Ownership Structure, Business Links and Performance of Firms in a Transforming Economy[*]

The case of Hungary

by

István János TÓTH

Budapest, March 1999

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His works are:

Characteristics and Supply Effect of Pre-Privatization in Hungarian Retail Trade, KOPINT-DATORG, Discussion Papers, no. 13. April 1992. P. 30.

The Spread of Entrepreneurial Inclinations in Hungary (co-author: György Lengyel), Studies in Public Policy, 224. University of Strathclyde, Glasgow, 1994.

Households as Savers, Entrepreneurs and Investors (co-author: Éva Palócz), In: UNCTAD: Privatization in the Transition Process. Recent Experiences in Eastern Europe, UNCTAD & KOPINT-DATORG. pp. 321-348.

"Tax Behaviour of Small and Medium –size Enterprises" (co-author: Anrdás Semjén), *Review of Sociology of the Hungarian Sociological Association*, 1996, Special Issue, pp. 67-87.

Market links and growth capability of enterprises in a transforming economy: the case of Hungary, In: László Csaba (ed.): The Hungarian SME Sector Development in Comparative Perspective, CIPE/USAID & KOPINT-DATORG Foundation, Budapest, 1998, pp. 29-59.

"Inter-enterprise ownership links in Hungary", *Acta Oeconomica*, 1997-98, Vol. 49. (3-4). pp. 365-396.

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Introduction

In the following study we shall summarize the results of researches which analyze the transformation of the Hungarian economy from the viewpoint of Hungarian enterprises and aims to assess and understand processes taking place at the enterprises' level.

Economical transformation means not only radical changes in the system of governmental institutions, in the legal circumstances, ownership structures and macro-economical conditions of the economy, but it also means extensive changes within the entrepreneurial sector in relation to the business links between the enterprises and their performance.

This study concentrates on the analysis of the latter factors by trying to disclose the characteristics of the ownership and business links existing between the enterprises. Then it examines the effect that business links have on the effectiveness and growth capability enterprises, as well as the changes which have taken place since 1992 in the economical circumstances and performance of Hungarian enterprises.

These changes, in our opinion, can be shown not only through indicators formulated on the basis of the real data of enterprises (net turnover, value added, cash flow) but also by those which indicate the enterprises' behavior and are harder to express in numbers. Among these are *the financial discipline* of the firms, the need to form stable business links, or the period for which the firms is able to make business plans. The observation of these, which can be done through surveys, provides a chance for us not only to analyze the indicators showing the economic circumstances and effectiveness of the companies, but we can also have a glimpse at the conditions which influence the business decisions of the management.

The first part of the study deals with the more important tendencies characterizing the transformation of the Hungarian companies. In the second part we shall discuss the role of the ownership links between the enterprises. We shall deal with the commissioning of subcontractors and with the role of each type of suppliers and customers within the turnover. In the second part we also analyze the relationship between the safety of business links, the financial discipline and the growth capability of the companies. We will also discuss the change which has taken place in the past years in the planning horizon of the companies, as well as examine the factors influencing the growth capability of companies which is one of the most important questions related to the transformation of the companies.

In the fourth part we will analyze the changes which have taken place in the performance of the companies belonging to the various groups. We will deal with the possible effects of the ownership structure separately. The performance of the companies will be measured by the value added and the absolute value of the cash flow and their percentage as to the assets and employee number of the firms. Finally, in the fourth part we shall summarize the most important results of the study.

In our work we used several sources. Among these the most important is the data set which included the tax returns of Hungarian companies operating in manufacturing, construction and trade between 1992-1996 (TAX92-96) and surveys carried out using questionnaires, which

included the largest exporting manufacturing companies as well as a representative sample of manufacturing companies (TOP98/1 and CIPE98A). (For the more detailed description of data sources see Appendices 1-3).

1 Structural changes and ownership structure

During the transformation of the Hungarian economy which can be observed at micro level we can see not only the radical transformation of the inner structure and market orientation of the enterprises (Laki, 1994), but also the formation of new enterprises and the reorganization of business and ownership links between enterprises already in operation. Statistical data on the distribution of Hungarian firms by size confirm that the structure of Hungarian industrial companies has also transformed since the change of the political system and the so-called "reversed pyramid" has disappeared (see Tables 1.1 and 1.2). The establishment of enterprises from the former state-owned companies and their appearance in the market (Móra, 1991), as well as the foundation of new private enterprises supported this process (Laky, 1998).

In accordance to this, the transformation of the companies is primarily characterized by the significant increase in the number of economic actors (see Table 1.3). Above all, the number of limited liability companies with legal entities increased. Their number increased threefold between 1992 and 1997. This was followed by the rapid increase in the number of joint-stock companies, their number doubled in that period. On the other hand, as a result of privatization, the disappearance of state-owned enterprises and the significant decrease in the importance of cooperatives characterized this period.

The number of sole proprietors increased considerably between 1992-1995 but, as a result of the introduction of the so-called 'action package' of Mr. Bokros, Minister of Finances, this was followed by a significant decrease. This decrease, however, is illusory. This can be verified by considering the number of actually operating enterprises (those submitting tax returns), not all those which are registered. According to this, instead of decreasing, the number of sole proprietors in operation increased between 1995-97. Accordingly, the decrease, which can be seen in Table 1.3, is the result of the fact that a large number of sole proprietors announced the liquidation of their only formally existing enterprises. Thus, the numbers reflecting the '*de jure*' situation moved closer to indicators showing the '*de facto*' situation. The slight increase of the number of sole proprietors in operation only confirmed this bizarre situation where every tenth member of the active population in Hungary is a sole proprietor or every seventh or tenth person is either a sole proprietor or the member of some kind of joint enterprise.

These facts, however, do not mean the strength of "sole proprietors" or their weight in the Hungarian economy. All it means is that a significant part of former employees have become self-employed and they are registered as "sole proprietors" in the records of the Hungarian tax and statistical systems. These sole proprietors almost always work alone or include members of their families; during their activities they do not distinguish between the enterprise and the household, and their aim is not growth but to provide for the family (Laky, 1998). Thus, the high percentage of self-employment is not a sign of the advanced state of the economy but, on the contrary, of the lower state of development (OECD, 1996).

Another characteristic of the period between 1992-1996 is that the decrease and then the slight

increase of the GDP in 1994-1996 effected the various sectors of the economy differently. While the GDP produced by the manufacturing industry increased by 5-8% per year between 1993-1996, there was a continuous decrease in trade (see Table 1.4)[1].

The third characteristic is that during the sharp increase in the number of enterprises, the transformational recession and the transformation of the size structure of the economy, the turnover always remained strongly concentrated. This is supported by the fact that the proportion of enterprises with over 20 employees in manufacturing, construction and trade did not increase significantly during that period and, on the other hand, by the fact that the concentration of the net turnover of these companies did not change. We can obtain this result if we calculate for every year the percentage of the turnover for one-tenth of each of the various size companies (see Table 1.5).

It is obvious to everyone that the 90's brought profound changes in the ownership structure of the economy. However, it is the subject of dispute among Hungarian economists and researchers dealing with the ownership structure of the economy what kind of ownership structures developed following the privatization. In our opinion, at the end of the 90's the Hungarian companies' ownership structures can be characterized by three factors:

- domination of foreign and Hungarian private ownership

- formation of concentrated, and

- rigid ownership structures.

Following the privatization of state properties in Hungary ownership structures formed among the large manufacturing companies and we can say that, with the exception of about 50 companies on the stock-market and the OTC, about four-fifth of the firms are owned by three owners and in about 81% of the companies one owner has the majority (above 50%) of shares (see Table 1.6). As a result of this, in most of the larger Hungarian companies the management would have limited power to enforce ideas or intentions, which are different from the owners'. We must add, however, that in almost half of the large manufacturing companies (48.1%), the members of the management or the employees are directly present as owners. And where they are present their average ratio of ownership is over 50%. On the other hand, here we should take into consideration cases where the managers are not owners directly but through their own companies or company groups[2].

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1   We must add that unregistered trade must be added to the officially registered GDP of trade. In the household expenses in 1996 the proportion of unregistered expenses was estimated to be 9-12% in the case of food, 12-15% in the case of beverages and tobacco, 25-32% for clothing and 4-5% in the case of other goods (Tóth, 1997-98a).

2   The source of the data is the survey entitled "Company Management in Central Europe" which was carried out in 1995 by the Privatization Project of the Central European University and the World Bank and which included the data of 255 enterprises where the number of employees was between 100-2000 heads in December 1994. Within the framework of the related OTKA research (T 013497) we investigated the ownership structures of the companies in question, as well as changes in their ownership which have taken place since their foundation or formation. The case studies supplied several examples where the management's share of ownership in the companies they managed were insignificant, while they had a decisive influence as owners through companies they owned.

These data call our attention to the fact that among the owners of large Hungarian manufacturing companies the role of the managers is not insignificant in 1995 (behind the scattered employee ownership we can presume the strong position of the management). That is, by 1995 in Hungary we can say that not only are the supervisory rights centered in the hands of the management, but they are also assuming responsibilities as owners. These results, while confirming the importance of the role of managers, also question the relevance of statements concerning diffusive ownership and the absence of private property[3].

On the other hand, it is the concentrated ownership structure and within this the decisive role of the management which explain the assumption that in a significant part of the Hungarian economy, ownership positions formulated at the beginning of the 90's may become consolidated. The relative underdevelopment of the capital market also confirms that the obtained ownership positions will stay effective for a long time.

2   Ownership links, business networks and growth capability

2.1   Ownership and business links

Among the 300 companies included in the TOP98/1 survey ownership links can be considered to be widespread. 61% of the companies are owned partly by some companies (located in Hungary or abroad) and 27% of them own some other Hungarian firms. We get lower ratios if we only consider the domestic firms as owners: 33% of the largest exporters are partly owned by domestic firms. If we take into consideration both the ownership links which are directed to and from the firms, then we can say that 71% of the companies (n=212) possess such links. If we only look at links with Hungarian companies, the ratio of companies with ownership links is a lot lower (47%). This ratio means a 4 percent decrease as compared to 1996 (see Table 2.1).

We asked companies with ownership links whether the enterprises which belong to the company group play a role in the purchases and sales of the given company (and if so, how important are their roles). According to the results, in the case of more than two-thirds of the companies there are not only ownership relations but also business links. If we look at the strength of business links within the sample of those with ownership links, we can see that these are significantly diffused. We frequently come across cases when there are no links between companies within the company group, or they may exist at a very low level, or there are relatively strong links (see Figure 2.1).

On the basis of the calculations we can categorize the companies into four groups:

- there are no business links between the company examined and the other members of the company group (32%);
- the ratio of such business links is minimal (20% at the most) (31% of the

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3   See the relevant statements of the theory of post-communist manager-capitalism (Szelényi et al., 1996).

companies belong to this group);
- the ratio is over 20% but does not exceed 80% (32%);
- and finally, where most of the sales and 80% of the purchases take place within the company group (6%).

According to this, the exclusiveness of business links within the company group is only valid for an insignificant part of the manufacturing companies and cannot be considered as a widespread phenomenon as we can only state for 15% of them that business links within the holding exceed half of the turnover of the company examined.

It is more than usual in the case of larger companies that they have ownership links (Tóth, 1997-98b) and more of those which are in the possession of private companies own other Hungarian companies. The situation is different in the case of firms with foreign ownership. Here we can see a phenomenon, which is, characteristic of developed countries: companies with foreign ownership are *ceteris paribus* less frequently and not as strongly related to the network of the national companies of the given country (Stokman et. al, 1985).

51% of the companies with less than 50 employees have enterprises among their owners, while this occurs in 80% of those with over 500 employees. Domestic firms are co-owners in about 20% of the foreign-owned companies (its ratio is 33% in the whole sample) and the ratio of foreign-owned companies which have shares in other companies is also lower than what is characteristic of the whole sample (21% as compared to 27%).

Among enterprises with majority foreign ownership it is more than usual that there are strong business links within the company group than in the case of firms dominated by other types of owners (see Table 2.2). Where the average ratio of purchases and sales within the company group was over 80% the majority owners of all firms were foreign companies, while in 57% of them this ratio was between 20-80%. In the case of companies owned by Hungarian individuals and domestic firms the situation is just the opposite: for them being part of a company group does not necessarily mean business links as well. If a company is owned by Hungarian individuals, then usually there are no business links between them and the other members of the company group, while if the foreign ownership dominates, there generally are such links (see Table 2.3).

On the basis of the results we cannot say that there are strong ownership and business links between the large Hungarian enterprises. If we take into consideration the intensity of business relationships, we can see that it is usually characteristic of those companies which are the least interested in possessing Hungarian firms or have Hungarian firms among their owners to have strong business relationships as well as ownership links (foreign-owned). Furthermore, it can be stated that, among Hungarian companies which are related by ownership links, the intensity of business relations is less, that is, in case of a holding structure the members of the holding depend less on each other in their purchases than it was presumed earlier. So, our empirical data do not support the famous Stark's *recombinant property* theory (Stark, 1996). We assume that this overestimates the frequency, strength and the role of inter-enterprise network in the Hungarian economy and misinterprets the characteristics of enterprise transformation in the transforming economies.

The data shows that 69% of the largest exporting companies commissioned subcontractors regularly in 1997. The commissioning of subcontractors is characteristic of all companies and

foreign-owned companies use it just as much as Hungarian private firms. One of the usual ways of minimizing expenses related to salaries is to dismiss the employees and then commission the enterprises founded by those who had been dismissed. This phenomenon, however, is not frequent among the largest exporters (10.7%).

According to the calculations there is a positive relationship between the establishment of business links within the company group and the commissioning of dismissed employees as subcontractors. Both supply information on the affinity towards changing the boundaries of the given firm. In the first case the establishment of the company group and within this the forming of business links extends the real boundaries of the company beyond the formal (legal) boundaries. And in the second case, by discontinuing activities formerly carried out at the company and buying them from a formally separate enterprise the formal boundaries of the company can be narrowed down without leaving its real boundaries unchanged.

2.2 Business links, financial discipline and competitors

Time horizon of planning

The stability or instability of the market conditions of firms is well characterized by how far ahead the company management can plan the business conditions of the firm. According to the results of the survey regarding this there has been an improvement in this tendency since 1994. Among manufacturing companies, which had the largest export in 1995, and in 1997 more companies were able to plan for a longer period as compared to 1994. The proportion of those who planned for at least three years was close to 41% in 1994, while it was 57% in 1995 and 1997 (see Figure 2.2).

The reason why the years should be compared is that the then most significant exporting companies were surveyed. According to this, the increase of the time horizon of planning and the stabilization of the business situation of the largest exporters can take place at company level (if a company was included in all three years' samples) or through the change of the composition of the samples between 1994 and 1997. That is, with the increase in the ratio of companies with more stable business conditions the set of large exporters had changed. We must take into consideration that in the examined three years an in-depth transformation took place in the ownership relations of these companies. The decrease of state property and the increase of Hungarian private property (see Figure A3.1) characterized this transformation. This in itself resulted in changes in the organization of enterprises and in the improvement of the conditions of their sales which made long-term business calculations possible.

Among the largest exporters the larger companies can plan for longer periods. In 1997 approximately 83% of the companies which employed more than 500 people were able to plan ahead for at least three years. There is a significant increase in the time horizon of planning in the case of foreign-owned companies which play a decisive role in the exports of the manufacturing industry: in 1994 and 1995 only 46% of them planned ahead for at least three years while in 1997, 60.7% of them.

Suppliers and buyers

The business conditions of companies are also characterized by what kind business links they

have, what companies they usually buy from and what companies they sell to. According to this, we can examine these linkages from two sides, from the side of suppliers and that of the buyers. During the analysis we deal with four types of suppliers or buyers (multinational companies, foreign companies, companies larger than the companies examined, and companies smaller than the companies examined) which we defined according to the following logic:

1. multinational companies

2. not multinational companies

      2.1 foreign companies

      2.2 domestic companies

            2.2.1 domestic companies, larger than the firm examined

            2.2.2 domestic companies, smaller than the firm examined

The roles these groups have in the purchases and sales can be seen in Table 2.4. In the group of the largest exporters it is natural that in the sales the multinational and foreign companies have the most important roles. It can be considered a positive sign that in the purchases[4]. Hungarian companies had a significant part, too. Although in the purchases of the largest exporters Hungarian companies have a higher than 50% ratio in only 13-16% of the cases, in the case of more than half of the companies at least 20% of all purchases are materials, semi-finished products and services bought from Hungarian firms.

Furthermore, we have examined whether among the largest exporters there are significant differences in the sources of purchases and the direction of sales. By sectors there are none, but by company size and type of ownership we can observe the following:

- Smaller companies (with less than 50 employees) usually do not purchase from companies smaller than they are (in 36% there is no trade between them, while an average 14% of the companies do not purchase from smaller companies);
- In the case of medium-size and large companies (more than 200 employees) the sales of smaller domestic firms are more significant than the average.
- On the other hand it can be stated that in the purchases of companies with less than 50 employees the role of foreign companies is less than average (35% of them do not buy from foreign companies).
- A significant positive relationship can be reported between the size of companies and the part foreign companies have in purchases (Gamma=0.2143).
- The third statement is related to the relationship between the owners of the largest exporters and their part in the purchases of foreign companies. More foreign-owned companies purchase from companies located abroad than any others (in the purchases of 73% of them the ratio of companies located

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4 When approximating the distribution of the inputs we asked the managers not to take into consideration the purchased energies.

abroad is more than 50%, while in the sample this is only valid for 16% of the companies);

- firms owned by individuals purchase less than the average from the former (in the purchases of 48% of them foreigners have no part at all, while in the sample this ratio is 21%).

Financial discipline

We regard financial discipline a very important indicator in that how safe the business links of a company can be considered; how often the examined companies have short-term liquidity problems which results in the breach of payment obligations toward the partners (payment discipline) or in the delayed payment of taxes (fiscal discipline). On the other hand, from the change of behavior related to financial discipline we can estimate not only the safety of contractual relationships but also how the legal obligations of the consolidated market economy are fulfilled in the transforming economy (Kornai, 1997). It might be appropriate to ask whether the financial discipline of the newly formed companies is any better that those owned by the state, or between which company groups are there any differences in this area? Does the type of ownership influence the extent to which a company observes market norms related to contractual relationships and taxing, which are characteristic of the market economy? The empirical investigations of these questions are not without preliminaries: it has been the aim of several researches studying Central-East European transformation (Schaffer, 1995).

Naturally, the examination of this topic requires the regular and long-term observation of company factors related to each other and presumes an observation range which includes not only the characteristics of the enterprises but contextual variables, as well.

The following short analysis does not strive for a comprehensive analysis of the phenomenon in question. Its aim is to establish how widespread the phenomenon is and, by clarifying the relationships between some factors, to serve as the basis of future investigations. With relation to financial discipline we wanted to find out about the payment disciplines of the observed companies, as well as their business partners'. Furthermore, we also examined the fiscal discipline of the largest exporters.

First let us look at how well the business partners of the companies fulfill the contractual obligations in this regard how they differ from the partners of companies representing the manufacturing companies as a whole.

The partners of almost 20% of the largest exporters do not delay with the fulfillment of their payment obligations and in almost 40% of the cases at least 20% of the partners regularly breach their obligations. We can also state that the largest exporters are surrounded with somewhat more dependable partners than most manufacturing companies (the partners of 25% of manufacturing firms breach of payment obligation and in almost 50% of the cases at lest 20% of the partners regularly breach these). So, this phenomenon occurs less frequently among the largest exporters, but if it does occur, than it is valid for a more limited circle of business partners than what is usual in the case of manufacturing companies. This confirms the fact that the financial discipline of the partners of smaller companies is significantly worse

than that of the larger ones (Tóth, 1998).

Not only the partners, but the companies' financial discipline should also be examined. In order to do this we asked the managers separately about the breach of financial obligations toward the partners and the delayed payment of taxes and various contributions. The results show that not only is the financial discipline of the largest exporters' partners better than it is usual in the case of manufacturing companies, but the largest exporters themselves are more disciplined in this regard than the rest of the manufacturing companies (see Figure 2.4). Furthermore, the percentages characteristic of the largest exporters show that in this group of companies both the breach of payment discipline and later the delay in the payment of taxes are not insignificant. Liquidity problems occurred frequently (in more than one-third of the samples) in 1997.

All these call our attention to the fact that companies which have a decisive role in the output and growth of the manufacturing industry have to count on the unstable payment discipline of their partners and these companies do not always fulfill their payment or fiscal obligations. The occurrence of short-term liquidity problems can be one of the most important reasons for this. It is shown by the fact that if there is a breach of the financial discipline it can be found in several areas at the same time. It usually occurs in relation to the partners (delayed payments) and to the government (delayed payment of taxes) and both phenomena are closely related to the occurrence of liquidity problems (see Table 2.5). We can also see that the instability observed with regard to the financial discipline of the partners is closely related to the financial discipline of the company. Those who do not comply with financial disciplines can expect that their partners will act the same way toward them (Tóth, 1998). If the partners know that a company is in a "weak position" and has problems fulfilling its payment obligations its partners will not pay or will delay their payments to keep their money back[5]. But the causal relationship can be reversed, too: a company can have financial difficulties because of the late payments of its partners and because of this be forced to breach payment discipline.

We compared the previously introduced indicators of financial discipline with how close a company's business relationships are with multinational, foreign and domestic companies. According to the results the breach of financial discipline is less likely to occur in companies where the ratio of purchases from multinational companies is higher (minimum 20%). On the other hand, purchasing from larger Hungarian companies means that breach of payment discipline is more likely to occur. The payment discipline of the partners is best if the company has business links with multinational or foreign companies. Links with larger Hungarian companies definitely impairs the stability of a company's business links as it means that more of the business partners breach payment disciplines.

Finally, we were curious whether the type of ownership really effects the financial discipline of a company and the behavior of the clients of companies owned by the various owners differ from each other in this area. Our previous researches confirmed that foreign-owned enterprises are in a special situation: among them breach of payment discipline occurs less frequently and the same is valid for their business partners (Semjén - Tóth, 1997)[6].

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5 Kamilla *Lányi* called my attention to this phenomenon.

6 It is not worth to test the hypothesis regarding the worse payment discipline of state-owned companies using the 1997 data as in the TOP98/1 sample we can only find 10 state-owned companies.

On the other hand, we expect that among enterprises with better growth potential financial discipline will be more closely observed than in the case of those which will be unable to grow or will grow slower. If this factor has no influence then this also means that the breach of financial discipline is a widespread phenomenon among the large exporters. Besides indicating the absence of the 'cleaning effect' of the market, this would also call the attention to the inner instability of companies, which are able to grow.

We tested this assumptions using the logistic regression models the dependent variables of which were supplied by the previously discussed indicators of the financial discipline (fulfillment of payment obligations, fiscal discipline, and the payment discipline of the business partners). In every case we used the following:

Prob (FDISC = 1) = f (SECTOR2, L97O, FORE, DNT76O, RLIQUID)

Where

> FDISC: indicator related to the breach of financial discipline, the value of which is 1 - if it has happened 0 - if not;
> SECTOR2: sectors
>> 1 - food, tobacco, textile, wood, paper-making industries
>> 2 - chemical industry, production of non-metallic mineral products, metallurgy, and other manufacturing industries
>> 3 – manufacture of machinery
> L97O: staff categories (1 = -50 heads; 2 = 51-300 heads; 3 = 301- heads);
> DNT76O: growth rate of turnover in 1997 (1 = decrease, stagnation; 2 = growth rate less than the median; 3 = growth rate over the median);
> FORE:1, if the majority owner is foreign, otherwise 0
> RLIQUID: the residual of the model estimating the occurrence of liquidity problems (RLIQUID = LIQUID observed - LIQUID estimated).
> The estimation was obtained using the following equation:
> Prob (LIQUID = 1) = f (SECTOR2, L97O, FORE, DNT76O).

The reason for using the selected model is that the occurrence of liquidity problems is closely related to the growth capability of 1997; that is, growth capability effects financial discipline directly or through the occurrence of liquidity problems (see Appendices 5 and 6). We would like to examine the effect of growth capability and liquidity problems separately so we divided the latter into two parts, the part determined by growth capability and that, which is independent of it. Now the influence of growth capability exerted through liquidity problems can be considered as a direct effect of growth capability. The estimations of liquidity problems are included in Appendix 6 and estimations regarding financial discipline can be seen in Table 2.6.

The results show that the occurrence of liquidity problems in itself has a significant effect on the breach of financial discipline. It is obvious that in the background there are certain influences which cannot be calculated on during the analysis of the survey but which are responsible for causing these problems.

The absence of growth in both models estimating the financial discipline of the given company increases the chance for breach of financial discipline. If, for example, in a company group where the growth rate of turnover is above the median 30% of the members do not fulfill their contractual obligations, the same can happen in 41% of those companies which have the same characteristics but were unable to increase their turnover in 1997. According to the estimations this ratio is about 47% regarding the breach of fiscal discipline. Thus, we cannot confirm the anxieties of those who question the more stable financial conditions of companies which are capable of growth and are not convinced that there is a positive relationship between a more energetic economic growth and a more widespread compliance with market norms.

The quotient of probability for the breach of financial discipline is not the same in the case of companies of various sizes, either. The probability for breach of financial discipline increases if a company belongs to the medium-size category (50-300 employees). We can also see that in both cases foreign ownership is accompanied by a parameter less than one, which means a decrease in the probability for breach of financial discipline, but this influence is not significant. According to this, foreign ownership does not play a distinguished role in this area and even if it does have some influence it results in the better growth capabilities and more stable liquidity conditions of the companies (see results shown in Appendice 6).

In the third model of table 2.6 the foreign ownership had a significant effect in relation to the occurrence of liquidity problems. First, the occurrence of liquidity problems increases the probability that at least 20% of the company's partners do not fulfill their payment obligations. Foreign-owned companies are *'ceteris paribus'* better protected against the looser payment discipline of the partners.

Competitors

For the examination of the possible competitors of the companies we used the categories described during the analysis of suppliers and buyers. According to the results, the largest exporters most often specified foreign or multinational companies as their most important competitors (see Table 2.7) which is natural for large exporters. Comparing the sample of large exporters with that of all manufacturing companies we can see that there is no big difference between the two groups' opinion of their competitors (Figure 2.5). A very important difference is that while manufacturing companies are both suppliers and competitors of each other, the business links of the largest exporter are most often and mainly directed outside of the country and their most important competitors are not among domestic, but foreign companies. Multinational companies play a more important role than in manufacturing. That is, multinational companies influence the market behavior and the decisions of the largest exporters not only as suppliers and customers, but also as competitors.

We examined the judgment of competitors among the various company groups, as well. The results indicate that in this regard less significant differences can be revealed than among manufacturing companies (Tóth, 1998). From this we can deduce that the group of the largest exporters is more homogeneous than manufacturing companies are.

Examining the role of competitors as to the closeness of supplier-customer relationships we

can see that the company group which plays an important role in the business relationships also occupies a distinguished place among the competitors (see Table 2.8). All these confirm that the groups of competitors and business partners are not separate: the members of a company group which has an important part in the decisions of a company can also be competitors as well as partners with whom long-term co-operation can be established. By this we not only mean the collaboration and joint projects of former competitors for which there have been several examples in business, but also that in the categorization of the groups of Hungarian companies the competitors and clients define the same groups, which indicates the definite separation of the companies.

2.3 Factors of the growth capability

We use two indicators to measure the growth capability of companies: the first is the growth rate of the net turnover and the second is the change of the number of employees. (The definition of the variables used can be found in Appendix 4.) The analysis was carried out on the basis of the data of the TOP98/1 and CIPE98A surveys.

Concerning the change of the growth rate we assumed the following. First we presumed that companies with more stable supplier links could increase their turnover faster than the average. We can presume more stable supplier links, on the one hand, where subcontractors commissioned by long-term contracts have an important part in the activities of the company and, on the other hand, where the breach of payment discipline by partners is less likely. Thus, we can expect that the commissioning of subcontractors goes with the better growth possibility of the given company, and companies which are surrounded by partners respecting payment discipline are more likely to be able to grow more significantly.

On the other hand the business links within the company groups also have a stabilizing effect. This effect must also manifest itself in the growth capability of the company. Here we can talk about two separate effects. The most foreign-owned companies, as we had seen earlier, are operating as parts of a holding. And in this holding the business relations between the Hungarian plant and the foreign headquarters are very frequent and not insignificant. We are stating, therefore, that besides having foreign ownership, which in itself has an important effect, those companies can become more dynamic which can make better use of the advantages supplied by these networks.

The third assumption concerns another side of business links: we presume that business links with multinational companies have a favorable effect on the growth capability of the given company. From among the largest exporters those companies can reach a better growth rate where in the turnover the purchases of multinational companies are not insignificant.

According to the aggregated sales data of the manufacturing industry a higher increase in the exports was behind the 1997 increase of the turnover (CSO, 1998: 187-189). From this we could deduce that the sales possibilities of companies producing mainly for exports have improved, that is, at the company level the growth rate of the net turnover grows simultaneously with the ratio of exports within the net turnover. This assumption is obviously valid for the groups of exporting and not exporting companies but is it possible to prove the distinguished role of exports among the largest exporting companies? We don't think so, as

from this point of view these companies, as a result of the selection of the sample, form a more homogeneous group (in 60% of them the ratio of exports within the net turnover does not exceed 60%) and because of this in this company group the differences in their foreign and domestic sales have little effect on the change of the net turnover.

Besides the above, there may be a close relationship between the dynamics of growth, the financial conditions and effectiveness of the company. Thus, as fifth, we examine the influence of the companies' effectiveness. We assume that their growth capability and effectiveness develop parallel to each other, that is, profitability increases the possibility for better growth capability. We expect the same regarding the volume of investments: companies, which are able to increase their investments, have a better chance for growth. Either because they can make a better use of their own resources (due to their better financial conditions) or because they have better access to outside sources.

The models are set up so that beside the control variables at in each case first we test the effect each explanatory variable has on the subordinate variable and then we examine the model, which contains all factors.

First let us look at the results of the model estimating the increase of the net turnover on the basis of the TOP98/1 (See table 2.9.) The estimations show that it is not irrelevant to presume that the safety of contractual relations has an effect on the growth capability. This is shown by the fact that if a company commissioned subcontractors then it is more likely to be able to get into the group of companies achieving higher growth rate. However, we could not prove the effect of either the payment discipline of partners buying from the company or the strong business links with multinational companies on the growth capabilities of the TOP 1500 companies.

The proportion of exports does not have a part in this either, that is, we cannot say that a higher ratio of exports in itself would result in faster growth. With regard to the relationships between the dynamics of the increase of turnover, the majority ownership of the company and the ratio of exports we cannot say that exporting companies can increase their turnover faster but we can state, and the results of the model confirm this, that the growth dynamics of foreign-owned companies are significantly better than other companies'. It is only a consequence that the ratio of exports within the turnover of foreign-owned companies is higher than in the case of other companies[7].

The better growth capability of foreign companies was confirmed by the results of all examined models: if the majority owner of a company is foreign then this fact increases the probability that it will get into the group of companies achieving better turnover dynamics. For example, according to the results of Model 5, if in a company group, where none of the members are foreign-owned 60% of the companies achieve a growth rate above the median, then in another group, where the companies only differ from the former in that they are all foreign owned, the percentage of companies achieving a growth rate above the median is about 74%.

Furthermore, we can see that being the member of a holding in itself does not effect the

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7   In the case of foreign-owned companies this ratio is 69% while in other companies it is 59.8%. The F statistics also show a significant difference between the averages of the two groups (F=6.89, sign.=0.009).

growth capability. However, if companies which are related by ownership links also establish business links, then the closer business links make better growth dynamics probable (Model 2). Companies, which are each others' suppliers within a company group usually, achieve a faster growth than the rest of the companies. In our opinion this phenomenon shows that certain business links have a positive influence on the growth of the company's turnover. Transactional costs resulting from the instability of business links can be decreased by the development of ownership links and the establishment of vertically integrated enterprises (Williamson, 1971). In reaction to the instability of business links the companies establish hierarchies. This can be done by signing long-term contracts or if the customer buys its supplier or establishes a separate unit within its own company or company group which unit can supply services or manufacture products that were previously obtained from the market.

We must add that the existence of holdings and the business links within them are closely related to the presence of foreign ownership. This is also shown by the fact that in each examined model, together with Model 5 which included the business links, besides the sectoral effects (e.g. the growth rate of the manufacture of machinery was significantly higher than in the rest of sectors in manufacturing, which is not really news) only the effect of foreign ownership seems significant.

The results obtained also confirm the relevancy of assumptions related to effectiveness and investment activities. It can be considered a positive sign valid for enterprises having a decisive role in manufacturing that growth capability is closely related to the effectiveness and investment activities of the companies (Models 3 and 4). If the latter parameters of a company were better then it was able to increase its net turnover in 1997 better than the rest of the companies. The fulfillment of this relationship indicates that economic growth taking place in 1997 is based on enterprises which are most likely to increase their turnover in the long run and are more effective than the rest of the companies. According to this, the significant increase in the manufacturing industry in 1997 has stable basis and can be considered as the beginning of a tendency, which will be effective for a longer time, as well.

The models estimating the dynamics of employment (Table 2.10) on the one hand repeat the statement concerning the decisive role of foreign ownership and, on the other hand, show the obvious effect of investment activities and effectiveness.

The above results can be supplemented by those obtained through the analysis of the CIPE98A survey (Tóth, 1998). In this, using different samples, we searched for answers to the same questions as in the sample of the largest exporters. The two indicators of the growth capability and the explanatory variables were defined in accordance with those, which were used previously. The only difference was that the size of the market range was tested by the use of a variable[8].

In each of the models examined we obtained a significant positive parameter in the case of foreign majority ownership which shows that *foreign ownership had a positive effect so that*

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8 We distinguished between companies supplying mainly local, regional, domestic and foreign markets (as to more than 50% of their total sales). By local market we meant the county in which the headquarters of the given company is and by regional market the neighboring counties. We considered a company producing for the domestic market if it supplied mainly Hungarian companies, and producing for foreign markets if most of its sales were directed abroad. See Tóth, 1998.

both in the demand for labor and in the output the increase these enterprises achieved were above the median. We can see significant effects in the case of public (state) owned enterprises but these are negative. The growth capabilities of these enterprises were significantly lower than those of enterprises with similar parameters but under mixed ownership. According to the model used for the estimation of the number of employees and the variable of the market range, for example, if the number of employees increases in 70% of the cases within the group of enterprises under mixed ownership, then for enterprises with foreign owners this proportion is about 86.4%, while among the public owned companies it is around 33.5%.

We can also see that, besides the above, only two other variables to be tested seem to have a significant effect. One is the *market range*, the other the closeness of the relationship with the *multinational companies*, which are buyers. We can state, therefore, that those enterprises which only sold to local markets (in those towns or counties where their plants were located) it was significantly less possible to become one of those enterprises which were able to increase the number of employees. If the proportion of enterprises which were able to increase the number of employees was 60% in an enterprise group then about 45.9% are those within this which sold to regional markets.

On the other hand, the existence of a supplier relationship with multinational companies somewhat increases the possibility of employment growth (by 3%). That is, if 60% of those belonging to an enterprise group which does not supply multinationals can increase their number of employees, then in the case of enterprises with similar compositions where more than 20% of the total sales is related to multinational companies, the proportion of enterprises able to increase the number of employees is estimated to be around 76%.

In the case of the other factors regarding market links no significant effect can be seen. This indicates that there is a big difference, a detachment between Hungarian enterprises selling to *local and other type of markets as well as between those, which supply multinational companies, and the rest of the enterprises.*

The growth prospects, however, are not effected by these factors but by the type of ownership, namely, whether *foreigners, the state or the local government ownership have significant effect.* The first one increases, the second and third ones decrease the possibility to have a good business prospect in short-term future. Resulting from the fact the breach of financial discipline has become a general practice as well as from the frequency of liquidity problems the growth perspectives are estimated to be the same for both those which are considered to be "good" in this respect and for those which are "bad".

We can draw almost exactly the same conclusions from the estimation of the change of sales in 1997. The only difference is that besides the above factors we can include the sectoral effect: in each model firms belonging to the construction industry were significantly more often among those achieving a higher growth rate.

3 Performance and ownership structure

3.1 Objectives and methods

Two ways have become widely known in economic literature regarding the examination of privatization and the impact of ownership structure. One tries to chronologically follow the changes in the performance of a company or company group before and after privatization; the other, on the basis of the yearly data, analyzes the differences between the performance of companies, which have the same characteristics but different owners. We are fortunate to be able to do both in this study, and we will also attempt to differentiate between the impact of performance expected to be achieved in the future and the impact of privatization.

In the following two parts of the analysis we will seek the answer to two questions:

- how the performance of Hungarian companies changed between 1992-1996;
- and what differences can be seen between the various company groups as to their performance?

The classical problem behind both questions is whether the performance of state-owned, privatized or privately founded companies and their sub-groups (privately owned domestic and foreign companies) has improved as a result of privatization. We do not aim to mention here any theories that related to the micro- and macro-economic effects of privatization. Their literature could fill a library (for instance Vickers-Yarrow, 1988 and Vuylsteke, Ch., 1989, Attiat - Hartley, 1991 and, on East European privatization, Pinto et al. 1992, Pinto et al. 1993). Actually, we wish to examine the relationship between two factors: privatization and the performance of companies. On the basis of the theory we expect that privatization has a positive effect on the performance of companies - as a matter of fact, this is one of the rational motives for the decision to privatize (Vickers - Yarrow, 1991). We must assume that the efficiency of a company will improve after privatization. To empirically test this it would be enough to look at the difference between the performance of privatized companies and other state-owned companies. By doing this, however, we would be making a mistake as the results of the analysis would include the prerequisites of the process (*petitio principii*): we would be using as evidence what we wanted to prove. Privatization decisions (when to privatize which company and how to do it), as a matter of fact, are not independent of the present (observed) and prospective (expected) performance of the given company. That is, it is possible that the parameters of the privatized companies' performance seem to be significantly better only because companies which were originally better or had better performance prospective were privatized at the same time. The rest of the state-owned companies stayed under state ownership or closed down. In this case, instead of relationships believed to be relevant, we only obtain artificial relationships. That is, it is not as simple as it looks.

If we want to describe it using models, then we must differentiate between two effects. The

first is when privatization (the change of the ownership structure of a company) influences the company's performance. Let us call this *the privatization effect*. And the other is when a company's present of potential performance has an influence on whether or not the company will be privatized at a later date. Let us call this *the performance effect*. If the time factor is also included in the model then the performance effect is supplemented by a third effect, that is, when the performance achieved by an enterprise at a given time influences its performance achieved at a later time. (All these are shown in Figure 3.1.) That is, the performance of a company at time t_1 can be influenced by their performance at time t_0 and the fact whether they were privatized at time t_0. One of the aims of our analysis is to determine and differentiate between these two effects.

However, it is not certain that it is the years before and after privatization that should be compared in order to study the effects of privatization. There are two reasons for this. According to one of them, during the preparation of privatization the management and the government started restructuring companies and this fact, while increasing the odds for privatization (making the company more attractive), improved the performance indices, as well. As a result, the companies' performance and efficiency started to improve before privatization. This effect was the aim of governmental reorganization programs in Hungary before the privatization. The other reason is related to the short period after privatization (1-2 years). During this period, instability due to the change of ownership (and because of this the postponement of investments) and reorganizations after privatization resulted in the short-term decrease in the performance and efficiency of the companies.

We must mention two more difficulties regarding the observation of the problem in question. One is related to the cross-section analysis, the other to the chronological analysis. When comparing the performance of state and privately owned companies, the justification of indices measuring profitability is questionable. Accepting the fact that the objective functions of state-owned and private companies are different, in the case of the former it is welfare maximization, while for the latter it is profit maximization (Vickers - Yarrow, 1988), we obtain trivial results by showing the better profitability of private companies.

On the other hand, the difficulty of the chronological comparison lies in the fact that the economic-political conditions of the companies are not constant in a given period. The change of the macro-economic environment and the waves of regulation and deregulation influence the performance of the companies. There are examples in literature where, if the degree of economic regulation has a strong influence on the economic performance of companies and the effect of ownership on performance can be neglected (Douglas *et al.*, 1982).

In the followings we will examine five years' data using a sample of Hungarian enterprises belonging to the competitive sector (the description of the database used and the definition of the variables can be found in the Appendices). The change of four parameters indicating the performance and profitability of companies will be followed chronologically and using cross-section analysis. These are the following:

C_S = Cash-flow/number of employees

C_T = Cash-flow/tangible assets

C_N = Cash-flow/net turnover

V_S = Value added/number of employees

The companies are grouped according to the following variables:

L = Staff categories of employees

S = Sectors

OWGR = Type of majority owner

GFIRM = Position of the company within the sample (e.g. is it included in the database for every year).

First we will discuss how the variables change with time and then for each year we will examine their parameters in each company group, with the help of variance analysis. Here the impact of privatization can only be measured indirectly as in Hungary and in East-Central European countries in general, privatization took place along with the structural-legal transformation of companies and in most cases it cannot be separated from the latter. As the structural-legal transformation affects the statistical registration of the companies, the pre- and post-privatization history of the companies cannot be traced by an analysis in which companies can be distinguished on the basis of their statistical identification (or their tax-file number). Such is the present analysis. Thus, it is impossible to systematically observe the impact of privatization or structural-legal change, or to separate these.

From the sample including the analyzed companies it is possible, however, to select a group that was apparent in every analyzed year. This panel data set enables us to examine a part of the privatization that took place between 1992-1996. By this we mean the ownership change of companies where the corporatisation of state-owned companies, that is, the structural-legal transformation took place before 1992 in such a way that the companies stayed under the ownership of the state and their privatization only took place after 1992. For the analysis we have established a variable (PRIV) the value of which is 1 if the company's majority owner in 1992 is still the state but by 1996 it became mostly privately owned; and 0 if it was still state-owned. First we estimate the odds for privatization in a logistic regression model, then this variable and the 1992, 1993 and 1994 parameters of the examined variables of company performance are included in a model which shows the performance in 1996.

Our hypothesis regarding the analysis is that privatization has a positive effect on the performance of the companies. That is, we expect a positive coefficient for the variable PRIV. Together with this, the effect of performance in the years prior to 1996 is estimated to be insignificant.

3.2 Tendencies and company groups

During the economic transformation between 1992-1996 the Hungarian economy went through its worst crisis since World War II. This can be well seen from the company-level data we examined. As compared to 1992, in 1993 the free resources of the companies decreased significantly. This is shown by the radical change of the cash flow to assets and the cash-flow to employment.

It can also be seen from the data that, after the plunge of 1993, in the following years the profitability of the companies gradually improved. While in 1993 in 20.3% of the companies the cash flow was not positive, in 1996 this was only true in 10.7% of them (Table 3.1). The

comparison of the position of the companies in the successive years according to their cash-flow shows that the profitability of the companies gradually improved (see Table 3.2). That is, following the transformational recession, from 1994 the financial situation of the companies started to become stable, improved, and the resulting economic growth can be seen in the macro-economic data of 1997. This growth is well founded and seems to be permanent; this is indicated by previously published results of our surveys and it is confirmed by the following calculations, as well.

In the followings we will examine the changes of the Hungarian company sector between 1992-1996 according to various categories of companies as to area, sector, size and type of majority owner. Almost every one of these considerations indicate that, similarly to the period between 1998-1991, radical changes took place in the Hungarian economy at the company level between 1992-1996, as well (see Tables 3.3-3.9).

The composition of companies within a sector has changed somewhat during this period: the number of those in food processing has increased while that in construction decreased. This is related to the significant relapse in construction industry and construction projects.

Observing the regional ratios three tendencies can be seen: relapse in the central region, growth in the Transdanubian region, and a decreasing role of the eastern regions. This phenomenon can be seen not only in the change in the number of companies but it is also shown by the role companies of the various regions play in the production of value-added cash and in the cash-flow. Both indices show that the eastern regions of the country are lagging behind.

The decline of the industries in and around Budapest during the economic transition was compensated for by the increase of the role of services in this region, but the tendencies characteristic of the eastern and western part of the country are characteristic of all branches of industry. According to this, economic transformation goes on in Hungary in such a way that at the same time it increases the differences between the western region that has better infrastructure and labor conditions and the underdeveloped eastern region.

The composition of companies as to size changed in such a way that the proportion of smaller firms (with 21-50 employees) increased, while that of the larger (over 300 employees) decreased. This tendency, however, is only partly reflected by the performance of the companies: within the value added the weight of smaller companies decreased significantly (from 22% to 12.6%) and that of medium-size companies increased (from 15.9% to 22.9%), while in those with over 300 employees it hardly changed at all. This could result from the natural growth of the firms (when the small firms that were capable of growth joined those with more employees) and also from the improved performance of firms that were originally considered as average. The economic recession of 1992-1993 affected the smaller firms (21-50 employees) above all; their profitability decreased the most. While in 1992 35.4% of the cash-flow of the examined companies came from small firms, in 1996 only 13.7% of the total cash-flow.

Ownership changes, as we've already mentioned, are closely related to the change of the legal form of companies in Hungary. The proportion of state-owned enterprises has decreased to a small fraction during this period (from 8.9% to 0.2%). The same tendency is characteristic of the co-operatives, too: their proportion has decreased to 9.7% from 17.5%. At the same time,

the proportion of LTD's increased significantly (from 60% to 73.5%).

These tendencies were followed by the changes in the majority owners of the firms: the proportion of mainly state-owned firms decreased (from 22% to 3.6%) which was accompanied by the significant growth in the proportion of foreign-owned and Hungarian privately owned firms (the former increased from 9.4% to 19.4% while the latter from 44% to 52%). The influence of the radical ownership change could be observed in the proportion of the value added, as well. While in 1992 36.5% of the value added were supplied by state-owned enterprises, in 1996 this was only 4.6%: the contribution of foreign-owned firms to the value added increased from the 20% of 1992 to 50% in 1996. The roles of the various company groups within the total cash flow do not indicate anything else, either. The decrease of state ownership was accompanied by the increase of private ownership, especially foreign ownership. In 1992 23.6% of the total cash flow belonged to foreign firms while in 1996 58.7%. This also shows that the profitability of foreign firms improved better than the average between 1992-1996.

In accordance with this, in 1996 the *Hungarian economy is characterized by foreign ownership on the one hand, and private ownership*, on the other hand. Theories stressing the *diffuse ownership structure* (Szelényi et al., 1996) and the dominance of *recombinant property* (Stark, 1996 and Bruszt - Stark, 1996) have no relevance.

The simple comparison of the data supplies another important conclusion. According to this, in the company structure characteristic after 1996 those firms have a decisive role, which were established in the first part of the transition, in or before 1992. More than 40% of the companies operating in 1996 already existed in 1992. This means, on the one hand, that we can confirm the statement according to which the first part of the transition (which started in 1988) ended by 1992 *the outlines of the company structure determining the subsequent developments had been more or less established* (Köllő, 1996). On the other hand, it can be stated that significant changes took place in the period between 1993-1996, 40% of the companies operating in 1996 were formed during those years.

We can also state that the economic performance of the firms in the panel sub-sample (those operating during the whole period between 1992-1996) are significantly better than what can be deduced from their proportion within the sample. Almost 60% of the value added produced by the firms included in the sample was supplied by firms belonging to this stable group, (*noyou dur*) between 1992-1996.

3.3 Performance of the firms between 1992-1996

If we wish to examine whether in the various groups of enterprises there are systematic differences between the values of indicators we examined which show the performance of the enterprises and if we wish to give an answer as to whether within the Hungarian entrepreneurial sector there are well separable sub-groups as to these parameters, then we must distinguish between the various effects.

This can be done through variance analyses where the dependent variables are the indicators

of company performance, while the explanatory or independent variables show the company's sector, size, and type of majority ownership as well as its position within the sample. The models were calculated for each year. According to the results of models explaining the relationship of the cash flow with the net turnover, the number of employees and the total assets, the year 1992 is considered special as compared to the rest. It could be observed that at that time the indicators of the smaller firms (with 21-50 employees) are a lot more favorable than those of the other companies. Furthermore, compared to firms with mixed ownership, all other ownership groups have significantly worse indicators.

First let us look at models estimating cash flow with regard to the net turnover. During the years 1993-1995 the differences as to the company size are smaller, sometimes insignificant. But the parameters of the smallest firms always show the favorable position of this company group with regard to performance. Then in 1996 we can again notice an increase in the differences regarding size. The effect of company size does not change: with increasing company size the proportionate value of the cash flow as to the net turnover decreases.

Parameters belonging to the other factor important from the aspect of our topic, the type of majority owner, indicate that between 1992-1996 the coefficients of public ownership (OWGR=1) are always negative while the circle of companies belonging here, as we could see earlier, has significantly narrowed down. That is, the results confirm that part of the hypothesis described in 3.1. where we assumed an essential difference within the competitive sector between state and private ownership. However, looking at the various groups under private ownership (Hungarian individual, domestic firm, foreign), we can see that it is not private ownership itself, which is the differentiating factor. The coefficients of Hungarian individuals and domestic companies are always smaller than those of state-owned properties, but they are negative and, except for 1993, significant at the 5% level, *while the coefficients of foreign majority ownership are always positive after 1993*. This means that we are not talking simply of the temporary good influence of the transition from state-ownership to private ownership but we can emphasize a certain type of private ownership, that is, *foreign ownership, which significantly improves the performance of the companies*. This effect can be observed in every year between 1993-1996.

The parameters which belong to the various categories of variables showing the appearance of the companies in the sample (GFIRM) indicate that after 1993 the performance of newly formed companies or firms belonging to the stable group are significantly better than that of companies closing down or those which only appeared in the sample in one year. Companies belonging to the stable group had a positive coefficient in 1993 (significant at the 10% level), and those, which were closing down, had negative coefficients. According to this, after 1993 the yearly changing of the companies happened in such a way that the weaker companies were usually replaced by those achieving better performance parameters. This can happen through the natural replacement of the companies, or another way of doing it is when a company group rearranges its loss-making activities to one of its companies (which goes bankrupt later on) and the company group which was "cleaned" can thus produce more favorable parameters.

If the cash flow is compared to the number of employees instead of the net turnover, then the results obtained are similar to the above. In the case of size we can see that small companies are in a somewhat more favorable position and, considering the majority ownership, in each year between 1992 and 1996 cash-flow to staff numbers is estimated to be the highest in the case of foreign-owned companies, while it was considered to be the lowest for those still

under public ownership. Companies, which belonged to the stable group, had positive coefficients between 1992-1993. And, between 1994-1996, the value of cash flow to staff numbers is the highest in the case of new companies. In the case of cash-flow to total assets, company size seems to have a reverse effect which is natural as the total assets of companies with more employees are always relatively higher. This effect, on the one hand, explains the negative coefficients related to foreign ownership (foreign-owned companies usually have higher capital and, thus, more assets) and the positive effects related to Hungarian private ownership (individuals and domestic companies). After 1992, however, neither the effects related to foreign ownership nor those related to Hungarian private ownership are significant at any level.

When examining the variance of the value added to employment, we can observe the same phenomena. A significant difference can be seen in the effect of company size. *The analysis of the variance of the value added to employment shows a positive effect of foreign majority ownership: these companies produced the highest specific value added in each year.* And, just like before, public ownership has negative coefficients in every year. According to the model, firms belonging to the stable group as well as the new ones have the most favorable performance parameters in every year. The effect of company size changed during the years: in 1992-1994 the value added to employment is estimated to be the highest among smaller companies but by 1995-1996 no significant difference can be seen between the companies with regard to this. That is, we can say that the contribution of companies to the total value added is proportionate to their number of employees. If it stays the same after 1996, then we can well estimate the proportion of value added produced by each company group as to the total value added, using the proportion of the number of employees within the given company group as to the total number of employees.

On the basis of the above, three facts can characterize company performance between 1992-1996: (1) each aspect of categorization we chose lists the Hungarian enterprises into groups with significantly different characteristics[9]; (2) smaller and mainly foreign-owned companies have relatively favorable performance parameters since 1993; (3) the performance of new companies is more favorable than in the case of those closing down, that is, the fluctuation of the enterprises is accompanied by the increase of the weight of companies that are more profitable and produce specifically more value added.

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9   The statistics in the 1994 model of assets as to the cash-flow are insignificant only in the case of GFIRM. The situation is the same in the case of size in the variance of the 1996 value added.

3.4 Privatization and performance effect

In the followings we will shortly deal with the examination of the clear effect of privatization. For this purpose we selected a stable group for the above analyzed sample (companies included in the panel) and within these, corporations which were owned by the state in 1992 and using these we tested the effect of two factors. The sample to be analyzed included 454 companies, 15.2% of which were privatized between 1993-1996. First we examined whether there was a relationship between privatization and the 1992 performance and profitability of the company. For this we used the following logistic regression model:

Prob $(PRIV=1) = f(S93, L93, V\_S92, C\_S92)$
where
PRIV: the indicator of privatization, the value of which is 1 if the company went from state-owned to being privately owned between 1993-1996, otherwise it is 0;
S: sectors:
L: staff categories
V_S92: value added to employment in 1992
C_S92: cash flow to employment in 1992

If the indicators measuring performance have a significant and positive effect in the model then we can confirm the statement that the initial performance of the company had an effect on the odds for privatization. If not, then the assumption related to the independence of these two factors is probably more relevant.

The other model included the completion of privatization and the parameters of the relative performance in the year 1993. Here the dependent variable is not the company's performance but, to avoid all effects influencing the performance of all of the companies every year, it is the position the company occupies within the sample on the basis of its performance. It is measured by the ratio of the companies' performance as to the average performance characterizing the whole sample:

$PERFR96_i = f(L, S, PRIV, OWGR, GRIRM, PERFR93_i)$

Where
$PERFR96_i = C\_N96_i / C\_N96_a$ or V_S96_i / V_S96_a
$PERFR93_i = C\_N93_i / C\_N93_a$ or V_S93_i / V_S93_a
C_N_i = the cash-flow to employment of company i
V_S_i = the value-added to employment of company i
C_N_a = the average cash-flow to net turnover characterizing the sample
V_S_a = the average value-added to employment characterizing the sample.

If the effect of PRIV appears to be significant and positive in the model than using this narrowed-down sample we can confirm the performance increasing effect of privatization taking place between 1993-1996. If not, then the question must be considered unanswered, due to two reasons: a) we cannot directly measure the effect of privatization taking place between 1988-1992. This may be seen from the relatively better performance in the panel sub-

sample but here we cannot separate the effects of privatization and the effect of performance. b) We still cannot observe the effects of privatization, which took place simultaneously with the change of the legal form.

On the other hand, if the effect of the previous performance is significant and positive then we can state that performance before and during privatization does have an effect on the present performance of the company. Business positions of several years before can effect the performance and future development possibilities of companies for a long time.

Results of the first model indicate (see table A7) that the better performance of a company (value added to employment) has a positive effect on the odds for privatization and it is a negative for the relative proportion of the cash flow of a company. But all those effects are not significant. Furthermore, company size has a significant effect; the odds for the privatization of smaller (20-100 employees) state-owned companies were better than for larger ones.

We suspect the relatively strong bargaining position of the management of companies to be privatized to be behind the opposite effects of the performance indicators. This is confirmed by the examination of the institutional conditions of Hungarian privatization and its success (Fogarassy - Szántó, 1996) for which the necessary pre-condition was the strong bargaining position of the management as opposed to the creditor banks and governmental institutions. Being in a stronger position, the management took advantage of this, which resulted in privatization (in which the management participated directly or through their companies on the customers' side) or in the fact that they could determine salaries more independently than in other state-owned companies. These were able to cut out a specifically larger part of the company's profit for themselves and their employees in the form of salaries, than the management of state-owned companies which were under closer state control and in weaker bargaining positions.

The effect of company size can also be related to this factor: it was easier for the management of smaller companies to take the initiative into their own hands. (For instance the smaller state-owned companies were not even included in the 1994 records of the State Property Agency.)

In the second model (See A8.) we estimated the cash flow to employment positions of the companies in 1996. The results show that it is positively effected both by privatization and the 1993 positions of the companies as to their cash flow. According to this, after privatization the management's and the new owners' behavior changed with regard to payroll expenses, they tried to minimize expenses related to salaries.

The third model (See A8), where we estimated the positions according to value added to employment, shows that besides the 1993 position of performance the effect of privatization is not significant. According to this, the contributions to the value added do not show a positive effect of privatization. At the same time, it is true that (as we could see from the first model) those companies were privatized between 1993-1996 where the performance was better according to this indicator, too. Therefore, the better performance of privatized companies measured by the value added to employment in 1996 is not the result of privatization, but other technological, organizational influences or business conditions, which were in effect even before privatization.

4 Conclusions

On the basis of our analyses the following factors can characterize the business condition of Hungarian enterprises in 1997-1998 and the growth started in 1997 in the Hungarian economy:

- a stable company structure developed by 1996
- the holding structure has appeared but its role is not dominant
- the Hungarian private ownership and foreign ownership are dominant in the ownership structure of the Hungarian economy
- the concentration of the ownership structure
- the improvement of market conditions (e.g. increase in the time horizon of planning)
- the weakness of financial discipline
- the decisive role and the best performance indicators of foreign-owned companies
- concentration
- polarization
- limited growth
- stability of growth
- and better prospects of growth.

On the basis of the results of the analysis we can state that by the second half of the 90's a company structure has developed which will determine the development of the Hungarian economy for a long time. In this structure those companies have a dominant role, which were established in the first part of the economic transition (between 1988-1992). Their contribution to the production of value added is about 60% of the total value added.

On the other hand, companies, which are mainly foreign-owned, have a decisive role in this structure. Their specific profitability and value added production parameters; growth capabilities are the best among Hungarian enterprises. We can reach this conclusion not only through the analysis of the tax returns of 1993-1996 but also on the basis of the analysis of the latest (1997-1998) surveys.

The dominant role of foreign ownership appears in several areas. On the one hand, business links between these companies and other enterprises within the company groups are a lot closer. This fact in itself ensures more balanced business links, which, according to our calculations, has a positive effect on the growth capability of a firm. This is indicated, among others, by the significantly better payment discipline of the business partners. Furthermore, foreign ownership in itself increases the probability for the given company to grow faster.

The analysis of both the facts of 1997 and the intentions for 1998 show that companies with foreign ownership have a good effect on the investment capability of the Hungarian economy. From our analyzes we could see that these have significantly better indicators than the rest of the companies regarding both the total turnover and within this the growth of exports, as well as the intentions to increase the number of employees and the turnover. In the following the question is how the products and the labor-demand of enterprises producing mainly for local and domestic markets will develop in the near future and how well these can become linked

(as suppliers) to groups of companies which are under better conditions and able to grow faster.

Concentrated growth means that not only the production and the turnover is centralized in the hands of a few large companies, as it had been indicated by previous empirical examinations and the CSO data, but the increase of the turnover, as well. A few companies with majority foreign ownership, which are mainly producing for foreign markets, were responsible for most of the growth in 1997.

Beyond this it can be observed that the change of the economic circumstances increases the differences between the companies and the company groups regarding their chances for future growth. Those who were able to grow earlier (those who increased their output, were able to invest, or increased their number of employees) have better chances for growth than those who were unable to expand in the initial stage of economic change. From this aspect groups of small and medium-size companies with a majority of Hungarian private ownership have less chance to increase their output than larger foreign-owned companies and, accordingly, their short-term growth prospects are a lot less favorable.

But concentration does not mean that growth is unstable. Instability would mean that growth would come to a standstill if the business strategies or sales prospects of some companies of central position would change unfavorably. This is very unlikely as companies which are the motors of growth not only have been supplying the decisive proportion of manufacturing products or exports for years, but in the last two-three years they have been growing steadily at a rate characteristic of most of the companies. On the other hand, it must not be forgotten that almost half of the companies observed, as in 1996, were able to increase the real value of their turnover in 1997, almost 40% of them invested over the value of 100 million HUF, and almost 60% of them expect an increase in their orders in the first half of 1998.

Another proof of the stability is that, as compared to 1994, within the largest exporting companies the proportion of firms, which can plan for a longer period, has increased significantly. This can be a proxy to the moderation of risks related to investments and the increase of turnover.

Finally, polarization or the limits of economic development does not mean that, on the basis of the intentions of 1998, we could observe the occurrence of tendencies opposite to these. The analysis of the prospects of the first half of 1998 shows that the expansion of the turnover in 1998, which is probably less than a year before, will effect the companies more equally than a year before. It is conceivable, that this will be observed in a company segment which produces more new products as compared to its output than multinational companies considered to be the motors of the 1997 growth of the turnover. A more balanced growth can take place as a result of the further improvement of general economical conditions (among these the reduction of inflation and the level of interest, as well as the predictability of their tendencies are decisive) or through the growth in the demand of companies related by supplier-buyer links, but psychological factors could also play a role in this. The expectations of smaller Hungarian-owned companies, which are not really influenced by the economical changes, are positively effected by the growth in process. And the more favorable prospects of these enterprises can promote such economical decisions as a result of which the demand of these companies will increase, that is, the rate of economical growth can also increase.

REFERENCES

Ábrahám Á. (1996): Corporate governance in the Hungarian manufacturing industry, February, p. 24. unpublished manuscript

Attiat, F. O. – K. Hartley (1991) (eds.): Privatization and economic efficiency: A comparative analysis of developed and developing countries, Edward Elgar, England & USA.

Bruszt L. – D. Stark (1996): "Vállalatközi tulajdonosi hálózatok a kelet-európai kapitalizmusban" (Inter-enterprise ownership networks in the East European capitalism), *Közgazdasági Szemle*, Vol. XLIII., March, pp. 183-203.

Commander, S. – F. Coricelli (1995) (eds.): Unemployment, restructuring and the labor market in Eastern Europe and Russia, World Bank, Washington, D.C.

Computing Resource Center (1992): *Stata Reference Manual: Release 3*. 5th ed. Santa Monica, CA.

Czakó Á. (1997): "Kisvállalkozások a kilencvenes évek elején. Vállalkozás és polgárosodás", (Small Enterprises in the Early 90s), *Szociológiai Szemle*, No. 3., pp. 93-116.

Douglas, W. C. – L. R. Christensen – J. A. Swanson – M. W. Tretheway (1982): *Economic Performance of U.S. and Canadian Railroads: The Significance of Ownership and the Regulatory Environment*, In: Stanbury, W. T. – F. Thompson (eds.): Managing Public Enterprises, Praeger Special Studies, Praeger Scientific Press, pp. 123-151.

Estrin, S. *et al.* (1995): *Restructuring and privatization in Central Eastern Europe. Case studies of firms in transition*, Armonk, New York: M. E. Sharpe

Fogarassy, G – Szántó, Z. (1996): "Privatisation and the Laughing Third" (Review of Sociology of the Hungarian Sociological Association, Special Issue, pp. 37-45.

Fogarassy G. (1996):"Privatizáció banki irányítással", (Privatisation guided by banks) *Közgazdasági Szemle*, Vol. XLIII., September, pp. 816-825.

Frydman, R. – A. Rapaczynski, (1994): *Privatization in Eastern Europe: Is the state withering away?* Budapest, New York: CEU Press

Halpern, L. - Körösi, G. (1997): Labour Market Characteristics and Profitability, Discussion Papers, No. 46. Institute of Economics, Hungarian Academy of Sciences

HCSO (1997): Magyar Statisztikai Zsebkönyv (Hungarian Statistical Pocket-book) - 1996

HCSO (1998): Magyar Statisztikai Zsebkönyv (Hungarian Statistical Pocket-book)- 1997

HCSO (1998): Statisztikai Havi Közlemények (Monthly Bulletin of Statistics)- 1997/11,

February

Kertesi, G. - Köllő, J. (1997): A vállalati bérnövekedés belső korlátai, (Intern limits of wage settings) Az MNB felkérésére készült tanulmány, November, p. 25.

Kornai, J. (1990): The road to a free economy: shifting from a socialist system: the example of Hungary, New York: Norton

Kornai, J. (1997): "Pénzügyi fegyelem és puha költségvetési korlát" (Financial discipline and soft budget constraint), *Közgazdasági Szemle*, Vol. XLIV. November, pp. 940-953.

Köllő, J. (1996): Employment and Wage Setting in Three Stages of Hungary's Labour Market Transition. Evidence on Firms Observed in 1986-89, 1989-92 and Later, Unemployment, Restructuring and the Labour Market in Eastern Europe and Russia, The World Bank – EDI, Budapest, March p. 59.

Köllő, J. (1998): Transformation before the 'Transition' (Employment and Wage Setting in Hungarian Firms 1986-89), Budapest Working Papers on the Labour Market, No. 4., April

Laky, T. (1998): "A kisvállalkozások növekedésének korlátai" (Limitations of the Growth of Small Enterprises), *Szociológiai Szemle*, No. 1. pp. 23-39.

Laki, M. (1994): "Firm behaviour during a long transitional recession", *Acta Oeconomica*, Vol. 46. (3-4), pp. 347-370.

Móra, M. (1991): "The (Pseudo-) Privatization of State-Owned Enterprises (Changes in Organizational and Proprietary Form, 1987-1990), Vol. 43. (1-2), pp. 37-58.

OECD (1996): *Small Business in Transition Economics. The Development of Entrepreneurship in the Czech Republic, Hungary, Poland and the Slovak Republic*. Paris

Parker, D. – K. Hartley (1991): Status Change and Performance: Economic Policy and Evidence, In: Attiat, F. O. – K. Hartley (eds.): Privatization and economic efficiency: A comparative analysis of developed and developing countries, Edward Elgar, England, USA, pp. 108 - 125.

Pinto, B. - Belka, M. - Krajewski, S. (1992): "Microeconomics of Transformation in Poland: a survey of state enterprise responses", Policy Research Working Paper WPS 982. World Bank, Washington D.C. (September).

Pinto, B. – M. Belka, - S. Krajewski (1993): Transferring State Enterprises in Poland: Evidence on Adjustment by Manufacturing Firms, Brookings Papers on Economic Activity, No. 1., Brookings Institution, Washington D.C. pp. 213-270.

Rózsahegyi Gy. (1996): Beruházás és felhalmozás - 1992. Műhelytanulmány, (Investment and accumulation - 1992. Working Paper. Prepared for the National Bank of Hungary), July, Financial Institute Co., p. 211., mimeo

Schaffer, M (1995): Government subsidies to enterprises in central and eastern Europe:

budgetary subsidies and tax arrears. In: Newbery D. (ed.): Tax and benefit reform in central and eastern Europe. London: Centre for Economic Policy Research. pp. 115-144.

Semjén, A. – Tóth, I. J. (1997): Vállalkozások fiskális környezete és annak hatásai. Társaságok adózással kapcsolatos magatartása. (Fiscal environment of Hungarian enterprises and its effects), MTA KTI, February, p. 62., mimeo

SPSS (1988): *SPSS/PC+*^{TM} *V2.0 Base Manual*, SPSS Inc. Chicago, Illinois, USA

Stark, D. (1996): "Recombinant Property in European Capitalism"*, American Journal of Sociology*, Vol. 101. No. 5. pp. 993-1027.

Stokman, F. N. – R. Ziegler – J. Scott (eds.) (1985)*: Networks of Corporate Power. A Comparative Analysis of Ten Countries*, Polity Press.

Szelényi I. – G. Eyal – E. Townsley (1996): "Posztkommunista menedzserizmus: a gazdasági intézményrendszer és a társadalmi szerkezet változásai" (Post-communist manageralism: the changes of social structure and economic institutions), *Politikatudományi Szemle*, No. 2. pp. 7-29. , No. 3., pp. 7-32.

Tóth, I. J. (1997-98a): "The Importance of the Hidden Economy in Hungary, 1995-96. An Estimation on the Basis of the Empirical Analysis of Household Expenses", *Acta Oeconomica*, Vol. 49 (1-2), pp. 1-34.

Tóth, I. J. (1997-98b): "Inter-enterprise ownership links in Hungary" *Acta Oeconomica*, Vol. 49 (3-4) pp. 365-396.

Tóth, I. J. (1998): Market links and growth capability of enterprises in a transforming economy: the case of Hungary. In: Csaba, L. (ed.): The Hungarion SME Sector Development in Comparative Perspective, KOPINT-DATORG Foundation and CIPE/USAID, Budapest, pp. 29-60.

Vedres, B. (1997): "Bank and Power. the Place of Banks in the Web of Contacts of the Big Hungarian Companies", *Review of Sociology of the Hungarian Sociological Association*, Special issue, forthcoming

Vickers, J. – G. Yarrow (1988): *Privatisation: an Economic Analysis*, Cambridge, MIT Press.

Vickers, J. – G. Yarrow (1991): "Economic Perspective of Privatization", *Journal of Economic Perspectives*, Vol. 5. Num. 2, Spring, pp. 111-132.

Vuylsteke, Ch. (1989): *Techniques of privatisation of state-owned enterprises 1. Vol. Methods and implementation*, Washington D. C., World Bank

Williamson, O. (1971): "The vertical integration of production: market failure consideration", *American Economic Review*, Vol. 61. pp. 112-123.

TABLES & FIGURES

Table 1.1 Distribution manufacturing enterprises[*] by size in Hungary 1938-1997, %

Years	Number of employees					Total number of enterprises
	-20	21-50	51-100	101-500	501-	
1938	53,4	22,8	10,9	10,1	2,8	3.911
1949[1]	32,3	17,3	13,3	26,5	10,6	1.632
1967[2]	5,8		7,0	19,5	67,7	807
1977[2]	4,9		2,8	25,8	66,4	712
1977[1]	3,7		7,6	49,5	39,2	1.413
1987[2]	15,6		8,3	28,9	47,2	1.043
1987[1]	31,8		14,6	31,7	21,9	2.435
1991[1,4]	57,6	18,4		24,1[3]		12.128
1994[1,4]	70,8	13,6		15,6[3]		19.441
1997[5]	87,8	6,0		6,2[3]		37.888

*: without sole proprietors

Sources:
1938-1949: Ránki György: Economy of Hungary in the period of first 3 years plan (1947-1949) KJK, Budapest, 1963
1967-1994: Statistical Yearbooks, 1967, 1977, 1987; Hungarian Statistical Pocketbook - 1992; and Hungarian Statistical Pocketbook - 1994, Hungarian Central Statistical Office
1997: Monthly Bulletin of Statistics 1997/7, Hungarian Central Statistical Office, October 1997.

Notes
1: with cooperatives
2: without cooperatives
3: above 50 employees
4: Manufacturing, economic organisations with legal entities
5: Manufacturing, total number of economic organisations

Table 1.2 Distribution of limited-liability companies and joint-stock companies by employment categories in Hungary 1992-1997, %

Employment categories	Years				
	1992[1]	1994[1]	1995[3]	1996	1997
less than 10		61,5	79,3	84,0	86,3
11-20	85,0[2]	25,9	11,4	6,6	5,8
21-50	9,0	7,1	6,1	5,3	4,5
51-300	5,0	4,4	2,9	3,2	2,8
more than 300	1,2	1,2	0,3	0,8	0,7
Total	100,0	100,0	100,0	100,0	100,0
N	58,735	90,502	102,697	107,398	127,765

1: without the enterprises with unknown employee number
2: less than 20 employees
2: only limited-liability companies

Table 1.3 Number and distribution of registered economic corporations and unincorporated enterprises by legal forms in Hungary 1992-1997

(Number of enterprises by legal form)

Legal forms	Years					
	1992	1993	1994	1995	1996	1997
1. Limited-liability company	57,262	72,897	87,957	102,697	122,044	143,109
2. Joint-stock company	1,712	2,375	2,896	3,186	3,536	3,929
3. Cooperative	8,229	8,668	8,252	8,321	8,362	8,330
4. State enterprises and organizations with obligation of transformation	1,733	1,130	821	761	683	655
5. Other	450	568	1,665	1,980	2,292	2,639
6. Enterprises with legal entity (1+2+3+4+5)	69,386	85,638	101,591	116,945	136,917	158,662
7. Corporations without legal entity	70,597*	98,036*	92,393	111,057	132,119	144,552
8. Other organisations without legal entity	-	-	29,953	33,759	35,307	35,360
9. Sole proprietors	606,207	688,843	778,036	791,496	745,247	659,690
10. Enterprises without legal entity (7+8+9)	676,804	786,879	900,382	936,312	912,673	839,602
11. Total number of enterprises (6+10)	746,190	884,915	1,001,973	1,053,257	1,049,590	998,264

(Distribution of enterprises with legal entity by legal form, %)

	1992	1993	1994	1995	1996	1997
1. Limited-liability company	82,5	85,1	86,6	87,8	89,1	90,2
2. Joint-stock company	2,5	2,8	2,9	2,7	2,6	2,5
3. Cooperative	11,9	10,1	8,1	7,1	6,1	5,3
4. State enterprises and organizations with obligation of transformation	2,5	1,3	0,8	0,7	0,5	0,4
5. Other	0,6	0,7	1,6	1,7	1,7	1,7
6. Total number of enterprises with legal entity (1+2+3+4+5)	100,0	100,0	100,0	100,0	100,0	100,0

*: 7th and 8th rows all together

Sources: 1992-93: Hungarian Statistical Pocketbook - 1994, Hungarian Central Statistical Office, 1995 , p. 114.

  1994: Hungarian Statistical Pocketbook - 1995, Hungarian Central Statistical Office, 1996, p. 132

  1995-97: Hungarian Statistical Pocketbook - 1997, Hungarian Central Statistical Office, 1998, p. 120

Table 1.4   GDP growth by sector in Hungary 1992-1996, %[*]

(Previous year = 100%, constant prices)

	Years				
Sectors	1992	1993	1994	1995	1996
Manufacturing	101.6	105.9	106.7	108.2	104.7
Construction	101.9	94.5	104.7	100.2	90.9
Trade	82.0	96.7	96.1	97.2	99.7
Whole economy	96.9	99.4	102.9	101.5	101.3

Sources: 1992-1994: Hungarian Statistical Pocketbook - 1995. Hungarian Central Statistical Office, p. 142;
    1995-1996: Hungarian Statistical Pocketbook - 1997. Hungarian Central Statistical Office, p. 131;

Table 1.5   Distribution of total sale by sale deciles within manufacturing, construction and trade between 1992-1996, %

	Years				
Sale deciles	1992	1993	1994	1995	1996
Lowest	0.2	0.3	0.3	0.3	0.2
2	0.5	0.6	0.6	0.6	0.5
3	0.8	0.9	0.9	0.9	0.8
4	1.2	1.3	1.3	1.2	1.2
5	1.7	1.8	1.8	1.8	1.7
6	2.4	2.6	2.6	2.6	2.5
7	3.7	4.0	4.0	4.0	3.8
8	6.2	6.5	6.5	6.4	6.2
9	12.1	2.3	12.2	12.0	11.7
Highest	71.2	69.7	69.9	70.3	71.2
Total	100.0	100.0	100.0	100.0	100.0
Total sales (Mrd HUF, current prices)	2,825.462	3,319.285	4,302.793	5,523.617	7,036.645
N	6,084	6,740	6,887	6,855	6,933

Data source: TAX92_96 data set

Table 1.6 Distribution of medium-sized and large manufacturing firms by number of owners and wether they had majority owner in 1995, %[*]

Number of owners	Percentages of firms	Percentage of firms within all firms where there's a majority owner[1]
One	19,0	19,0
Two	31,0	29,0
Three	25,2	19,0
No more than three	75,2	66,2
More than three	24,8	14,8
N	210	210

*: Among firms where the number of employesss was between 100 and 200 in 1995
1: There's an owner whose share of ownership is more than 50% of the initial capital. Source: Ábrahám, 1996

Table 2.1 Frequency of ownership links among the largest exporting manufacturing firms in 1996 and in 1997, %[*]

		Is there a domestic firm among the firm's owners?					
		EXPORT96 - 1996[**]			TOP98/1 - 1997		
		No	Yes	Total	No	Yes	Total
Does the firm own a domestic enterprise?	No	49,3	10,4	59,7	53,0	20,0	73,0
	Yes	26,5	13,7	40,3	13,7	13,3	27,0
	Total	75,9	24,1	100,0 (N=289)	66,7	33,3	100,0 (N=300)

*: The shaded cells show the percentage of disconnected firms
**: Sample of the largest exporter manufacturing firms in 1996

Figure 2.1 Distribution of enterprises within the holding according to the role their business links within the holding play in their sales and purchases

Mean share of business links within the holding
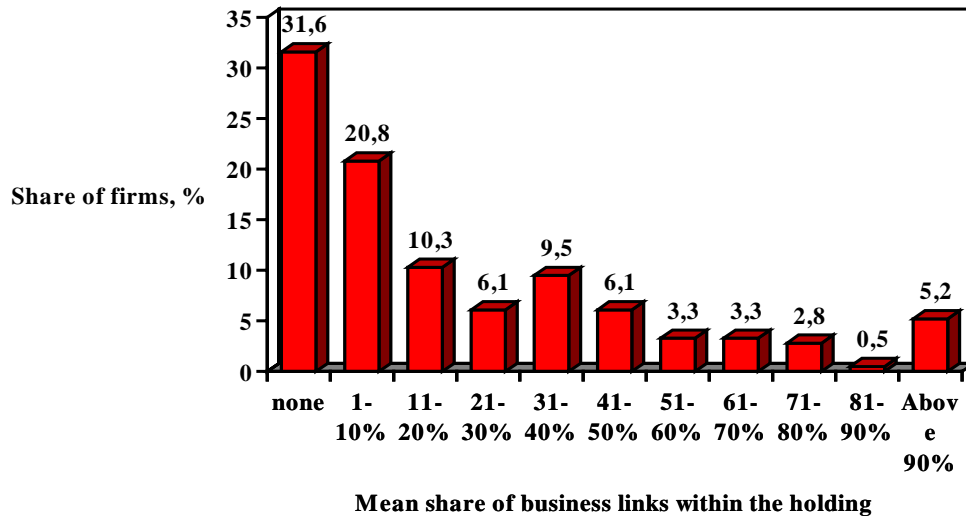
Data source: TOP98/1 survey

Table 2.2 Strength of business links within the groups of firms according to the majority owner, %

	Percentage of trade with other members of the holding within all purchases and sales				
Type of majority owner	There is none	1-20%	21-80%	above 80%	N
Foreign	25,7	24,8	37,6	11,9	101
Hungarian Individual	32,4	48,6	(18,9)	0,0	37
Domestic company	39,0	32,2	28,8	0,0	59
Public	(25,0)	(75,0)	0,0	0,0	4
Mixed	(40,0)	(10,0)	(50,0)	0,0	5
Total number of firm with ownership links	31,3	31,3	31,8	5,7	100,0 (206)

Note: in the brackets the case number is less than 10
Data source: TOP98/1 survey

Table 2.3 Ownership and business links as to the type of majority owner

Majority owner	Ownership links among firms	Strength of business links	Direction of business links
Foreign firm or foreign individual	There are, the majority owner is a foreign company or a domestic private firm, or the examined firm owns such a firm	strong	to the foreign market
Domestic firm or Hungarian individual	There are, the majority owner is a foreign company or a domestic private firm, or the examined firm owns such a firm	there is not or weak	to the domestic market

Figure 2.2 Distribution of the largest exporting firms as to the time horizon of planning 1995-1997, %
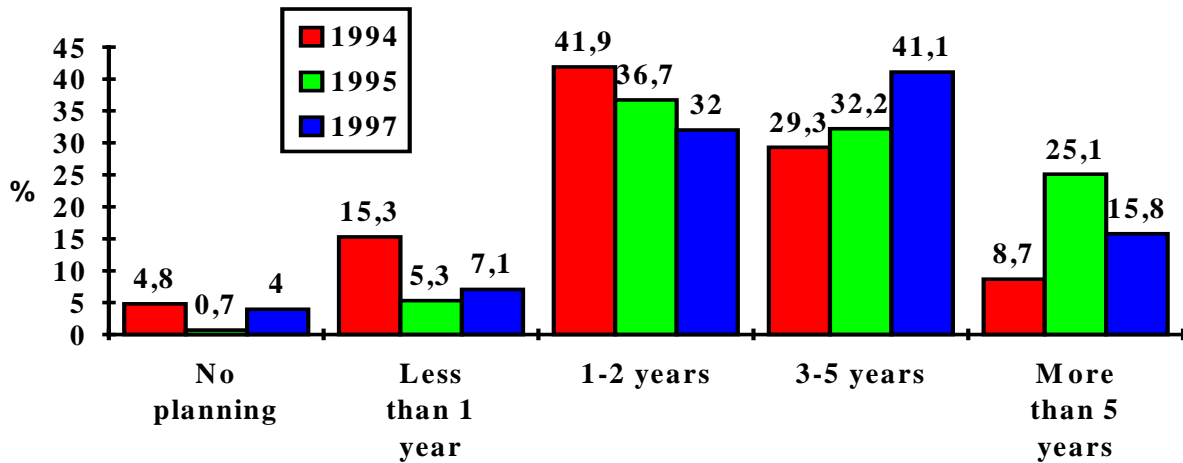
Data source: TOP98/1 survey

Table 2.4   Distribution of the largest exporting firms as to the strength of business links with different groups of firms in 1997, %

Type of firms	Share of purchases and sales (%)				Share of sales/purchases to given firm group	
	There is none	1-20%	21-50%	Above 50%	Mean (%)	Median (%)
Purchases						
Multinational firms	47,7	30,6	21,7*	-	14,2	3
Foreign firms	21,6	41,1	21,3	16,0	24,7	15
Hungarian smaller firms	13,7	34,2	39,4	12,7	27,2	25
Hungarian larger firms	18,0	34,2	32,0	15,8	26,9	20
Sales						
Multinational firms	55,9	19,6	24,5*	-	16,1	0
Foreign firms	11,8	17,4	24,7	46,0	48,0	45
Hungarian smaller firms	28,0	43,6	21,3	7,1	16,4	10
Hungarian larger firms	39,4	41,1	14,5	5,0	12,6	5

*: above 20%
Data source: TOP98/1 survey

Figure 2.3   Distribution of the largest exporting and manufacturing firms according to the frequence of breach payment discipline of their business partners in 1997, %
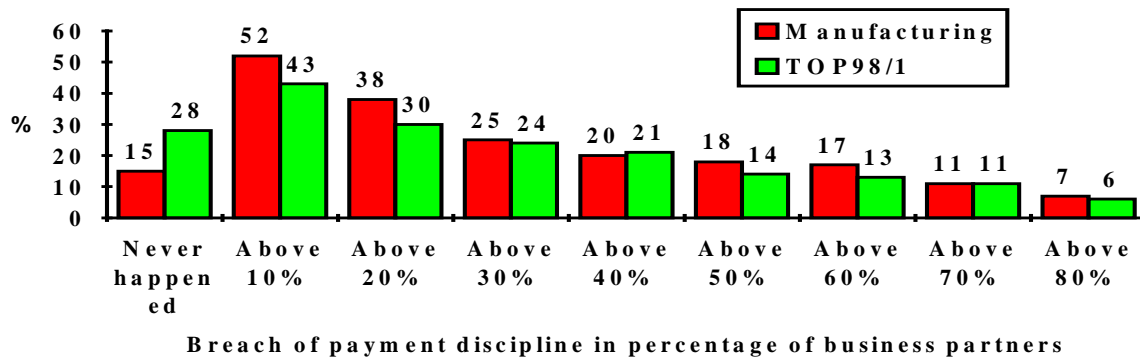
Sources: TOP98/1 and CIPE98A surveys.

Figure 2.4 Distribution of the largest exporting firms and manufacturing firms by breach of payment discipline and the existence of liquidity problems in 1997, %
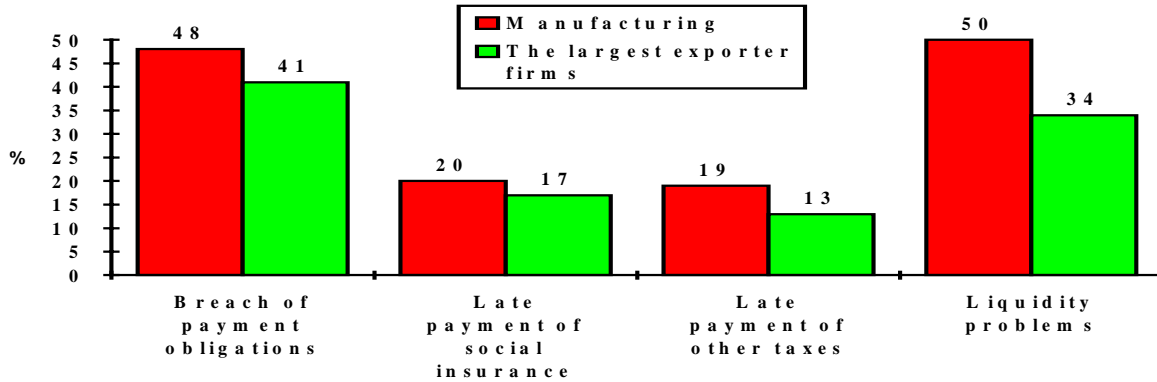
Sources: CIPE98A and TOP98/1 surveys

Table 2.5 The relationships among the payment discipline of business partners and the financial discipline and liquidity problems of the firm observed[*]

	2.	3.	4.
1. Late fulfillment of payment obligations	0,41375 (300)	0,17498 (284)	0,47788 (300)
2. Late payment of payroll tax and other taxes	1,00000	0,20673 (284)	0,41966 (300)
3. At least 20% of firm's partners were usually late fulfilling their payment obligations		1,00000	0,21666 (284)
4. Liquiditiy problems			1,00000

Data source: TOP98/1 survey

*: The Phi values are in the cells and the case numbers are in the brackets. All values are significant at the 5% level.

Table 2.6   Logistic regression estimations of the breach of financial discipine

	Model 1 Dependent variable = Breach of payment discipline	Model 2 Dependent variable = Breach of fiscal discipine	Model 3 Dependent variable = Breach of payment discipline by the clients
Group of sectors			
S1	1,1421	0,6697	1,0548
S2	1,0056	0,9575	0,9339
S3 (reference)			
Majority foreign ownership	0,7139	0,6008	0,4979[*]
Employment categories			
-50	0,7640	1,0597	0,7115
51-300	1,4367[+]	1,6344[*]	1,2515
301- (reference)			
Growth capability in 1997			
1. Decline	1,6067[+]	2,0590[**]	0,9629
2. Growth rate ≤ Median	0,8050	0,7142	1,0114
3. Growth rate > Median (reference)			
RLIKVID	10,0717[**]	7,6623[**]	2,5262[**]
N	278	278	265
-2 log Likelihood	301,182	221,037	334,960
Modell Khi^2	73,652	55,515	19,161
Pseudo R^2	0,196	0,201	0,054

Data source: TOP98/1 survey
Note: In every case the exp (b) values are shown in the cells.
+   p < 0,1
*   p < 0,05
** p < 0,01

Table 2.7 The importance of the different group of competitors in the manufacturing in 1997**,** %

	Very important 5	4	3	2	Not important at all 1	Total	Mean score
Multinational firms	23,8	7,6	9,7	8,6	50,3	100,0	2,46
Foreign firms	24,7	18,2	19,2	10,3	27,7	100,0	**3,02**
Larger domestic firms	12,1	11,0	22,4	10,7	43,8	100,0	2,37
Smaller domestic firms	11,0	9,3	25,2	17,6	36,9	100,0	2,40
Others	2,4	1,0	0,3	2,4	93,7	100,0	1,16

(N =290)
Data source: TOP98/1 survey

Figure 2.5 The importance of the various group of competitors in manufacturing and in the group of the largest exporting firms in 1997
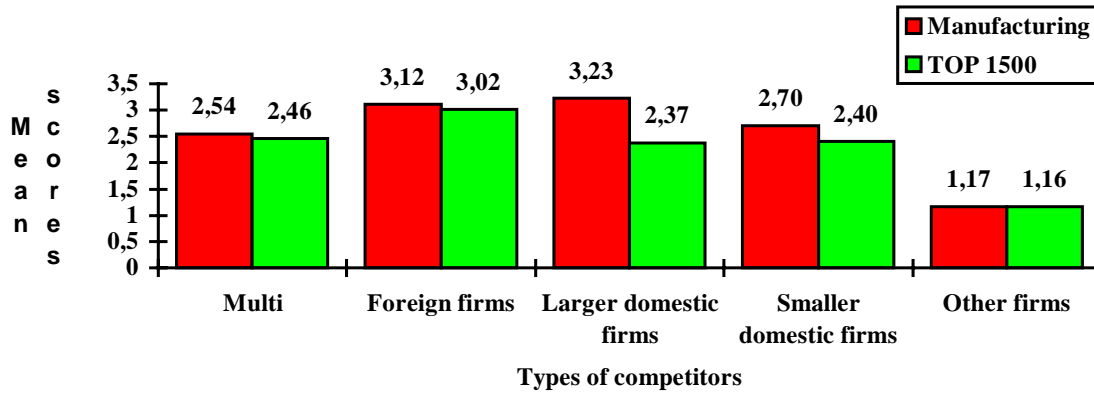
Source: TOP98/1 and CIPE98A surveys.

Table 2.8 The relationship between the importance of business partners and competitors

		Importance of firms as competitors			
		Multi	Foreign firms	Smaller domestic firms	Larger domestic firms
	Multi	0,526 (277; 7,715)			
	Foreign firms		0,157 (280; 2,158)		
Importance of firms as business partners	Smaller domestic firms			0,330 (273; 4,722)	
	Larger domestic Firms				0,369 (273; 5,025)

*: In the cells are shown the values of Gamma. The case numbers and the value of Gamma/standard error of Gamma are in the brackets.
Data source: CIPE98A survey

Table 2.9 Ordered logit estimations of the growth in the net turnover

Explanatory variables	Estimations of the growth in the net turnover in 1997 as compared to 1996 (DNT76O)				
	Model 1 (sub-contractors)	Model 2 (business links)	Model 3 (performance + investment)	Model 4 (1+3)	Model 5 (1+2+3)
	(1)	(2)	(3)	(4)	(5)
S1	-0,650**	-0,805**	-0,720**	-0,720**	-0,919**
S2	-0,437	-0,683*	-0,695**	-0,695**	-0,945**
S3 (reference)					
-50 (L1)	-0,473	-0,400	-0,212	-0,212	-0,077
51-300 (L2)	-0,094	0,042	0,011	0,012	0,134
301- (reference)					
FORE (majority foreign owner)	0,695**	0,563*	0,804**	0,804**	0,616**
SUBC (subcontractors)	0,524**	-	-	0,405	0,341
IO_LO (business links)	-	0,315*	-	-	0,239
I76O (dynamics of investment)	-	-	0,276*	0,276*	0,203
PROFIT97 (performance)	-	-	0,375**	0,375**	0,096
1. cut point	-1,411	-1,590	-0,028	-0,028	-0,908
2. cut point	0,090	-0,082	1,601	1,602	0,717
N	278	195	250	250	180
Log likelihood	-278,069	-189,488	-239,349	-239,349	-170,233
model chi^2	19,59	16,22	27,26	27,26	16,53
Pseudo R^2	0,034	0,041	0,054	0,054	0,0463

Note: The cells show the values of estimated coefficients. These can be interpreted as the change in the log odds associated with a one-unit change in the independent variable.

Data source: TOP98/1 survey

* $p < 0,1$

** $p < 0,05$

Table 2.10   Ordered logit estimations of the dynamics of employment

Explanatory variables	Estimation of the dynamics of employment in 1997 as compared to 1996 (DL76O)				
	M1 (discipline of payments of business partners)	M2 (ownership links)	M3 (performance + investment)	M4 (1+3)	M5 (1+2+3)
	(1)	(2)	(3)	(4)	(5)
S1	0,002	-0,073	0,056	0,120	0,122
S2	-0,045	0,008	0,128	0,061	0,049
-50 (L1)	-0,416	-0,236	-0,100	-0,204	-0,162
51-300 (L2)	0,104	0,111	0,142	0,218	0,236
FORE (majority foreign owner)	0,608**	0,475*	0,768**	0,733**	0,544*
PLATE (payment disc. of partners)	-0,422*	-	-	-0,471*	-0,503*
LINK1 (ownership links)	-	0,448*	-	-	0,414
I76O (dynamics of investment)	-	-	0,357**	0,375**	0,381**
PROFIT97 (performance)	-	-	0,381**	0,331*	0,341*
1. cut point	-0,605	-0,197	1,463	1,164	1,385
2. cut point	0,389	0,817	2,583	2,291	2,520
N	279	294	259	246	246
Log likelihood	-292,231	-309,142	-266,862	-250,226	-249,150
Model chi^2	13,92	13,84	22,40	26,36	28,51
Pseudo R^2	0,023	0,022	0,040	0,050	0,057

* $p < 0,1$

** $p < 0,05$

Data source: TOP98/1 survey

Figure 3.1   Relationships between the privatization and performance

a) The privatization effect

b) The performance effect

c) The full model
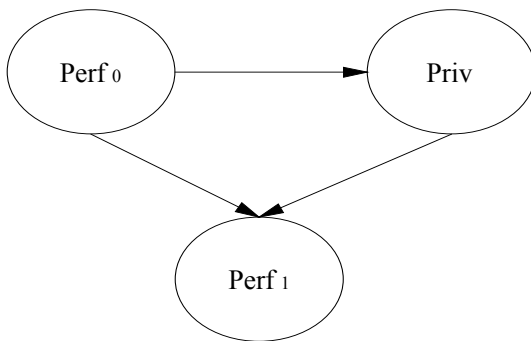
Notes:
   Priv: privatization
   $Perf_0$: performance in the time t_0
   $Perf_1$: performance in the time t_1

Table 3.1   Position of enterprises according to their cash-flow 1992-1996, %

	Years				
Value of cash-flow	1992	1993	1994	1995	1996
Negative or zero	14.5	20.3	14.9	12.3	10.7
Positive	85.5	79.7	85.1	87.7	89.3
Total	100.0	100.0	100.0	100.0	100.0
N	6,084	6,740	6,887	6,855	6,933

Table 3.2 Position of enterprises according to their cash-flow between the adjacent years, %

		1993			1995		
		Negative or zero	Positive	Total	Negative or zero	Positive	Total
	Negative or zero	7.3	4.1	11.5			
1992	Positive	13.6	**74.9**	88.5			
	Total	21.0	79.0	100.0 (n=4,367)			
	Negative or zero	7.9	6.9	14.8	6.0	4.7	10.7
1994	Positive	6.6	**78.6**	85.2	6.2	**83.1**	89.3
	Total	14.6	85.4	100.0 (n=5,150)	12.2	87.8	100.0 (n=4,890)
	Negative or zero				4.8	5.5	10.3
1996	Positive				3.7	**86.0**	89.7
	Total				8.5	91.5	100.0 (n=4,915)

Table 3.3   Distribution of the enterprises by sectors in the TAX92_96 data set between 1992-1996, %

	Years				
Sectors	1992	1993	1994	1995	1996
Food, beverage, tobacco (15,16)	7.8	8.6	9.4	9.9	10.1
Textile, clothes, leather, fur (17-19)	10.2	10.3	10.1	10.3	10.5
Wood, paper, printing (20-22)	6.6	6.7	6.8	6.5	6.8
Chemical products (23-25)	3.9	4.3	4.6	4.8	4.9
Non-metallic mineral production (26)	2.4	2.3	2.3	2.4	2.5
Metals, fabricated metal production (27,28)	6.8	6.8	7.2	7.5	7.8
Manufacture of machinery (29-35)	12.8	12.4	12.4	13.2	13.4
Other industries, recycling (36,37)	3.1	3.1	2.8	2.6	2.6
Construction (45)	22.3	21.1	20.0	18.3	16.8
Trade (51,52)	24.2	24.5	24.4	24.5	24.4
Total	100.0	100.0	100.0	100.0	100.0
N	6,617	6,740	6,887	6,855	6,933

Table 3.4   Distribution of the enterprises by size in the TAX92_96 data set between 1992-1996, %

	Years				
Staff categories	1992	1993	1994	1995	1996
21-50	45.2	48.8	50.5	51.9	52.4
51-100	22.0	22.0	21.3	21.8	22.1
101-300	19.8	18.8	18.6	17.5	17.1
301-	13.0	10.4	9.5	8.9	8.3
Total	100.0	100.0	100.0	100.0	100.0
N	6,617	6,740	6,887	6,855	6,933

Table 3.5 Appearance of firms in the TAX92_96 data set, %

			Years		
Groups of firms	1992	1993	1994	1995[*]	1996
Panel set	42.6	40.0	39.3	39.9	40.4
Only in the given year	25.2	6.0	5.3	4.6	18.8
Old firm	32.1	14.4	13.1	15.1	-
New firm	-	33.6	42.3	40.1	40.8
Total	100.0	100.0	100.0	100.0	100.0
N	6,411	6,512	6,673	6,003	6,764

*: without food, beverage and tobacco

Table 3.6 Distribution of the enterprises by types of majority owner in the TAX92_96 data set between 1992-1996, %

			Years		
Types of majority owner	1992	1993	1994	1995	1996
Public	22.0	14.3	9.2	5.9	3.6
Private	37.6	-	-	-	-
Hungarian individual	-	44.2	48.3	49.8	51.8
Domestic company	-	15.5	16.7	17.3	17.5
Foreign	9.4	13.0	15.5	17.8	19.4
Other	27.6	8.1	6.5	5.2	4.0
Mixed	3.4	5.0	3.9	4.0	3.7
Total	100.0	100.0	100.0	100.0	100.0
N	6,617	6,740	6,887	6,855	6,934

Table 3.7 Value added by firm groups in the TAX92_96 data set between 1992-1996, %

	Years				
Firm groups	1992	1993	1994	1995[*]	1996
Panel set	56.5	61.4	59.4	58.9	57.3
Only in the given year	19.0	1.5	1.2	1.3	6.7
Old firms	24.5	6.5	6.9	6.1	-
New firms	-	30.5	32.4	33.6	36.0
Total	100.0	100.0	100.0	100.0	100.0
N	5,887	6,512	6,673	6,677	6,764

*: without food, beverage and tobacco

Table 3.8 Value added by types of majority owner in the TAX92_96 data set between 1992-1996, %

	Years				
Types of majority owner	1992	1993	1994	1995	1996
Public	36.5	26.7	18.3	11.4	4.6
Private	23.3	-	-	-	-
Hungarian individual	-	19.7	18.9	18.7	18.2
Domestic company	-	15.2	18.3	19.5	19.3
Foreign	19.0	29.9	36.2	42.3	50.1
Other	17.9	3.4	2.5	1.9	1.6
Mixed	3.2	5.1	5.8	6.3	6.2
Total	100.0	100.0	100.0	100.0	100.0
N	5,887	6,512	6,673	6,677	6,764

Table 3.9 Cash-flow by firm groups in the TAX92_96 data set between 1992-1996, %

	Years				
Firm groups	1992	1993	1994	1995[*]	1996
Panel set	62.2	67.6	63.3	60.5	57.2
Only in the given year	13.3	1.0	0.9	0.9	6.7
Old firms	24.5	1.3	5.3	4.1	-
New firms	-	30.2	30.5	34.5	36.1
Total	100.0	100.0	100.0	100.0	100.0
N	5,887	6,512	6,673	6,003	6,764

*: without food, beverage and tobacco

Table 3.10 Cash-flow by types of majority owners in the TAX92_96 data set between 1992-1996, %

	Years				
Types of majority owners	1992	1993	1994	1995	1996
Public	25.3	20.5	14.0	9.1	2.3
Private	30.4	-	-	-	-
Hungarian individual	-	17.2	15.9	15.8	15.7
Domestic company	-	14.6	16.1	16.9	16.2
Foreign	23.6	40.2	46.7	50.5	58.7
Other	16.8	2.0	1.1	0.9	0.9
Mixed	4.0	5.5	6.2	6.8	6.3
Total	100.0	100.0	100.0	100.0	100.0
N	5,887	6,512	6,673	6,677	6,764

Table 3.11 Distribution of firms according to their appearance (CASEN) in the TAX92_96 data set between 1992-1996, %

CASEN

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	96	1269	9,9	9,9	9,9
	92,93,94,95	484	3,8	3,8	13,6
	95,96	792	6,2	6,2	19,8
	92,93,94	640	5,0	5,0	24,8
	94,95,96	921	7,2	7,2	31,9
	92,93	936	7,3	7,3	39,2
	93,94,95,96	1049	8,2	8,2	47,4
	92	1618	12,6	12,6	60,0
	92,93,94,95,96	2733	21,3	21,3	81,2
	only one year (93 or 94 or 95)'	1691	13,2	13,2	94,4
	do not consistent case	723	5,6	5,6	100,0
	Total	12856	100,0	100,0	
Total		12856	100,0		

APPENDICES

A1 The CIPE98A data set

The survey

They survey carried out between February 20-April 1, 1998 was part of a joint research titled "Taxation and market environment of SME", carried by the CIPE and the Kopint-Datorg Foundation for Economic Research. Author formulated the concepts of the survey and the survey was also carried out under his supervision. The sample included 3390 companies which fulfilled the following requirements: they belonged to the manufacturing, construction or trade industries and, according to the HCSO (Hungarian Central Statistical Office) report their number of employees was over 20 in December 1996. The sample for the questioning was supplied by the HCSO in June 1997. Originally, 6961 firms fulfilled the above criteria. From among these we first selected the companies for which we did not have the exact addresses, then we randomly selected 50% of them and at the end we obtained 3390 firms which were finally questioned and from 290 firms we have got response. The survey was carried out by sending out self-completed questionnaires by mail. After a weighting process as to the number of employees and the sectoral distribution of questioned sample well represent the chosen population of firm.

Table A1.1 Distribution of the CIPE98A survey and the population of firms by sectors and staff categories

Sectors	Population of firm %	Surveyed sample %
Food, beverages, tobacco (15,16)	8.8	6.3
Textile, clothes, leather, fur (17-19)	20.2	12.5
Wood, paper, printing (20-22)	6.3	4.9
Chemical products (23-25)	4.6	5.9
Non-metallic mineral production (26)	2.6	3.8
Metals, fabricated metal production (27,28)	7.6	9.4
Manufacture of machinery (29-35)	13.7	21.5
Other industries, recycling (36,37)	2.5	2.4
Construction (45)	16.9	16.3
Trade (51,52)	26.9	17.0
Total	100.0	100.0
N	3,389	288
Employment categories (head)		
21-50	54.5	38.6
51 - 300	37.5	44.4
above 300	8.0	17.0
Total	100.0	100.0
N	3,318	277

A2 The TOP98/1 data set

The source of the data is an empirical survey which was carried out at SRIC (Social Research Center) between December 1, 1997 and January 14, 1998 and contains the data of enterprises which are among the manufacturing companies with the largest exports. The research was commissioned by the Hungarian National Bank and was supervised by the author. During the survey the questioners visited the management of the selected enterprises with questionnaires containing the business circumstances and short-term perspectives of the firms. According to the results of the investigations related to employee numbers and sectors, the sample (n = 300) represents the population of 1500 manufacturing companies with the largest exports.

Figure A2.1 Distribution of the largest exporting firms by types of majority owners
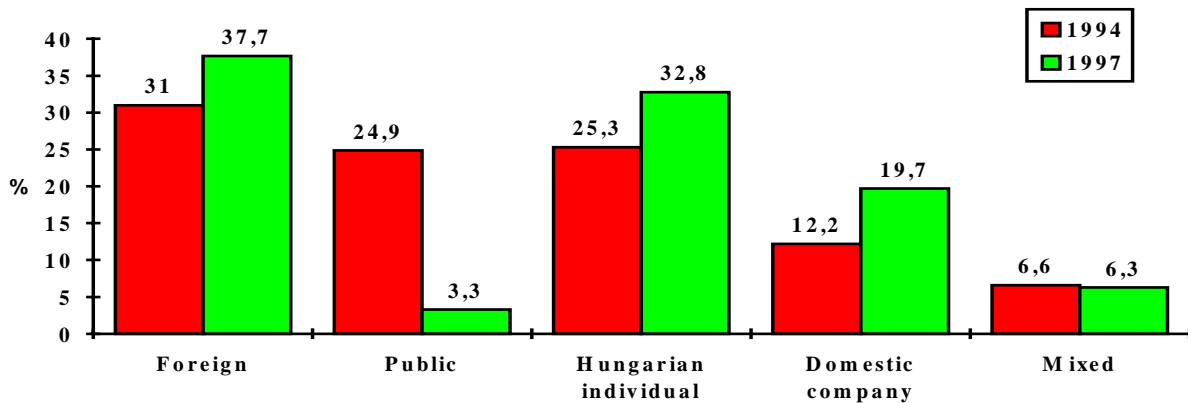
Source: EXPORT94 and TOP98/1 surveys

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Table A2.1   Distribution of the population and the surveyed sample by sectors and staff categories

	TOP1500 sample		Surveyed sample	
	N	%	N	%
Sectors				
Food, beverages, tobacco (15,16)	52	16,9	38	12,8
Textile, clothes, leather, fur (17-19)	288	19,3	68	22,8
Wood, paper, printing (20-22)	92	6,2	19	6,4
Chemical products (23-25)	149	10,0	33	11,1
Non-metallic mineral production (26)	48	3,2	11	3,7
Metals, fabricated metal production (27,28)	218	14,6	42	14,1
Manufacture of machinery (29-35)	379	25,4	67	22,5
Other industries, recycling (36,37)	65	4,4	20	6,7
Total	1491	100,0	294	100,0
Employment categories (head)				
no more than 50	433	29,0	83	27,8
51 – 300	668	44,8	144	48,2
more than 300	390	26,2	72	24,1
Total	1491	100,0	299	100,0

Due to the selection of the sample not only the characteristics of the 1500 enterprises with the largest export turnover could be examined through the approximately 300 manufacturing companies but we were able to obtain accurate information on the manufacturing industry itself. In 1995 those companies which belonged to the selected population represented 97.2% of all manufacturing exports and 73.7% of the net turnover, and these firms employed 49% of all people working in the manufacturing industry. These numbers show that this is the entrepreneurial sphere, which supplies most of the production and sales of the manufacturing industry. All phenomena, which were disclosed during the questioning and are shown here decisively effect the short-term perspectives of the capital and labor requirements as well as the exports of the manufacturing industry.

A3   The TAX92_96 data set

Clarification of the TAX92_96 data set

We have dropped the following cases during the analyze
        Net turnover is less than 1 Million HUF (at least in one year)
        Net turnover is more than 200 Billion HUF (at least in one year)
        Export net turnover is less than 0 (at least in one year)
        Staff is more than 10,000 employees (at least in one year)
        Total assets is equal zero (at least in one year)

The initial data set contains 13,359 cases.
The number of dropped cases is 503 (3,8%)
The clarified data set contains 12,856 cases.

Definitions of the variable used in the TAX92_96 data set

The first type of variable names have two parts: [name group][year]
The years are: 92, 93, 94, 95, 96
The name groups are:
        VADD: value added
        STAF: staff
        CFLO: cash flow
        TASS: total assets
        NTUR: net turnover
        EXPO: export turnover
        S: sectors
                That contains the following categories:
                1 - Food, beverages, tobacco
                2 - Textile, clothes, leather, fur
                3 - Wood, paper, printing
                4 - Chemical products
                5 - Non-metallic mineral production
                6 - Metals, fabricated metal production
                7 - Manufacture of machinery
                8 - Other industries, recycling
                9 - Construction
                10- Trade
        L: employment categories
                That contains the following categories
                1 - 21-50
                2 - 51-100
                3 - 101-300
                4 - 301-

OWGR: ownership groups (majority ownership)
In 1992
       1 – public
       2 – private
       3 – foreign
       4 – other
       5 – mixed

between 1993-1996
       1 – public
       2 – Hungarian individual
       3 – domestic company
       4 – foreign
       5 – other
       6 – mixed

Definition of the regions (R) in Hungary:

Central:	Budapest, Pest county
West Transdanubia:	Győr-Moson-Sopron, Vas, Zala counties
North Transdanubia:	Komárom-Esztergom, Veszprém, Fejér counties
South Transdanubia:	Somogy, Tolna, Baranya counties
South-East:	Bács-Kiskun, Csongrád, Békés counties
Middle-East:	Jász-Nagykun-Szolnok, Hajdú-Bihar, Szabolcs-Szatmár-Bereg counties
North-East:	Nógrád, Heves, Borsod-Abaúj-Zemplén counties

Definition of appearance of firm (GFIRM)

	Years				
Categories of GFIRM	1992	1993	1994	1995	1996
Panel	92,93,94,95,96	92,93,94,95,96	92,93,94,95,96	92,93,94,95,96	92,93,94,95,96
Only a given year	92	93	94	95	96
Old firm	92,93 92,93,94 92,93,94,95	92,93	93,94 92,93,94	94,95 93,94,95 92,93,94,95	-
New firm	-	93,94 93,94,95 93,94,95,96	94,95 94,95,96	95,96	93,94,95,96 94,95,96 95,96

A4. Definitions of the variables used in the models (TOP98/1 survey)

DNT76O: Dynamics of net turnover in 1997 as compared to 1996. The categories are
  0 - fall
  1 - growth and the growth rate of firm $\leq$ median growth rate (not more than 15,4%)
  2 - growth and the growth rate of firm > median growth rate

DL76O: Dynamics of employment in 1997 compared to 1996. The categories are
  0 - firing
  1 - no change
  2 - hiring

S1: Food, beverages, tobacco, textile, clothes, leather, fur, wood, paper, printing
  1 - yes
  0 - no

S2: Chemical products, non-metallic mineral production, metals fabricated metal production, other industries, recycling
  1 - yes
  0 - no

S3: Manufacture of machinery
  1 - yes
  0 - no

L1: Less than 50 employees
  1 - yes
  0 - no

L2: 51-300 employees
  1 - yes
  0 - no

L3: More than 300 employees
  1 - yes
  0 - no

FORE: foreign majority ownership
  1 - yes
  0 - no

LINK1: Is there a foreign or domestic company among the owners?
  1 - yes
  0 - no

LINK2: Does the company own a domestic firm?
  1 - yes
  0 - no

LINK3: Is there a domestic firm among the owners?
  1 - yes
  0 - no

LINKSO: Ownership links
        0 - there is no firm among its owners or properties
        1 - there is a firm among its owners or properties but only one of these links exists
        2 - there is a firm among its owners and as well as its properties

LIQUID: Occurrence of short-term liquidity problems at firm in last year
        1 – yes
        0 – no

IO_LO: Intensity of business links with other firms which belong to the firm's holding
        0 - there are no such links
        1 - there are, but their ratio does not exceed an average of 20% in the purchases and sales
        3 - there are, and their ratio is over 80% in the purchases and sales

IO_LINKS:. Intensity of business links with other firms which belong to the firm's holding.
        The average ratio of purchases and sales to firms within the holding within all purchases and
        sales of firm observed.

PLATE: At least 20% of the firm's partners are regularly late in fulfilling their payment obligations
        1 - yes
        0 - no

RLIQUID: Residual obtained during the estimation of the occurrence of liquidity problems

S_MUL: Sales to multinational companies
        2 - their ratio is more than 20% of the net turnover
        1 - their ratio is more than 0, but less than 20% of the net turnover
        0 - do not sell to multinational companies

CB63: The ratio of exports within the 1997 net turnover of the company

CB32: time horizon of planning
        1 - no planning
        2 - less than 1 year
        3 - 1-2 years
        4 - 3-5 years
        5 - more than 5 years

I76O: Investment dynamics in 1997 compared to 1996 (in constant prices)
        1 - decline
        2 - no change
        3 - increase

PROFIT97: operating balance in 1997
        3 - surplus
        2 - zero
        1 - deficit

SUBC: Has the company commissioned other firms with subcontractors' tasks?
        1 - yes
        0 - no

RIO_LO: Residual obtained from the estimation of IO_LO

RPRFT97: Residual obtained from the estimation of PROFIT97

A5. The relationship between the short-term liquidity problems and the 1997 growth capability of firms (based by TOP98/1 survey)

Growth capability of firms (DNT76O)	Occurrence of short-term liquidity problems In last year		Total
	No	Yes	
Fall	14,4	32,3	20,5
Growth, no more than median	34,8	21,9	30,4
Growth, more than median	50,8	45,8	49,1
Total (N)	100,0 (187)	100,0 (96)	100,0

Cramer's V = 0,2196 $p < 0,005$

A6. Logistic regression estimations of liquidity problems

		Exp (B)
Sectors		
	Food, beverages, tobacco, textile, clothes, leather, fur, wood, paper, printing	0,7993
	Chemical products, non-metallic mineral production, metals fabricated metal production, other industries, recycling	1,0504
	Manufacture of machinery (reference)	-
Ownership		
	Majority foreign ownership	0,3973***
	Other (reference)	-
Size		
	Less than 50 employees	0,6924
	51-300 employees	1,5077**
	More than 300 employees (reference)	-
Growth capability		
	Fall	2,2329***
	Not more than the median	0,5222**
	Above the median (reference)	-
N		278
-2 log likelihood		326,346
Model Chi-square		31,998
Pseudo R^2		0,098

* $p < 0,1$
** $p < 0,05$
*** $p < 0,01$
Data source: TOP98/1 survey

A7. Logistic regression of privatization

	Exp (B)
Sectors	
Food, beverages, tobacco	0,9880
Textile, clothes, leather, fur,	1,1149
Wood, paper, printing	0,6361
Chemical products	1,9366
Non-metallic mineral production	0,3499
Metals, fabricated metal production,	0,5786
Manufacture of machinery	0,5207
Other industries, recycling	129,9900
Construction	0,1374
Trade (reference)	-
Size	
21-50 employees	1,1435
51-100	1,6705[*]
101-300	0,8494
301- (reference)	-
V_S92	1,0006[**]
C_N92	0,5910
N	424
-2 log likelihood	349,311
Model Chi-square	33,927
Pseudo R^2	0,097

* $p < 0,1$
** $p < 0,05$
*** $p < 0,01$
Data source: TAX92_96 data set

A8. Regression estimation of performance (PERF1_96 and PERF2_96)

	PERF1_96	PERF2_96
	B	B
Food, beverages, tobacco	0,5084	0,1780
Textile, clothes, leather, fur,	0,8115**	-0,0799
Wood, paper, printing	0,8458***	0,2533**
Chemical products	0,8677**	0,6234***
Non-metallic mineral production	0,9804**	0,1331
Metals, fabricated metal production,	0,7293**	0,1661
Manufacture of machinery	0,7820***	0,1341
Other industries, recycling	0,1272	-0,0097
Construction	0,3460	0,0963
Trade (reference)	-	-
STAF96	0,0000	0,0000
PRIV	0,9213***	0,1274
PERF1_93	0,1260***	-
PERF2_93	-	0,4082***
Constant	-0,5235**	0,2667***
N	437	438
Adjusted R^2	0,15690	0,36274

* $p < 0,1$
** $p < 0,05$
*** $p < 0,01$
Data source: TAX92_96 data set