	x	-41.9	x	3	3	x	x	x	x	x	x	x	x	x
DG	Manufacture of chemic.,chem.prod. and man-made fibre	4372	3531	6313	-19.2	78.8	50	40	50	-1224	-1916	-3030	56.6	58.2	16	24	14
DH	Manufacture of rubber and plastic products	3713	4838	4786	30.3	-1.1	70	65	79	-593	-457	-214	-22.9	-53.2	20	15	10
DI	Manufacture of other non-metallic mineral products	6006	6441	10183	7.3	58.1	103	101	120	-1145	-1113	-658	-2.9	-40.8	40	38	29
DJ	Manufacture of basic metals and fabricated metal produ	5041	6144	7022	21.9	14.3	212	205	230	-3529	-16397	-13822	364.7	-15.7	123	123	99
DK	Manufacture of machinery and equipment n.e.c.	4341	4091	5845	-5.7	42.9	209	192	209	-5392	-6231	-4816	15.6	-22.7	117	100	73
DL	Manufacture of electrical and optical equipment	5910	5910	10831	0.0	83.3	163	155	192	-1457	-2553	-1086	75.2	-57.4	69	66	51
DM	Manufacture of transport equipment	8800	10046	13068	14.2	30.1	71	83	93	-7989	-7312	-4078	-8.5	-44.2	50	42	37
DN	Manufacturing n.e.c.	1676	3218	3435	92.0	6.7	83	83	99	-767	-442	-364	-42.4	-17.6	45	41	24
D	Manufacturing	59657	65363	91354	9.6	39.8	1451	1411	1517	-33449	-47590	-34850	42.3	-26.8	769	703	565
E	Electricity, gas and water supply	20325	15732	21416	-22.6	36.1	109	110	98	-575	-1396	-1452	142.8	4.0	20	15	16
	Total industry	82589	83779	116149	1.4	38.6	1590	1545	1637	-34864	-50107	-36881	43.7	-26.4	804	730	592
F	Construction	6105	7119	7577	16.6	6.4	299	277	244	-5086	-2015	-2217	-60.4	10.0	122	86	70

x=individual data or sample too small for aggregation that would not reveal the actual values of a single firm
Unbalanced change reported

Value Added per Employee (CZK)

(firms with 100 or more employees)

Industry NACE		V. Added/Emp.			Change % y-o-y	
		1998	1999	2000	99/98	00/99
CA	Mining and quarrying of energy producing mater	395463	441445	520119	12	18
CB	Mining and quarrying except energy producing mater	390733	494461	544437	27	10
C	Mining and quarrying	395020	445818	522268	13	17
DA	Manufacturing of food products,beverages and tobacco	435344	494491	534857	14	8
DB	Manufacture of textiles and textile products	203810	217006	254282	6	17
DC	Manufacture of leather and leather products	141000	178097	173077	26	-3
DD	Manufacture of wood and wood products	278582	386624	380500	39	-2
DE	Manufact.of pulp, paper and pap. products, publis. printing	436062	509617	694519	17	36
DF	Manufacture of coke, refined petroleum	1281507	1165621	1963520	-9	68
DG	Manufacture of chemic.,chem.prod. and man-made fibres	599960	613875	774278	2	26
DH	Manufacture of rubber and plastic products	394832	495977	503432	26	2
DI	Manufacture of other non-metallic mineral products	474872	510433	581035	7	14
DJ	Manufacture of basic metals and fabricated metal products	339970	310246	413136	-9	33
DK	Manufacture of machinery and equipment n.e.c.	280104	279892	333399	0	19
DL	Manufacture of electrical and optical equipment	319571	327639	396798	3	21
DM	Manufacture of transport equipment	451334	519766	573341	15	10
DN	Manufacturing n.e.c.	257088	269249	321533	5	19
D	Manufacturing	358427	384465	455933	7	19
E	Electricity, gas and water supply	942063	1002056	1137042	6	13
	Total industry	401417	432221	506842	8	17
F	Construction	291453	320653	356505	10	11
G	Wholesale and retail trade,repair of motor vehicles,motor.	309897	377932	397164	22	5
H	Hotels and restaurants	305231	363522	428038	19	18
I	Transport, storage and communication	379836	429168	422130	13	-2
K	Real estate, renting and business activities	340410	348662	370790	2	6
A	Agriculture, hunting and forestry	234014	237450	272275	1	15
L	Other	478921	480155	572410	0	19
	Total CR	371595	405685	459022	9	13

Change computed for the same base of firms.

ROA (Assets as of 31/12/99), in %

Industry NACE	ROA		Change from	
	31.12.99	31.12.00		
	%	%	98 in pts.	99 in pts.
CA Mining and quarrying of energy producing mater	1.81	x	-0.72	x
CB Mining and quarrying except energy producing mater	3.17	3.65	5.72	0.33
C Mining and quarrying	1.91	3.46	-0.27	1.52
DA Manufacturing of food products,beverages and tobacco	10.50	15.11	4.36	4.18
DB Manufacture of textiles and textile products	1.44	8.00	1.76	6.53
DC Manufacture of leather and leather products	-69.30	1.59	11.06	53.78
DD Manufacture of wood and wood products	19.22	15.15	8.81	-1.52
DE Manufact.of pulp, paper and pap. products, publis. printing	-0.82	16.40	-5.35	17.07
DF Manufacture of coke, refined petroleum	8.83	16.82	-7.32	7.80
DG Manufacture of chemic.,chem.prod. and man-made fibres	2.87	5.54	-2.67	2.71
DH Manufacture of rubber and plastic products	22.91	19.52	5.68	-1.90
DI Manufacture of other non-metallic mineral products	9.40	14.40	0.63	3.96
DJ Manufacture of basic metals and fabricated metal products	-13.60	-11.51	-15.42	2.11
DK Manufacture of machinery and equipment n.e.c.	-6.27	3.01	-3.66	11.93
DL Manufacture of electrical and optical equipment	12.49	23.89	-4.53	10.29
DM Manufacture of transport equipment	7.23	18.81	5.13	10.71
DN Manufacturing n.e.c.	15.65	21.97	9.84	7.81
D Manufacturing	3.74	11.19	-1.66	7.27
E Electricity, gas and water supply	4.80	6.62	-2.69	1.59
Total industry	3.94	8.93	-1.82	4.82
F Construction	15.37	15.61	12.14	0.50
G Wholesale and retail trade,repair of motor vehicles,motor.	-3.67	4.79	1.30	8.62
H Hotels and restaurants	-4.74	32.35	6.18	37.45
I Transport, storage and communication	5.96	7.57	0.16	1.62
K Real estate, renting and business activities	6.19	19.18	0.72	12.61
A Agriculture, hunting and forestry	1.46	2.60	0.20	1.14
L Other	12.12	17.98	-6.88	5.64
Total CR	4.32	8.40	-0.67	4.02

Change computed for the same base of firms.

Receivables Overdue, Payables Overdue and Primary Insolvency

Industry NACE		Primary Insolvency					
		mil CZK as of		change y-o-y %		change mil CZK	
		31.12.99	31.12.00	99/98	00/99	99/98	00/99
CA	Mining and quarrying of energy producing mater	51	24	537.5	-50.0	43	-24
CB	Mining and quarrying except energy producing mater	1697	50	-2.9	-97.1	-51	-1646
C	Mining and quarrying	1747	74	-0.4	-95.8	-7	-1670
DA	Manufacturing of food products,beverages and tobacco	3108	2134	8.1	-28.5	232	-850
DB	Manufacture of textiles and textile products	1395	1328	-11.5	-3.0	-182	-41
DC	Manufacture of leather and leather products	468	321	20.6	-23.2	80	-97
DD	Manufacture of wood and wood products	528	554	-3.5	44.3	-19	170
DE	Manufact.of pulp, paper and pap. products, publis. printing	397	391	0.0	57.7	0	143
DF	Manufacture of coke, refined petroleum	0		-100.0		-94	
DG	Manufacture of chemic.,chem.prod. and man-made fibres	952	731	193.8	-21.9	628	-205
DH	Manufacture of rubber and plastic products	522	480	-2.4	-4.0	-13	-20
DI	Manufacture of other non-metallic mineral products	482	637	-26.5	45.4	-174	199
DJ	Manufacture of basic metals and fabricated metal products	5022	6587	23.3	14.3	948	823
DK	Manufacture of machinery and equipment n.e.c.	4577	3693	3.2	-8.7	140	-351
DL	Manufacture of electrical and optical equipment	3657	1350	3.3	-61.7	117	-2175
DM	Manufacture of transport equipment	7208	15729	-7.3	160.5	-569	9692
DN	Manufacturing n.e.c.	429	314	-30.5	-2.5	-188	-8
D	Manufacturing	28744	34250	3.3	27.0	907	7281
E	Electricity, gas and water supply	844	803	-32.1	3.3	-399	26
	Total industry	31335	35128	1.7	19.1	509	5637
F	Construction	5653	1892	13.6	-16.9	678	-384
G	Wholesale and retail trade,repair of motor vehicles,motor.	10383	2868	-6.2	-34.1	-682	-1485
H	Hotels and restaurants	450	3943	-64.9	1804.8	-832	3736
I	Transport, storage and communication	1288	4782	68.8	284.7	525	3539
K	Real estate, renting and business activities	1162	535	-18.5	-66.5	-264	-1060
A	Agriculture, hunting and forestry	1220	573	26.6	-29.1	256	-235
L	Other	722	711	96.7	-1.8	355	-13
	Total CR	52214	50432	1.0	23.9	535	9737

Change computed for the same base of firms.

Receivables Overdue, Payables Overdue and Primary Insolvency

		Receivables Overdue						Payables Overdue					
		mil CZK as of		change y-o-y %		change mil CZK		mil CZK as of		change y-o-y %		change mil CZK	
	Industry NACE	31.12.99	31.12.00	99/98	00/99	99/98	00/99	31.12.99	31.12.00	99/98	00/99	99/98	00/99
CA	Mining and quarrying of energy producing mater	2656	1746	-2.6	-34.2	-71	-909	723	140	-6.1	-80.6	-47	-580
CB	Mining and quarrying except energy producing mater	547	613	-19.8	18.1	-135	94	1973	236	-9.9	-87.8	-218	-1705
C	Mining and quarrying	3202	2360	-6.0	-25.7	-206	-815	2695	376	-8.9	-85.9	-264	-2285
DA	Manufacturing of food products,beverages and tobacco	18076	14104	-9.5	-19.0	-1888	-3318	10156	7437	-4.5	-21.9	-474	-2081
DB	Manufacture of textiles and textile products	4148	3826	-15.1	-4.3	-735	-170	3120	3186	-12.9	4.2	-464	129
DC	Manufacture of leather and leather products	885	457	-68.6	-46.9	-1933	-404	1170	657	-52.7	-40.1	-1305	-439
DD	Manufacture of wood and wood products	1003	1329	-1.5	21.4	-15	234	1032	918	-4.2	6.4	-45	55
DE	Manufact.of pulp, paper and pap. products, publis. printing	5662	5432	10.5	-3.7	536	-211	2386	2268	14.5	2.6	303	58
DF	Manufacture of coke, refined petroleum	2402	2004	119.8	-16.6	1309	-398	124	349	-59.9	181.5	-185	225
DG	Manufacture of chemic.,chem.prod. and man-made fibres	6316	6903	-20.4	9.3	-1614	588	2804	1777	-3.4	-35.5	-100	-980
DH	Manufacture of rubber and plastic products	2379	2962	-14.3	35.8	-397	781	1382	1416	-20.8	12.6	-362	159
DI	Manufacture of other non-metallic mineral products	5639	7564	-7.8	23.6	-480	1442	1926	2508	-11.5	29.1	-250	565
DJ	Manufacture of basic metals and fabricated metal products	18441	14957	3.4	-16.9	607	-3036	18189	17571	23.6	-8.0	3472	-1520
DK	Manufacture of machinery and equipment n.e.c.	13084	10747	-2.7	-13.6	-359	-1694	12430	9757	-5.3	-14.2	-698	-1616
DL	Manufacture of electrical and optical equipment	4911	7201	8.7	50.7	393	2422	6357	4800	9.9	-21.8	572	-1335
DM	Manufacture of transport equipment	14077	9398	4.3	-32.2	586	-4468	17107	22441	4.6	43.2	748	6773
DN	Manufacturing n.e.c.	2829	2089	12.4	-7.3	311	-164	1679	1325	1.5	-9.7	24	-143
D	Manufacturing	99852	88973	-3.6	-8.6	-3678	-8396	79861	76411	1.6	-0.2	1233	-149
E	Electricity, gas and water supply	8136	6837	11.8	-11.6	861	-901	2394	1885	-21.4	-14.4	-651	-318
	Total industry	111191	98170	-2.6	-9.3	-3023	-10112	84950	78672	0.4	-3.4	318	-2752
F	Construction	14008	13230	-8.7	-0.2	-1340	-23	14868	8851	1.3	-10.4	184	-1030
G	Wholesale and retail trade,repair of motor vehicles,motor.	37038	30531	-12.9	-12.5	-5501	-4368	24110	11076	-9.8	-24.4	-2632	-3582
H	Hotels and restaurants	3525	693	59.9	-72.1	1320	-1792	1747	4305	-19.6	490.5	-427	3576
I	Transport, storage and communication	11188	12511	12.0	15.6	1198	1684	6068	9381	30.9	57.8	1434	3437
K	Real estate, renting and business activities	12974	7745	-3.5	-30.7	-476	-3428	4243	2612	-26.6	-43.6	-1541	-2023
A	Agriculture, hunting and forestry	6421	5674	-11.0	-7.8	-792	-480	4105	2996	0.6	-14.4	23	-504
L	Other	990	1096	-44.5	15.0	-793	143	1191	1285	-16.1	7.1	-229	85
	Total CR	197334	169650	-4.5	-9.8	-9406	-18376	141281	119179	-2.0	-2.3	-2870	-2794

Change computed for the same base of firms.

Pre-Tax Profit, SNA (mil. CZK)

Industry NACE	Pre-Tax Profit 99/98								Pre-Tax Profit 00/99							
	Total		public sector		private sector		foreign sector		Total		public sector		private sector		foreign sector	
	1999	change	1999	change	1999	change	1999	change	2000	change	2000	change	2000	change	2000	change
CA Mining and quarrying of energy producing mater	1373	-534	1030	-275	348	-249	x		2585	1212	1191	-140	1394	1347	0	5
CB Mining and quarrying except energy producing ma	191	332	x	x	133	103	x		216	27	x		147	-18	92	55
C Mining and quarrying	1564	-202	1013	-100	481	-146	66	41	2801	1239	1180	-134	1540	1329	92	60
DA Manufacturing of food products,beverages and to	7427	2923	588	342	7353	2428	-526	198	10758	2961	529	-80	1900	767	8328	2303
DB Manufacture of textiles and textile products	359	435	-6	-27	-11	154	327	244	2030	1673	0		684	844	1297	835
DC Manufacture of leather and leather products	-587	477	x		-580	497	47	24	16	458	0		34	506	-12	-46
DD Manufacture of wood and wood products	1206	683	x		66	57	1166	665	991	-93	0		38	82	943	-176
DE Manufact.of pulp, paper and pap. products, publis	-231	-1471	211	69	-801	-741	327	-809	5582	5771	101	88	1754	3009	3744	2722
DF Manufacture of coke, refined petroleum	1798	-1518	1798	-1527	0		0		3712	1914	x		4139	2374	0	
DG Manufacture of chemic.,chem.prod. and man-mad	1615	-1533	824	-1244	690	-290	101	1	3282	1674	x		63	-440	2623	915
DH Manufacture of rubber and plastic products	4381	1260	x		1135	63	3177	1184	4573	423	x		509	381	4025	4
DI Manufacture of other non-metallic mineral products	5329	468	86	128	4426	307	780	7	9525	3073	x		3102	1134	6381	1943
DJ Manufacture of basic metals and fabricated metal	-10254	-11766	-12620	-13214	999	656	1321	771	-6800	3135	-8437	109	-1832	1653	3431	1381
DK Manufacture of machinery and equipment n.e.c.	-2139	-1088	-824	-1630	-2130	158	810	383	1029	3806	381	994	-666	1911	1307	900
DL Manufacture of electrical and optical equipment	3357	-1095	117	-110	1402	-905	1807	-113	9745	6037	-13	-32	2671	1765	7042	4293
DM Manufacture of transport equipment	2734	1923	-433	297	-2922	955	6089	670	8990	5796	-672	-72	900	4549	8762	1319
DN Manufacturing n.e.c.	2776	1867	1150	1134	564	411	1070	340	3071	1322	x		1179	613	1436	323
D Manufacturing	17772	-8436	-9132	-15782	10197	3782	16497	3567	56504	37948	-7734	1866	14475	19147	49307	16716
E Electricity, gas and water supply	14335	-5415	3317	-6314	11161	1152	-143	-253	19964	5675	12256	5676	5556	-166	2152	164
Total industry	33672	-14053	-4802	-22196	21839	4788	16420	3355	79268	44862	5702	7409	21571	20311	51551	16940
F Construction	5104	4084	-244	-379	4770	4046	588	448	5359	110	90	200	2901	-983	2334	844

x=individual data or sample too small for aggregation that would not reveal the actual values of a single firm
Change computed for the same base of firms.

Value Added per Employee, in CZK

Industry NACE		Value Added per Employee 99/98								Value Added per Employee 00/99							
		Total		public sector		private sector		foreign sector		Total		public sector		private sector		foreign sector	
		1999	y-o-y %	1999	y-o-y %	1999	y-o-y %	1999	y-o-y %	2000	y-o-y %	2000	y-o-y %	2000	y-o-y %	2000	y-o-y%
CA	mater	440668	11.4	458714	9.5	437774	11.7	x		520119	17.8	515347	20.4	522325	16.7	0	
CB	Mining and quarrying except energy product	485026	24.1	x		496141	15.0	x		544437	10.1	x		504099	14.6	707306	10.5
C	Mining and quarrying	444458	12.5	448668	13.3	443458	12.0	490875	66.6	522268	17.1	506923	20.1	520927	16.5	707306	16.5
DA	Manufacturing of food products,beverages a	491814	13.0	587391	17.0	476667	10.8	661172	35.2	534857	8.2	784896	-2.8	343257	5.6	1056189	9.2
DB	Manufacture of textiles and textile products	218661	7.3	195701	-8.9	207113	3.9	303016	24.3	254282	17.2	0		230759	14.5	360719	20.3
DC	Manufacture of leather and leather products	204149	44.8	x		212036	53.6	235083	11.3	173077	-2.8	0		174413	0.5	176119	-27.4
DD	Manufacture of wood and wood products	394123	41.5	x		250275	7.1	859276	71.2	380500	-1.6	0		282169	17.1	610957	-18.4
DE	Manufact.of pulp, paper and pap. products,	500388	14.8	539177	13.9	481482	19.2	561704	-2.8	694519	36.3	510094	11.8	549717	36.1	903817	40.5
DF	Manufacture of coke, refined petroleum	1165580	-9.0	1165621	-9.6	0		0		1963520	68.5	x		2363324	83.7	0	
DG	Manufacture of chemic.,chem.prod. and mar	618530	3.1	993439	-2.7	530179	7.1	697402	-0.3	774278	26.1	x		600317	26.7	1196944	5.2
DH	Manufacture of rubber and plastic products	484340	22.7	x		327555	6.4	846682	31.7	503432	1.5	x		312108	9.4	718037	-6.5
DI	Manufacture of other non-metallic mineral p	507024	6.8	329218	-4.3	501330	8.5	747670	-0.8	581035	13.8	x		370560	11.8	981734	15.2
DJ	Manufacture of basic metals and fabricated	310502	-8.7	244849	-38.6	308676	0.7	496747	19.9	413136	33.2	322477	89.2	393017	33.1	545304	6.6
DK	Manufacture of machinery and equipment n.	282901	1.0	308413	-9.1	261075	-0.2	468773	17.5	333399	19.1	424537	21.8	306591	18.3	416006	17.0
DL	Manufacture of electrical and optical equipm	329359	3.1	406018	-11.1	297375	-0.9	379272	7.1	396798	21.1	400064	6.1	296627	13.7	477290	22.0
DM	Manufacture of transport equipment	515982	14.3	265571	-18.7	338215	19.6	779798	6.2	573341	10.3	377586	36.9	353177	37.3	736039	-4.2
DN	Manufacturing n.e.c.	297363	15.7	468710	36.0	241829	9.7	422261	10.8	321533	19.4	x		276369	14.5	453026	14.0
D	Manufacturing	383869	7.1	389802	-13.3	337753	7.4	580913	12.0	455933	18.6	469025	40.7	350403	21.4	671262	5.8
E	Electricity, gas and water supply	990358	5.1	1549167	1.9	796062	10.5	921631	23.7	1137042	13.5	1592168	12.0	857315	17.5	914377	7.6
	Total industry	431215	7.4	565382	-5.8	378181	8.8	584344	12.5	506842	17.3	818097	23.9	388399	20.4	679892	5.8
F	Construction	314122	7.8	257641	-19.3	309673	7.4	682435	53.2	356505	11.2	329168	23.7	326797	8.4	541005	15.5

x=individual data or sample too small for aggregation that would not reveal the actual values of a single firm

Change computed for the same base of firms.

Payables Overdue as of 31/12/99 (mil. CZK

Industry NACE		Payables Overdue as of 31/12/99							
		T o t a l		public sector		private sector		foreign sector	
		1999	y-o-y %	1999	y-o-y %	1999	y-o-y %	1999	y-o-y %
CA	Mining and quarrying of energy producing mater	723	-6.1	7	-80.6	713	-2.8	x	
CB	Mining and quarrying except energy producing mater	1973	-9.9			1969	-10.1	x	
C	Mining and quarrying	2695	-8.9	7	-80.6	2682	-8.3	6	x
DA	Manufacturing of food products,beverages and tobacco	10156	-4.5	276	-49.2	8402	-10.5	1403	133.7
DB	Manufacture of textiles and textile products	3120	-12.9	74	-43.0	1883	-7.7	1162	-17.4
DC	Manufacture of leather and leather products	1170	-52.7	x		1082	-54.1	26	-14.9
DD	Manufacture of wood and wood products	1032	-4.2	x		879	6.3	116	-45.7
DE	Manufact.of pulp, paper and pap. products, publis. printing	2386	14.5	80	-55.0	1887	7.6	412	186.8
DF	Manufacture of coke, refined petroleum	124	-59.9	124	-54.9	0		0	
DG	Manufacture of chemic.,chem.prod. and man-made fibres	2804	-3.4	278	78.8	2275	-7.7	251	-11.7
DH	Manufacture of rubber and plastic products	1382	-20.8	x		1024	-21.1	355	2.9
DI	Manufacture of other non-metallic mineral products	1926	-11.5	224	71.3	1525	-22.5	171	120.0
DJ	Manufacture of basic metals and fabricated metal products	18189	23.6	7868	54.8	8359	-2.8	1961	91.6
DK	Manufacture of machinery and equipment n.e.c.	12430	-5.3	2367	-9.2	9393	-6.5	662	39.9
DL	Manufacture of electrical and optical equipment	6357	9.9	206	1.0	4917	1.7	1217	70.6
DM	Manufacture of transport equipment	17107	4.6	2602	29.5	9799	-12.2	4706	43.9
DN	Manufacturing n.e.c.	1679	1.5	3	-87.6	1226	-2.7	440	23.1
D	Manufacturing	79681	1.6	14196	23.0	52652	-9.2	12883	44.1
E	Electricity, gas and water supply	2394	-21.4	98	-72.2	2238	-14.3	58	-27.7
	Total industry	84950	0.4	14300	19.9	57571	-9.5	12947	43.5
F	Construction	14868	1.3	564	38.5	13893	-1.0	315	92.0

x=individual data or sample too small for aggregation that would not reveal the actual values of a single firm

Primary Insolvency as of 31/12/99 (mil. CZK)

Industry NACE		Primary Insolvency as of 31/12/99							
		Total		public sector		private sector		foreign sector	
		1999	y-o-y %	1999	y-o-y %	1999	y-o-y %	1999	y-o-y %
CA	mater	51	537.5	0		48	559.2	x	
CB	Mining and quarrying except energy producing	1697	-2.9	x		1697	-2.9	x	
C	Mining and quarrying	1747	-0.4	0		1744	-1.0	3	x
DA	Manufacturing of food products,beverages and	3108	8.1	2	-94.1	2061	-25.6	1045	1285.5
DB	Manufacture of textiles and textile products	1395	-11.5	11	-62.7	642	45.1	742	-32.4
DC	Manufacture of leather and leather products	468	20.6	x		440	24.6	20	-2.4
DD	Manufacture of wood and wood products	528	-3.5	x		445	2.1	74	-32.2
DE	Manufact.of pulp, paper and pap. products, pu	397	0.0	19	-15.3	342	12.9	33	-53.7
DF	Manufacture of coke, refined petroleum	0	-100.0	0	-100.0	0		0	
DG	Manufacture of chemic.,chem.prod. and man-r	952	193.8	1	-95.6	924	215.3	27	72.0
DH	Manufacture of rubber and plastic products	522	-2.4	x		322	-4.5	200	67.8
DI	Manufacture of other non-metallic mineral proc	482	-26.5	71	721.9	356	-44.9	55	x
DJ	Manufacture of basic metals and fabricated me	5022	23.3	869	22.1	3097	5.4	1056	151.7
DK	Manufacture of machinery and equipment n.e.	4577	3.2	437	-40.7	3837	5.8	303	309.2
DL	Manufacture of electrical and optical equipment	3657	3.3	11	155.5	3025	-3.3	618	54.3
DM	Manufacture of transport equipment	7208	-7.3	1705	24.7	5341	-16.3	162	179.5
DN	Manufacturing n.e.c.	429	-30.5	0		341	-10.0	85	-63.3
D	Manufacturing	28744	3.3	3138	2.0	21174	-3.9	4421	64.1
E	Electricity, gas and water supply	844	-32.1	24	-79.7	820	-24.9	0	0.0
	Total industry	31335	1.6	3162	-1.0	23738	-4.7	4423	62.1
F	Construction	5653	13.6	293	200.6	5184	7.5	155	631.4

x=individual data or sample too small for aggregation that would not reveal the actual values of a single firm

ROA (Assets as of 31/12/99), in %

Industry NACE	ROA (Assets as of 31/12/99)								ROA (Assets as of 31/12/00)							
	Total		public sector		private sector		foreign sector		Total		public sector		private sector		foreign sector	
	1999	y-o-y %	1999	y-o-y %	1999	y-o-y %	1999	y-o-y %	2000	y-o-y %	2000	y-o-y %	2000	y-o-y %	2000	y-o-y %
CA Mining and quarrying of energy producing mater	1.81	-0.72	4.95	-1.28	0.63	-0.47	x		3.45	1.61	4.08	-0.46	3.04	2.94	0	0
CB Mining and quarrying except energy producing mater	3.17	5.72	x		2.38	1.81	x		3.65	0.33	x		5.84	-0.65	3.07	1.74
C Mining and quarrying	1.91	-0.27	4.79	-0.52	0.80	-0.26	117.84	95.70	3.46	1.52	4.00	-0.43	3.18	2.74	3.07	1.91
DA Manufacturing of food products,beverages and tobacco	10.50	4.36	10.15	5.45	12.68	4.63	-7.82	2.72	15.11	4.18	12.07	-2.48	5.70	2.36	25.07	6.81
DB Manufacture of textiles and textile products	1.44	1.76	-1.02	-4.69	-0.05	0.74	11.44	7.65	8.00	6.53	0		3.24	4.02	30.24	18.69
DC Manufacture of leather and leather products	-69.30	11.06	x		-103.7	2.19	59.67	0.34	1.59	53.78	0		3.54	65.59	-30.75	-71.92
DD Manufacture of wood and wood products	19.22	8.81	x		1.46	1.24	81.26	9.87	15.15	-1.52	0		0.84	1.75	46.21	-22.14
DE Manufact.of pulp, paper and pap. products, publis. printin	-0.82	-5.35	5.25	1.91	-3.95	-3.64	8.72	-22.07	16.40	17.07	3.77	3.29	13.74	24.48	20.49	13.32
DF Manufacture of coke, refined petroleum	8.83	-7.32	8.83	-7.32	0		0		16.82	7.80	x		19.77	10.09	0	
DG Manufacture of chemic.,chem.prod. and man-made fibres	2.87	-2.67	4.59	-7.06	1.96	-0.76	3.06	-0.16	5.54	2.71	x		0.25	-1.65	15.24	3.38
DH Manufacture of rubber and plastic products	22.91	5.68	x		13.59	2.11	36.7	6.69	19.52	-1.90	x		7.94	5.82	23.79	-6.28
DI Manufacture of other non-metallic mineral products	9.40	0.63	2.69	4.02	9.96	0.51	8.69	-0.29	14.40	3.96	x		13.7	4.13	14.94	4.04
DJ Manufacture of basic metals and fabricated metal products	-13.60	-15.42	-59.94	-61.69	2.17	1.38	16.17	6.20	-11.51	2.11	259.87	368.73	-4.00	2.77	20.89	5.53
DK Manufacture of machinery and equipment n.e.c.	-6.27	-3.66	-20.60	-37.73	-8.19	-0.99	19.84	8.41	3.01	11.93	16.36	41.78	-2.6	8.14	20.98	12.51
DL Manufacture of electrical and optical equipment	12.49	-4.53	8.80	-5.91	8.34	-3.87	20.90	-12.38	23.89	10.29	-3.38	-7.75	17.28	9.90	28.21	9.57
DM Manufacture of transport equipment	7.23	5.13	-53.98	-29.18	-43.35	-4.37	20.11	-0.91	18.81	10.71	-53.29	1428.77	43.82	598.76	19.70	0.47
DN Manufacturing n.e.c.	15.65	9.84	22.12	21.74	5.40	3.87	51.63	0.57	21.97	7.81	x		12.61	6.17	35.81	-2.42
D Manufacturing	3.74	-1.66	-10.51	-17.05	3.41	1.34	6.84	-0.48	11.19	7.27	-28.81	-2.56	5.88	7.83	21.36	4.73
E Electricity, gas and water supply	4.80	-2.69	2.22	-4.81	7.59	-0.41	-6.44	-15.23	6.62	1.59	7.09	3.09	5.32	-0.48	8.8	-0.35
Total industry	3.94	-1.82	-1.87	-8.57	4.31	0.86	17.98	0.66	8.93	4.82	2.49	3.23	5.41	5.08	19.96	4.27
F Construction	15.37	12.14	-14.82	-23.24	15.58	13.10	69.68	47.68	15.61	0.50	4.84	10.60	12.55	-3.07	25.25	6.81

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Change computed for the same base of firms.