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DOES OWNERSHIP PAY? THE EFFICIENCY OF MANAGERIAL OWNERSHIP IN SLOVENIAN POST-PRIVATIZATION PERIOD

Abstract

The paper addresses the question of the efficiency of the current increases in managerial ownership for firm performance in Slovenia. Increasing participations of managers in firm capital in fact, together with the consolidation of control in the hands of domestic non-financial firms and funds, characterize the evolution of ownership/control and determine the corporate governance specifics in the Slovenian post-privatization period. The empirical analysis is based on a panel of 136 Slovenian firms over 1995-99 period and provides evidence on the positive effects of managerial ownership on firm economic and financial performance. We also find that firms with relatively higher ownership concentration or/and firms with shares listed on the Stock Exchange on average perform better. Listing on the Stock Exchange turns out to be beneficial also in limiting the 'expropriation' of corporate funds by 'greedy' managers.

1. Introduction

The central issue in the principal-agency literature is the resolution of conflicts between the managers (agents) and shareholders (principals). There are different mechanisms that shareholders use in order to align the interest of their agents with their own; concentrated outside ownership, debt financing, outsiders' representation on board, managerial labor market, the market for corporate control, managerial shareholdings and remuneration are examples of these mechanisms. The functioning and role of each of the stated mechanism are partly determined by the institutional, economic and social environment in which firms operate. Regarding the latter, the way and speed of privatization and of the implementation of western legal frameworks, the efficiency in the enforcement of legal rules and in the construction of proper institutional environments certainly influenced the evolution of corporate governance systems in transition countries and, within the latter, the post-privatization changes in the ownership structure.

Slovenian Law on Ownership Transformation (1992) introduced the change from social[4] to private ownership through a combination of voucher and cash privatization; it provided for the allocation of

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[4] In Slovenia we can not really speak about privatization since prior to transition the assets were not in the ownership of the State but in the hands of the society as a whole. Hence, we rather refer to the process of 'ownership transformation' as the change from social ownership into private ownership.

20 percent of firms' shares to insiders, 20 percent to the Development Fund for further sale to Privatization Investment Funds (PIFs), 10 percent to the Pension Fund and 10 percent to the Restitution Fund[5]. Workers councils in the firms were then empowered to allocate the remaining 40 percent to either firm insiders (through insider buy-outs) or outsiders (through a public tender). More than 90 percent of firms undergoing privatization opted for the first alternative (insider privatization); inside owners ended up holding about 40 percent of the social capital subject to privatization, 25 percent went to Privatization Investment Funds, 22 percent to the Pension and Restitution Funds, while the remaining 13 percent was publicly sold in exchange for ownership certificates[6]. Insider ownership prevailed mostly in smaller firms; inside owners obtained at least 60 percent of the voting rights in about 24.4 percent of firms, while their ownership did not exceed 10 percent in about 6.3 percent of (mostly large) firms (Report of the Agency for Privatization, 1999). Hence, Slovenian privatization brought about two large groups of owners: inside owners (employees, including managers, former employees and their relatives) and outside owners (Pension and Restitution Funds, Privatization Investment Funds). Within the group of insiders, managers ended up holding only minority stakes (3.86 percent) with the support of the employees as the main mechanism for ensuring their discretionary power and fighting the influence of outsiders (Prašnikar and Gregorič, 2002; Gregorič, 2003).

Due to the shrinking employee ownership and hence the reduction of the 'hidden' support for managers in the post-privatization period, Slovenian managers have started strengthening their power by expanding their ownership stakes[7]. These increases have been most prominent in non-listed firms in which the transfer of ownership involves relatively low prices and mostly remains undisclosed to the public. Further, the remaining dissatisfaction of managers (at the end of 1999 the optimal or desired ownership stake of the average Slovenian manager exceeded their actual ownership stake by 12.77 percentage points[8]) clearly indicates that the trend of rising managerial ownership in Slovenian firms will also continue in the future. The accumulation of ownership in the hands of managers is further motivated by the relatively low level of transparency of ownership transfers in Slovenia.

In any case, it is not the aim of this paper to discuss the fairness of the observed redistribution of privatized capital, nor to deal with the importance of such redistribution for the preservation of

[5] The Slovenian Pension Fund (or Capital Fund) and the Slovenian Restitution Fund are often referred to as state-controlled funds.

[6] About 2,000,900 ownership certificates (of a total value of 40 percent of the total estimated book value of social capital) were distributed to the citizens of the Republic of Slovenia. The certificates were not transferable and could only be used for acquiring shares in internal distribution, internal buy-outs, and public offerings of shares and/or in the exchange for the shares of Privatisation Investment Funds.

[7] If managers prefer insider control, they will buy shares from the employees. This approach to entrenching their position may arise in particular when directors have been appointed before privatisation and are less optimistic about their employment prospects in the external managerial market and/or are less skilled. These arguments suggest the persistence of insider control in transition countries but with a reduction in employee shareholdings and a corresponding increase in managerial holdings (Wright et al., 2003; also see Blanchard and Aghion, 1996).

[8] See Table 3.4.

domestic ownership[9] but to provide an answer to the basic economic question, namely what is the impact of the observed increases in managerial ownership on the performance of Slovenian firms. While similar empirical studies mostly estimate the relation between managerial ownership and firm performance in developed market economies, this study adds important evidence on the efficiency of managerial ownership in transition countries. Our data set also enables us to clearly differentiate between managerial and non-managerial (insider) ownership. Moreover, we are the first to take into account the 'non-optimality' of the ownership structure, which resulted from privatization, and to consequently distinguish between the desired (optimal) and actual ownership structure through the so-called ownership gap.

We start in the second section with an overview of managerial ownership as a corporate governance mechanism in developed market economies; the section further provides evidence on the role of managerial and insider ownership in transition economies. Section 3 discusses the characteristics and the dynamics of the managerial and insider ownership in Slovenia. The fourth section states the main hypotheses on the influence of managerial ownership on firm performance in Slovenia. The main empirical models underlying the analysis of the relationship between managerial ownership and a firm economic and financial performance are presented in the fifth section. The sixth section sets out the main empirical results and the last section concludes.

2. Managerial ownership as a corporate governance mechanism

The influence of managerial ownership[10] on enterprise performance is related to the view that a firm's value depends on the distribution of ownership between managers and other owners, as first underlined by Berle and Means (1932) and, later on, Jensen and Meckling (1976). Within this context and the so-called 'incentive argument', giving managers corporate shares makes them behave like shareholders. In an extreme case (Jensen and Meckling, 1976), we would have a firm with a single owner-manager and hence a complete alignment of the manager's and owner's incentives (no equity-related agency costs). The superior performance of firms with substantial managerial ownership could also be due to psychological reasons.[11] The theory of entrepreneurship, for example, promotes the idea that managers who are also large shareholders better perceive new business opportunities; as such, this theory complements the incentive theory somewhat since it provides an explanation of the positive effect of managerial ownership in firms with a relatively dispersed ownership structure. Bull (1989), for example, finds that due to this 'entrepreneur effect' firms that have been subject to a

[9] For more on this issue, see Štiblar (2003).
[10] With regard to managerial ownership, the literature mostly refers to inside owners. However, given the specifics of the Slovenian privatisation and the substantial share of non-managerial owners (employees, former employees and their relatives) in the capital of Slovenian firms, we use the term 'insider ownership' when referring to the ownership of all inside owners, while we use the term 'managerial ownership' when referring exclusively to the shares held by managers.
[11] For example, Mueller, E. and Spitz, A. (2002) argue that a manager as a sole owner might feel more involved with the company and hence perform better.

management buy-out normally perform better. After taking over the firm, managers in fact tend to concentrate on the maximization of the cash flow rather than on the mere maximization of current profits.

However, the relationship between managerial ownership and firm performance might not be monotonic since beyond certain levels equity incentives may lead to the expropriation (rather than improvement) of the firm's value. By increasing their ownership and voting stakes, managers in fact gain the opportunity to expropriate some corporate funds on their own behalf and at the expense of other shareholders, namely to gain some 'private benefits of control'. According to Barclay and Holderness (1991), the private benefits of control are one of the main reasons for the existence of blockholders around the world. If the desire to obtain these benefits overrules the incentive effect, managerial ownership could actually reduce a firm's value ('the entrenchment effect'). Excessive managerial ownership can also reduce the probability of a successful takeover and lead to 'positional conflicts[12]' (Stulz, 1988). Holderness and Sheehan (1988) report that firms with majority managerial ownership pay more compensation to their managers than firms where the majority of shares are held by outside owners.

In terms of the influence of the stated effects, empirical studies of market economies mostly evidence a non-monotonic relationship between managerial ownership and a firm's performance. Mork, Shleifer and Vishny (1988) find that firm performance (measured with the Tobin Q) rises as managerial ownership increases up to 5%, falls up to the 25% level and then slightly rises again.[13] McConnell and Servaes for 1,173 (1976) and 1,093 (1986) firms listed on the NYSE and AMEX find a similar relation (even when controlling for the firms' size, industry and outliers); the performance rises up to 37% of shares, decreases between 37% and 50%, while afterwards the relation becomes less clear. Similarly, Hubbard and Palia (1999) also report a quadratic form of the relation between ownership and performance with the maximum at 58%, while for a sample of smaller firms in Germany, Mueller and Spitz (2002) report a positive effect of managerial ownership up to an 80-percent level. Again, other authors (e.g., Demsetz and Lehn, 1985) argue that there is no relationship between managerial ownership and firm value since the ownership structure is an endogenous outcome of competitive selection in which various cost advantages and disadvantages are balanced out to arrive at an equilibrium organization of the firm. Moreover, managers' ownership is not exogenous but is an endogenous variable determined by different variables reflecting the business environment, firm characteristics, differences in the managerial contracting environment and, most importantly, firm performance itself (Demsetz and Lehn, 1985; Cho, 1987). Empirical studies based on a framework of simultaneous equations, which take into account the endogeneity of the managerial

[12] Managers try to protect their jobs even when they are inefficient. Shultz (1988) further finds that in firms with majority managerial ownership the probability of a hostile takeover equals 0.

[13] The authors perform a piecewise linear regression and control for factors that might jointly influence board ownership and firm value (R&D expenditures, advertising expenditures, debt-to-asset ratio, replacement cost of assets, industry effect).

ownership (Agrawal and Knoeber, 1996; Hubbard and Palia, 1999; Mueller and Spitz, 2002), find no strong support for the notion that managerial ownership positively affects firm performance.

Due to the specifics of transition and the specific function of insider and managerial ownership[14] the effect of managerial ownership on firm performance in transition is more complicated[15]. Empirical studies in transition countries mostly report a negative (Earle and Estrin, 1997; Carlin et al. 1995; Frydman et al., 1999; Claessens and Djankov, 1998) relationship between insider (or managerial) ownership and firm performance. Wright et al. (2002), for example, observe that firms with relatively high managerial ownership are more reluctant to dismiss employees; the latter is, according to the authors, a reflection of the managers' effort to gain support from the employees and hence preserve and further strengthen their privileged position. Firms with higher managerial ownership are characterized by lower managerial turnover and lower efficiency with respect to firms with more usual share of inside or outside ownership. The inefficiency of managerial ownership in Russian firms, corruption, political motives and incentives to expropriate the private benefits of control are also been reported as being related to managerial ownership by other studies (e.g. Boycko et al., 1994 and 1996).

For a sample of 706 Czech firms, Claessens and Djankov (1998) find no significant relation between managerial incentives and firm performance; the entry of new, skilled managers (managerial turnover) seems to be more important for corporate performance than the equity incentives themselves. As argued by the authors, due to a weak market for general managers and hence little scope for managerial turnover, the value of incumbency benefits to incumbent managers becomes more important and can easily exceed the value of benefits from equity ownership. Further, with limited trading in equity shares the ability of managers to obtain the true value of their equity is reduced. Last but not least, in cases where incumbent managers received equity holdings for free they tend to undervalue their holdings, use them to further entrench their positions and continue operating as before (Claessens and Djankov, 1998).

3. Managerial and insider ownership in the Slovenian post-privatization period

Slovenian managers and employees in most cases fully exploited the opportunity to buy firm shares at privatization and gathered substantial capital stakes, especially in smaller firms. In larger firms substantial shareholdings were obtained by institutional investors (Pension Fund and Restitution Fund, Privatization Investment Funds) and outside minority investors. With regards to the importance of the insider versus outsider distribution of shares and the rules of secondary share transactions, we mostly refer to two different groups of firms:

[14] Managerial ownership in transition often acts as a tool to induce a desired change in ownership rather than as an incentive to increase enterprise performance. For more, see Claessens and Djankov, 1998.
[15] For the efficiency of insider ownership and managerial ownership with regards to firm restructuring and sales to outsiders, also see Blanchard O., Aghion, P(1996).

- Public (listed) firms whose shares are listed on the Stock Exchange since they were partly distributed to the public. There are currently about 140 listed firms in Slovenia; these firms are subject to detailed regulation regarding transparency and minority investors' protection; and
- Non-public (unlisted) firms whose shares are not listed on the Stock Exchange and which did not opt for the public sale of shares while privatizing. We further divide these firms into firms where insiders gained the majority share (insider firms) and firms where insiders gained less than a majority share (outsider firms). While inside owners control the decision-making in insider firms, they do not have such power in outsider firms but normally retain enough strength to oppose the most important decisions (sale of the firm to strategic investors, listing on the Stock Exchange etc.). In the latter, inside owners mostly have the willingness but lack the funds to buy out the outside owners (the Funds), while the outsiders stay passive in the area of governance or, when active, are largely opposed by the insiders.

Table 3.1: Ownership structure at time of completed privatization (N=183)

Group of owners	All companies	Listed	Insider	Outsider
The state	**7.75%**	**6.78%**	**2.02%**	**11.92%**
Restitution and Pension Funds	21.60%	20.49%	21.28%	22.19%
PIFs (privatisation funds)	19.38%	17.65%	14.88%	22.99%
ALL Funds	**40.98%**	**38.14%**	**36.17%**	**45.18%**
Inside owners - managers	3.86%	1.40%	4.98%	3.95%
Inside owners – current employees	29.23%	21.88%	38.08%	25.80%
Inside owners – former employees	11.05%	7.48%	14.60%	9.89%
ALL Inside	**44.14%**	**30.77%**	**57.66%**	**39.65%**
Financial investors - domestic	4.80%	22.37%	0.63%	1.61%
Financial investors – foreign	0.03%	0.08%	0.00%	0.02%
ALL Financial	**4.83%**	**22.45%**	**0.63%**	**1.64%**
Strategic investors – domestic	2.00%	1.86%	3.55%	1.01%
Strategic investors – foreign	0.30%	0.00%	0.00%	0.60%
ALL Strategic	**2.30%**	**1.86%**	**3.55%**	**1.61%**
TOTAL (all groups)	**100.00%**	**100.00%**	**100.00%**	**100.00%**

Source: Survey MEOR & CEEPN- 2000

The ownership structure at the end of privatization and the emerging characteristics of Slovenian privatization are shown in Table 3.1, namely[16]:

1. The percentage of capital in the hands of strategic owners is quite limited (2.3 percent in all firms);
2. Foreign owners have somehow been excluded from the privatization process (0.33 percent share in all firms);
3. The state and state-controlled funds on average obtained 30 percent of firm capital (7.75 percent held directly by the state, 21.6 percent indirectly through state-controlled funds). The

[16] The data refer to the study by Simoneti et al. (2001).

state keeps playing a relatively important role in the governance of Slovenian firms and, through the state-controlled funds, in some firms it remains the largest shareholder;

4. Outside minority investors who gained ownership during the public sale of shares represent a significant investor group only in a small number of firms listed on the Stock Exchange;
5. The two main investor groups (inside owners and institutional outside owners) ended up with similar capital stakes; inside owners prevail in the insider firms, while state-controlled funds and PIFs prevail in the outsider firms;
6. Institutional investors are not a homogeneous group since there are large differences between state-controlled funds and the privately managed Privatization Investment Funds;
7. Inside owners include employees (on average, they gained 29.23 percent of firms' capital), former employees (11.05 percent) and management (3.86 percent). This group of owners was relatively homogeneous, at least at the beginning of privatization. We do not expect the group to be stable over time; former employees are most likely to exit while managers are probably going to increase their controlling power, especially in those firms where their interests do not coincide with the interests of employees.

3.1 Ownership dynamics in the post-privatization period

The figures in Table 3.2 reveal the intensity of the decline in the number of shareholders in listed and unlisted firms over the 1999-2001 period. Most prominent in the first year after privatization is the decline in the number of shareholders (including inside owners) in listed companies. The transfer of shares in these firms was in fact relatively easy and transparent. Shareholders in unlisted firms were more active in selling their shares in the years following 1999; the decline in the number of shareholders in these firms was mostly due to the sale of shares by employees in non-transparent (grey) markets.

Table 3.2: Dynamics of the number of shareholders[17] in the years following privatizations

	At the time of completed privatization		**1999**		**2000**		**2001**	
Unlisted	100%	481	75%	360	64%	308	55%	265
- insider	100%	470	71%	333	59%	276	51%	241
-outsider	100%	492	79%	387	69%	340	59%	288
Listed	100%	7,497	61%	4,576	54%	4,085	49%	3,653
Total	**100%**	**2,820**	**63%**	**1,765**	**56%**	**1,567**	**49%**	**1,394**

Sources: KDD and Privatization Agency

There have also been changes in the ownership structure of privatized firms (see Table 3.3). Employees' ownership has been shrinking in the listed firms (-6.78 percent)[18], while inside owners in

[17] Non-weighted averages.

outsider firms have been increasing their stakes (+10.22 percent) and aiming to achieve the majority. In insider firms, insiders are mostly retaining majority stakes.

Table 3.3: Changes in the ownership structure since the end of privatization to the end of 1999 (in percentage points)

Group of owners	All companies	Listed	Insider	Outsider
The state	**-4.69**	**-3.98**	**-1.47**	**-7.09**
Restitution and Pension Funds	-9.02	-6.49	-9.16	-9.78
PIFs (privatization funds)	-2.13	1.37	-0.31	-4.54
ALL Funds	**-11.15**	**-5.13**	**-9.47**	**-14.32**
Inside owners - managers	5.17	1.45	4.09	7.16
Inside owners – current employees	-2.19	-6.54	-4.52	0.85
Inside owners – former employees	0.35	-1.69	-1.39	2.21
ALL Inside	**3.33**	**-6.78**	**-1.82**	**10.22**
Financial investors - domestic	3.73	1.71	3.92	4.29
Financial investors – foreign	0.15	0.06	0.30	0.09
ALL Financial	**3.88**	**1.77**	**4.22**	**4.38**
Strategic investors – domestic	7.90	13.68	8.01	5.85
Strategic investors – foreign	0.72	0.44	0.52	0.96
ALL Strategic	**8.62**	**14.12**	**8.53**	**6.81**

Sources: Survey MEOR & CEEPN-2000

Most evident within the group of inside owners is the increase in managerial ownership (+5.17 percent), while employee ownership has been decreasing (-2.19 percent). The largest is the growth of managerial ownership in outsider firms (+7.16 percent) and insider firms (+4.19 percent), while this trend is much slower in listed firms (+1.45 percent).

3.2 The desired ownership structure from the managerial perspective

The estimation of the desired (optimal) ownership structure is based on the responses of Slovenian managers to our questionnaires about the optimal ownership structure of their firms. Similarly to other transition countries (Claessens and Djankov, 1998), managers have mostly been guiding the ongoing changes in terms of controlling Slovenian corporations. Hence, we expect the actual ownership structure to approach the desired level in the future years.

[18] In these firms, it is very difficult for the employees to gain the majority share. Moreover, they can sell their share at transparent prices and on the organised capital market.

Table 3.4: The ownership structure of privatized Slovenian firms: the actual ownership structure at the end of privatization, at the end of 1999 and the desired ownership structure

Group of owners	At the time of Privatiz.	End of 1999	Optimal	Change between Privatiz. and End of 1999	Optimal vs. Privatiz.	Optimal Versus End of 1999
The state	**7.75%**	**3.06%**	**1.55%**	**-4.69**	**-6.20**	**-1.51**
Restitution and Pension Funds	21.60%	12.58%	4.86%	-9.02	-16.73	-7.72
PIFs	19.38%	17.25%	6.44%	-2.13	-12.94	-10.81
ALL Funds	**40.98%**	**29.84%**	**11.31%**	**-11.15**	**-29.67**	**-18.53**
Inside owners – managers	3.86%	9.03%	21.80%	5.17	17.94	12.77
Inside owners – current employees	29.23%	27.04%	29.48%	-2.19	0.25	2.44
Inside owners – former employees	11.05%	11.40%	4.80%	0.35	-6.25	-6.60
ALL Inside	**44.14%**	**47.47%**	**56.08%**	**3.33**	**11.93**	**8.61**
Financial investors – domestic	4.80%	8.53%	7.31%	3.73	2.51	-1.22
Financial investors – foreign	0.03%	0.18%	0.61%	0.15	0.59	0.43
ALL Financial	**4.83%**	**8.71%**	**7.93%**	**3.88**	**3.10**	**-0.78**
Strategic investors – domestic	2.00%	9.90%	16.92%	7.90	14.92	7.03
Strategic investors – foreign	0.30%	1.02%	6.21%	0.72	5.91	5.19
ALL Strategic	**2.30%**	**10.92%**	**23.14%**	**8.62**	**20.84**	**12.22**

Sources: Survey MEOR & CEEPN – 2000 (N= 183).

The analysis of both trends up to 1999 and the desired ownership structure (see Table 3.4.) leads to the following conclusions:

1. The main trends characterizing the first years after privatization (up to the end of 1999) are expected to continue in the future: the ownership share of funds will decline, mostly on account of an increase in the ownership of strategic investors (up to 23.4 percent) and managers (up to the stated 21.8 percent);
2. The PIFs will accompany the state-controlled funds (whose share declined most in the first period) in existing firms in the second period;
3. While former employees kept their average stake in the first period (up to 1999), they are expected to sell their shares in the future (the expected decrease of their proportion of shares is from 11.4 percent to 4.8 percent); and
4. Foreigners are expected to appear among strategic investors in the second period (after 1999); their share in the capital of privatized firms is expected to rise from 1.02 percent to 6.21 percent.

There is a high level of dissatisfaction associated with the degree of actual ownership seen at the end of privatization. The actual share obtained by managers (3.86 percent) is well below the desired average level (21.8 percent)[19]; with regards to the latter, the reported desired (or optimal) level of managerial ownership varied among different firm groups (14.47 percent in listed firms, 20.54 percent in insider firms and 25.14 percent in outsider firms). At the end of 1999, the difference between the actual and desired level of managerial ownership remained high (14.3 percent for outsider firms, 11.48 percent for insider firms, 11.62 percent for listed firms). These discrepancies clearly show that Slovenian managers intend to boost their controlling power by increasing their own ownership stakes rather than by simply relying on the support of other inside owners. Managerial support for insider distribution and buy-outs as privatization methods may well have been guided by the fact that managers perceived the insider (employee) ownership as a transitional phase, resulting in pure managerial ownership in the period following privatization. The 'transitional' nature of employee ownership has been confirmed by several empirical studies. Nygid et al. (2004) for example, report that about 50% of the 151 large and medium-sized Slovenian firms changed from dominant[20] 'employee' ownership to dominant 'outside' ownership, either by non-financial companies or institutional investors. However, on the contrary to other countries (Russia for example), changes from dominant 'employee' to dominant 'managerial' ownership are still quite rare in Slovenia. At any rate, the observed transfers of ownership from 'non-informed'- inside owners to outsiders (or managers) certainly call for high transparency of share transactions, especially in non-listed firms.

4. Managerial ownership and firm performance in Slovenia: the main hypotheses

Although limited, the observed increases in managerial ownership raise the question of the impact of these changes on firm performance in the post-privatization period. The increasing ownership blocks could provide managers with the incentive to maximize firm value. Providing the right motivation to managers becomes even more important when considering the rent-seeking behavior of outside, institutional investors and the relatively dispersed ownership structure that characterized Slovenian firms at the end of privatization (see Prasnikar and Gregorič, 2002; Gregorič et al., 2000; Nuti, 1997). Regarding the latter, Prasnikar and Gregorič (2002) for example find that firms with stronger managers are better at promoting the internationalization of their activities, are most successful in exploiting market niches, developing new products and assign greater importance to financial goals;

[19] The average level of managerial ownership is also relatively low with respect to other market and transition economies. For example, top managers of corporations listed in the USA aggregately hold between 20 and 40 percent of the voting rights and actively participate in the firm's decision-making (Becht, 2001; Holderness and Sheehan, 2001). Board members of firms listed on the London Stock Exchange, for instance, represent the second most important group of blockholders and on average hold 11 percent of voting rights; about 65 percent of these shares are held by chief executives (Goergen and Reeneboog, 2001). Estrin et al. (1997) report a 17-percent managerial ownership, while substantially lower stakes (2,5%) have been reported for Czech Republic (Claessens and Djankov, 1998).

[20] An 'employee' dominant firm is any firm where employees hold the largest aggregate capital share than any other investor group (institutional investors, domestic non-financial investors, etc.).

managers successfully balance the interests of different interest groups, while their power increases with the shares of inside owners. However, with large ownership stakes the desire to expropriate the private benefits of control might outweigh any incentive effect associated with managerial ownership. The desire for entrenchment could be particularly strong in Slovenia due to the importance of managers as stakeholders prior to transition (see Prašnikar and Svejnar, 1991), managers' position in society, the low managerial turnover (see Kneževic et al., 2004) and the absence of an active managerial labor market. Despite the latter, the average level of managerial ownership in Slovenian firms at the end of 1999 was still below 5% and hence provided little room for entrenchment. Hence, the following hypotheses emerge:

H1: Given the low average share of managerial ownership, we expect that managerial ownership has on average a positive impact on firm performance.

Apart from managerial ownership, there are other mechanisms that owners use in order to solve the interests of their agents (mangers) with their own. They might decide to actively involve in control over the management of their firms (concentration of ownership and control), to implement performance-related schemes to remunerate managers or to require better disclosure on corporate affairs. Other empirical studies (see for example Slapničar et al., 2005) confirm that the variable part of managerial remuneration in Slovenia is still rather limited and that the managerial pay is a reflection of firm size rather than performance. On the other hand, ownership and control in Slovenian corporations has started to concentrate, reflecting the desire of the owners to gain a stronger control over their managers. Moreover, the listing rules on the Ljubljana Stock Exchange and the related disclosure requirements follow the recent European trends calling for more transparency and investor protection. Hence,

H2: Listing on the Stock Exchange (and disclosure requirements related to the latter) and stronger owners' involvement in monitoring (due to higher ownership concentration) the management are mechanisms that help reducing the agency problem. We thus expect them to have a positive effect on firm performance.

The different mechanisms (managerial ownership, outsiders' control, transparency and investor protection, etc.) could be either substitutes or complements in solving the conflicts between principals and their agents. With regard to the latter, we assume the following:

H3: Managerial ownership might substitute other mechanisms of agency problem solving. Hence, we expect the importance of managerial ownership for firm performance to be less strong in firms that are listed on the capital market.

We further estimate the effects of managerial ownership with regards to the desired (optimal) level of ownership – the one aligning the ownership of each of the different stakeholder groups with their importance for the firm success and the one balancing the positive and negative effects of ownership.

Here we assume the desired (optimal from the managerial point of view) ownership structure differs from the ownership structure resulting from privatization; there was neither time nor the political willingness to search for the 'optimal' owners during privatization. As a consequence, firms ended up with bigger or smaller differences between the desired (optimal) managerial ownership (as reported by managers) and the effective managerial share. We define this difference as the 'ownership gap'. The estimated average 'ownership gap' and hence the estimated frustration with the actual ownership for a sample of 183 firms is reported in Table3.4.[21] In this respect, we can draw the following hypotheses:

H4: The Slovenian mass privatization created a gap between the desired (optimal) and the actual ownership structure (ownership gap), which negatively influences firm performance. The larger is the ownership gap and hence the frustration with ownership, the worse is on average firm performance.

Regarding firm performance, we make two distinct assumptions. While successfully acquiring shares in their firms, managers in the transition period are probably unwilling to damage firm long-term performance (in terms of firm productivity). This, however might not be true with regard to firm financial performance since these results are short-term and have to be shared with the owners who are about to exit the firm. By lowering firm financial results, managers also lower the price of shares they acquire. In the absence of outside financing, managers might actually effectively expropriate corporate funds in order to finance share acquisitions (e.g. debt financing of the acquisition of a firm own shares; cross-ownership arrangements; cross-financing of management share increases among related firms etc.). These negative effects on firm financial performance are realized ex ante, namely prior to the actual increase of managerial ownership. Hence,

H4- a: Managerial dissatisfaction (frustration) with the ownership share has a negative impact on the short-term, financial performance of firms, while no such effects are expected with regard to firm economic (long-term) performance.

Given the characteristics of listed and unlisted firms (see Chapter 3.1), the reasons for share buying by management are expected to be quite varied. In listed firms with limited under-pricing, managers are willing to increase their stake only when they expect firm performance (and consequently their share value) to increase in the future. In unlisted firms with substantial under-pricing, management can realize capital gains even if there are no positive effects on firm performance. In this regard we expect that,

H5: Since the managers of listed firms have been buying shares at market prices and in a transparent way and since in these firms their reliance on insider support is relatively limited, the negative relationship between managerial ownership and firm financial performance should be less strong

[21] Here we use a simple quantitative measure of the gap as the average difference between the optimal and actual ownership stake in percentage points for the different owner groups.

than in unlisted firms where share transfers are often motivated by under-pricing and speculative reasons.

5. The empirical model and data

5.1 The data

The hypotheses on managerial ownership are tested on a sample of 136 firms in the period 1995-2003[22]. Firm accounting data were obtained from the Agency of Payments and have been deflated to the 1994 price level using NACE-2-digit PPI (producer prices indices), except the assets that have been deflated according to Slovenian accounting standards using the aggregate CPI (consumer price index). The data on the initial ownership structure and the type of privatization method were obtained from the Privatization Agency. Data on managerial ownership at the end of privatization, at the end of 1999 and data on the 'optimal' managerial share were obtained from a survey. The response rate was relatively high (38%) but limited the size of our sample to 183 firms. However, not all firms reported all data, namely the managerial share at the end of privatization, the managerial share at the end of 1999 and the optimal managerial share. Here we perform one additional correction. In order to prevent any inconsistency in the data, we only consider the firms that reported all the three stated measures (as well as the data for other ownership groups). This final correction reduced our sample to 136 firms. Among these, 26 firms are listed on the official or free market of the Ljubljana Stock Exchange. Data on the shares/identity of the largest blockholders were obtained from the Central Securities Clearing Corporation. Detailed descriptive statistics for the ownership variables used in the regression models are presented in Table 5.1 below. Descriptive statistics for other variables used in the regression model are presented in the Appendix (Table 5.1_A).

Table 5.1: Descriptive statistics for the ownership variables used in the regression model (all the variables are in %)

	Managerial share End of Privatiz.	**Managerial share End 1999**	**Increase in managerial ownership 99-privat.**	**Ownership Gap End 1999**	**First Largest Shareholder End 1999**	**Five Largest Shareholders End 1999**
Mean (sd)	2.89 (7.54)	5.03 (7.93)	2.15 (9.53)	9.26 (15.64)	29.14 (17.53)	61.03 (17.12)
P10	0.00	0.00	-1.46	-5.56	13.71	43.61
P25	0.00	0.15	0.00	-0.30	19.45	48.14
P50	0.93	1.46	0.27	6.56	23.42	57.65
P75	2.01	6.92	3.31	16.11	34.86	68.00
P90	6.00	12.10	11.00	30.00	54.52	88.56
N	**136**	**136**	**136**	**136**	**136**	**136**

As evidenced in the Table 5.1, the percentage of shares in the ownership of Slovenian managers is rather negligible; at the end of 1999, they on average held 5.03% of capital and had increased their share by slightly more than 2 percentage points since privatization. Their ownership appetites however remain substantial; managers were satisfied with their ownership share in only about 25 percent of firms in the sample (as at the end of 1999), while in 25% of firms they would like their ownership participation to be higher by at least 16.1 percentage points. In about half of the firms in the sample, there is a controlling[23] owner; the average stake of the first largest shareholder at the end of 1999 amounted at 29.14 %, while half of the firms had an owner with at least 23.42 % of ownership rights.

5.2 The empirical model

Hypotheses on economic efficiency are tested by applying a standard differenced Cobb-Douglas production function approach (1) with estimations using long differences (i.e. 5-year changes over 1999 – 2003 period) in the output, labor and capital inputs, and adding variables reflecting managerial ownership and controlling for industry. The analysis of financial performance in the 2003-1999 period is based on level of EBITDA/SALES ratio regressed on selected ownership variables, firm size, long-term debt and industry dummies (pooled regression). Previous empirical studies show that EBITDA (an approximation of firm cash flow) is a better measure of a firm financial performance (than, for example, profits) since it is most reliable and allows little accounting discretion[24].

A serious issue that needs to be addressed when analyzing the performance of firms after privatization is the endogeneity (selection) of ownership at the time of privatization. In fact, one could easily argue that the selection of privatization method and the resulting level of managerial (inside) ownership (explanatory variable) depend on the initial operational characteristics of the firms. This might be particularly true in Slovenia since firms were given the discretion on the allocation of 40% of firm capital[25]. Hence, unmeasured variables (related to pre-privatization period) might affect both the level of managerial ownership (inside ownership or optimal level of managerial ownership) and firm performance. As a consequence, regressing ownership on firm performance would yield biased

[22] A detailed description of the firms in the sample is provided in Simoneti et al. (2001).
[23] According to Slovenian Takeovers Act (1997), control is acquired when crossing 25% of ownership (voting) rights.
[24] Financial measures based on net profits are particularly problematic in Slovenia due to the peculiarities of the country's accounting system, namely the treatment of the revaluation (revalorisation) of balance sheet items, which directly affect firm profits. Up until amendments to the Companies Act (2001) and the introduction of new Accounting Standards (SAS, 2002,) Slovenian firms stated their assets, claims, liabilities and capital at their actual values, revaluated on the basis of the retail index or, in the case of short-term investments and long-term investments in loans or liabilities, on the basis of an agreement with their creditors or debtors. Normally, this 'revaluation' reduced firms' profits and caused an under-valuation of Slovenian firms with respect to Western firms (International Accounting Standards only provide for this kind of revaluation in a hyperinflation scenario) and provided firms with a large amount of discretion in drawing up their financial statements.
[25] See section 1.

coefficients. We address this problem as follows. In the production function, we measure the dependent variable (sales) in first-differences (i.e. growth in sales) in order to control for the possibility that managers have acquired better performing firms, while accounting also for other firm-specific effects. We moreover apply the Heckman (1979) two-step method by referring to observed individual performance of firms in the pre-privatization period.

Consider the following total factor productivity (TFP) growth accounting model:

(1) $y_{it} = \alpha k_{it} + \beta l_{it} + \delta_t + \eta_i + \gamma \mathbf{a}_{it} + e_{it}$, where $\alpha + \beta \neq 1$,

where y_{it} is log of total sales, k_{it} and l_{it} are log capital stock and log labor inputs (there is no restriction on constant returns to scale), and δ_t is a year-specific intercept which serves as a control for common economic policy shocks. Of the error components, η_i is a time-invariant unobserved firm-specific effect and e_{it} is the usual error term. $\mathbf{a}_{it}$ is an identified productivity (TFP) shock that is time-varying and is determined by the impact of the ownership structure and changes in ownership structure (managerial ownership, increases in managerial ownership, ownership gap).

For the sake of simplicity of the exposition, let us denote $\mathbf{z}_{it}$ as a matrix of inputs k_{it} and l_{it}. We assume exogeneity between inputs and the error term ($\mathrm{E}(\mathbf{z}_{it}' e_{it}) = 0$). On the other hand, as discussed above, there is evidence that the initial performance of firms at the time of privatization may be correlated with selection of the ownership structure. Thus we can argue that $\mathbf{a}_{it}$ is correlated with the error term, i.e. $\mathrm{E}(\mathbf{a}_{it} e_{it}) \neq 0$, which means that the ownership structure is endogenous. There is a simple formal test of endogeneity of the ownership structure that we shall apply subsequently. Based on the Hausman (1978) test of endogeneity, we first regress the endogenous ownership structure on the set of inputs:

(2) $\mathbf{a}_{it} = \pi \mathbf{z}_{it} + v_{it}$, where $\mathrm{E}(\mathbf{z}_{it}' v_{it}) = 0$,

and then test whether the structural error e_{it} is correlated with the reduced form error v_{it}:

(3) $e_{it} = \sigma v_{it} + \varepsilon_{it}$, where $\mathrm{E}(v_{it} \varepsilon_{it}) = 0$ and $\mathrm{E}(\mathbf{z}_{it}' \varepsilon_{it}) = 0$.

Combining equations (1) and (3), we get the complete regression model:

(5) $y_{it} = \phi \mathbf{z}_{it} + \delta_t + \eta_i + \gamma \mathbf{a}_{it} + \sigma v_{it} + \varepsilon_{it}$,

where v_{it} in fact denotes the OLS residuals from the reduced form regression (2). All of the coefficients, ϕ, γ and σ, can be consistently estimated by OLS and the usual t statistic (or heteroskedasticity-robust t statistic) is a valid test of the null hypothesis that $\sigma = 0$. Thus, $\mathbf{a}_{it}$ is

exogenous only if $\sigma = 0$. Rejecting it, however, requires that one seriously takes care of the simultaneity bias using one of the available methods.

The most straightforward method of dealing with the endogeneity bias is to estimate model (1) by 2SLS.[26] Interestingly, this method has been widely neglected in previous research on the impact of ownership on firm performance. A related method to the above 2SLS, which has been widely used in related empirical work, is to use a kind of instrumental variable (IV) approach, where pre-privatization performance indicators are used as instruments for endogenous ownership variables.[27]

The third, and most widely used, method in related empirical work so far has been to treat the impact of simultaneity between ownership and performance implicitly as an omitted variable in the sense of unobserved individual firm-specific effects (i.e. η_i) or group-specific effects (κ_j, where *j* denotes ownership group).[28] In the panel data framework, one can effectively deal with this problem by using the fixed-effects (FE) or first-difference (FD) estimator. Time-demeaning or first-differencing equation (1), however, helps only to wipe out the time-invariant unobserved firm- and group-specific effects η_i and κ_j. However, we do not solve the problem when the impact of ownership on firm performance behaves according to a distributed lag model, where productivity shocks stemming from ownership change are not constant over time.

Yet another method suitable to control for the endogeneity of the privatization method selection is to use the Heckman (1979) two-step method by referring to observed individual performance of firms in the pre-privatization period. The data on initial performance of Slovenian firms in the pre-privatization year 1994 in fact confirm significant differences among firms with different ownership structure. Simoneti et al (2005) demonstrate significant initial differences among firms selected into one of different ownership categories.

In this paper we control first for the sample selection bias (i.e. for a bias that firms were selected for manager buy out accordingly to their pre-privatization performance). In addition we then take account of selection of the amount of managerial ownership share. The econometric approach is similar in both cases.

Using the Heckman procedure, in the first step, the probability of firms to be selected for a managerial buy out is being estimated. This probability is conditional on firms' operational

[26] See Wooldridge (2002) for more details.

[27] See Djankov and Murrel (2002) for a good overview on studies that used either simple 2SLS or 2SLS with pre-privatization firm performance to deal with the privatization simultaneity bias problem.

[28] Brown, Earle and Telegdy (2003) use the latter approach, where they assume that firms that will become private at some point share a common productivity difference that is fixed over time. Therefore, they include group-fixed effects for firms that are eventually privatized into their estimation model.

characteristics in the pre-privatization year 1994. We estimate the probability of p_{it} [0, 1] using the following probit (multinomial logit) model:

$$\Pr(p_{it} = 1 | \mathbf{M}_{it}) = G(\omega \mathbf{M}_{it}), \quad (6)$$

where $\mathbf{M}_{it}$ is a matrix of operational characteristics of firms. We assume that errors are IID distributed and have an independent extreme-value distribution. The control variables contained in $\mathbf{M}_{it}$ for ownership selection model are sales, capital per worker (which controls for capital intensity), value added-to-labor ratio (which controls for differences in labor productivity across firms), profits-to-sales, and export propensity (exports-to-sales ratio). The dependent variable is a dummy variable reflecting whether firms have been privatized to managers.

The control variables contained in $\mathbf{M}_{it}$ for managerial ownership share selection model, however, are in addition to the above, variables that define financial environment of the firm; i.e. long-term debt.[29] In this case the managerial ownership share variable is transformed into a dummy variable according to the distribution of the managerial ownership share into 4 quartiles. The probability of firms to be privatized by managers by a larger extent is being estimated using the multinomial logit model.

Both the sample selection (probit) as well as managerial ownership share selection (multinomial logit) model are being estimated using the initial, pre-privatization data (i.e. year 1994).

Table 5.2 about here

Results for the sample selection model (see Table 5.2) shows that there was a higher probability that firms will be selected by managers for a manager buy-out the less productive and less capital intensive and the more export oriented were firms in the pre-privatization period. Size and profitability do not seem to drive managerial selection process.

Table 5.3 about here

On the other hand, results for the managerial ownership share selection (multinomial logit) model show no much difference in terms of performance of firms that have been acquired by managers in different proportions. More specifically, firms with low managerial ownership share (first quartile) do not seem to be different from firms with a much higher managerial ownership share. The only differences being a high importance of size in firms in the second quartile, and a high importance of profits to sales in firms in the fourth quartile of managerial ownership share.

In the second step, following Amemiya (1984), we use the predicted values based on an estimated coefficient from the probit and multinomial logit model in order to calculate a vector of so-called inverse Mills' ratios[30] for individual firms. The latter should capture the effect of the 'omitted variables' that are both associated with performance and ownership structure and enter as a control variable into our basic model (1). We apply the above-discussed methods when estimating our basic model (1) in order to check for robustness of the results.

6. Empirical results and discussion

The results of regression models are presented in Table 6.1 for economic performance (TFP model) and in Table 6.2 for financial performance (measured by EBITDA/SALES ratio). Consistently with Hypothesis 1, we observe that managerial ownership has on average a positive and significant effect on firm economic performance (models 3-5 in Table 6.1). This positive effect is probably due to the fact that the size of managerial ownership is still modest and provides no room for entrenchment. In fact, at the end of 1999 the average managerial ownership share did not exceed 12 percent in about 90 percent of the firms in the sample (see Table 5.1). The Hypothesis 1 is further confirmed when we regress sales' growth on the increase in the managerial share over the 4-year period from the end of privatization. Although limited, increases in managerial shareholding have a positive impact on firm economic performance; the relation is however significant only at a 10 percent level (models 1 and 2). The firms with higher percent of managerial ownership on average perform better also in financial terms (model 9, 10 in Table 6.2).

The importance of managerial ownership is lower in listed firms (see model 8, Table 6.1) but the difference is not statistically significant. This somehow indicates that managerial ownership as a corporate governance mechanism substitutes (rather than complements) firm listing. On average, listed firms perform better. Similar conclusion can be made in relation to ownership concentration (see in particular models 5 and 8 in Table 6.1). As predicted in the Hypothesis 2, all the three mechanisms (ownership concentration, managerial shareholdings and stronger regulation/disclosure due to listing on the Stock exchange) are actually contributing to the agency problem solving and have some significant positive effects on the economic performance of Slovenian firms. The inclusion of other explanatory variables[31] provides no additional value and doesn't harm the robustness of our results. The impact of firm debt, alternative variables of ownership concentration, the level of inside ownership or its average increase over 1999-95 period turned out to be non-significant for firm performance.

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[29] Note that in order to avoid the possibility of multi-correlation in the financial performance model, we use Mills ratios calculated without the EBITDA/sales variable.

[30] Inverse Mills' ratios are calculated as the ratios between the normal density and its cumulative density function. Note that calculation of inverse Mills' ratios is different for treated (i.e. firms observed throughout the sample) and non-treated observations (i.e. firms observed in the initial year but then dropped due to bankruptcy, statutory changes, etc.).

[31] For the sake of brevity, we do not report the results, since they are all statistically insignificant.

- Table 6.1 about here-

Hypothesis 4 is tested in the model 7 (Table 6.1). The higher is the ownership gap (the difference between the optimal and actual level of managerial ownership at the end of 1999), the lower is on average cumulative growth in sales over the following 4 years; the relation is however only significant at a 10 percent level and doesn't differ according to firm listing on the Stock exchange (model 9). On the other hand, the relation between ownership frustration and firm financial performance is negative and statistically significant for non-listed firms. This confirms the Hypothesis 4-a. It's less likely that the managers would intentionally 'destroy' the economic value of the firms they acquire. However, by lowering firms' financial results (on a short-tem) they actually lower the price of shares they acquire.

- Table 6.2 about here-

On the contrary to the non-listed firms, the effect of the ownership gap in listed firms is not negative (se model 13, Table 6.2). While an increase in the ownership frustration by 1 percentage points decreases financial performance by (on average) 0.1 percentage points, it actually exerts a positive effect (of + 0.17 percentage points) in the firms listed on the capital market. This again confirms that listing on the Stock exchange is beneficial for firms and their shareholders and it represents an efficient corporate governance mechanism; it actually prevents the expropriation of corporate funds by 'greedy managers'. On the other hand, we observe no significant effect of firm size, indebtedness or other controlling variables in relation to firm financial performance.

7. Conclusions

Slovenian managers value power and control. This assumption finds confirmation in the wide managerial support to inside privatization, which provided the managers with 'hidden' support of the employees, namely with a tool for ensuring their discretionary power and fighting the influence of outsiders. It finds confirmation in the desires of the managers for more ownership in the firms they manage and in their efforts to influence the post-privatization ownership changes. Despite the differences in the chosen privatization method, the Slovenian ownership trend does not differ substantially from the trends in other transition countries. Ownership has been concentrating in the hands of outside owners; within the transfers of control from insiders to outsiders, managers have been strengthening their power by expanding their own ownership stakes.

Our empirical findings suggest that managers' participation in firm ownership has on average a positive effect on firm performance. This provides additional confirmation to theoretical arguments claiming that giving managers corporate shares makes them behave more like owners; they give more focus to the maximization of shareholder value, exploit business opportunities better and adopt more long-term oriented decisions. Apart from managerial ownership, we find evidence on two additional

mechanisms that improve the agency relationship in Slovenian firms: higher ownership concentration and stricter disclosure requirements due to firm listing both positively effect firm performance. Listing is beneficial also with regard to the 'potential' expropriation of corporate funds for financing increases in managerial ownership. While there is evidence that managerial dissatisfaction with their ownership negatively affects firm financial performance in non-listed firms, the influence turns out positive in the firms on the Stock Exchange. Given the lack of transparency in non-listed firms, lowering financial results provides their managers with a way to reduce the costs of the shares they want to acquire. Due to higher transparency of corporate actions and corporate transactions, such behavior is largely limited in listed firms.

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APPENDIX

Table 5.1_A: Descriptive Statistics for the variables used in the regression models (136 firms)

	Mean (Sd)	**Median**
Sales (in 000 Euro)	16 817 (35 916)	4 922
EBITDA/sales 2003-1999 (in %)	5.68 (9.30)	5. 33
Capital (in 000 Euro)	17 524 (37 618)	5 519
Labor	285 (404)	134
Long-term debt (in 000 Euro)	1 182 (3 835)	112.6
Managerial ownership (end of 99)	5.03 (7.93)	1.46
Growth in managerial share	2.15 (9.53)	0.27
Ownership gap	9.26 (15.46)	6.56
C5 (five largest owners)	61.03 (17.12)	57.65

Table 5.2: Sample selection (Results of probit model)

	Coef.	z-stat	P>z
p	-8.4E-10	-0.38	0.703
va_l	-2.1E-05	**-1.96	0.05
k_l	-1.1E-06	**-2.34	0.019
exp	0.004	***3.23	0.001
pf_p	0.034	0.40	0.689
Const.	-0.046	-0.33	0.744
Sec dummies	Yes		
N of obs.	3397		
LR chi2(35)	260.5		
Pseudo R2	0.0559		

Dep.var: Selection dummy variable

Table 5.3: Selection of managerial ownership share (Results of multinomial logit model)

mng_own=Q2	**Coef.**	**z-stat**	**p**
p	1.6E-07	*1.71	0.087
va_l	-0.0004	-1.01	0.311
k_l	0.0001	1.14	0.255
exp	0.0140	0.96	0.339
k_eq	-0.0022	-0.09	0.926
long term liab.	1.6E-06	0.81	0.417
pf_p	7.5139	1.26	0.209
mng_own=Q3			
p	-1.3E-08	-0.15	0.879
va_l	8.6E-06	0.02	0.98
k_l	0.0001	1.45	0.146
exp	-0.0180	-1.1	0.272
k_eq	-0.0241	-1.33	0.185
dolg_obv	1.1E-06	0.52	0.601
pf_p	8.1966	1.34	0.18
mng_own=Q4			
p	-3.4E-08	-0.41	0.679
va_l	-0.0003	-1.24	0.216
k_l	0.0001	1.34	0.181
exp	-0.0034	-0.23	0.816
k_eq	-0.0221	-1.15	0.249
dolg_obv	1.2E-06	0.6	0.547
pf_p	15.4861	**2.24	0.025

Dep. var.: Managerial ownership share dummy (mng_own = [1,0] for each of 4 quartile)
comparison group: mng_own=Q1

Table 6.1: Impact on managerial ownership on firm productivity; dependent variable: growth of sales (cumulative difference over 2003-1999 period)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Δ managers (99-95)	0.004 (1.55)	0.005 (1.86)*					
Managerial ownership 99 (%)			0.008 (2.24)**	0.009 (2.68)***	**0.010 (3.01)***		
Logit (managerial own)[3]						0.045 (1.55)	
Ownership gap [1] (99) in % points							-0.002[5] (-1.33)
Ownership concentration C5[3]					**0.004 (2.30)****	0.004 (1.60)	
Listed	0.097 (1.37)	0.091 (1.30)	0.108 (1.53)	0.102 (1.48)	**0.129 (1.88)***	0.135 (1.58)	0.08 (1.20)
Δ capital	0.414 (4.93)***	0.374 (4.39)***	0.405 (4.87)***	0.359 (4.27)***	**0.361 (4.39)***	0.402 (3.89)***	0.388 (4.53)***
Δ labor	0.440 (9.44)***	0.449 (9.74)***	0.444 (9.68)***	0.455 (10.07)***	**0.463 (10.44)***	0.455 (8.98)***	0.447 (9.61)***
Cons.	0.953 (1.82)*	0.338 (0.56)	0.943 (1.82)*	0.257 (0.44)	**0.023 (0.04)**	0.299 (0.44)	0.531 (0.88)
Size (sales 99)		0.052 (2.00)**		0.057 (2.25)**	**0.057 (2.30)****	0.067 (2.04)**	0.041 (1.59)
Sector Dummies	Yes	Yes	Yes	Yes	**Yes**	Yes	Yes
Corrections for Selection	Yes	Yes	Yes	Yes	**Yes**	Yes	Yes
Adj R^2	0.73	0.74	0.74	0.75	**0.76**	0.77	0.73
F stat	10.63	10.79	10.98	11.28	**11.62**	9.72	10.56
No. observations	136	136	136	136	**136**	107[4]	136

t-statistics in parentheses; ***, ** and * indicate the statistical significance of coefficients at 1, 5 and 10 percent, respectively

Table 6.1: Impact on managerial ownership on firm productivity; dependent variable: growth of sales (Cont.)

	(8)[2]	(9)[2]
Managerial ownership 99 (%)	0.009 (2.79)***	
Managerial ownership*listed	-0.023 (-1.34)	
Ownership concentration C5	0.003 (2.02)**	
Listed	0.208 (2.35)**	0.053 (0.61)
Ownership gap (99)		-0.003 (-1.67)*
Ownership gap*listing		0.004 (0.80)
Δ capital	0.401 (4.93)***	0.411 (4.85)***
Δ labor	0.452 (10.06)***	0.438 (9.36)***
Cons.	0.751 (1.46)	1.011 (1.92)*
Sector Dummies	Yes	Yes
Corrections for Selection	Yes	Yes
Adjusted R^2	0.75	0.73
F stat	11.13	10.31
No. observations	**136**	**136**

Notes to Table 6.1

1 – Ownership gap 99 is the difference between optimal level of managerial ownership and the current level of managerial ownership at the end of 1999.

2 - Logit transformation = ln ((m/(100-m) where m is the actual managerial share in %.

3 - We tried different alternative measures of ownership concentration, including the share of the largest owner, Herfindal index, etc. For the sake of brevity, we present the impact of C5 (the share of the five largest owners) since turned to be the most significant.

4 - The loss in the number of observation is due to the missing values for logit transformation of managerial ownership, when the latter is equal to 0.

5 - The significance and the size of the coefficient only slightly change when excluding (or including) initial sales level (size) or corrections for sample selection bias.

The results are not significant when replacing managerial ownership with the inside ownership. The effect of other explanatory variables, such as firm long-term debt, also turned out to be largely insignificant in all model specifications.

Table 6.2: Impact of managerial ownership on firm profitability (EBITDA in total SALES over 2000-2003 period)

	(10)	(11)	(12)	(13)	(14)
Managerial own. 99 (in %)	0.121 (1.69)*				
Logit (man. ownership 99)		1.539 (2.74)***			
Ownership gap 99 (in % points)			-0.06 (-1.76)*	-0.106 (-2.77)***	**-0.099** **(-2.54)****
Ownership concentration C5		0.010 (2.08)**	-0.024 (-0.72)		**-0.009** **(-0.26)**
Listed	3.767 (2.64)***	3.799 (2.24)**	3.589 (2.48)**	1.646 (1.02)	**1.555** **(0.34)**
Listed*ownership gap				0.226 (2.71)***	**0.216** **(2.55)****
Ln (long-term debt)[(1)]	0.248 (1.19)	0.291 (1.18)	0.248 (1.19)	0.198 (0.96)	**0.017** **(0.07)**
Size (log sales 99)					**0.799** **(0.126)**
Cons.	-29.502 (-2.48)**	-32.533 (-2.56)***	-25.794 (-2.14)**	-26.299 (-2.22)**	**-35.011** **(-2.62)*****
Sector Dummies	Yes	Yes	Yes	Yes	**Yes**
Corrections for Selection	Yes	Yes	Yes	Yes	**Yes**
Adj R^2	0.23	0.26	0.23	0.24	**0.24**
F stat	4.87	4.52	4.75	5.00	**4.82**
No. observations	483	384[(2)]	483	483	**483**

t-statistics in parentheses; ***, ** and * indicate the statistical significance of coefficients at 1, 5 and 10 percent, respectively

Notes to Table 6.2

1 -The results don't change when regressing total debt as the explanatory variable.

2 -The loss in the number of observation is due to the missing values for logit transformation of managerial ownership, when the latter is equal to 0.