Ownership Structure, Corporate Governance, and Enterprise Performance: Empirical Results for Ukraine

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Abstract

This paper examines the effect of ownership structure on corporate governance and performance of privatized enterprises in transition. The data are taken from a survey conducted in 2001 on 202 medium and large firms in Ukraine for the period 1998-2000. The ownership structure is measured by the percentage of shares held by each type of owner (state, managers, workers, Ukrainian concentrated outsiders, foreign concentrated owners, and stake-holding shareholders). Performance is measured by sales per employee. Regression analysis is used to test the hypothesis that concentrated outside ownership influences performance positively and to detect non-linear effects of ownership variables on performance. In contrast, with important previous studies on enterprise restructuring in Ukraine [Estrin and Rosevear, 1999], significant ownership effects on performance are found. Insider ownership (being a special case of stakeholding ownership) is found to have a significant non-linear effect on performance—positive within a lower range but negative from a threshold close to majority ownership onwards. In general, Ukrainian outside owners do not have a significant effect on performance. However, stakeholding ownership by customers affect sale prices and performance negatively. The most robust results are obtained for the effects of concentrated foreign ownership, both for levels of the respective variables in each year and for changes from one year to the other. The impact of foreign ownership on performance is significantly non-linear: its effect is positive only up to a level that falls short of majority ownership. It is concluded that this non-linearity is due to an institutional environment still adverse to foreign direct investment. (JEL P31, L33, G30)

Introduction

In earlier studies, the factors exerting a positive effect on enterprise restructuring in transition economies ownership emerged, besides competition and hard budget constraints, as a decisive determinant. The focus in these studies was directed mainly at the dichotomization into state *versus* private ownership. Privatization was generally found to have had a beneficial effect on the restructuring measures of former State-Owned Enterprises (SOEs) and their performance [Megginson and Netter, 2001; Djankov and Murrell, 2002]. One may question whether and how the ownership structure affects the performance of enterprises in transition. Different types of owners (insiders *versus* outsiders or concentrated *versus* dispersed owners) may differ in their impact on enterprise performance in transition since the ownership

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structures created in the privatization process have not yet adjusted themselves equally according to the corporate governance requirements for value maximizing management of the enterprises. Ownership structure matters because it contributes to the solution of corporate governance problems.

In this paper, the findings are reported about the effect of ownership structure on performance from a survey of 202 medium and large industrial firms from four regions in Ukraine. In the two best known studies on enterprise performance, corporate governance and ownership in Ukraine [Estrin and Rosevear, 1999 a, b], no positive performance effects from outsider (including foreign) ownership were detected. Rather, restructuring improvements were related to insider ownership, while the apparent failure of outsider ownership seemed hard to explain. In this paper, the author draws on the view, emphasized by Nuti [1997], that corporate governance is not just confined to the principals-agent problem of monitoring and controlling the management in order to ensure value maximization in the interest of shareholders, but also involves the solution of principals-principals problem of conflict of interest between shareholding stakeholders in the firm and pure shareholders. This perspective on the corporate governance problem implies the hypothesis of a non-monotonic relationship between performance and the size of shareholding by stakeholders. The aim of this paper is to test this hypothesis.

The next section of the paper delineates the two aspects of the corporate governance problem relevant for enterprises in transition. Then, data are briefly described. The following section describes and interprets the results from the regression analysis in which significantly positive non-monotonic impacts of manager, worker, and in particular, foreign ownership on performance measured by sales per employee is found.

Ownership Structure and Performance: Theoretical Considerations

Corporate governance problems do not arise from separation of managerial control from ownership *per se* but from multiple ownership in a company. In case of a single non-managing owner, the agency problem can be solved by monitoring mechanisms and incentive schemes that make the management pursue the owner's interests if the costs of monitoring are outweighed by the benefits accruing to the owner who bears the costs of monitoring. In fact, in this case, the separation of ownership from management is even more likely to result in performance of the firm closer to value maximization than in the case of owner-managed enterprises, since owner-managers derive satisfaction from non-pecuniary aspects of their engagement which they trade off against profits [Jensen and Meckling, 1976; Demsetz, 1983]. This internal trade-off by utility-maximizing owner-managers does not necessarily lead to any social inefficiency nor does the incurrence of agency costs by the single outside owner due to this voluntary separation from management.

In enterprises in which ownership (control rights and residual profit rights) is shared between several individuals with different preferences about non-pecuniary outcomes or the timing of profit payoffs, conflicts may arise if the transferability of ownership rights is restricted either by law, as with partnerships and closed corporations, or by imperfections of the stock market. Such conflicts lead to policies which are sub-optimal relative to the criterion of value maximization on which the non-managing shareholders of a public (open) corporation (the shares of which are traded on an efficient stock exchange) would be able to agree. Therefore, in developed market economies, partnerships and closed corporations are typically formed by owners with similar tastes (family businesses) or are found in fields of activity where the specific human capital, provided by the owners, matters most and the owners are financially well diversified [Fama and Jensen, 1985]. This does not hold true for

a country such as Ukraine where the large, formerly state-owned enterprises have been privatized as open joint-stock companies and where an efficient stock market has been lacking. In mature market economies, the transaction costs of attaining an adequate corporate form and ownership profile are relatively low and ownership structures are endogenous and close to equilibrium; in transition economies, they are the result of political and administrative decisions; and in slowly reforming countries, they are exogenous with respect to the firms' performance and restructuring needs. For this reason, the empirical correlation between different ownership structures and enterprise performance can be expected to be weak or inconclusive in data for highly developed economies [Demsetz and Lehn, 1985], while data from transition countries may provide evidence for the impact of ownership on performance [Djankov and Murrell, 2002].

The (closed or open) joint-stock companies that have resulted from the privatization (or corporatization) of medium and large enterprises are characterized both by the delegation of managerial functions to professional executives and by multiple ownership (unless 100 percent of the shares are still held by the government privatization agency). Therefore, as Nuti [1997] has pointed out, they are potentially affected by two types of corporate governance problems: securing the control of shareholders over managerial discretion and resolving the conflicts of interest arising from the existence of shareholding stakeholders.

The first kind of corporate governance problems is the classical one which has received most of the attention in the literature. It arises from the dispersion of shareholder ownership, either in the form of dispersed outside ownership, as in publicly held companies in western countries, or due to voucher privatizations in transition countries, or in the form of dispersed inside ownership, such as workers in Ukraine. Since the individual shareholder's marginal cost of monitoring the management is bigger than his marginal benefit from it, free-riding on the efforts of the other shareholders is a dominant strategy. One solution to this kind of corporate governance dilemma is provided by a well-functioning stock market, such as a market for corporate control [Manne, 1965], which exposes underperforming managers to the threat of a takeover. While the Anglo-Saxon model relies on the potential appearance of a dominant outside shareholder, the German-Japanese model [Nuti, 1997] counts on the actual presence of one major strategic shareholder (or very few blockholders, such as banks) who would have the incentives to enforce value maximization on the part of the management.

Since an efficient market for corporate control is still missing in transition countries, such as Russia and Ukraine, most studies on ownership and performance in transition have put their expectations in the evolution and beneficial effects for restructuring of more concentrated ownership structures, in particular concentrated outside (and foreign) ownership. Also, both corporate control models rely on a workable market for top management, which in the first phase of transition, in particular of the Commonwealth of Independent States (CIS) countries, was also lacking [Akimova and Schwödiauer, 2001]. Without such a market, neither the disciplining of incumbent managers will be overly successful nor will their eventual replacement lead to a significant improvement in performance.

While the first kind of corporate governance problems are of the principals-agent type, the second kind refers to principals-principals problems. Not all kinds of conflicting interests between different groups of shareholders constitute a corporate governance problem detrimental to the performance of the company. One type of conflict in connection with multiple ownership and heterogeneous preferences is due to capital market imperfections, which are severe in slow-reforming transition economies. It may arise between large, strategic shareholders pursuing long-run value-maximizing goals and small private shareholders more interested in currently paid-out dividends because of their liquidity constraints. This is not considered a corporate governance problem. The situation is completely different for shareholding stake-

holders [Nuti, 1997]. A stakeholder is an economic agent who has an interest in the firm or in some of its activities that is not based on a claim to its residual stream of profits. Stakeholders may be suppliers of inputs, for example, employees (managers and workers), up-stream firms, customers, banks and other creditors, competitors, local and regional authorities, and the central state. The categorization of shareholders into stakeholders and non-stakeholders is broader and, at the same time, more relevant than the more common distinction between inside owners—which are a special kind of shareholding stakeholders, such as employees, including managers, and their family members possessing shares in the enterprise—and outside owners, who may be stakeholders or not. Stakeholding outside owners seem to be of particular importance in transition economies in the early stages of reform. They may be upstream and downstream firms that had been part of a vertically integrated chain of SOEs before privatization, banks established for the sole purpose of providing for the financial needs of the firm, or the state on various levels if it still happens to be one of the shareholders. Shareholding stakeholders may try to use their influence in order to impose a policy on the enterprise, which is in their interest as stakeholders but not value-maximizing and therefore, disadvantageous to the other shareholders.

A shareholding stakeholder has an incentive to exploit the other shareholders through transactions which are suboptimal from the point of view of profit maximization only if his stake, such as his share of such transactions, is bigger than his share of the firm's equity, such as his share of the residual profit stream. For example, if a shareholder i owns a fraction $0 < k_i \leq 1$ of the equity stock and also supplies a fraction (his stake) $0 \leq s_i \leq 1$ of the total quantity X of some of the firm's inputs, the market price of which is w, then his gain as stakeholder from the company's purchasing X at a higher price $w' > w$ is:

$$(w' - w)s_i X \quad ,$$

while his loss as shareholder is:

$$k_i(w' - w)X \quad .$$

If X is the total quantity sold of some of the firm's products of which a shareholding customer buys a fraction s_i and w is the price charged while a market price, $w' > w$ would be obtained, then the same expressions for gain and loss is found as above. In both cases, the shareholding stakeholder's net gain is positive if:

$$s_i > k_i \quad . \tag{1}$$

Such less-than-balanced shareholders, as Nuti [1997] calls them and not shareholding stakeholders, are the source of principals-principals conflicts if they gain control over the company. A single shareholding stakeholder would require a sufficiently big k_i (assuming that k_i is also the share of the voting stock). A homogeneous group of less-than-balanced shareholders, who together have a controlling interest in the company, will tend to exploit the other shareholders. The prime case is dispersed employee ownership. If X is the total input of homogeneous labor in equal quantity supplied by n workers ($s_i = 1/n$) who together possess a positive fraction $\alpha < 1$ of the firm's equity capital such that $k_i = \alpha/n$, then each of them is a less-than-balanced shareholder and will have an individual incentive to vote in

favor of a wage increase. They are balanced shareholders and do not have an incentive to overprice their labor if 100 percent of the firm is owned by the workers ($\alpha = 1$).

Nuti [1997] has shown that the workers' incentive to favor excess employment depends on conditions similar to (1). If a shareholder i supplies a fraction s_i of some homogeneous input (labor) for which the firm pays a given price w, then he will benefit from the firm's purchasing more than the profit-maximizing quantity if:

$$s_i > \beta k_i \quad , \tag{2}$$

where $\beta = (w - m)/(w - c)$, c being the opportunity cost of supplying the extra quantity of input and m being the average value of the marginal product of the extra input (under the simplifying assumptions that a reduction of the excess input would hit each input unit with the same probability and suppliers are at a neutral risk). Nuti [1997] assumes $m = c$ which yields $\beta = 1$, such as the equivalence of (2) and (1). However, if $c < m$, the average wage (or unemployment benefit) obtainable for a redundant worker outside the firm being less than his marginal product inside the firm—a not altogether unrealistic assumption for some transition economies—then, even if a firm was owned 100 percent by its workers, the worker-shareholders would be less-than-balanced shareholders and employment would be suboptimally high.

The individual less-than-balancedness is harmless if case α is small enough not to give the group of worker-shareholders control over the firm's wage or employment policy. The exploitable interests will be implemented only if α is big enough (over 50 percent). The group action of worker-shareholders does not require any explicit or implicit agreement of cooperation among them—no commitment problem is involved (unless voting itself is costly) since supporting a wage or employment increase is a dominant strategy for each member of the group. Thus, the possibility of exploitation of other shareholders by less-than-balanced ones does not depend on ownership concentration but on the size of the fraction of voting stock held by a homogeneous group of less-than-balanced shareholders. The same considerations pertains to the owning of shares of the firm by its management playing a considerable role in transition countries like Ukraine. A small (but positive) α is likely to have a positive effect on worker-shareholders as well as manager-shareholders because if they realize that they are not strong enough to impose a distortionary redistribution of profit on the other owners then they can only gain from maximizing the firm's value.

Thus, the main hypothesis about the quantitative relationship between the performance of an enterprise and the extent of worker and manager ownership of it is the non-monotonicity of this relationship. An increase in the shareholdings of workers or managers can be expected to be beneficial within a low range of insider ownership. In a higher range, where the threshold may lie above which the respective group gains a controlling influence, performance should be negatively affected by higher shareholdings of workers or managers.

In the above exposition of intra-shareholder conflicts due to shareholding stakeholders, the focus has been [Nuti, 1997] on the homogeneous group of less-than-balanced shareholders who can spontaneously synchronize their voting behavior without having to resort to collusive bargaining. The question arises on how the analysis can be extended to the case of heterogeneous shareholding stakeholders. After all, in the real world the workforce of an enterprise is not homogeneous but consists of subgroups catagorized by skill, age, and seniority. If the share package held by the workers as a whole is distributed more or less evenly among them, a single subgroup cannot expect to command a controlling interest on its own, and it will have to align itself with the other subgroups in order to fully utilize the potential power of

workers' ownership rights. Some efforts will have to be invested in designing a scheme that gives each subgroup an incentive to vote for it. The same holds for shareholding stakeholders who are suppliers of produced inputs or customers of the firm. They differ by the product they buy or sell and the volume and value of their respective sales and purchases.

If the extreme case is taken where the shareholding stakeholders are up-stream firms, each of which supplies a different specific input, then each of the shareholding suppliers, unless he owns 100 percent of the firm, is a less-than-balanced shareholder given that $s_i = 1$ by definition (see equation 1). However, the definition of a stake as the shareholder's fraction of the quantity of input is not relevant in the case of heterogeneous suppliers and the condition that for a group of n suppliers of different inputs $k_1 + \cdots + k_n$ be above the controlling threshold is not sufficient to make them exploit the other shareholders. In order to give each of them an incentive to collude against the other shareholders, such as making them less-than-balanced shareholders in the relevant sense, the condition:

$$g_i/g > k_i \quad , \tag{3}$$

must be satisfied for all $i = 1, \ldots n$, where g_i is the gain of shareholding supplier i and g is the sum of all gains. If y_i denotes the value of sales of supplier i to the firm at market prices, and y the corresponding total value of sales of the group, then:

$$y_i/y > k_i \quad , \tag{4}$$

would be the relevant less-than-balanced condition under which all n suppliers would benefit from a common markup on their opportunity costs (market prices). In case the k_i are of similar size but the sales shares are different, the shareholding stakeholders will not be willing to agree on an increase of their selling prices above market prices by the same percentage since this would obviously violate condition (3).

The upshot is that for heterogeneous groups of shareholding stakeholders, the transaction costs of arriving at an agreement to pool voting rights to redistribute profits to the disadvantage of other shareholders are likely to be significant and increase in the number of coalition partners necessary to attain a controlling position. In a low range of shareholding by a group of outside stakeholders, an increase in their shareholding may not increase their incentive to support value maximization. Rather, they may try to collude with the management. Thus, a higher percentage of shareholding by outside stakeholders as a group need not produce the non-monotonic effect predicted for insider, especially worker, ownership. In particular, if outside owners consist both of shareholding stakeholders and pure shareholders then they do not have an unambiguous common interest in enforcing a value-maximizing policy of the firm, in which case, the empirical effect of concentrated outside ownership on performance may be insignificant.

The Data

The analysis is based on data from a survey conducted in 2001 on 202 medium and large industrial firms in Ukraine for the period 1998-2000. Table 1 presents some sample characteristics.

TABLE 1
Sample Characteristics

	Percentage of Total Sample
Regional Distribution:	
Kyiv	31.7
Lviv	20.8
Kharkiv	39.6
Sumy	7.9
Industry Distribution:	
Machine Building	47.2
Light Industry	15.2
Food Industry	12.9
Construction Materials	5.6
Wood Processing	5.1
Chemical Industry	3.9
Others	10.1
Size (Number of Employees in 2000):	
100-250	18.4
251-500	39.3
501-1000	27.0
>1000	15.3
Type of Ownership:	
Corporate State Firms	17.6
Private Enterprises	82.4

The survey focused on the development of ownership structure between 1998 and 2000. All companies in the sample are former SOEs which have been corporatized (turned into joint-stock companies with 100 percent of equity held by the state). In 2000, 82.4 percent were privatized and less than 100 percent of their equity was held by the state. The author distinguishes between the following ownership categories:

1) The State
2) Enterprise Insiders:
   - Managerial Employees (Managers)
   - Non-Managerial Employees (Workers)
3) Ukrainian Outside Owners:
   - Ukrainian Financial Organizations
   - Ukrainian Non-Financial Organizations
   - Ukrainian Private Households
4) Foreign Owners

In Table 2, some statistics on percentage of equity stock held by each type of owner in 2000 are given. In 2000, the dominance of insider ownership is still the most prominent feature of the ownership structure. Compared to 1998, the average size of worker ownership declined by 5 percent, while the shareholding of managers increased slightly by 1.5 percent.

Reflecting the continuation of the privatization process in Ukraine, the average shareholding of the state decreased by 3.5 percent as well. Correspondingly, concentrated outside ownership

TABLE 2
Ownership Structure of the Surveyed Companies in 2000: Descriptive Statistics

Group of Owners	Mean (Standard Deviation)	Minimum	Maximum
State	11.6 (24.2)	-	100
Insiders (Managers & Workers)	47.9 (34.8)		
Managers	17.5 (18.9)	-	86
Workers	30.4 (34.8)	-	95
Ukrainian Outside Organizations	17.8 (25.1)	-	81
Foreigners	7.2 (18.5)	-	75
Ukrainian Households	15.5 (20.4)	-	84

increased: Ukrainian financial organizations (which was 5 percent in 2000) by 1.5 percent, Ukrainian non-financial organizations by 2.5 percent, and foreign ownership by 2.5 percent. Between 1998 and 2000, changes in ownership occurred in 23 percent of the firms in the sample. Both the perception of interviewed managers and objective figures indicate that concentrated outside ownership was strengthened: 12 percent of the firms underwent a change in the type of their majority owners. In almost two-thirds of the cases, insiders lost their majority position in 55 percent (out of the total 66 percent) of the cases to Ukrainian organizations and foreign outsiders. The change in the percentage of shares owned by the largest shareholders sheds additional light on the development of concentrated ownership. In 1998, the average equity stake of the largest shareholder (considering management a single shareholder) was about 38 percent. In 2000, it had increased to almost 44 percent. The next four largest shareholders, in both years, possessed a bit more than 9 percent of the total equity. While in 1998, 44.4 percent of the firms management was the largest shareholder. In 2000, this number had gone down to 38.8 percent. The percentage of enterprises, with Ukrainian financial organizations as largest shareholders, decreased too (from 8.5 percent to 6.2 percent), while the share of those with Ukrainian non-financial outside owners holding the largest package of shares increased slightly (from 17.1 percent to 17.8 percent), and of those with foreign largest shareholders significantly (from 10.3 percent to 15.5 percent).

The survey also provides some information on shareholding stakeholders. Tables 3 and 4 show that for some of the companies in the sample, shareholdings stakeholders play a considerable role.

TABLE 3
Shareholding Stakeholders in 2000

Shareholders	N (Percentage of the Firms)
Customers	11(10.7%)
Suppliers	9 (8.6%)
Banks	5 (4.9%)

TABLE 4
Shareholding Stakeholders of the Firm in 2000:
Participation in Ownership and Commercial Activity of the Firm

	Mean	Standard Deviation	Min.	Max.	Number of Observations
Percentage of Shares Owned by Customers	40.0	27.6	1	79	11
Percentage of Shares Owned by Suppliers	29.4	23.8	5	60	9
Percentage of Shares Owned by Banks that Provide Credits to the Firm	22.9	18.3	5	52	5
Percentage of Total Sales to Customer Shareholders	35.9	32.4	2	99	11
Percentage of Total Purchases from Supplier Shareholders	27.9	35.3	1	99	9
Percentage of Total Credits from the Bank Shareholder	15.0	11.0	5	15	5

Estimation Results

OLS regressions are estimated, explaining the firms' performance by ownership structure variables, of the following form:

$$PERF_i = a + bCON_i + cOWN_i + dOWN_i^2 + \varepsilon_i \quad . \tag{5}$$

CON_i is a vector of control variables (for industry, employment size, number of competitors, labor productivity in previous year, share of barter in total sales of previous year). For the ownership variable OWN_i, the percentage of shares owned by the state, managers, workers (or insiders together), Ukrainian concentrated outside owners (financial and non-financial organizations), and foreign owners is taken. The effects of ownership on performance are estimated separately for each ownership category as well as for the combination of all the ownership types (except Ukrainian private households). The variable OWN_i enters into equation (5) not only linearly but also squared. If the parameters c and d differ in sign, a non-monotonic relationship between performance and ownership is obtained. Table 5 gives estimation results for labor productivity and ownership structure in 2000.

Equation 1 in Table 5 yields labor productivity as a linear-quadratic function of the size of shareholding by workers, implying a maximum positive impact of worker ownership around a workers' package of 47 percent. Below this threshold, an increase of worker shareholding increases performance, while a rise of worker ownership above this threshold gives workers, as less-than-balanced shareholders, a controlling stake in the company which has a decreasing effect on performance. Equation 3 gives a similar result for manager ownership except with a statistically non-significant quadratic term. For insider ownership (equation 4), the non-monotonicity is again significant. The regression with Ukrainian concentrated outsider own-

TABLE 5
Performance Regressions

	Model 1	Model 2	Model 3	Model 4	Model 5
Industry Dummies	Y	Y*	Y	Y*	Y**
Size 2000 (Employment)	−0.001	−0.001	−0.001	−0.0006	−0.002
	(0.001)	(0.001)	(0.001)	(0.0009)	(0.001)*
Number of Competitors	−5.2	−1.9	−6.0	−2.3	−6.2
	(4.0)	(2.7)	(4.3)	(3.0)	(5.2)
Labor Productivity 1999	1.45	1.13	1.1	1.0	1.2
	(0.27) **	(0.16) **	(0.27) **	(0.88) **	(0.35) **
Barter 1999	−0.24	−0.06	−0.23	−0.17	−0.24
	(0.10) **	(0.07)	(0.10) **	(0.88) **	(0.10) **
State Ownership	–	–	–	–	−0.33
					(0.43)
State Ownership^2	–	–	–	–	0.003
					(0.005)
Manager Ownership	–	–	0.95		0.35
			(0.55)*	–	(0.63)
Manager Ownership^2	–	–	−0.01	–	0.002
			(0.009)		(0.002)
Worker Ownership	0.94	–	–	–	0.27
	(0.39) **				(0.45)
Worker Ownership^2	−0.01	–	–	–	−0.006
	(0.004)**				(0.004)
Ukr. Outsdr. Ownership	–	–	–	–	0.33
					(0.47)
Ukr. Outsdr. Ownership^2	–	–	–	–	−0.005
					(0.006)
Foreign Ownership	–	1.56	–	–	1.71
		(0.64) **			(0.72) **
Foreign Ownership^2	–	−0.02	–	–	−0.02
		(0.01) **			(0.01) **
Insider Ownership	–	–	–	0.50	–
				(0.28) **	
Insider Ownership^2	–	–	–	−0.004	–
				(0.002)**	
Constant	17.6	7.6	25.9	10.6	10.5
	(13.3)	(9.2)	(13.5)*	(10.5)	(10.6)
Adj. R sq.	0.61	0.64	0.59	0.60	0.74
F	8.9 **	12.0 **	8.10 **	10.0 **	8.7 **

Note: OLS regression, dependent variable labor productivity in 2000 (Thousand HRV sales per employee), coefficients (st.errors), ownership variables in 2000 (percent of shares), *p<0.1; **p<0.05.

ership, as the only ownership variable, does not yield statistically significant results and is not reported in Table 5. If the problem of corporate governance mainly under the perspective of the principals-agent relationship between outside owners interested in value-maximization and managers is considered, this result would be difficult to interpret. It is more plausible in the light of the less-than-balanced shareholding stakeholder theory of corporate governance. If an increase in the shareholding of concentrated outsiders gives more influence to shareholding stakeholders, then the impact on performance would be negative. This is a likely case for

some of the firms in the sample, which makes the variable Ukrainian concentrated outsider ownership insignificant. In fact, if one estimates a performance equation with the percentage of shares in customers' hands as an ownership variable besides state, insider, and foreign ownership (Table 6), then the extent of customer shareholding exerts a significantly negative influence on labor productivity.

TABLE 6
Effect of Customer Shareholdership

	Labor Productivity 2000 (Dependent Variable)
Industry Dummies	Y**
Size 2000	−0.0009
	(0.002)
Barter in Sales 2000	−0.09
	(0.04)
No. of Competitors 2000	−0.87
	(1.8)
Labor Productivity 1999	0.99
	(0.10)**
State Ownership 2000	−0.03
	(0.05)
Insiders Ownership 2000	−0.002
	(0.04)
Foreigners Ownership 2000	0.09
	(0.09)
Percent of Shares in Cust. Hands 2000	−0.13
	(0.07)*
Constant	32.4
	(8.2) **
Adj. R Sq.	0.8756
F	29.5 **

Note: OLS regression, dependent variable labor productivity in 2000 (Thousand HRV sales per employee), coefficients (st.errors), ownership variables in 2000 (percent of shares), *p<0.1; **p<0.05

The results for foreign ownership are particularly robust. Equation 2 in Table 5 explains labor productivity as a significantly linear-quadratic function of the size of foreign shareholding. A rise in foreign ownership has a positive impact on performance up to a threshold value of 39 percent, above which an increase in foreign shareholding begins to have a diminishing effect. If all ownership types are included in the regression (equation 5), then only foreign ownership remains statistically significant with roughly the same threshold value (43 percent).

The same equations for labor productivity in 1999, the respective controls, and ownership structure of 1998 is estimated in Table 7. Significant results were obtained for the foreign ownership variable with somewhat lower critical threshold values (32 percent for foreign ownership as the only ownership variable, 26 percent for foreign ownership in combination with the other ownership types).

TABLE 7
Regressions for Performance in 1999

	Labor Productivity	
Industry Dummies	Y**	Y**
Size 1999 (Employment)	−0.0001	−0.0006
	(0.0005)	(0.0005)
Number of Competitors	1.05	0.90
	(0.8)	(1.1)
Labor Productivity 1998	0.78	0.75
	(0.04) **	(0.06) **
Barter 1998	0.01	0.02
	(0.005)*	(0.009)**
State Ownership	-	0.05
		(0.11)
State Ownership^2	-	−0.0002
		(0.001)
Manager Ownership	-	−0.20
		(0.26)
Manager Ownership^2	-	0.004
		(0.005)
Worker Ownership	-	0.02
		(0.13)
Worker Ownership^2	-	0.001
		(0.001)
Ukrainian Outsider Ownership	-	−0.11
		(0.15)
Ukrainian Outsider Ownership^2	-	−0.11
		(0.15)
Foreign Ownership	1.92	2.59
	(0.8) **	(0.82) **
Foreign Ownership^2	−0.03	−0.05
	(0.01) **	(0.01) **
Constant	2.1	−5.0
	(4.5)	(5.6)
Adj. R Sq.	0.91	0.95
F	7.2 **	53.6 **

Note: OLS regression, dependent variable labor productivity in 1999, coefficients (st.errors); ownership variables in 1998 (percent of shares), *p<0.1; **p<0.05.

How can the result that foreign ownership above a level which falls significantly short of majority ownership have a diminishingly positive impact on performance be interpreted? One interpretation might be that foreign owners, when they acquire a controlling stake in the company as less-than-balanced shareholders, also use their influence to siphon off profit. An alternative interpretation, which can be more plausible, is that the non-montonicity of the foreign ownership effect is due to an institutional environment still adverse to foreign majority ownership. In an environment in which informal networks, corrupt practices, arbitrariness of regulation and taxation, or weak contract enforcement by courts play a considerable role, foreign investors provide not only financial capital but also new technology. Management know-how and profitable market outlets can be expected to do better in an alliance with

Ukrainian partners who know how to deal with the particularities of the business environment. Similarly, the system is not going to accept or permit performance unless a Ukrainian Roof is permitted to share in the reward. There is some evidence for this interpretation. In the survey, managers were asked whether and to what extent (on a four-point scale) they considered petty bribes to escape regulations, to avoid taxes or to receive government services, ineffective enforcement of commercial contracts, bribing arbitration courts, or grand bribes to influence legislation as significant barriers to business development. Performance equations estimated for the subgroups of those firms that do not perceive these aspects of the business environment as obstacles at all show no significant impact of foreign ownership, while for the complementary subgroup, foreign ownership is significant and non-monotonic (Table 8).

TABLE 8
Regressions for Sub-Groups

	Grand Bribes to Influence Legislation		Bribes Arbitrage to Courts		Petty Bribes to Escape Regulations or Taxes	
	No Obst.	Obst.	No Obst.	Obst.	No Obst.	Obst.
Labor Productivity 1999	0.70 (0.18)**	2.5 (0.35)**	0.66 (0.24)**	2.3 (0.32)**	0.84 (0.19)**	2.3 (0.3)**
# of Employees 2000	0.006 (0.008)	−0.003 (0.003)	0.002 (0.02)	−0.002 (0.003)	0.0005 (0.001)	−0.003 (0.003)
Industry Dummies	Y	Y*	Y	Y*	Y	Y*
# of Competitors 2000	−3.4 (4.9)	−4.4 (4.9)	−8.2 (7.3)	1.28 (4.4)	−2.9 (4.4)	−2.4 (4.3)
Barter 2000	0.02 (0.08)	−0.13 (0.11)	0.01 (0.14)	−0.16 (0.09)	−0.04 (0.13)	−0.11 (0.08)
Foreign Ownership 2000	−8.1 (5.4)	3.56 (0.83)**	−4.2 (15.0)	2.6 (0.77)**	0.93 (1.0)	3.3 (0.71)**
Foreign Ownership^2	0.48 (0.28)	−0.058 (0.01)**	0.27 (0.77)	−0.04 (0.01)**	−0.01 (0.01)	−0.053 (0.01)**
Constant	24.6 (17.3)	40.7 (21.7)*	32.2 (25.7)	13.2 (16.8)	4.8 (15.4)	24.3 (16.8)
Adj. R Sq.	0.785	0.802	0.734	0.749	0.672	0.794
F	11.2**	11.3**	7.0**	10.7**	8.7	13.3**
N	110	58	91	80	65	89

Note: OLS regression, dependent variable labor productivity in 2000 (Thousand HRV sales per employee), coefficients (st.errors), ownership variables in 2000 (percent of shares), *p<0.1; **p<0.05.

The foreign ownership variable is also significant and non-monotonic for those subgroups of firms who report a low frequency of petty corruption, not being a member of a lobby group and perceiving regulations as reasonably predictable, while it is not significant for the performance of other firms (Table 9). This means that the performance of firms, which rely on circumventing and manipulating the administrative and legal rules, does not benefit from foreign ownership.

TABLE 9
Regressions for Sub-Groups

	Petty Corruption		Regulations		Lobby Group	
	In-frequent	Frequent	Predict.	Un-predict.	Memb.	Non-Memb.
Labor Productivity 1999	1.2 (0.55)**	1.1 (0.29)**	1.1 (0.20)**	1.11 (0.14)**	0.66 (0.19)**	1.94 (0.28)**
# of Employees 2000	0.04 (0.01)**	−0.0004 (0.003)	−0.005 (0.006)	−0.005 (0.002)*	0.0002 (0.003)	−0.008 (0.004)**
Industry Dummies	Y	Y	Y	Y*	Y**	Y**
# of Competitors 2000	0.71 (3.3)	−1.7 (3.4)	−2.6 (4.2)	−3.3 (1.9)	−4.3 (6.0)	−1.8 (2.7)
Barter 2000	−0.09 (0.10)	−0.05 (0.04)	−0.10 (0.08)	−0.15 (0.03)**	−0.06 (0.15)	−0.14 (0.07)**
Foreign Ownership 2000	28.9 (6.7)**	0.18 (0.74)	2.3 (0.90)**	−0.31 (0.48)	0.77 (4.7)	1.10 (0.56)**
Foreign Ownership^2	−0.60 (0.14)**	−0.002 (0.01)	−0.03 (0.01)**	0.024 (0.01)	−0.01 (0.01)	−0.01 (0.009)
Constant	−34.4 (18.8)*	−20.0 (17.5)	23.0 (13.8)	19.8 (14.5)	15.6 (18.4)	21.3 (11.1)*
Adj. R Sq.	0.850	0.610	0.644	0.95	0.805	0.642
F	11.3**	6.98**	9.8**	61.2**	9.6	9.6**
N	92	80	91	79	54	147

Note: OLS regression, dependent variable labor productivity in 2000 (Thousand HRV sales per employee), coefficients (st. errors), ownership variables in 2000 (percent of shares), *p<0.1; **p<0.05.

Summary and Conclusion

This paper examines the effect of ownership structure on the performance of privatized (or at least corporatized) Ukrainian enterprises. The data are obtained from a survey conducted in 2001 on 202 medium and large industrial firms for the period 1998-2000. The ownership structure is measured by the percentage of shares held by each type of owner (state, managers, workers, Ukrainian concentrated outsiders, and foreign owners). Performance is measured by sales per employee. In contrast with previous studies on enterprise restructuring in Ukraine [Estrin and Rosevear, 1999 a, b], significant ownership effects on performance for manager, worker, and foreign ownership is found. The ownership effects are non-linear: increasing in a range below majority shareholding but decreasing above a threshold close to majority ownership. For manager and worker shareholding, this non-monotonicity by the stakeholding interests of those owner groups is explained. The non-linearity of foreign ownership effects, which is the most robust one, are due to an institutional environment still adverse to foreign majority ownership.

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