Fire the Manager to Improve Performance? Managerial Turnover and Incentives after Privatization in the Czech Republic

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Abstract:

This paper analyzes the effect of the introduction of managerial incentives and new human capital on enterprise performance immediately after privatization in the Czech Republic. We find weak evidence for the presence of managerial incentives: only in 1997, three to four years after privatization, poor performance significantly increases the probability of managerial change. Nevertheless, replacing the managing director in a newly privatized firm improves subsequent performance. This indicates that the privatized firms operate below potential under the incumbent management. We show that the institutional framework matters as well: managerial turnover improves performance only if the management is closely interconnected with the board of directors and thus holds effective executive authority.

Keywords: Privatization, Managerial Change, Incentives, Restructuring, Corporate Governance.
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1 Introduction

In the formerly socialist economies, the absence of clear ownership and control resulted in state-owned enterprises (SOEs from now on) pursuing various non-commercial objectives in addition to, or even instead of, profit maximization. The managers of SOEs and the government officials who supervised them were typically more concerned about plan fulfillment and redistribution of rents than about profitability and efficiency. Privatization should reinstate profit maximization as the primary objective of enterprise activities and thereby remedy the main inefficiencies of state ownership (Shleifer, 1998). The microeconomic theory predicts that firm performance depends on two main factors: the managers' skills and their effort (Laffont and Tirole, 1986). Therefore, the efficiency improvements put in place by the new post-privatization owners can accrue either through implementation of incentives compatible with profit maximization or through appointment of new and better managers (Roland, 2000). This paper compares the effect on enterprise performance of these two types of efficiency-enhancing changes related to ownership transformation.

Our data set quite uniquely fits this aim. The data include essentially all enterprises included in the two waves of Czech voucher privatization for which data are available. The transfer of ownership is therefore effectively exogenous, occurring by way of an administrative decision rather than due to economic considerations. This puts the Czech post-privatization experience into stark contrast with the practice common in most developed market economies where the ownership changes are usually endogenous. In fact, non-performing firms with a potential are particularly likely to change ownership. New owners often appoint new managers too so that it is difficult if not impossible to distinguish the impact of ownership transfer from that of managerial change or changes in incentives.[1] In our data, however, all firms have undergone an ownership change but not all new owners bring in new management. We exploit this variation in managerial turnover following the initial ownership transformation to distinguish the effect of new managerial human capital versus new managerial incentives.

Several earlier studies addressed the impact of introducing new managerial incentives and new managerial talent both in developed and transition economies.[2] These studies all

[1] We are grateful to a referee for suggesting this argument.

[2] See, for example, Cragg and Dyck (1999) for the U.K., De Alessi (1974) for the U.S., Groves et al. (1995) for a Chinese setting, Barberis et al. (1996) for small Russian shops, Frydman et al. (2002) for firms

tend to find that the relationship between past firm performance and managerial tenure is stronger under private ownership, the frequency of managerial replacements increases after privatization and new human capital improves firm performance. However, the transition evidence also suggests that only changing managerial incentives does not suffice, it is the change of management (introduction of new human capital) that leads to restructuring and improved performance in the privatized firms. The identity of the new owners matters as well. Most notably, Frydman et al. (2002) point out that privatization to insiders leads to managerial entrenchment and, subsequently, to resistance against changes at the top managerial positions. Therefore, privatization alone is not a guarantee of improved managerial incentives and performance.

Our analysis further extends the empirical evidence on the effect of privatization on managerial incentives and managerial human capital during the transition. It is based on a data set of 917 non-financial Czech firms during a six-year period immediately following the voucher privatization: from 1993 to 1998. By combining cross-sectional and panel analysis, our research extends the previous work on this topic, in particular that of Claessens and Djankov (1999) who analyze the relationship between managerial change and firm performance in the Czech Republic only in a cross-sectional setting.

We focus on three main issues. First, we document the activities of the new private owners concerning managerial replacements. We observe large variation in the timing and frequency of managerial change. This variation is informative: high managerial turnover immediately after the transfer of ownership indicates (at least indirectly) that the new private owners get actively involved in the governance of their firms and search for managers with human capital that better matches the needs of their firms.

Second, we investigate whether the new owners introduce new managerial incentives. With proper incentives in place, managers of poorly performing firms should be at a greater risk of dismissal: the probability of managerial change after privatization should be related to the firms' past performance (Hermalin and Weisbach, 2003).[3] Yet, the relationship between performance and the probability of managerial turnover is likely to depend also on the ownership and control characteristics of firms. We conjecture that concentrated owners, because they typically actively monitor their firms and/or directly participate in running the firms' affairs, have better access to inside information

in four Central-European economies, Claessens and Djankov (1999a, 2000) for privatized Czech companies, and Warzynski (2003) for a sample of Ukrainian firms.

concerning firm value and abilities of the management (Fidrmuc et al., 2006). Therefore, poor past performance should play a more important role in revealing low competence of managers in firms without concentrated shareholders. Moreover, shareholders with relatively low control and cash flow rights are usually not highly motivated to exert effort and push through changes unless firm performance is very poor (Franks et al., 2001).

Our results indicate that the relation between prior performance and change of the managing director in the newly privatized firms is not significant when considering the entire post-privatization period. However, performance becomes a significant determinant of top managerial changes in 1997, some 3-4 years after the privatization, especially for firms with concentrated but not majority control and/or firms with ownership stakes by other corporations and financial institutions (other than banks or investment privatization funds).

Third, we evaluate the effect of managerial changes on the subsequent enterprise efficiency. If the new managers' human capital matches the firms' productive assets better, their appointment should lead to higher productivity and efficiency. Also, as Groves et al. (1995) argue, a significant improvement in firm performance after the change of management indicates that the firm had been operating below its potential prior to the change. Therefore, an ex-post improvement constitutes indirect evidence of ex-ante poor managerial performance. Our analysis confirms that top managerial changes boost (total factor) productivity, suggesting that the new managers indeed perform better than the old ones.

A novel feature of our analysis is that we explicitly account for the differences in internal-control structures in the privatized firms. Specifically, Czech corporate law places ultimate executive responsibility in the hands of the board of directors rather than the general managing director (managing director or MD from now on). The managing director, however, may be a member of the board and thereby have a relatively strong position. Thus, the effectiveness of the change of the managing director may depend on the relationship between the board of directors and the top management. We also consider changes of the managing director alongside changes at the post of the chairman of the board of directors and evaluate the relative importance of these two key persons. Our analysis suggests that the institutional framework indeed matters: productivity only improves significantly if the managing director is closely linked with the board of

[3] We use several performance measures: labor productivity, gross profit per employee and return on fixed assets.

directors and thus is directly responsible for business affairs of the company. Furthermore, in firms where the top management and the board of directors overlap, replacements of the chairman of the board also lead to improvements in productivity and this effect appears to dominate that of managerial turnover.

The rest of the paper proceeds as follows. The next section briefly describes findings and conclusions of the existing literature regarding privatization and its effects on the introduction of new incentives and better managers. Section 3 gives an overview of the voucher privatization program and discusses the corporate-governance patterns prevailing in the Czech Republic and their consequences for our analysis. Section 4 introduces the data. Sections 5 and 6 present the results of our empirical analysis. The last section summarizes the results and presents our conclusions.

2 Privatization, managerial change and incentives

The main goal of this paper is to analyze, and compare, the impact of the introduction of new managers and of new incentives on performance of privatized firms. Over the past 20 years, governments increasingly chose to relinquish control over public enterprises with the goal of improving performance and increasing competitiveness of these companies. After its debut in the UK in the early 1980s, privatization spread to France, Italy, Spain and other market economies. During the 1990s, this trend received a further impetus as formerly socialist countries initiated large-scale privatization programs. Many empirical studies (see Megginson and Netter, 2001, for a review) show that privatization is indeed highly successful in delivering performance and efficiency improvements. Cragg and Dyck (1999) investigate the sources of these improvements and find that privatization leads to higher managerial turnover and better incentives.

The introduction of managerial incentives and accountability entails the standard principal-agent relationship. An adverse selection problem may arise as the manager (agent) possesses relevant information that is not known to the owner (principal), for example, the manager's abilities or the firm's potential productivity. In addition, moral hazard may also be present since the manager takes actions that affect the firm's productivity and that cannot be directly observed by the principal. The principal, then, cannot distinguish between the various alternative reasons for the firm's poor performance: inherently low productivity of the firm, incompetence of the manager, managerial decisions that pursue goals other than productivity, or pure bad luck (Groves et al., 1995). From the theoretical perspective, it is not immediately obvious why private

owners would be more effective than the state at resolving these standard agency problems. Nevertheless, two sets of theoretical papers provide a rationale for the link between ownership and incentives. Their arguments are based on changes in owners' objectives versus changes in owners' monitoring intensity (Cragg and Dyck, 1999).

The first theoretical argument maintains that state ownership is, in general, inefficient as politicians often use the public enterprises to pursue political goals that are not in line with profit maximization and efficiency improvements (Shleifer and Vishny, 1994, Shapiro and Willing, 1995). Possible political benefits include, for example, excess employment and wages, production of goods desired by politicians rather than by consumers, and location of production facilities in politically desirable rather than economically attractive regions. Privatization of state owned enterprises isolates the firms from these inefficient 'political' goals and replaces them with profit maximization that leads to innovation and efficiency improvements (Shleifer, 1998).

Second, property rights theories (Alchian, 1977, and Demsetz, 1988) highlight the self-interest of private shareholders who are residual claimants to firm profits. To get maximum return on their investment, they monitor the managers, keep them accountable and link their tenure to firm performance. Public officials, in contrast, do not have any personal gain from monitoring managers or designing proper managerial incentives. Therefore, the property rights theories predict privatization to enhance incentives tied to firm performance (Cragg and Dyck, 1999).

Many empirical studies provide evidence that managerial incentives – in the form of strong relationship between poor past performance and the probability of managerial change – work in established private firms (Weisbach, 1988, and Warner et al., 1988, Denis and Denis, 1995).[4] However, incentives are weaker in public firms (Cragg and Dyck, 1999). Moreover, Cragg and Dyck (1999) show that privatized firms in the UK increased the frequency of managerial replacements and also introduced stronger incentives.

For the transition countries, the introduction and enforcement of appropriate incentives for managers is even more important because it substitutes the role of other disciplinary and motivational tools that are not yet functioning properly in the transition period (Roland, 2000).[5] The evidence on managerial incentives is, however, week and

[4] For review of empirical papers see Hermalin and Weisbach (2003) and John and Senbet (1998).

[5] In functioning market economies, competition in product market, managerial labor market, and capital market (either through takeovers or bank supervision) may substitute the role of incentives.

inconclusive (Barberis et al., 1996, Claessens and Djankov, 1999). This may be a consequence of the lack and low quality of data or the fact that most studies only cover short post-privatization periods.[6] Cragg and Dyck (1999) find evidence of presence of managerial incentives only 4 years after the privatization in their U.K. sample. It is possible that introduction of proper incentives takes time. An extended study over a longer post-privatization period may reveal existence of stronger incentives also in the transition context.

The corporate governance literature suggests that the strength of incentives depends on how privatization affects ownership concentration, the ease of transfer of ownership, the entrenchment of managers, and the level of executive freedom granted to the management. Therefore, it is important to consider ownership patterns prevailing in the privatized companies and analyze the existence of managerial incentives under different ownership structures.[7] Concentrated owners typically actively monitor the firm and are better informed about the firm value and abilities of the management than small dispersed shareholders (Fidrmuc et al., 2003). Their superior information may enable them to recognize an incapable manager even before the firm performance starts to deteriorate. Furthermore, shareholders with relatively low control and cash-flow rights are not much motivated to exert effort and push through changes unless firm performance is very poor (Franks et al., 2001). Therefore, we expect the link between past performance and turnover to be the strongest in firms without concentrated blockholders or in firms with owners who do not engage in costly monitoring (institutional investors, for example). For the firms with concentrated blockholders (especially individuals or other companies), we expect the link to be weaker. Note that this conjecture relates to the impact of performance on managerial turnover but not to the frequency of turnover; as the latter can be similar across all firms.

Managerial change, in general, constitutes evidence of efficient but costly monitoring by the board of a private firm and should, therefore, be beneficial for the firm value (Warzynski, 2003). The empirical evidence concerning the introduction of new managerial human capital strongly supports this conjecture across many countries and economic settings. In the US, top managerial changes in established publicly traded

[6] Barberis et al. (1996) analyze data on 452 Russian shops (both state owned and privatized) over the period 1992-93. As their sample only includes retail shops, the change of ownership and management often coincides. Cleassens and Djankov (1999) analyze only remuneration as positive motivational tool.

[7] The Czech privatization program favored outside ownership and, thus, avoided the problem of managerial entrenchment often associated with inside ownership.

companies do result in better financial performance after the change (Denis and Denis, 1995). UK experience with privatized firms is also consistent with this pattern (Cragg and Dyck, 1999). Moreover, the evidence on the favorable impact of new human capital in transition and developing countries is also very strong (Frydman et al., 2002, Djankov and Murrell, 2002, and La Porta and Lopez-de-Silanes, 1999). In transition, new human capital seems to be more important than incentives (Barberis et al., 1996, Claessens and Djankov, 1999). This is perhaps not surprising as skills and qualifications that were important in a command economy are not necessarily useful in a market economy. The selection of top managers under the communist regime often reflected political considerations as much as, or more than, managerial skills. The new owners are likely to appoint managers who possess skills more appropriate for the market economy in general and their individual firm in particular. As the managerial labor market and capital market are not yet sufficiently developed, the success of privatization may be strongly linked to the ability of the new owners to introduce managers with 'western' skills (Dyck, 1997).

So, is it incentives or new human capital that matter? In fact, it is possible that new people and better incentives are strongly complementary in improving performance in that neither would be effective by itself (McMillan, 1997, Fidrmuc and Fidrmuc, 2004). On the one hand, some incompetent incumbent managers may be unable to respond to new incentives. Good managers, on the other hand, might not work hard enough under badly structured incentives. Therefore, our analysis considers both the impact of improved incentives and of new human capital.

3 Privatization and corporate-governance regulation in the Czech Republic

The Czech government opted for a rapid reform program that introduced the three essential steps, price liberalization, stabilization and privatization, relatively quickly (Sachs, 1993). In fact, the voucher privatization introduced new private owners already in 1993, after the first wave, and in 1994, after the second wave.[8] Despite fears that the voucher privatization would result in highly dispersed ownership, the immediate post-privatization ownership structure was quite concentrated. Only around 29 percent of all firms involved in the first wave had more than 50 percent of their shares in the hands of

[8] For more details about the whole privatization process see Fidrmuc et al. (2002). On voucher privatization in particular see Claessens and Djankov (2000) and Dlouhy and Mladek (1994).

small dispersed shareholders.[9] Investment privatization funds (IPFs) were the most frequent blockholders. They held on average as much as 25 and 31 percent of shares immediately after the first and second wave, respectively.[10] At the same time, inside ownership was very low: on average, managing directors held only 2.5 percent of shares, with only 1.8 (8.2) percent of managers holding 20 (10) percent or more. Also the ownership stakes by other non-IPF outsider blockholders were very low: foreign investors acquired on average only 2.1 percent and domestic direct investors 0.7 percent (Claessens and Djankov, 1999). Thus, in general, the IPFs played a vital role in pursuing restructuring and managerial turnover, especially in the first years after the transfer of ownership. Frequent ownership transactions over the years (sometimes referred to as the third wave of privatization) have resulted in higher concentration of ownership in hands of individuals and of other domestic and foreign firms who challenge the vital role of the IPFs. These ownership changes may be important also for managerial incentives and managerial turnover.

In order to study the impact of managerial incentives and of new human capital on performance during the post-privatization period, it is important to be familiar with the specifics of the prevailing corporate governance patterns. The law restricts the design of internal-control structures in companies and thus has an important impact on the corporate governance patterns in place. In particular, the legal framework stipulates the conditions of appointment, responsibilities, and accountability of the executive bodies, including the managing director.

The principal piece of legislation regulating the internal-control structures in the Czech Republic is the Commercial Code. Limited-liability public companies are obliged to have a two-tier internal-control structure consisting of a board of directors (henceforth BoD) and a supervisory board (SB). The BoD is the highest executive body, responsible for all business affairs of the company. In particular, the Code stipulates that, unless regulated otherwise by the articles of association, the BoD members (and not the management) have the legal authority to sign contracts on behalf of the company. In general, members of the BoD are appointed by the general meeting of the company's shareholders. However, the articles of association may also stipulate that members of the

[9] Ownership structure of firms privatized in the second wave had a similar pattern.

[10] Investment privatization funds arose as collective investment intermediaries in the voucher privatization program. The voucher-privatization participants had the option to 'invest' (a part of) their vouchers into various IPFs, which then used the vouchers to acquire shares of privatized companies. 429 and 353 IPFs took part in the first and second wave, respectively.

BoD are appointed by the SB instead. The chairman of the BoD is elected by the BoD members themselves in both cases. In turn, the SB is responsible for overseeing and monitoring of the actions of the BoD. Members of the SB must be appointed by the general meeting of shareholders.[11] The Code does not directly regulate the role of the management.

In practice, different types of internal-control arrangements are common in Czech companies. This variety of internal-control arrangements (relative division of control/power between SB, BoD, and management) is due to different preferences among the important individual constituencies involved: the state (represented by the Fund of National Property – FNM), IPFs, other types of owners, and the management (Brzica, 1996). In general, two main types prevail, with each stipulating different roles for the BoD, the SB and the management, and the relationship among them. In the first type, depicted in Figure 1, the management is relatively powerful because its members also sit on the BoD (although the positions of the managing director and the BoD chairman are not necessarily taken up by the same person). The SB is elected by the general meeting of shareholders and it in turn appoints the BoD members. Thus, shareholders have their representatives on the SB, which oversees and monitors the BoD. All members of the SB are non-executive outsiders. In turn, the BoD coincides with the management team and is the executive body of the company. We refer to this type as 'internal-control structure with strong management' It should be noted, however, that this terminology does not refer to the power of the managing director towards other members of the board of directors or the supervisory board. It rather reflects the fact that the top managers are close to the ultimate decision making of their firms.

The second type (Figure 2) is used when the shareholders want to have tighter control over the firm. In that case, both the BoD and SB are appointed directly by the general assembly of shareholders. Shareholders' involvement in business affairs is considerable because they have their non-executive representatives on the BoD. In contrast, the management team (which is not a part of the BoD) is relatively weak with limited responsibilities. The SB does not appoint members of the BoD as in the previous case. Its role is limited to monitoring the activities of the BoD and of the management. This type of internal-control arrangement usually prevails in firms with several IPF as owners. Representatives of stronger IPFs are appointed members of the BoD and effectively

[11] Except for companies with more than 50 employees, in which case one third of the SB is appointed by the employees.

control the firm while smaller IPFs are represented in the SB. We denote this arrangement as 'internal-control structure with week management' since the board of directors' approval of all important business decisions limits the independence and responsibility of the top managers.

Figures 1 and 2 about here

In short, the following points are important for our analysis. First, the Code assigns executive power and responsibility to the BoD. Second, the members of the top management may or may not sit on the BoD. Third, even when the top management and the BoD overlap, the managing director is not always the chairman of the BoD. Hence, analyzing the impact of top managerial turnover on firm performance, one must control for these specifics of the internal-control patterns in place. In fact, our analysis would be incomplete if we only considered replacements of the managing director, as the key responsibility for business affairs of the firm lie within the BoD. Previous research on corporate governance issues in the Czech Republic (Claessens and Djankov, 1999, 2000) neglects this important feature. To the best of our knowledge, our paper is the first one to explicitly account for institutional aspects of corporate governance issues in transition economies.

4 Data

Our analysis is carried out with a panel of 917 Czech non-financial firms privatized during the two waves of voucher privatization.[12] The data span the period from 1993 to 1998. The basic criterion for a firm to be included in our analysis was availability of information on its sales, fixed assets, number of employees and costs for at least 3 years. This criterion results in an unbalanced panel containing a total of 4920 firm-year observations. The data set contains also a host of non-financial information about the firms. Importantly, we are able to identify the firm's managing director and, the date he or she assumed this position. In addition, the data also contain information on the structure of ownership, listing all owners who hold more than 10 percent of total equity. However, the ownership structure is only available starting with 1996 as only then it became obligatory by law to disclose this information.

Unfortunately, some information that would be desirable for our analysis is not contained in the data. In particular, we have no information on the managing director's

[12] The data were purchased from Aspekt Kilcullen s.r.o. (http://www.aspekt.cz/).

professional qualifications (education, experience and employment history within and outside the firm) or the specific circumstances of the managing director's departure. Therefore, while we can observe turnover of managing directors, we do not know whether the previous managing director was dismissed or whether left for other reasons (such as health problems, retirement or death). Yet, as the descriptive statistics discussed in greater detail below show, changes within the top management and the BoD are so frequent (ranging between 10 and 24 percent per year for the managing director and between 24 and 37 percent for the chairman of the BoD) that health and demographics could only account for a small fraction of them.[13]

Table 1 presents basic descriptive statistics that give flavor of what is going on in our sample companies after their privatization. The data indicate that sales, fixed assets and labor productivity rose slightly from 1994 until 1998, whereas profitability (measured by return on fixed assets) declined from 1994 until 1996 and then increased again.[14] The number of employees was falling till 1997 and only stabilized in 1998. The fact that the average enterprise increased its sales and improved profitability while reducing the number of employees by approximately 10 percent indicates an ongoing restructuring effort. Comparing means and medians for most of the variables in Panel A reveals that there are several large firms in the data set. Furthermore, as new firms enter the data set in the wake of the second wave of voucher privatization, the average and median firm sizes fall considerably, indicating that the first wave was more strongly dominated by large enterprises.

Table 1 comes about here.

We are primarily interested in the pattern of managerial turnover after the privatization. Compared to the available estimates of 7.8 percent - 9.3 percent for U.S. firms (Claessens and Djankov, 2000) and 11.8 percent for the U.K. (Cragg and Dyck, 1999), the managing director turnover in the Czech Republic is high: 16 percent per year. Altogether, 56.5 percent (518 out of 917) of firms replaced their managing director at least once during the 5-6 years since the privatization.[15] In most cases (345 firms), the

[13] It is also not very probable that these high replacement rates were a consequence of low turnover in the pre-privatization period. In fact, Claessens and Djankov (1999a) report that at least 50 percent of voucher-privatized firms in their sample replaced their managing director already in the pre-privatization period.

[14] Total sales and fixed assets are constant prices of 1993.

[15] The period 1993-98 represents 6 and 5 years in the post-privatization period for the firms privatized in the first and second wave of voucher privatization, respectively. Ownership rights were transferred in April 1993 and June 1994 for the first and second wave, respectively.

managing director was replaced only once, in 132 firms twice and in 41 firms three or more times. While generally high, these figures are not far from the ordinary considering the context in which these managerial changes take place. Similarly high managerial turnover is reported for newly privatized firms in the U.K. (15.4 percent per year according to Cragg and Dyck, 1999) and for East German privatized companies (around 20 percent per year, see Dyck, 1997). As Panel B of Table 1 shows, the frequency of the managing director change displays an increasing trend.[16] It is relatively low (11 percent) immediately following the privatization, but increases to 24 percent in the forth post-privatization year. This indicates that the new private owners needed some time to consolidate control, before they started to exercise control effectively. On average, the first change of the managing director took place in the forth year after the transfer of ownership in firms that replaced their managing director at least once. Comparing the managing director turnover to the turnover of the chairman of the BoD, the latter is replaced much more frequently and in more firms.

Panel C of Table 1 looks at the incidence of the two internal-control arrangements discussed in the preceding section. Most Czech firms employ the first alternative: the internal-control structure with strong management. In more than a third of all firms, the managing director served also as the chairman of the BoD. In nearly two thirds, he was either the chairman or a deputy chairman of the BoD and in more than two thirds he had a seat on the BoD. Nevertheless, when comparing managing director versus chairman of the BoD changes, we find that only in 100 cases, both the managing director and the chairman of the BoD were changed at the same time.

Table 2 looks at the ownership structure by identifying the largest shareholders in 1996. Even though the IPFs were the most frequent owners of the privatized companies immediately after the voucher privatization, the data suggest that it was no longer the case in 1996. Apparently, considerable secondary ownership transfers took place since the voucher privatization.[17] By 1996, domestic firms were the most frequent type of the largest shareholder (35 percent of firms), followed by the IPFs (20 percent) and the government (15 percent). Also concentration of control increased. The largest shareholder (except for the IPFs) owns, on average, more than one third of total equity. Foreign firms in particular tend to acquire concentrated stakes, holding on average 60 percent of equity. The low

[16] Note that we are interested only in post-privatization managerial changes.

average stakes held by IPFs in part reflect legal restrictions. Investment funds are prohibited to own more than 20 percent of any company. If several funds set up by the same legal entity hold stakes in one firm (as was often the case), their joint stake is to be at most 40 percent. To circumvent this regulation, many IPFs transformed into holding companies[18]. This is documented also by our data since some of the funds own blocking or majority stakes, even though less frequently than other types of owners.

Table 2 comes about here.

5 Managerial incentives

As documented in the previous section, around 57 percent of the firms in our sample changed their managing director at least once during the five/six years after the privatization. Thus, the new private owners seem to be quite active in replacing their top managers. In this section, we relate these replacements to past firm performance so as to investigate the strength of managerial incentives introduced by the new private owners. Finding a negative link between firm performance and managerial turnover would indicate that the new owners tend to change managers who fail to deliver satisfactory results. The presence of such negative incentives should help motivate the managers to improve performance.

An alternative and *a priori* equally plausible hypothesis, however, is that the new private owners replace the incumbent managers regardless of past performance so as to assume control over the firm and put in place management that best corresponds to the firm's needs. In this case, one would expect to find little correlation between firm performance and managerial turnover. An insignificant relationship between firm performance and managerial turnover may, however, also arise as a consequence of managerial entrenchment. In particular, high managerial control over a firm may shield the managers from dismissal and generally restrict the owners' ability to exert influence on their firms. Thus, managerial entrenchment could, potentially, lead to low turnover at the top positions and weak performance-turnover relationship. However, this does not seem to be the case in the Czech voucher-privatized firms because, first, managerial replacements are very frequent and, second, cases where managers hold larger stakes in

[17] Already during the voucher privatization, it was expected that large ownership changes would take place in the years to come. This process was often referred to as the third wave of privatization, or re-privatization.

their firms are infrequent (Claessens and Djankov, 1999). Moreover, Brzica (1996) documents that the new owners (mostly IPFs) are indeed exercising their ownership rights and are actively involved in monitoring of their firms. Thus, the power of top managers seems to be limited.

To test for the presence of managerial incentives, we estimate the following relationship:

$$DMD_{it} = \alpha_i + \beta_1 Perf_{it-1} + \beta_2 Size_{it-1} + \varepsilon_{it} \quad (1)$$

where DMD_{it} is a binary variable taking value of one if the managing director of firm i was replaced in year t, $Perf_{it-1}$ is the firm's performance in the previous year, $Size_{it-1}$ is a measure of firm size in the previous year, α_i is the firm specific constant, and ε_{it} is the error term. Performance and size are both industry-adjusted.[19] We use three measures of performance: labor productivity, gross profit margin per employee, and return on fixed assets. Size is measured, alternatively, by total fixed assets or number of employees and is included to account for the possibility that large firms have a higher frequency of managerial turnover.

The results estimated by logit panel regressions with random effects are reported in Table 3. Panel A with results obtained over the entire sample shows almost no evidence of a negative relationship between past performance and managerial turnover. The effect of labor productivity in Model 1 and of return on fixed assets in Model 3 is insignificant. The coefficient obtained for profit per employee in Model 2 is negative but is significant only at the 10 percent level. Thus, these results suggest that managerial incentives are still weak in the Czech privatized companies.

However, it is also possible that the new owners use performance metrics other than accounting earnings and labor productivity immediately after the privatization and rely on the accounting metrics only later, as documented by Cragg and Dyck (1999) for a set of U.K. privatized firms. Moreover, it is also plausible (as suggested already above) that different types of shareholders put in place different managerial incentives. Below, we explore these two hypotheses.

Table 3 comes about here.

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[18] Because of this, we retain such transformed IPFs in the IPF category.

[19] For industry adjustment, we divide the corresponding variable by the industry average in the given year. Relative firm performance within its industry seems to be an important performance benchmark (Groves et al., 1994, Warzynski, 2003).

Panel B of Table 3 replicates Models 1-3 with data only for 1997 so as to investigate the presence of negative incentives some time after the privatization.[20] Note also that 1997 was the year with the highest frequency of managerial turnover. The results in Panel B differ substantially from those in Panel A. All three performance measures now appear to have a negative impact on managerial turnover, with gross profit per employee and labor productivity significant at the 5 and 10 percent level, respectively. The results for analogous regressions with managerial change in other years, however, show insignificant coefficients for all performance variables.[21] Thus, while it appears that for the most part the new private owners replace the managing directors regardless of their performance, in 1997, the year during which the frequency of managerial turnover reached its peak, past financial performance is an important determinant of managers' tenures. It is possible that the new owners need time to take control of and get acquainted with their firms and therefore start to implement negative incentives with a lag of several years after privatization. If so, performance may become an important factor underlying managerial turnover in the Czech Republic only a few years after the privatization.

Next, we explore whether different types of owners behave differently when it comes to turnover of the managing director. We conjecture that blockholders without significant control who are not involved in active monitoring are more likely to rely on performance as a signal about the managing director's competence. This is because these types of owners do not have a direct access to inside information concerning firm value and competence of the management. In order to explore this issue, we consider the size of the stake held by the largest shareholder. We distinguish between *blockholders* (defined as those holding at least 33.4 percent of equity) and *majority owners* (those with more than a 50 percent stake). These two thresholds are chosen so as to account for the relative control power of the largest stakeholder. Obviously, a shareholder who is in possession of more than 50 percent of outstanding equity is in almost complete control of the enterprise. As the Commercial Code requires a two-third majority to implement certain important corporate decisions, owning more than a third of total equity also implies considerable influence (and therefore such a stake is often denoted as a blocking stake).

Within these two size categories, we further distinguish six different types of stakeholders: investment privatization funds (IPFs), banks, other financial institutions,

[20] This also facilitates comparison with results that incorporate ownership information that are discussed bellow.

[21] These results are not reported here but are available upon request.

individuals, corporations, and the national property fund (NPF). The empirical literature analyzing ownership and control effects of different types of owners usually distinguishes ownership by individuals, corporations and financial institutions (see, for example, Holderness and Sheehan, 1988). We augment these basic groups by adding the NPF, as the state ownership is still important in the Czech Republic. Further, we partition financial institutions into the IPFs, banks, and the remaining financial institutions. As ownership data is available only since 1996, we only investigate the effect of performance and ownership structure in 1996 on managerial turnover in 1997. This is the year with the highest frequency of managerial changes and, as reported above, the only year during which the relationship between performance and managerial turnover is found to be negative.

To examine the effect of ownership on the probability of managerial change, we augment the basic regression model depicted in equation (1) by adding dummies for the presence of a blockholder or a majority owner, along with interaction terms between these dummies and performance. These results are reported in Panel A of Table 4. In Panel B, we further augment the regression by adding interaction terms between performance and dummies capturing the specific type of ownership, for both *blockholders* and *majority owners*. This specification allows us to test whether different types of owners put different weight on past performance when deciding whether to dismiss the managing director. We relate managerial turnover to two measures of performance: labor productivity and gross profit per employee as these are the two performance measures that yielded significant results before (see Panel B of Table 3). To make interpretation of interaction terms easier, we report the combined performance effect and the joint significance for each ownership type at the bottom of the panels.

Table 4 comes about here.

The results are generally in line with expectations. In Panel A, we see that firms with a largest owner holding between 33 and 50 percent of total equity (a *blockholder*) tend to display a strong negative relationship between performance and the frequency of managerial change. The relationship is jointly significant at the 1 percent level when measuring performance with labor productivity and at the 5 percent with profit per employee. However, no such relationship obtains for firms with a *majority owner* (stake larger than 50 percent). Note that the simple coefficient for performance is insignificant (when performance is measured by labor productivity) or only marginally significant (for

profit per employee), indicating that firms with dispersed ownership, i.e. with no owner holding more than 33 percent, also do not have strong negative incentives in place. Hence, it is mainly *blockholders* with stakes between 33 and 50 percent who rely on negative incentives. *Majority owners*, in contrast, are typically able to exercise close control over the firm and therefore are in a better position to be directly involved in running the firm's affairs. Small shareholders, finally, may not have enough power to implement and enforce negative incentives.

Panel B allows a closer look at the impact of the various types of ownership.[22] On the one hand, we observe little difference across the various types of *majority owners* (with ownership stakes above 50 percent). In fact, all coefficients obtained for interaction terms between performance and the various categories of *majority owners* are positive, thus countering the negative effect of performance on the probability of managerial turnover. The joint effect is always insignificant. Hence, the data again confirm that *majority owners* do not rely on negative incentives as a means of protecting their interests. On the other hand, ownership types matter for firms with *blockholders* holding stakes between 33 and 50 percent. The presence of banks and IPFs does not strengthen negative incentives. The evidence is mixed for individuals and the government (represented in privatized firms by the NPF): the interaction effects are jointly significant when performance is measured by labor productivity but not when it is measured by profit per employee. Finally, firms that have corporate owners or financial institutions (other than banks or IPFs) as *blockholders* show strong evidence of the presence of negative incentives, regardless of the measure of performance. Hence, different types of *blockholders* do behave differently: corporations and financial institutions (other than banks and IPFs) put in place strong negative incentives, whereas banks and IPFs (and to some extent also individuals and the state) appear to assume the role of passive investors even when they hold a relatively large stakes.

In summary, the evidence on managerial incentives in privatized Czech companies is mixed. The panel results covering the period from 1993 to 1998 (in Table 3) do not support any relationship between managing-director change and prior firm performance. The results for 1997, the year when managerial changes were the most frequent, however, indicate that poor past performance (productivity and profitability) do have significant

[22] The combined effect of performance and interaction terms (performance * ownership type) and their joint significance is reported at the bottom of Panel B. Because of space constraints and insignificance of the coefficients for majority owners, only the results for blockholders are reported.

effect on the change of the managing director. The results are especially strong for firms with at least one owner with a blocking stake (i.e. between 33 and 50 percent of equity). When accounting for different types of ownership, this pattern is strongest when the block is held by a corporate owner or a financial institution other than a bank or an IPF and it is weakest for banks and IPFs.

6 Quality of new human capital

In the previous section, we analyze the relationship between prior performance and managerial turnover in a cross-sectional setting, focusing on emergence of incentive structures that owners can use to ensure that managers' actions are in line with their interests. Putting in place negative incentives, however, is only one of the options available to the new private owners. Another important change that they can implement is to bring in new human capital (Laffont and Tirole, 1986, and McAfee and McMillan, 1987). Empirical evidence suggests that new human capital is indeed very important for performance improvements in transition countries (Djankov and Murrell, 2002). Moreover, Groves et al. (1995) argue that significant improvement in firm performance after the managerial change may reveal the existence of unfulfilled potential of the firm prior to the change of management. In other words, ex post improvement is potential evidence on ex ante poor managerial performance. This is even more so in the formerly socialist economies undergoing transition where most firms immediately after the privatization are inefficient and poorly performing. As the average firm is thus a poorly performing one and regression analysis considers deviations from the mean, it is no wonder that we do not find that firms that replace their managers perform below average. After privatization, the new private owners may take advantage of their access to superior information on performance of the incumbent managers and replace them when there is a potential for improvement. The improved performance after the managerial change is thus evidence of low efficiency before the change.

We analyze this hypothesis in a production function framework of the following form:

$$\log Y_{it} = \alpha_i + \beta_1 \log K_{it} + \beta_2 \log L_{it} + \beta_3 DMD_{it} + \varepsilon_{it} \qquad (2)$$

where Y_{it} stands for the total sales of firm i in year t, K_{it} is the firm's capital (fixed assets), L_{it} is the number of employees, α_i is the firm-specific intercept and ε_{it} is the error term. Sales, capital and the number of employees are all industry adjusted (divided by the

industry mean of the variable in the respective year[23]) to account for industry-specific factors and are all in natural logarithms.

The variable of interest is DMD_{it} – change of the managing director. In the production function framework, β_3 measures the effect of the managing-director change on the total factor productivity. We define DMD_{it} as a dummy variable taking value of one following the change of the firm's managing director. More specifically, the dummy is set to one in the year when the change occurred if the change took place before the end of June of that year, otherwise, the dummy is set to one only in the subsequent year. Then, the dummy remains set to one henceforth.[24] That is, we assume that the change of the managing director translates into a permanent shock to productivity rather than a temporary one. A positive coefficient estimate of β_3 thus would imply that managerial turnover causes a permanent improvement of firm's total factor productivity and a permanent decrease for a negative coefficient. We only consider the first post-privatization replacement of the managing director, as it is the first change that is most likely directly caused by the transfer of ownership to and assumption of control by the new owners. While subsequent managerial turnover may also affect total factor productivity, the first post-privatization change is likely to have the strongest impact.

As emphasized in Section 4, the institutional framework – in particular the nature of internal-control structures in place – is likely to affect the relationship between managerial turnover and productivity. Therefore, besides equation (2), we estimate also an augmented production function with additional controls: a dummy measuring change of the board-of-directors (BoD) chairman and interaction terms between the two turnover dummies and a dummy distinguishing the two forms of internal-control structure. The augmented production function then takes the following form:

$$\begin{aligned} \log Y_{it} &= \alpha_i + \beta_1 \log K_{it} + \beta_2 \log L_{it} + \beta_3 DMD_{it} + \beta_4 DCBD_{it} \\ &+ \beta_5 DMD_{it} * STRONG_i + \beta_6 DCBD_{it} * STRONG_i + \varepsilon_{it} \end{aligned} \qquad (3)$$

where $STRONG_i$ stands for a dummy variable equal to one if the managing director is strong, that is he/she is simultaneously the chairman or deputy chairman of the BoD. We use this variable as a proxy for the first type of internal-control arrangements of firms

[23] Groves et al. (1995) also follow this procedure.
[24] Note that the dummy is defined differently here compared to the previous section.

depicted in Figure 1.[25] $DCBD_{it}$ is a dummy variable indicating change of the chairman of the board and is defined analogously to DMD_{it}. Table 5 presents regression results based on Equations (2) and (3), estimated with firm-specific fixed effects and year dummies.[26]

Table 5 comes about here.

Model 11 includes only the dummy for the change of the managing director. In Model 12, in contrast, the MD-change dummy is interacted by the dummy for strong management, so that it only counts managerial replacements when the managing director has a strong position in the firm. The results for Models 11 and 12 show that managing-director change leads to better subsequent performance but the effect is statistically significant only when the managing director is strong. Thus, the institutional framework is important – replacing a manager who does not hold real executive power, does not affect firm performance significantly. In contrast, replacing a *strong* managing director raises total factor productivity on average by 5.5 percent.[27]

Model 13 shows the effect of both the MD-change dummy and the interaction term between MD-change and the internal-control structure in the firm. Hence, the coefficient estimated for the MD-change dummy indicates the effect of managerial turnover in firms without a strong manager, whereas the coefficient for the interaction term captures the additional effect of replacing a strong managing director. Again, MD change does not deliver significant increase in total factor productivity unless the managing director enjoys a relatively strong position and has legal authority over the firm's affairs.[28]

Model 14 only considers changes at the post of the chairman of the BoD. The results are analogous to those for the managing-director change. Replacing the BoD chairman increases (total-factor) productivity only when top management and the board of directors are closely interconnected. The measured impact on productivity is slightly lower, on average 4.3 percent. In contrast, replacing a BoD chairman who holds executive powers but does not actively participate in day-to-day management of the firm's affairs has little effect (the coefficient is in fact negative, although it is not significant).

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[25] Defining the *strong MD* as one who is simultaneously a member of the BoD (i.e. not necessarily chairman or deputy chairman) leads to almost identical results, though the significance of the interaction term is slightly lower.

[26] The Hausman test indicates that fixed effects are appropriate in these models.

[27] Note that because of the way how the MD change dummy is constructed, this is the average *permanent* gain realized over all subsequent years.

[28] It should be noted, however, that the choice of particular internal-control arrangement could be a consequence of power division between shareholders. Thus, one should ideally control also for ownership structure. Unfortunately, we have ownership data starting only in 1996.

Model 15 considers changes at both posts, MD as well as BoD chairman.[29] The results show that only replacements of the BoD chairman when management is strong have significant effect on total factor productivity. This finding is confirmed also by Model 16 that only counts changes at the posts of managing director and BoD chairman with strong management. This is in line with the logic of the legal framework – executive authority rests with the board of directors, not the management. Replacing the BoD chairman shifts productivity by approximately 4 percent in Models 15 and 16.

At this point, it is important to highlight again that the dummies for MD and CBD changes we have used throughout our analysis measure only the effect of the first change. In order to check for consistency of our results we re-estimated all models using dummies that measure the last change at both posts but the results remain basically unchanged.

In summary, our results in this section suggest that changes of the managing director and the chairman of the board of directors improve enterprise productivity but only when the management is relatively strong and is closely linked with the board. As it is the board of directors and not top management that holds actual executive authority, this result is not surprising. In contrast, replacing either the managing director or the BoD chairman does not improve productivity when the management is relatively weak and separate from the board.

It is important to relate our findings to the previous empirical evidence, especially the findings of Claessens and Djankov (1999 and 2000). They also relate managerial changes to *subsequent* firm performance for a very similar set of Czech voucher-privatized firms. Their main conclusion is that it is the new human capital and not incentives that brings about improvements in corporate performance in transition economies. While our findings are not inconsistent with theirs, we extend and widen the analysis by specifically addressing the negative incentives in place, the importance of institutional framework and methodologically we use the panel dimension of our data.

7 Conclusions

In this paper, we analyze the introduction of new managers and new incentives directly after the privatization in the Czech Republic. The analysis is carried out with a panel of 917 Czech corporations privatized by the voucher method, with the data spanning

[29] Note that even when the MD is simultaneously also the BoD chairman, a change at one post does not necessarily stipulate a change at the other. In fact, only in 10 percent of all changes of the managing director, the same person was also dismissed from the post of CBD.

the period from 1993 to 1998, that is, the first 6 years after their privatization. We consider two ways how the new owners affect corporate governance and performance of their newly acquired firms. First, they can implement new incentive mechanisms that induce the managers to safeguard the owners' interests or face dismissal. Second, the owners can take a more active approach and appoint new managers who present a better match with the firm's productive assets.

We analyze the effectiveness of incentive mechanisms by relating managerial turnover to past performance: if the new owners implement negative incentives, performance should be negatively correlated with the probability of managerial replacement. The evidence is mixed, however. We find that across the entire data set, past firm performance does not significantly affect the probability of the managing-director change. Nevertheless, performance turns out significant as a predictor of managerial changes in 1997, some 3-4 years after the privatization. During that year, the negative relationship between performance and managerial turnover is the strongest in firms where at least one owner holds a blocking stake (between 33 and 50 percent of equity) and especially so when that blockholder is a corporate owner or a financial institution (other than a bank or an IPF). Hence, owners differ considerably with respect to the degree of their engagement in the enterprise. On the one hand, small owners and some blockholders (in particular banks and IPFs) do not assert much influence over their enterprise's affairs. On the other hand, it seems that majority owners with stakes above 50 percent are able to be directly involved in running the firm's affairs and therefore need not rely on performance incentives. Majority owners are also likely to have access to better information than small investors and therefore can determine whether below-average performance is due to the managers' lack of competence or external factors.

However, the new owners may replace managers also when the firm operates below its potential even though a priori the firm's relative performance does not appear poor compared to other firms in the same industry. To allow for this possibility, we compare productivity before and after managerial change. We find that managing-director change indeed delivers an improvement in productivity. Furthermore, we find that the institutional framework is important as well: the positive effect of the managing-director change is significant only when the managing director has a relatively strong position within the firm and is closely linked with the board of directors. Similarly, change of the chairman of the board improves productivity only when the board and management are closely linked. In fact, the change of the chairman of the board of directors seems to be more important

than the change of the managing director. This is not surprising, as it is the board and not the management that holds the actual executive authority.

A potential criticism of our findings is that the effect of managerial change that we identify is in fact due to ownership change itself, not due to managerial turnover. However, all enterprises included in our analysis have undergone privatization and thus undergone a significant ownership change. Moreover, in our setting, the transfer of ownership was largely exogenous as it occurred by way of an administrative decision and took the form of mass (voucher) privatization. Thus, the new owners or the SOE managers had only very limited ways of affecting the outcome of privatization. Therefore, we believe that the differences in performance which we observe within are sample are due to the *developments* that occurred after the transfer of ownership rather than due to the transfer of ownership itself.

Our results suggest that privatization is not a sufficient condition for improved performance and restructuring. New private owners do not always implement incentives that induce the managers to increase efficiency and profitability, either because ownership is too dispersed or the owners perceive their stakes as speculative investment, without actively participating in running the firms' affairs. However, our analysis shows that when owners do take charge of their newly acquired companies and install new management, improvements in performance follow. Finally, the institutional context is important as well: new managers only make a difference when they do hold executive authority over the firm. Our analysis, in general, suggests somewhat weak incentives. They get stronger only some time after the transfer of ownership. It is possible that this result is a consequence of strong complementarity between new managers and incentives – incentives may effectively work only with new mangers. This issue, however, remains to be addressed by further research.

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TABLE 1: DESCRIPTIVE STATISTICS

PANEL A		1993	1994	1995	1996	1997	1998
Number of firms		509	882	896	899	887	847
Total sales:	mean	1035	720	741	737	767	793
	median	308	200	211	207	208	196
	st. dev.	2945	2322	2337	2334	2387	2496
Costs of goods sold:	mean	734	557	633	662	740	786
	median	218	145	171	175	187	187
	st. dev.	1711	1595	1802	1809	2057	2262
Gross profit margin:	mean	302	214	217	219	255	284
	median	81	53	54	55	69	67
	st. dev.	1478	1101	1139	1183	1211	1342
Fixed assets:	mean	848	573	589	625	650	703
	median	217	116	118	114	103	102
	st. dev.	4326	3628	4039	4556	4921	5437
Number of employees:	mean	1253	830	796	766	739	743
	median	568	311	306	300	290	290
	st. dev.	3012	2058	1953	1952	1885	1850
Labor productivity:	mean	946	953	1063	1165	1368	1428
	median	498	537	607	665	761	774
	st. dev.	1432	1180	1215	1562	2658	2823
Return of fixed assets:	mean	0.55	0.57	0.54	0.46	0.57	0.64
	median	0.44	0.43	0.42	0.42	0.47	0.47
	st. dev.	0.67	0.68	1.14	2.36	1.81	1.23

TABLE 1: DESCRIPTIVE STATISTICS (CONTINUED)

PANEL B	1993	1994	1995	1996	1997	1998
Frequency of MD change[1]	9%	8% [3]	10%	16%	24%	18%
Frequency of CBD change[1]	27%	28%	37%	35%	29%	24%
Number of firms with MD (CBD) change per year:[2]						
	1993	1994	1995	1996	1997	1998
first MD change	6	77	71	89	174	73
last MD change	3	39	43	69	190	146
first CBD change	32	184	188	256	94	61
last CBD change	9	50	101	223	200	228
Percentage of firms with MD change in n^{th} year after privatization						
year	1	2	3	4	5	6
percentage of firms	11%	18%	18%	24%	23%	6%
PANEL C	Total	MD is BoD chairman	MD is BoD chairman or vicechair.	MD is BoD member		
Number of firms	917	383	590	699		

Notes: For each year in Panel A, the mean, median, and standard deviation are reported in given order. Sales, costs of goods sold, gross profit margin, and fixed assets are in CZK millions and in constant prices of 1993. *Gross profit margin* is defined as difference between total sales and costs of goods sold. *Labor productivity* is the total sales over the number of employees. *Return of assets* is defined as the gross profit margin over the fixed assets. Only changes of MDs and CBDs after voucher privatization (i.e. after April 1993 and October 1994 for the firms included in the 1st and 2nd wave, respectively) were considered. CBD stands for chairman of the board of directors.

[1] All changes of MD (CBD) per firm considered.

[2] Change of MD (CBD) is attributed to the following cal. year if it occurred during the 2nd half of the year.

[3] Partitioned for firms in the 1st and 2nd wave, the frequency is 11% and 3%, respectively.

TABLE 2: TYPE OFTHE LARGEST OWNER

Type of the Largest Shareholder:	No. of firms	Percentage of firms	Avg. Ownership Share[1]	Blockholder (>33.4%)[2]	Majority owner (>50%)[2]
Investment Privatization Fund	169	19.58%	26.25%	33	7
Domestic bank	14	1.62%	43.46%	9	4
Foreign bank	14	1.62%	40.26%	9	4
Domestic corporation	303	35.11%	45.73%	225	124
Foreign corporation	57	6.60%	60.23%	52	40
Individual	89	10.31%	34.24%	42	14
National Property Fund	126	14.60%	46.51%	85	49
Institutional investor (not IPF)	79	9.15%	36.14%	43	15
Foreign institutional investor	12	1.39%	52.41%	8	7

Notes:

[1] Percentage of shares held by the largest shareholder.

[2] Number of firms having a blockholder (holding at least 33.4% of shares) or a majority owner (holding more than 50% of shares), respectively.

TABLE 3: THE INCENTIVE EFFECT

	labor productivity			*gross prof. per empl.*			*return on fixed assets*		
Panel A: Panel Estimates (94-98)	**Model 1**			**Model 2**			**Model 3**		
	coef.	s.e.	sign	coef.	s.e.	sign	coef.	s.e.	sign
Constant	-1.340	0.084	***	-1.304	0.082	***	-1.252	0.087	***
Performance (lagged)	0.008	0.026		-0.031	0.019	*	-0.048	0.042	
Size (lagged)	0.037	0.012	***	0.042	0.012	***	0.049	0.014	***
Random effects	Yes			Yes			Yes		
Year dumies	Yes			Yes			Yes		
# of observations	4109			4109			3697		
# of firms	923			923			915		
χ^2	93.89	***		96.41	***		78.46	***	
Panel B: simple logit for 1997	**Model 4**			**Model 5**			**Model 6**		
	coef.	s.e.	sign	coef.	s.e.	sign	coef.	s.e.	sign
Constant	-0.700	0.225	***	-0.700	0.210	***	-0.975	0.121	***
Performance (lagged)	-0.400	0.214	*	-0.392	0.179	**	-0.147	0.121	
Size (lagged)	0.130	0.070	*	0.093	0.065		0.105	0.082	
# of firms	812			814			813		
χ^2	5.24	*		5.62	*		3.08		

Notes: Estimated with logit regressions. The dependent variable is a binary variable equal to one if the managing director was changed in the respective year. All variables are industry adjusted. *Labor productivity* is defined as the total sales over the total number of employees. *Gross profit per employee* is defined as the total sales less the costs over the total number of employees. *Return on fixed assets* is the total sales less the total costs over the fixed assets. *Size* (in log) stands for the fixed assets in all models except in Models 3 and 6 where it stands for the number of employees.

* denotes significance at the 10% level.

** denotes significance at the 5% level.

*** denotes significance at the 1% level.

TABLE 4: INCENTIVES AND OWNERSHIP STRUCTURE (1997)

	labor productivity			*gross prof. per employee*		
Panel A:	**Model 7**			**Model 8**		
	coef.	s.e.	sign.	coef.	s.e.	sign.
Constant	-0.843	0.341	**	-0.751	0.303	*
Performance (lagged)	-0.340	0.372		-0.453	0.281	*
Size (lagged)	0.139	0.074	*	0.074	0.070	
Blockholder (33-50%)	0.798	0.495	*	0.354	0.464	
Majority owner (>50%)	0.108	0.478		-0.304	0.450	
*Interaction terms: performance*ownership type*						
performance * blockholder (33-50%)	-0.974	0.579	*	-0.271	0.460	
performance * majority owner	0.162	0.483		0.503	0.405	
Number of observations	769			765		
χ^2	11.51	*		7.69		
Test of joint significance:	coef.	χ^2	sign.	coef.	χ^2	sign.
blockholder (33-50%)	-1.315	8.39	***	-0.724	3.93	**
majority owner	0.302	0.29		0.577	0.03	
Panel B	**Model 9**			**Model 10**		
	coef.	s.e.	sign.	coef.	s.e.	sign.
Constant	-0.825	0.342	**	-0.734	0.304	**
Performance (lagged)	-0.353	0.373		-0.462	0.282	*
Size (lagged)	0.150	0.075	**	0.085	0.072	
blockholder (33-50%)	0.797	0.509		0.314	0.481	
majority owner	-0.769	0.527		-0.271	0.463	
*Interaction terms: perf*ow*						
performance *IPF (33-50%)	-0.627	0.735		0.344	0.560	
performance *IPF (majority)	2.109	1.138	*	0.666	0.702	
performance *bank (33-50%)	0.649	1.389		0.776	0.927	
performance *bank (majority)	0.717	0.858		1.003	0.714	
performance *corporation (33-50%)	-0.830	0.627		-0.376	0.501	
performance *corporation (majority)	0.140	0.521		0.390	0.435	
performance *individual (33-50%)	-0.849	0.821		0.134	0.670	
performance *individual (majority)	0.367	0.685		0.899	0.579	
performance *NPF (33-50%)	-1.188	0.722	*	-0.270	0.647	
performance *NPF (majority)	0.037	0.526		0.375	0.584	
performance *fin. inst. (33-50%)	-2.858	1.043	***	-1.527	0.887	*
performance *fin. inst. (majority)	0.699	0.658		0.604	0.597	
Number of observations	769			765		
χ^2	25.22	*		17.05		
Test of joint significance:	coef.	χ^2	sign.	coef.	χ^2	sign.
Blockholder (33-50%)						
IPF	-0.979	2.32		-0.118	0.06	
Bank	0.296	0.05		0.313	0.13	
Corporation	-1.183	5.31	**	-0.838	4.08	**
Individual	-1.202	2.69	*	-0.329	0.30	
NPF	-1.540	5.99	**	-0.733	1.56	
fin. inst.	-3.211	10.80	***	-1.990	5.62	**

Notes: Estimated by logit regressions. The dependent variable is a binary variable equal to one if MD changed in 1997. Ownership information, firm performance, and size pertain to 1996. All other variables are defined as in Table 3. The null hypothesis in the *test of joint significance* is *performance + (performance * ownership type) = 0*. *, **, and *** denotes significance at the 10, 5, and 1 percent level; respectively.

TABLE 5: IMPACT OF MD/CBD TURNOVER ON PRODUCTIVITY, 1993-98

Panel A	**Model 11**			**Model 12**			**Model 13**		
	coef.	s.e.	sign	coef.	s.e.	sign	coef.	s.e.	sign
Capital (fixed assets)	0.351	0.017	***	0.349	0.017	***	0.349	0.017	***
Labor (# employees)	0.534	0.030	***	0.534	0.030	***	0.533	0.030	***
Change of MD Dummy	0.023	0.020					-0.020	0.028	
Change of MD * strong MD				0.055	0.024	**	0.072	0.033	**
Fixed effects	Yes			Yes			Yes		
Year Dummies	Yes			Yes			Yes		
R^2	0.73			0.73			0.73		

Panel B	**Model 14**			**Model 15**			**Model 16**		
	coef.	s.e.	sign	coef.	s.e.	sign	coef.	s.e.	sign
Capital (fixed assets)	0.348	0.017	***	0.347	0.017	***	0.349	0.017	***
Labor (# employees)	0.530	0.030	***	0.531	0.030	***	0.532	0.030	***
Change of MD Dummy				0.003	0.030				
Change of MD * strong MD				0.031	0.038		0.039	0.025	
Change of CBD	-0.040	0.025		-0.035	0.027				
Change of CBD * Strong MD	0.083	0.027	***	0.071	0.031	**	0.043	0.022	**
Fixed effects	Yes			Yes			Yes		
Year Dummies	Yes			Yes			Yes		
R^2	0.73			0.73			0.73		

Notes: Estimated by OLS, fixed effects included in both regressions. Standard deviations are in parentheses. Number of observations is 4920. The dependent variable is the total sales. Sales, capital and labor are industry adjusted and in logs, sales and capital are in constant prices of 1993. *CBD* stands for chairman of the Board of Directors. The dummy for *MD (CBD) change* equals one in the year of the first post-privatization change and in all subsequent years. *Strong MD* dummy is equal one in firms where the managing director is also the chairman or deputy chairman of the BoD.

FIGURE 1: INTERNAL-CONTROL STRUCTURE: STRONG MANAGEMENT

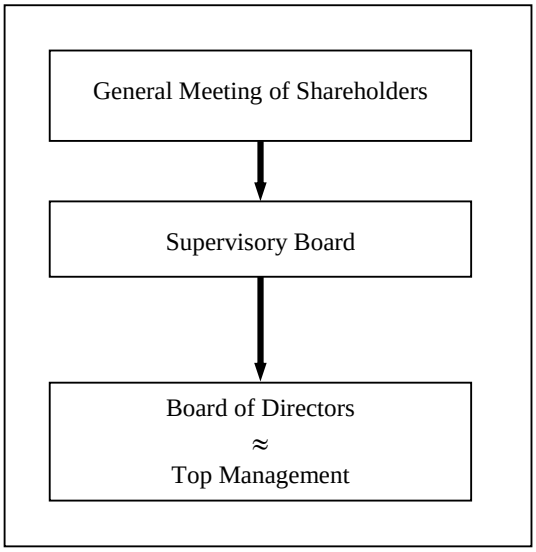

FIGURE 2: INTERNAL-CONTROL STRUCTURE: WEAK MANAGEMENT